



TREASURY BOARD / MANAGEMENT BOARD OF CABINET REQUEST ASSESSMENT NOTE

Ministry:	Energy
Meeting Date:	March 26, 2013
Agenda Class:	Discussion
Last reviewed by: Cabinet – July 2011	Tracking to: Cabinet – March 27, 2013 (Fast Track Request)

SUBMISSION TITLE: Renegotiation of the Green Energy Investment Agreement

I. DECISION BEFORE THE BOARD

- The Ministry is seeking a negotiating mandate to amend the Green Energy Investment Agreement (GEIA), which was signed between the Korean Consortium, as represented by the Samsung Corporation, and the Province.

II. RECOMMENDATIONS:

- Approve a negotiating mandate to amend the Green Energy Investment Agreement, which includes: - If the Korean Consortium does not agree to the negotiating points within 45 calendar days, the Ministry of Energy can immediately issue a notice to terminate the GEIA in 30 calendar days.	<i>Board Judgement</i>

III. FINANCIAL SUMMARY

\$ Millions	2012-13	2013-14	2014-15
Initiative cost requested	0.0	0.0	0.0
Initiative cost recommended	0.0	0.0	0.0
Recommended program base – N/A Potential Ratepayer Impacts	0.0	0.0	0.0
Offset Recommended	0.0	0.0	0.0
Total Fiscal Impact	0.0	0.0	0.0

IV. KEY COMMENTS AND CONSIDERATIONS

The Green Energy Investment Agreement (GEIA) was signed between the Korean Consortium and the Province in January 2009 and commits the Korean Consortium (KC) to build 2,000 MW of wind and 500 MW of solar projects in five phases in exchange for manufacturing plants and 900 jobs. Appendix C provides an overview of the agreement.

Under the agreement, KC receives 20-year Power Purchase Agreements (PPAs), an Economic Development Adder (EDA) based on the manufacturing/job commitments, and priority access to 2,500 MW on the transmission system. The cost of the GEIA to ratepayers is \$10.5 billion over 20 years, with an average residential bill impact of \$5.08 per month or \$60.60 per year, once all five phases and the EDA are implemented.

KC has since missed key commitments in the GEIA by missing multiple milestone deadlines (March 31, 2012) for Phase 2 and 3 construction projects. This triggers the province's ability to terminate the GEIA, without penalty, through existing termination clauses.

IV. KEY COMMENTS AND CONSIDERATIONS (CONTINUED ...)

The Ministry is seeking a negotiating mandate to amend the GEIA to eliminate the last three of five phases. Phases 3, 4, and 5, do not have PPAs signed and represent approximately 1,430 MW of wind and solar generation. Costs for these three phases to Ontario ratepayers would have been \$5.2 billion over 20 years if contracted.

Points of negotiation would (see Appendix D for further negotiations background):

- Allow Phase 1 and 2 projects to continue, but modify Phase 2 solar project to meet Feed-In-Tariff 2.0 rules regarding residential setback requirements (Setback requirements added to FIT 2.0, but were not part of KC's original FIT contract for the Phase 2 Kingston solar project (PPA cost - \$649 million) ;
- Eliminate Phases 3, 4, and 5 (total of 1,430 MW, foregone cost approx. \$5.1 billion if not reallocated);
- Secure investment in London per GEIA commitments but require KC to deliver an alternative investment (e.g. R&D) that provides equivalent employment benefits (200 Jobs target for 4th plant – Solar Module Assembly in London);
- Negotiate a reduction in the EDA to the best extent possible (current maximum EDA is \$110 million); and,
- Require KC to maintain jobs and manufacturing commitments for Phases 1 and 2 (Three plants in Phases 1 and 2 with a 700 jobs target).

The Ministry notes generation from phases 3, 4, and 5 is not required given the Province's surplus situation. Over the short-to-medium terms (2013-16), Ontario is experiencing a surplus of generation. All of the power produced under the GEIA is intended to come online in this same timeframe.

The outcome of negotiations could provide substantial savings to Ontario ratepayers. The Ministry estimates eliminating phases 3, 4, and 5 could result in cost avoidance of up to \$5.2 billion over 20 years (but only if the foregone electricity capacity is not reallocated), about \$30 per year on the average residential electricity bill (average of 2% of bill).

The Ministry intends to review options for the 1,430 MW of capacity made available by amending the GEIA, with consideration given to its renewed Long-term Energy Plan. A potential future reallocation of the capacity from the eliminated phases to renewable energy developers will provide confidence to the development industry and manufacturing sectors that Ontario remains committed to green energy.

Legal:

The Ministry indicates the GEIA gives Ontario the right to terminate since regulatory approvals and other requirements for Phase 3 were not met by December 31, 2012 and appear not to have been waived. Ontario's negotiator has made it clear to KC that the government was not waiving its right to terminate the Agreement (also expressed in a letter to KC, January 28, 2013).

The Ministry indicates if the GEIA is terminated in its entirety, KC's jobs and manufacturing commitments will be eliminated. KC could still proceed to build Phase 1 and 2 wind and solar projects as these have PPAs with the Ontario Power Authority.

Given KC resources invested to date in Phases 1, 2 and 3, the Ministry indicates KC is likely to commence legal action against Ontario if Ontario attempts to prevent these phases from proceeding. Damages could include sunk costs related to pre-development work, lost profits of any or all phases, and costs incurred to bring manufacturers to Ontario. Energy has not quantified potential damages to KC, whether it would impact ratepayers or taxpayers, or provided an assessment of the likelihood of losing any lawsuit.

Ratepayer Impact:

The positive impact on ratepayers of not proceeding with Phases 3, 4 and/or 5 depends on whether the foregone generating capacity is not reallocated. Any future reallocation of the 1,430 MW, as suggested by the Ministry, would diminish ratepayer cost avoidance to less than the \$5.2 billion figure cited by the Ministry, as would costs or damages as a result of legal action taken by KC.

Name of analyst:	James Strang	Phone number:	7-2071
Date:	March 20, 2013	Log number:	
Branch / Division:	General Government, Planning and Resources Branch, OBTB		

APPENDIX A: PROPOSED MINUTE

Should the Board wish to proceed with this item, the following minute is supporting of the Ministry's request:

Approve a negotiating mandate to amend the Green Energy Investment Agreement between the Korean Consortium and Ontario, with the following negotiating points:

- i. Negotiating team to be led by Infrastructure Ontario and include the Ministry of Energy
- ii. Allow Phase 1 and 2 projects to continue, but modify Phase 2 solar project to meet Feed-In-Tariff 2.0 rules regarding residential setback requirements
- iii. Eliminate Phases 3, 4, 5 (total of 1,430 MW)
- iv. Secure investment in London per GEIA commitment but require KC to deliver an alternative investment (e.g.; R&D) that provides employment benefits
- v. Ontario negotiates a reduction in the EDA to the best extent possible.
- vi. Require KC to maintain jobs and manufacturing commitments for Phase 1 and 2.

Approve that if the Korean Consortium does not agree to the negotiating points within 45 calendar days of March 27, 2013, the Ministry of Energy can immediately issue a notice to terminate the GEIA in 30 calendar days. In this regard,

- i. Direct the Ministry to report back to the Board prior to issuing a notice to terminate the GEIA with an update on negotiations, an estimate of the likelihood and amount of a potential award to the Korean Consortium or settlement costs, and obtain an approval to terminate the GEIA.

Direct the Ministry to:

- i. Report back to the Board on the outcome of outcome of negotiations in May.
- ii. Work with Premier's Office and Cabinet Office Communications on a communications plan.

Note that the negotiating team will report to the Minister of Energy.

FINANCIAL IMPACTS: CHANGES TO EXPENSE AND REVENUE				TABLE B1
Fiscal Plan Basis			Appropriations Basis	
\$ Millions	2012-13	2013-14	2014-15	2012-13
Initiative cost recommended	0.0000	0.0000	0.0000	
Expense changes:				
Operating item	Oper	0.0000	0.0000	0.0000
Total Fiscal Impact (draw from c-funds)	0.0000	0.0000	0.0000	0.0000

ADDITIONAL CONTEXT: PREVIOUS IN-YEAR APPROVALS					TABLE B2
\$ Millions	2011-12	2012-13	2013-14	2014-15	
2011-12 Fiscal Plan (Projected Actuals)	1,341.4				
2012 Fiscal Plan Total Expense		1,432.1	1,398.1	1,505.4	
Electricity Sector Strategy Implementation (April 11, 2012)	O	0.0	0.0	0.0	0.0
Greenfield South Power Plant (May 17, 2012)	O	0.0	0.0	0.0	0.0
Reduced Spending on Consultant Services	O	0.0	0.0	0.0	0.0
Load Development Program (June 11, 2012)	O	0.0	0.0	0.0	0.0
Greenfield South Settlement (August 15, 2012) (Post Year End TBO for 2011-12)	O	190.0	0.0	0.0	0.0
Report on Lease Revenue Transfer for Renewable Energy on the South Cayuga Land Bank (September 13, 2012)	O	0.0	0.0	0.5	0.5
TransCanada Energy (September 21, 2012)	O	0.0	50.0	0.0	0.0
Q2 Savings (December 6, 2012)	O	0.0	(1.7)	0.0	0.0
Trans Canada Energy Settlement (December 13, 2012)	O	0.0	(10.0)	0.0	0.0
Total	1,531.4	1,470.4	1,398.6	1,505.9	

APPENDIX C: OVERVIEW OF THE GREEN ENERGY INVESTMENT AGREEMENT AND THE ECONOMIC DEVELOPMENT ADDER

The GEIA commits the Korean Consortium to build 2,000 MW of wind and 500 MW of solar projects in five phases in exchange for jobs and manufacturing plants:

PHASES	GEIA Anticipated Ratepayer Impact (\$M)	TOTAL CAPACITY (MW)	Commercial Operation Dates	Termination Dates
Phase 1 – Power Purchase Agreements Signed - Grand Renewable Energy Park 149MW (Wind) - Grand Renewable Energy Park 100MW (Solar) - South Kent Wind Park 270MW (Wind)	\$2,594	519 MW	March 31, 2014	January 20, 2013
Phase 2 - Power Purchase Agreements Signed - K2 270MW (Wind) - Armow 180 MW (Wind) - Kingston North 100 MW (Solar)	\$2,739	550MW	December 31, 2014	December 31, 2012
Phase 3 - Dundalk 300MW (Wind) - Beaverdale 100MW (Wind) - Port Hope 100MW (Solar)	\$1,999	500MW	December 31, 2014	December 31, 2012
Phases 4 Projects TBD	\$1,575	Phase 4 and 5 generation totals approx. 731 MW of wind and 200 MW of solar	December 31, 2015	December 31, 2013
Phase 5 Projects TBD	\$1,497		December 31, 2016	December 31, 2014
	\$10,404 +\$110 EDA 10,514			

Currently, Samsung has established three of the four manufacturing plants in Ontario (with 350 employees in all three plants). The fourth plant, a solar module facility, has yet to be established by Samsung (a local supplier will be used instead).

Economic Development Adder:

If KC's manufacturing and jobs commitments are met, KC is eligible to receive an Economic Development Adder (EDA) that is paid through Phase 1 and 2 PPAs up to a maximum of \$110M over 20 years.

- \$110M represents the total manufacturing investment to build 4 manufacturing plants in Ontario.

Payment begins upon the commercial operation of KC's Phase 1 and 2 wind and solar facilities (March and December 2014 respectively).

EDA paid is 0.27 cents/kWh for wind generation and 1.43 cents/kWh for solar generation over 20 years.

- The electricity ratepayer impact of the Green Energy Investment Agreement will average \$5.08/month (Phase 1 and 2 assumed at FIT 1.0 prices and Phases 3,4,5 assumed at FIT 2.0 prices).
- This \$5.08/month is made up of \$0.03 for the EDA and \$5.05 for FIT prices, over the life of the 20-year Agreement.

EDA payments will be reduced on a pro rata basis if job levels fall below 85% of 900 jobs.

- Average jobs between 2013-2015 to be maintained at 765 jobs. (e.g. if jobs fall below 765 by 15%, KC's EDA will be reduced by 15%).

If a manufacturing partner ceases operation before December 2016, the EDA will be reduced by 25%

Plants	Jobs (as of March 2013)	Job Targets
Wind Turbine Blades (Siemens – Tillsonburg)	80	300
Wind Towers (CS Wind – Windsor)	240	300
Solar Inverters (SMA – Toronto)	30	100
Solar Module Assembly (Announced for London)	0	200
TOTAL	300	900

APPENDIX D: NEGOTIATIONS BACKGROUND

In 2012, the Korean Consortium submitted a request for amendments to the GEIA. Six negotiation meetings were held with the KC, as represented by Samsung from November 2012 to January 2013. No agreement was reached in those discussions.

KC's request to renegotiate the Agreement included:

- extensions of commercial operation dates for Phase 3, 4 and 5 projects;
- securing the Phase 2 solar project (the Ontario Power Authority (OPA) has the ability to terminate this project.

Ontario's key negotiating principles included:

- Sustaining jobs at manufacturing plants for a longer period of time;
- Reducing/deferring ratepayer impacts and reducing impact of surplus baseload generation;
- Requiring Samsung to align with the new priority points system under the Feed-in Tariff Program including community, aboriginal and municipal support or participation for their future projects, as well as adhere to land use requirements for ground mount solar projects.

The negotiating mandate being sought improves Ontario's position in future negotiations, particularly with the ability to terminate Phases 3, 4, and 5 (there are no Power Purchase Agreements in place for Phases 3, 4 and 5, foregoing 1,430 MW of additional electricity capacity, and cost avoidance for ratepayers up to \$5.2 billion over 20 years (only if there is no reassignment of the foregone 1,430 MW. The Ministry indicates the foregone MW capacity could be reassigned in the future renewable energy projects, which would lower the cost avoidance to less than \$5.2 billion over 20 years, but would show continued support for renewable energy.



CABINET BRIEFING NOTE

Ministry of Energy Green Energy Investment Agreement (GEIA)

Cabinet (Direct): March 27, 2013	TB/MBC: March 28, 2013 (TBC)	Cabinet: April 10, 2013 (TBC)

This government's commitment	The McGuinty government has signed an agreement that will bring more green energy and new jobs to Ontario. A consortium led by Samsung C&T Corporation and the Korea Electric Power Corporation (KEPCO) will invest \$7 billion to generate 2,500 megawatts of wind and solar power. These projects will triple Ontario's output from renewable wind and solar sources and provide clean electricity to more than 580,000 households. The investment will also lead to more than 16,000 new green energy jobs to build, install and operate the renewable generation projects. — January 21, 2010 Ontario Government News Release

SUMMARY OF PROPOSAL

The Ministry of Energy is seeking Cabinet approval of a mandate to renegotiate the Green Energy Investment Agreement (GEIA). The GEIA is the agreement that the Province of Ontario signed with the Korean Consortium (KC) in January 2010, and which was subsequently amended in July 2011. The Korean Consortium includes Samsung.

The GEIA commits the KC to deliver a total of 2,500MW of wind and solar electricity generation through five phases. The agreement also commits KC to establishing four manufacturing plants in Ontario with an expected 900 jobs. In return, KC receives a long-term revenue stream through power purchase agreements, priority access to the transmission system, plus an additional payment of up to \$110 million if specific job creation targets are met.

To date, KC has secured power purchase agreements only for Phases 1 and 2. KC has also established three of the four manufacturing plants in Ontario, although these have not yet achieved the full job creation targets. Phases 3, 4, and 5, as well as the fourth manufacturing plant, have not yet been implemented for a variety of reasons.

The ministry proposes to eliminate Phases 3, 4, and 5 from the agreement. The ministry also proposes to reduce the additional payment while having KC maintain some of their job creation requirements.

The ministry proposes to have Infrastructure Ontario lead the negotiation. Currently, KC is in default of the terms of the existing GEIA. The ministry is proposing to authorize a 45 day negotiation period. If an agreement with KC cannot be reached within that timeframe, the Minister of Energy would be authorized to terminate the entire agreement (with 30 days notice). In this event Phases 1 and 2 would still be able to proceed.

What is the expected cost to government?

There is no direct cost to the government for the approval of this negotiating mandate. In the event that the GEIA is terminated, there is a risk that the government could face costs if KC initiates legal action against the province. These potential costs have not been quantified to date.

How will the changes be communicated?

At this point, a complete communications plan has not been developed – developing such a plan would be a requirement if the proposed minute is approved. Based on the information provided to date, proposed messaging would emphasize that the province is still committed to green energy and to protecting the interests of ratepayers. The specifics of the communications strategy would depend in part on the outcome of the negotiation process (and KC may have a role in approving communications if a negotiated agreement can be reached).

CABINET OFFICE ANALYSIS

Amending the GEIA

The GEIA has been amended once before, and those amendments were publicly announced in August 2011. Through that amendment KC was given more time to meet their obligations under the agreement, and the province negotiated a reduction to the additional payments for job creation from \$437 million to \$110 million. More recently, the ministry held additional meetings with KC to discuss the agreement, but these meetings were inconclusive.

The ministry is now proposing to eliminate much of the existing agreement. The ministry argues that doing so could save Ontario ratepayers as much as \$5.2 billion over 20 years, but these savings would be achieved only if KC's electrical generation capacity is not reallocated. The ministry indicates that reallocation in the future is an option, but that a decision has not yet been made. If the generation capacity is reallocated, the savings to ratepayers would be reduced.

Comment [011]: ENERGY – Does an estimate exist?

Comment [152]: The positive impact for ratepayers of not proceeding with Phases 3, 4 and/or 5 depends on whether the foregone generating capacity is not reallocated. Any future reallocation of the 1,430 MW, as suggested by the Ministry, would diminish ratepayer cost avoidance to less than the \$5.2 billion figure cited by the Ministry, as would costs or damages as a result of legal action taken by KC.

The Ministry indicates KC is likely to commence legal action against Ontario if Ontario attempts to prevent these phases from proceeding. Damages could include sunk costs related to pre-development work, lost profits of any or all phases, and costs incurred to bring manufacturers to Ontario. Energy has not quantified potential damages, whether it would impact ratepayers or taxpayers, or provided an assessment of the likelihood of losing any lawsuit.

Comment [013]: Text prepared by CO Policy CO Commis to review/update.

Renewable Electricity Generation Targets

Aside from the GEIA, there is a more fundamental question about what Ontario's future electricity needs are and how they should be met. Currently, Ontario has more generation capacity than it requires, and the ministry presents this as a rationale for not proceeding with the future phases of the GEIA. However, this may not be seen as consistent with the government's previous commitment to fostering renewable energy generation.

Ontario's Long-Term Energy Plan (released in 2010) set a target of 10,700MW for non-hydro renewable energy generation by 2018. All five phases of the GEIA represent approximately one quarter of this target, and Phases 3, 4 and 5 represent approximately 13 per cent of the total. A decision on whether the 10,700MW target is still valid has not been made and would likely be explored if the Long-Term Energy Plan were to be updated.

Some stakeholders could argue that deciding not to procure all of the energy under the GEIA is premature until the broader renewable generation target has been updated or validated. Also, saying that KC's renewable generation capacity is not needed could also be contentious in communities where other renewable generation projects (e.g., wind farms) are currently being built in the face of community opposition.

Risks

The proposed strategy seeks to maintain KC's obligations to make investments in Ontario and create jobs within Phases 1 and 2. This would be advantageous to the province, but it is possible that KC may not want to maintain its investment and job creation obligations in the face of significantly reduced financial returns from the agreement with Ontario.

Whether the agreement is renegotiated as proposed or terminated, Ontario would have to manage the risk of being perceived to be walking away from an investment agreement that, in the past, has been described as an important job creation initiative. To date, KC has not achieved the job creation targets set out in the GEIA. The potential impact of terminating the agreement on Ontario's foreign investment climate should be considered.

Even though Ontario appears to be well within its rights to terminate the agreement, the ministry has flagged that there is a risk that KC could initiate legal action against the province, especially with respect to their sunk costs and expectations of investment returns. These legal risks are highest with respect to the potential cancellation of Phase 3.

Timing

Ontario's negotiating position with KC became stronger when KC went into default of the GEIA on December 31, 2012. This gives Ontario more leverage than it had in previous negotiations and supports the rationale for proceeding with this decision at this time.

Other Options

The ministry's submission does not identify any options with respect to the negotiation strategy. Other potential options include leaving the agreement substantially in place and providing KC with more time to meet their obligations, or seeking to change the prices that KC would be paid for any electricity they generate.

PROPOSED CABINET MINUTE

Cabinet agreed:

To approve a negotiating mandate to amend the Green Energy Investment Agreement between the Korean Consortium (KC) and Ontario, with the following negotiating points:

- i. Negotiating team to be led by Infrastructure Ontario and include the Ministry of Energy
- ii. Allow Phase 1 and 2 projects to continue, but modify the Phase 2 solar project to meet Feed-In-Tariff 2.0 rules regarding residential setback requirements
- iii. Eliminate Phases 3, 4, 5 from the GEIA (total of 1,430 MW of generation capacity)
- iv. Secure an investment in London, Ontario per the existing GEIA commitment but require KC to deliver an alternative investment (e.g.; research and development) that provides employment benefits
- v. Negotiate a reduction in the Economic Development Adder under the GEIA to the maximum extent possible.
- vi. Require KC to maintain its job creation and manufacturing commitments for Phase 1 and 2.

That the ministry has 45 calendar days from the date of this approval to secure an agreement with the Korean Consortium. If an amended agreement has not been signed by the end of those 45 days, the Ministry of Energy is authorized to terminate the GEIA consistent with the termination clauses of the existing agreement.

To direct the ministry to report back to Cabinet on the status of negotiations prior to May 31, 2013.

Direct the Ministry to work with Premier's Office and Cabinet Office on a communications plan.

Comment [034]: ENERGY – This language has been intentionally proposed to make the proposed minute less ambiguous. It's important to be precise about what constitutes achieving agreement within the 45 day period – having an amendment signed has been proposed here, but your comments on that are welcome. The reference to 30 days notice is potentially confusing, and has been removed intentionally.

Comment [355]: I would suggest requiring a return to Cabinet and/OR TB/MBC if no potential legal risk is not quantified – what is the potential impact on ratepayers, what is the risk assessment.



Feed-in Tariff FIT Launch Period and Issues for Consideration

Ministry of Energy and Infrastructure
Renewables and Energy Efficiency Division



Overview

- Definitions
- Commercial Operation Date (COD)
- Domestic Content Requirements
- Issues for Consideration Solar
- Examples in Support of Issues
- Issues for Consideration Wind
- Examples in Support of Issues
- Preliminary Data FIT Launch Projects



Definitions

- **Commercial Operation**
 - 90% of facility's contracted capacity is available to deliver electricity
 - note that contracted capacity is gross nameplate capacity, which is the total installed rated capacity (e.g., 10 MW)
 - payments begin when facility is in Commercial Operation (subject to meeting domestic content requirements)
- **Commercial Operation Date (COD)**
 - the date on which Commercial Operation is first attained
- **Milestone COD**
 - date by which the facility must achieve Commercial Operation
 - varies by technology, for a time period following the contract date
 - 3 years for biogas, biomass, landfill gas, solar, on-shore wind
 - 4 years for off-shore wind
 - 5 years for water power
 - liquidated damages of \$0.25/kW/day for each calendar day that COD is delayed, for up to 18 months – after that, contract is in Default
- **Acceleration Milestone COD**
 - date by which the facility must achieve Commercial Operation as per acceleration days bid during FIT Launch period
- **Notice to Proceed (NTP)**
 - must be issued 6 months prior to COD
 - all regulatory permits must be obtained



Commercial Operation Date (COD)

FIT launch rules (applications October 1 – November 30, 2009)

- acceleration days - developers can “bid” time off Milestone COD by proving shovel readiness
- maximum # of acceleration days is 725
- minimum # of acceleration days is 1
- the acceleration days are subtracted from the Milestone COD date, to get the Accelerated Milestone COD
- successful FIT applicants must achieve their Accelerated Milestone COD or pay liquidated damages, plus the revenue stream loss as time period for payment begins
- applicants who do not receive an immediate FIT contract are subject to FIT rules after launch (e.g. Economic Connection Test, may go into FIT reserve)
- time-stamps for projects that bid acceleration days but did not receive an immediate FIT contract are determined according to acceleration days
- can “back out” prior to NTP and lose security (\$20/kW Contract Capacity for all technologies except solar which is \$50/kW)
- can “back out” if upgrade and connection costs are substantially more than the costs that would have been reasonably foreseeable by a prudent Supplier

Post-Launch FIT rules (applications December 1, 2009 – current)

- new applications are time-stamped and must meet Milestone COD
- timestamps are later than projects that applied under FIT launch



Domestic Content Requirements

FIT applications during launch period (October 1, 2009– November 30, 2009)

- projects that bid acceleration days greater than zero and receive a contract during FIT launch are subject to domestic content requirements as per their Accelerated Milestone COD as if their contract was awarded on December 24, 2009
- provides certainty for project developers – they know what level of domestic content they need to meet – this does not change based on when FIT contracts are actually awarded
- if there are any technical delays in awarding of FIT contracts (e.g. Transmission Availability Test – TAT and Distribution Availability Test – DAT) these will have no impact on domestic content levels that are required
- the first TAT and DAT testing is estimated for February 1, 2010, and may take up to 2 months, meaning contracts likely not awarded until the end of March

Post-Launch FIT applications (December 1, 2009 – current)

- projects are subject to domestic content requirements as per Milestone COD



Issues for Consideration - Solar

- No FIT solar photovoltaic projects applications bid the maximum number of acceleration days of 725
 - no large FIT solar project is aiming to meet the 50% domestic content requirement (up until Dec. 31, 2010)
 - all large FIT solar photovoltaic projects are committing to the 60% requirement
 - note, there may be developers who will want to come online in 2010, but will be subject to post 2010 (i.e., 60%) domestic content requirements
 - this is because domestic content requirements based on expected date of commercial operation, not actual date
- Meeting FIT solar domestic content of 60% may be a challenge for some projects, as sufficient manufacturing capacity of certain components (such as inverters, photovoltaic modules) needs to be in place to meet early 2011 Accelerated Milestone COD
- Later issuing of contracts could mean that manufacturers will need to wait a bit longer to know which of their customers may have FIT contracts – they may be delaying manufacturing plans somewhat
- There will still be smaller solar photovoltaic projects coming online during 2010, subject to 50% domestic content requirement – microFIT and capacity allocation exempt projects



Examples in Support of Issues – Solar

FIT Ground Mount Solar PV – Launch Period

Example 1: Solar 2010₅₀

- 725 acceleration days
- Commercial Operation March 2010
- Domestic Content 50%
- No applications from FIT Launch bid 725 days

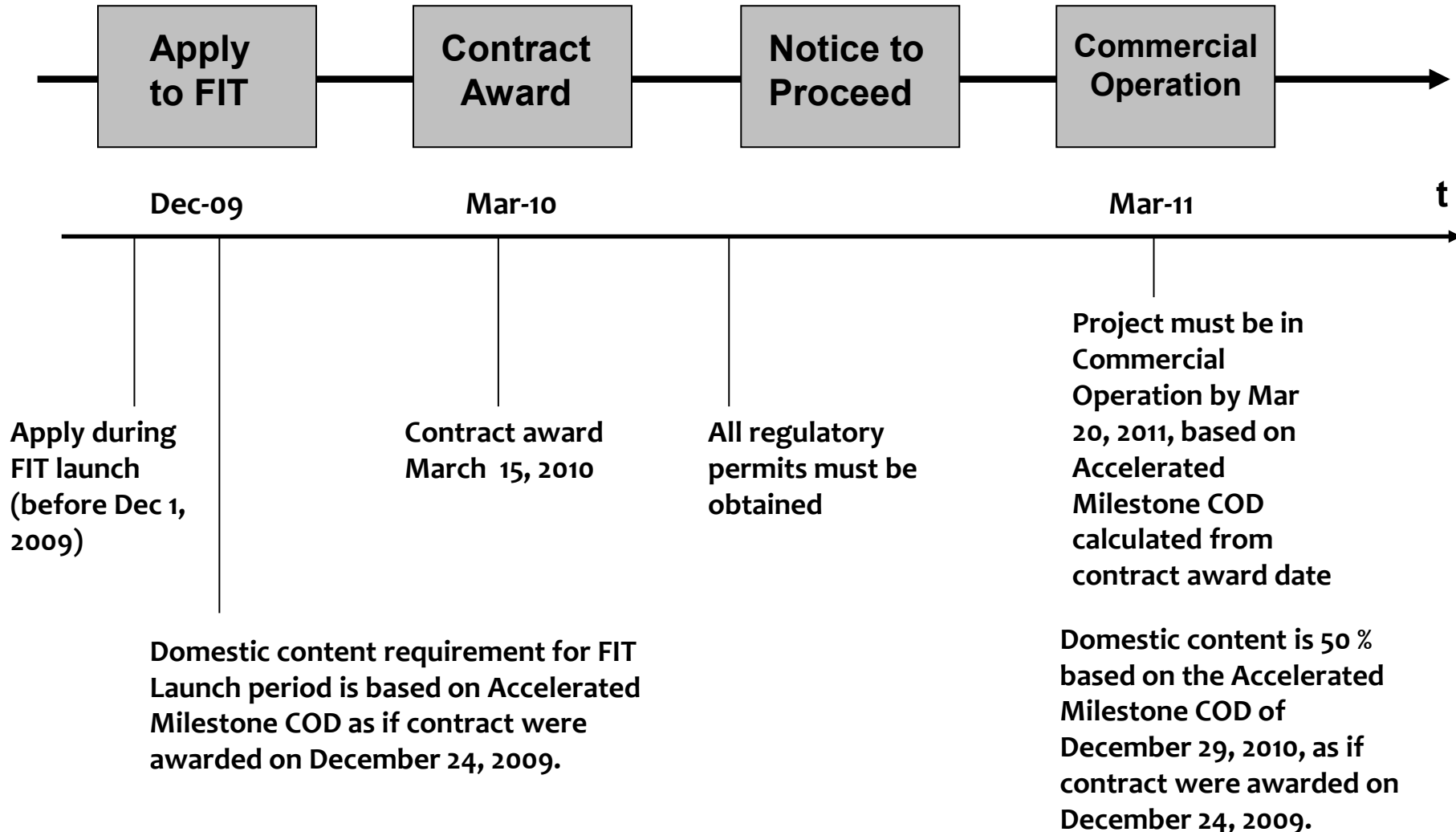
Example 2: Solar 2011₆₀

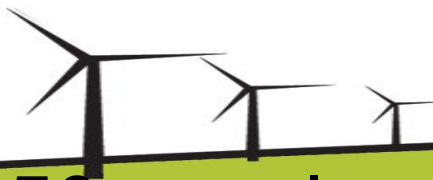
- 650 acceleration days
- Commercial Operation June 2011
- Domestic content 60%
- Earliest date bid among all solar PV FIT Launch applications

Solar 2010₅₀: 725 acceleration days*

*Accelerated Milestone COD for domestic content is December 29, 2010

*Accelerated Milestone COD for commercial operation is March 20, 2011

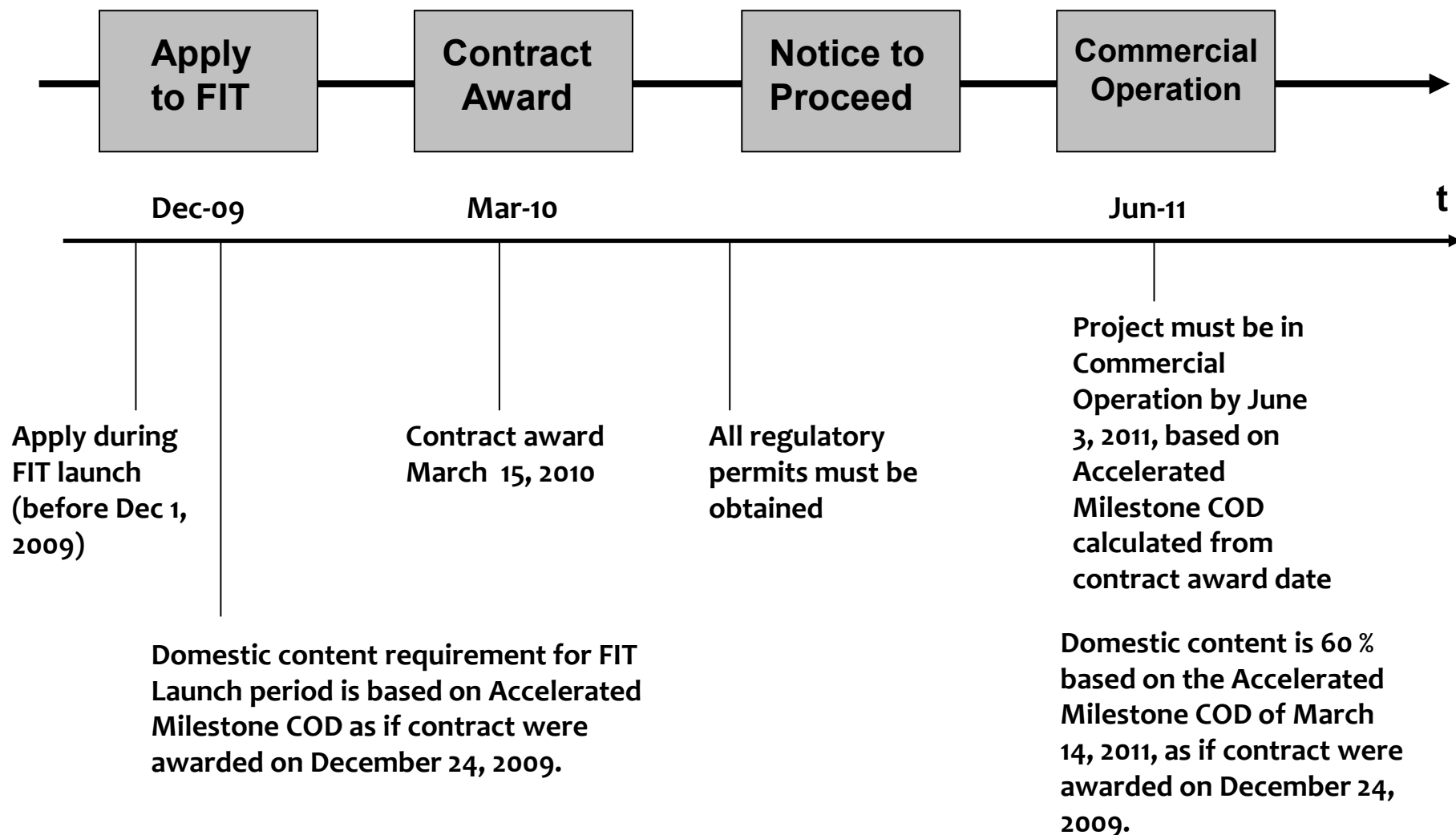




Solar 2011₆₀: 650 acceleration days*

*Accelerated Milestone COD for domestic content is March 14, 2011

*Accelerated Milestone COD for commercial operation is June 3, 2011





Issues for Consideration - Wind

- Wind projects have a later domestic content requirement of 25% up to Dec. 31, 2011 – 50% starting Jan. 1, 2012
 - most large FIT wind project applications are aiming to meet the 25% domestic content requirement
 - earliest possible large wind FIT Launch contracts that will be subject to the 50% domestic content requirements will come online in September 2012
 - possible that there will be no large wind energy projects required to meet the 50% domestic content requirement – depends on competitiveness for transmission grid space at each location in Ontario
 - it was anticipated that use of acceleration days might result in most if not all FIT launch applications subject to 25% domestic content requirements
- Need to wait for FIT launch results to see if there are any large FIT wind contracts subject to 50% requirement



Examples in Support of Issues - Wind

FIT On-shore Wind – Launch Period

Example 1: Wind 2011₂₅

- 725 acceleration days
- Commercial Operation March 2011
- Domestic content 25%
- Earliest bid during FIT Launch

Example 2: Wind 2012₅₀

- 357 acceleration days
- Commercial Operation March 2012
- Domestic content 50%
- A bid of 357 acceleration days would require the project meet 50% domestic content – no bids were made with this number during FIT Launch

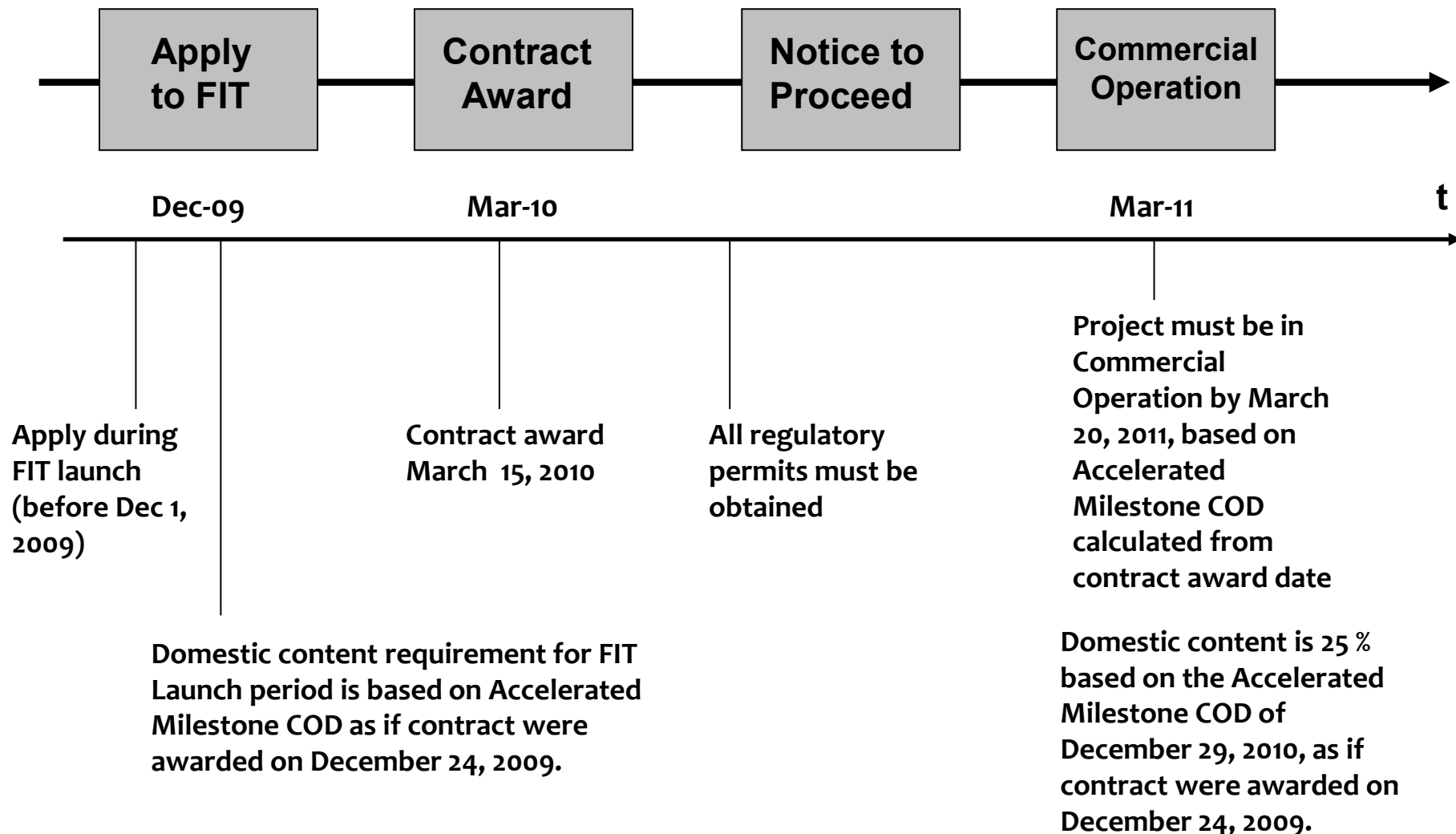
Example 3: Wind 2012₅₀

- 191 acceleration days
- Commercial Operation September 2012
- Domestic content 50%
- This is earliest wind energy project from FIT launch applications which must meet 50% domestic content

Wind 2011²⁵: FIT, 725 acceleration days*

*Accelerated Milestone COD for domestic content is December 29, 2010

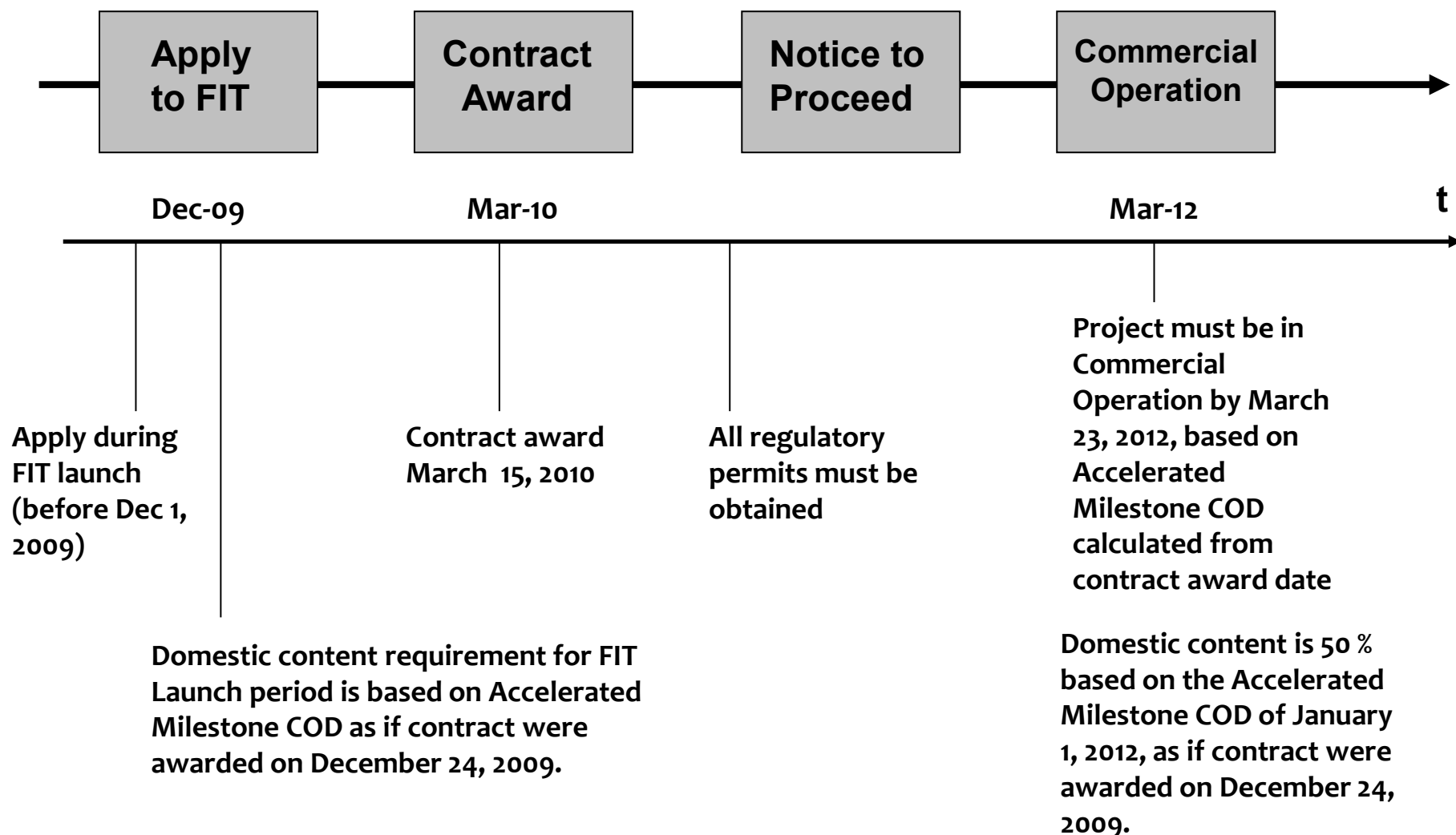
*Accelerated Milestone COD for commercial operation is March 20, 2011



Wind 2012₅₀: FIT, 357 acceleration days*

*Accelerated Milestone COD for domestic content is January 1, 2012

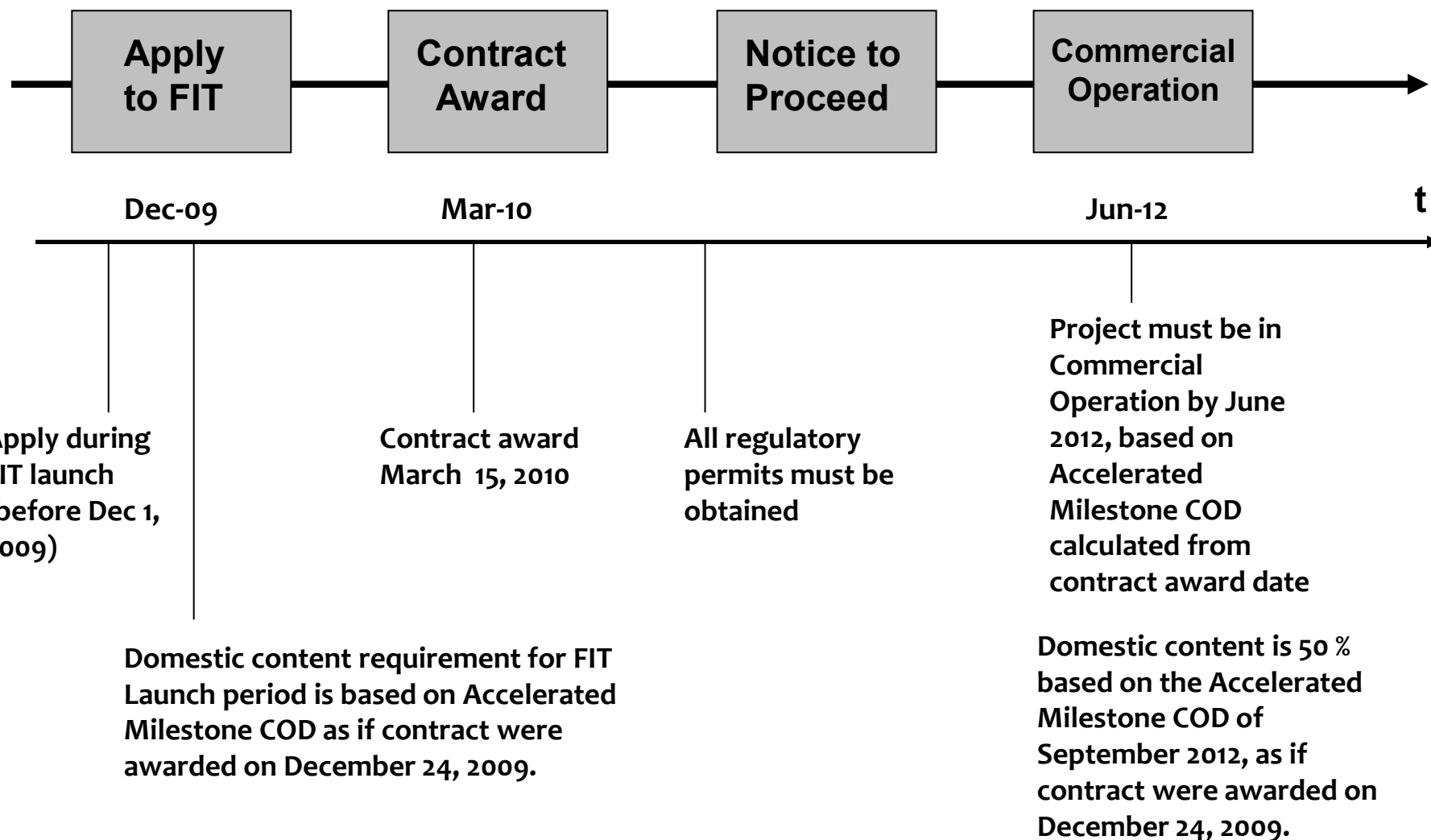
*Accelerated Milestone COD for commercial operation is March 23, 2012



Wind 2012₅₀: FIT, 191 acceleration days*

*Accelerated Milestone COD for domestic content is June 2012, 2012

*Accelerated Milestone COD for commercial operation is September 2012





Preliminary Data FIT Launch Projects - Solar

- 1,223 FIT applications, totalling 10,000 MW* (*OPA has calculated a figure of 8,000 MW which takes duplication into account)
- 456 of these projects with Accelerated Milestone COD, 7,400 MW

Preliminary data: Solar PV 151 projects at 1,211 MW

Range of acceleration days	Number of projects	MW	Community and Aboriginal projects
485-650	35	248	2 Aboriginal, totalling 14 MW
365-485	69	622	2 Aboriginal, totalling 9 MW
1-365	47	341	13 Community, 4 Aboriginal, totalling ~ 30 MW



Preliminary Data FIT Launch Projects - Wind

- 1,223 FIT applications, totalling 10,000 MW* (*OPA has calculated a figure of 8,000 MW which takes duplication into account)
- 456 of these projects with Accelerated Milestone COD, 7,400 MW

Preliminary data: Wind energy (on-shore) - 162 projects at 5,790 MW

Range of acceleration days	Number of projects	MW	Community and Aboriginal projects
635-725	25	1,040	3 Community, totalling ~15 MW
365-635	90	3,164	22 Community , 3 Aboriginal, totalling 290 MW
1-365	47	1,584	13 Community, 4 Aboriginal, totalling 650 MW

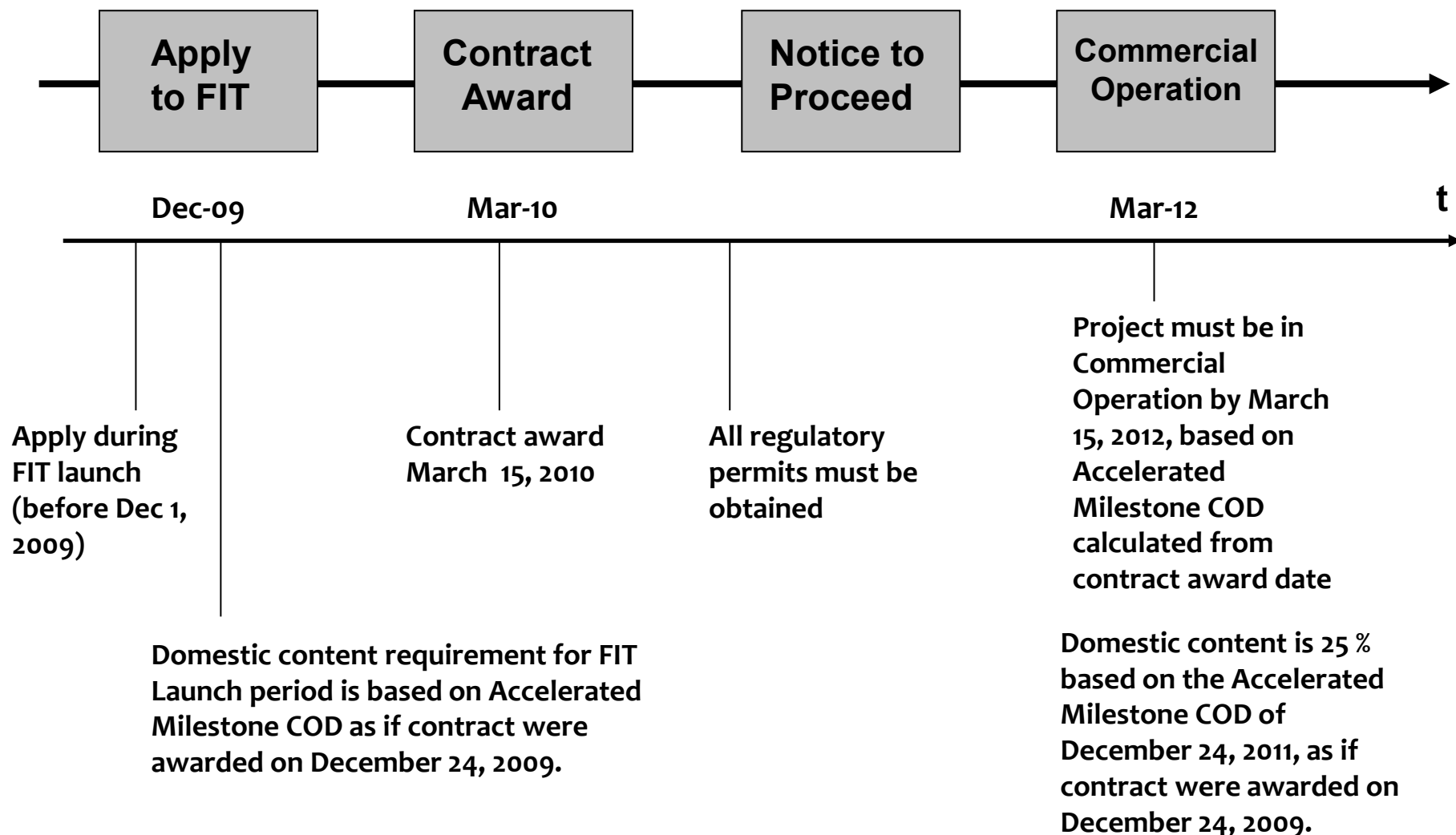


Extra Slide - Wind

2012₂₅: FIT, 365

- *Accelerated Milestone COD for domestic content is December 24, 2011
- *Accelerated Milestone COD for commercial operation is March 15, 2012

acceleration days*



Feed-in Tariff Minister's Briefing

Ministry of Energy and Infrastructure

Overview

- ◆ At the heart of the Green Energy Act is North America's most comprehensive Feed-in Tariff (FIT), which will spark the development of renewable energy projects across Ontario.
- ◆ The Minister of Energy and Infrastructure sent a directive to the Ontario Power Authority (OPA) on September 24th to create a Feed-in-Tariff (FIT) program which would offer guaranteed incentives to developers of wind, water, solar, biomass and biogas projects in Ontario
- ◆ There are two streams to the Feed-In-Tariff program depending on project sizes: Projects over 10kW are offered a FIT contract and projects under 10kW are offered microFIT contracts

Feed-in Tariff Program Overview

- ◆ Ontario's FIT Program is North America's first comprehensive guaranteed pricing structure for renewable electricity production. It offers stable prices under long-term contracts* for energy generated from renewable sources, including:
 - ◆ on-shore and off-shore wind
 - ◆ solar photovoltaic (PV)
 - ◆ waterpower
 - ◆ biogas
 - ◆ landfill gas
 - ◆ biomass
- ◆ The FIT prices vary by project size and type of renewable energy technology (see Appendix).
- ◆ Renewable energy suppliers of wind and solar PV must also meet domestic content requirements.

*20 year contracts for all the technologies and 40 year contracts for waterpower

How FIT Program Works

- ◆ microFIT projects proceed directly to a contract after the application has been completed and reviewed.
- ◆ FIT projects must be reviewed to determine if sufficient transmission and distribution capacity exists. This requires a Transmission Availability Test and Distribution Availability Test.
- ◆ Projects require a Notice to Proceed (NTP) from the OPA before starting construction. To receive their NTP, developers must have:
 - ◆ Worked with Independent System Operator, Hydro One and local distribution company, as appropriate, to determine technical connection requirements (connection impact assessment, customer impact assessment and system impact assessment)
 - ◆ Obtained their Renewable Energy Approval from the Ministry of the Environment
 - ◆ A domestic content plan (if applicable)
 - ◆ A financing plan



FIT and microFIT Uptake

- ◆ There has been an overwhelming response to the FIT and microFIT programs by Ontarians
- ◆ As of December 1, 2009 OPA received 1,022 FIT launch applications. The OPA reviewed and verified these applications giving priority to “shovel-ready” projects (65 of the 1022 applications were either rejected, consolidated or withdrawn by proponents).
- ◆ The OPA currently has 957 valid FIT launch applications.
 - ◆ 507 are capacity allocation exempt (500 kW or less) – most of these projects are for rooftop solar and total to about 125 MW.
 - ◆ 450 are non-capacity allocation exempt applications for approximately 9,000 MW (81% of capacity is wind and 14% is solar).
- ◆ As of February 9th, 2010, OPA has received 4,200 microFIT applications for 36 MW (80% of them for photovoltaic solar) and made 1,600 microFIT conditional offers.
 - ◆ Average size of microFIT project is 8.5 kW.

FIT and microFIT Uptake (Continued)

NEXT STEPS:

- ◆ In February, the OPA will start offering FIT contracts beginning with Capacity Allocation Exempt projects.
- ◆ First microFIT contracts to be offered in late February.
- ◆ In March and early April will offer contracts for the rest of the larger projects eligible under the FIT Program.
- ◆ Proceed with review and verification of 276 post-launch FIT applications.

Issues Management and Communications

- ◆ Many FIT applicants will not be offered contracts due to constrained transmission capacity. They will be placed in FIT Reserve until such time capacity is available.
- ◆ The OPA will run an Economic Connection Test every six months to evaluate the availability of transmission. The OPA will recommend to the Ontario Energy Board that transmission should be expanded when it is deemed to be economical.
- ◆ Proponents should be assured that the Province is working to expand transmission:
 - ◆ On September 21, 2009, the province announced a series of projects to expand and upgrade Ontario's power transmission network, which will result in an investment of \$2.3 billion over the next three years.
 - ◆ Six core transmission network upgrades are moving forward, including North-South lines from Sudbury to Barrie and Barrie to the Greater Toronto Area, and an East-West line from Nipigon to Wawa.
 - ◆ The Bruce to Milton transmission line is the first transmission expansion that will enable additional renewable energy supply.
 - ◆ These projects will help ensure there is enough transmission capability for renewable generation resulting from the province's Green Energy Act.
 - ◆ Another series of core-supporting transmission projects and distribution upgrades are also moving ahead in most areas of Ontario.

Issues Management and Communications (Continued)

Key Messages:

- ◆ We are delighted to move forward with the first 2,500 MW of renewable energy projects.
- ◆ The OPA undertook a very rigorous and transparent process to pick the most shovel-ready projects.
- ◆ For those who did not get a contract this time around, Ontario's doors are still open for business.
- ◆ The Province has directed Hydro One to move as quickly as possible to expand transmission capacity so more renewable energy projects can be connected to the grid.

Domestic Content Requirements

- ◆ FIT domestic content provisions were developed in consultation with stakeholders and are designed to help ensure that the technology and the solutions behind renewable energy generation will create green jobs for Ontario.
- ◆ Developers will be required to have a certain percentage of their total project cost come from Ontario goods and labour when they reach commercial operation.
 - ◆ For wind, the requirement starts at 25% and increase to 50% on Jan. 1, 2012.
 - ◆ For micro solar PV (10 kW or smaller), the requirement starts at 40% and increases to 60% on Jan. 1, 2011.
 - ◆ For larger solar PV (more than 10 kW), the requirement starts at 50% and increases to 60% on Jan. 1, 2011.
- ◆ Developers receive credit for the qualifying percentage if the corresponding designated activity is performed.
- ◆ Proponents have requested more flexible domestic content rules (e.g., credit for exporting Ontario-made components to other jurisdictions or partial credit for completing selected designated activities) – MEI efforts to address these concerns are listed in the “Next Steps” slide.

Support Programs

- ◆ The Ontario Power Authority also administers FIT support programs:
 - ◆ Aboriginal Energy Partnerships Program encourages First Nation and Métis communities to participate in the development of Ontario's electricity system.
 - ◆ Municipal Renewable Energy Program to assist municipalities incurring costs associated with renewable energy projects.
 - ◆ Community Energy Partnerships Program provides grants to assist community groups with renewable energy generation projects that are 10 MW or less in size.
 - ◆ Price adders to make aboriginal and community renewable energy projects even more attractive.

Next Steps

- ◆ Working with OPA to consult with stakeholders and clarify the domestic content requirements for the following four issues before successful FIT contracts are announced:
 - Equivalency of concrete wind turbine towers
 - Gearless wind turbines
 - Building-integrated solar PV (no mounting system)
 - Awarding of credit for using silicon refined in Ontario
- ◆ Develop an MOE approvals process and a domestic content grid for off-shore wind.
- ◆ Issue an RFP on MERX to conduct a market analysis study to inform review of FIT program in 2011. The study will provide:
 - Business intelligence and expert advice on the solar PV and wind power manufacturing sectors.
 - Independent analysis of the domestic content requirements of the Feed-in Tariff Program.
 - Analyze feedback to the Feed-in Tariff Program's domestic content requirements from manufacturers.
 - Provide expert advice on supplementary strategies to reach domestic content objectives of sustainable job creation in the renewable energy sector.
- ◆ Working with OPA to develop a price for small wind.
- ◆ Implement Community Energy Partnership Fund in April, 2010.

Appendices



FIT prices

Feed-In Tariff Prices				
Renewable Fuel	Type	Size tranche	Contract Price ¢/kWh	Escalation Percentage**
Biomass*^		≤ 10 MW	13.8	20%
		> 10 MW	13.0	
Biogas*^	On-Farm	> 10 kW ≤ 100 kW	19.5	20%
		> 100 kW ≤ 250 kW	18.5	
	Any type	≤ 500 kW	16.0	
		>500 kW ≤ 10 MW	14.7	
		> 10 MW	10.4	
Waterpower*^		≤ 10 MW	13.1	20%
		> 10 MW <50 MW	12.2	
Landfill gas*^		≤ 10MW	11.1	20%
		> 10 MW	10.3	
Solar PV	Any type	≤10 kW	80.2	0%
	Rooftop	> 10 ≤ 250 kW	71.3	
		> 250 ≤ 500 kW	63.5	
		> 500 kW	53.9	
	Ground Mounted^	> 10 kW ≤ 10 MW	44.3	
Wind^	Onshore	Any size	13.5	20%
	Offshore	Any size	19.0	

*Peak Performance Factor of x1.35 during On-Peak and x0.90 during Off-Peak applies for non-microFIT projects.

^Aboriginal Price Adder and Community Price Adder eligible as outlined below for non-microFIT projects.

**Escalation Percentage based on the Consumer Price Index will be applied to eligible Renewable Fuels as calculated in FIT Contract. The Base Date is September 30, 2009

Price Adders

- ◆ Aboriginal or community projects are eligible for a price adder in proportion to the percentage of equity ownership by the Aboriginal or community group.

Percentage of Control	Percentage of corresponding price adder
50% to 100%	100%
10% to 50%	Double the percentage of control
0% to 10%	0%

	Wind	PV (Ground Mounted)	Water	Biogas	Biomass	Landfill Gas
Maximum Aboriginal Price Adder (¢/kWh)	1.5	1.5	0.9	0.6	0.6	0.6
Maximum Community Price Adder (¢/kWh)	1.0	1.0	0.6	0.4	0.4	0.4



Domestic Content Grid – Wind Power Projects >10 kW

Designated Activity	Qualifying Percentage
Wind turbine blades made and assembled in Ontario.	16%
Pitch system assembled and tested in Ontario and gears are made in Ontario.	3%
Yaw system assembled and tested in Ontario and gears are made in Ontario.	7%
Hub and hub casing, where the hub has been machined in Ontario.	2%
Gearbox where gears are made in Ontario, and where the gearbox has been assembled and tested in Ontario.	11%
Generator and brake, where the generator is manufactured, assembled and tested in Ontario.	3%
Heat exchanger assembled and tested in Ontario.	1%
Drive shaft machined in Ontario.	1%
Power converter where the assembly, final wiring and testing has been done in Ontario.	5%
Towers formed in Ontario.	4%
Steel for towers from Ontario steel mill.	9%
Control panel and electronics, where the assembly, final wiring and testing have been done in Ontario.	2%
Nacelle frame machined in Ontario.	2%
Nacelle shell where successive assembly of the armature and shell materials has occurred in Ontario.	2%
Pad mount or equivalent transformers that have been wound and tested in Ontario.	2%
Grid connection, where the transformers used in the grid connection have been wound and tested in Ontario.	10%
Construction costs and on-site labour, where labour is performed substantially by residents of Ontario.	15%
Consulting services performed substantially by residents of Ontario.	5%
Total	100%

Domestic Content Grid – Crystalline Silicon Solar PV Projects >10 kW

Designated Activity	Qualifying Percentage
Silicon refined in Ontario	11%
Silicon ingots cast and wafers cut in Ontario	13%
Cells formed in Ontario	11%
Modules (i.e. panels), electrical connections formed and materials encapsulated in Ontario	15%
Inverter assembled wired and tested in Ontario	8%
Mounting systems, where structural components made in Ontario.	11%
Wiring and electrical hardware sourced from an Ontario Supplier.	9%
Construction costs and on-site labour, where labour is performed substantially by residents of Ontario.	18%
Consulting services performed substantially by residents of Ontario.	4%
Total	100%

Domestic Content Grid – Thin Film Solar PV Projects >10 kW

Designated Activity	Qualifying Percentage
Cells where the active photovoltaic layer(s) have been fabricated in Ontario. Where the manufacture of the module is inseparable from the manufacture of the cells, there shall be no separate requirement for the module.	35%
Module (i.e. panel), where the electrical connections were formed and materials encapsulated in Ontario	10%
Inverter, where the assembly, final wiring and testing have been done in Ontario.	8%
Mounting systems, where structural components made in Ontario.	10%
Wiring and electrical hardware sourced from an Ontario Supplier.	9%
Construction costs and on-site labour, where labour is performed substantially by residents of Ontario.	24%
Consulting services performed substantially by residents of Ontario.	4%
Total	100%



Archaeological Assessments and the FIT Program

Ministry of Energy and Infrastructure
Renewables and Energy Efficiency Division
Renewable Energy Facilitation Office



Overview

- Ontario Heritage Act (OHA) and Renewable Energy Projects
- Archaeological Assessments for Renewable Energy Projects
- Issues with Archaeological Assessments
- Timing with the Feed-in Tariff (FIT) program
- Concerned Proponents
- Ministry Positions
- Possible Solutions
- Heritage Assessments - TBD



Ontario Heritage Act and Renewable Energy Projects

- Ontario Heritage Act (OHA), 1975, amended in 2002, 2005 and 2009
- Authorized by the Ministry of Culture (MCL)
- The OHA mandates the Ontario Heritage Trust, a Crown agency, and the Conservation Review Board, a tribunal that hears objections to municipal and provincial decisions under the Act.
- Purpose to give municipalities and the provincial government powers to preserve the heritage of Ontario.
- Primary focus is the protection of heritage buildings and archaeological sites.
- OHA applies to all licensed archaeologists, and all known archaeology and cultural sites; the duty is on the proponent to find such sites.
- For renewable energy projects, relevant regulations which calls on OHA is the Renewable Energy Approval (Reg 359/09)
 - Reg. 359/09 requires authorization from Ministry of Culture on “Protected Properties, Archaeological and Heritage Resources”
 - This could include archaeological assessments (discussed herein) and heritage assessments (TBD)
- Prior the Reg. 359/09, OHA was called upon through the **Environmental Assessment process and the Planning Act**



Archaeological Assessments for Renewable Energy Projects (1)

- Archeological assessments under the Renewable Energy Approval (REA) are required for:
 - Class 3, 4, 5 wind facilities (on-shore, 50 kW and upwards)
 - Class 3 solar facilities (> 10 kW, ground mounted)
 - Transmission lines < 50 km
 - Class 3 anaerobic digestion (off farm, any size)
 - Class 3 thermal treatment facilities (any location other than at a farm, biomass other than solely woodwaste)
 - Exempted projects :
 - must contact MCL to determine if project is within 250 m or an archaeological resource as per MCL records, or on an OHA designated property; and
 - contact municipality to determine if project location is in an area identified on a municipal archaeological plan



Archaeological Assessments for Renewable Energy Projects (2)

- Current archaeological assessment procedure (progressive)
 - self checklist (pre-screen process completed by non-specialist)
 - Stage I (desktop study of potential sites completed by non-specialist or licensed archaeologist)
 - Stage II (field work and testing of potential sites completed by **licensed archaeologist**)
 - Stage III (excavation completed by licensed archaeologist; it is at this Stage that design of project can be changed to avoid archaeological resources)
 - Stage IV (mitigation of development impacts or excavation and removal of artifacts prior to construction completed by licensed archaeologist)
- MCL is in the process of completing a Standards and Guidelines document to explain this procedure – expected to be finished in the coming months
- The majority of large wind farms require at least a Stage II assessment
- A Stage II (if necessary) is the minimum MCL sign off requirement for a REA
- This means that the Stage II must be completed and approved before a proponent can submit their REA application
- MCL review time is typically 1 month
- Any archaeological resources found during any Stage **must** be part of the public, municipal and aboriginal consultation procedure



Issues with Archaeological Assessments – Stage II (1)

- Timing for Stage II
 - Developers:
 - Snow cover from December through to end of March
 - Crop cover June and October
 - Leaves limited period of 3-5 months: April-June or October-November
 - Is not compatible with “micro-siting” of turbines
 - MCL:
 - has indicated that this is a choice that developers make, and that they are not making full efforts to do the necessary assessment (e.g., consultants are not monitoring the sites for time slots when they could be doing some work)
 - has indicated that work can be done as long as the ground is not frozen
 - Requires a minimum of 2 rainfall events between ploughing and the Stage II survey
- No-till practices:
 - Developers:
 - not compatible with farmer no-till practices
 - OMAFRA:
 - has indicated that they are in alignment with REA, which would support ploughing of no-till land for archaeological assessment purposes.



Issues with Archaeological Assessments – Stage II (2)

- Resources:
 - Developers:
 - requires a licensed archaeologists which are limited in number in relation to the large numbers of proposed renewable energy projects
 - MCL:
 - licensed archaeologists is not necessary; consultants should be monitoring the sites outside of the “limited period” mentioned above
- Type of approval:
 - Prior to the REA, Stage II assessments were completed prior to construction
 - Prior to REA, several approvals were given, including an EA (planning document) and permits (technical approvals)
 - The REA is now the only approval required, this is essentially an approval for construction
 - Aboriginal, municipal, and public consultation requirements must be upheld
 - **MOE/MCL with REFO must come to a position of if this was a policy change, and if this could have been foreseen by developers**



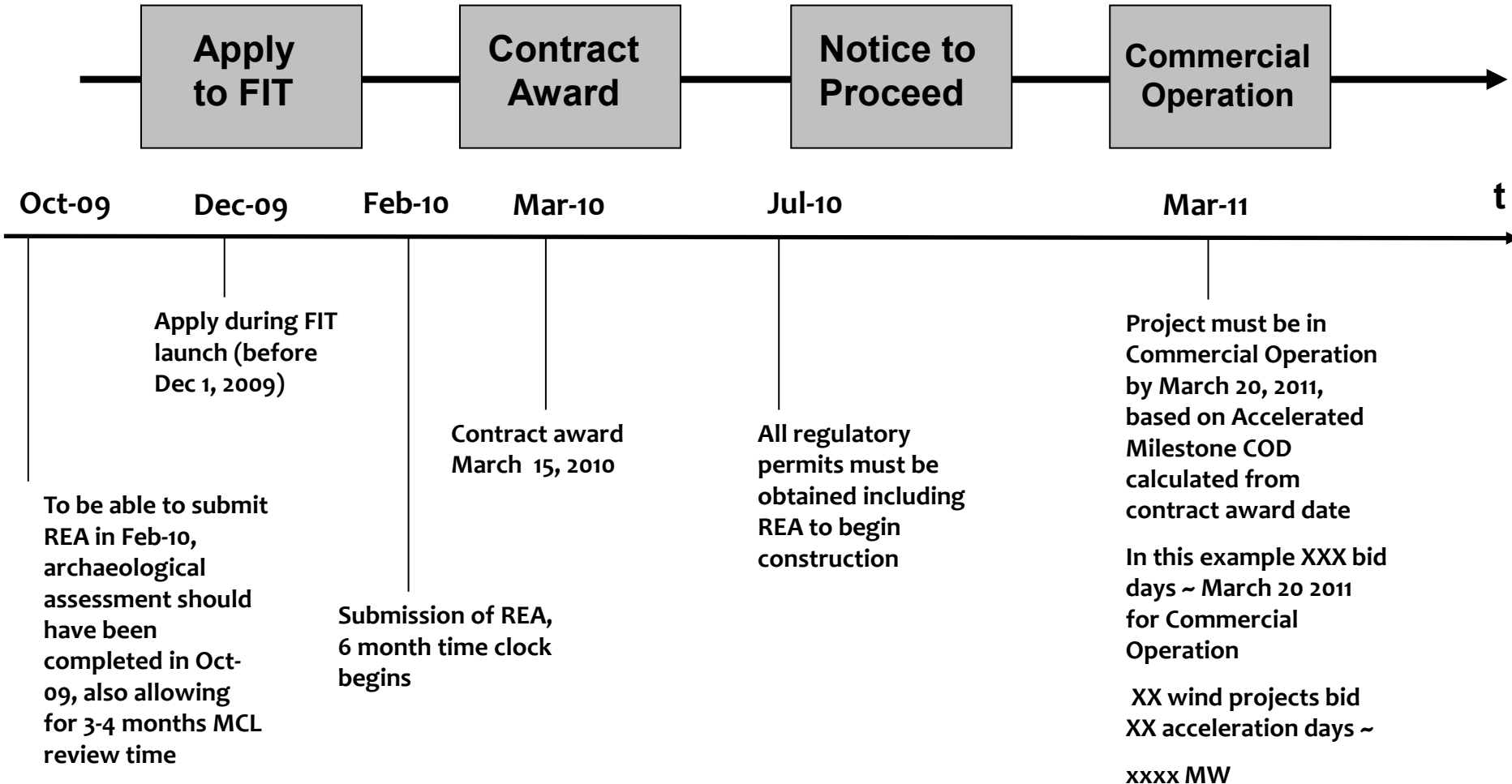
Issues with Archaeological Assessments – Stage II (3)

Timing with Feed-in Tariff Program (see next 4 slides)

- From preliminary analysis, this seems to be an issue for projects with a Commercial Operation Date in September/October 2011.
- If Stage II requirement remains for all projects, there is a potential for project delay:
 - XX wind projects at ~ XXXX MW, if all FIT contracts who bid acceleration days that would put them into Commercial Operation in 2011 are awarded
 - There is only 2,500 MW of grid capacity available
 - Contracts have not yet been awarded
- Wind bid the most aggressively during FIT Launch
- Wind and solar take up over 90% of projects who plan to be in Commercial Operation in 2011
- Wind and solar projects will likely require Stage II archaeological assessments, solar has a larger footprint
- Not yet included the timing of heritage assessments which could cause further delay

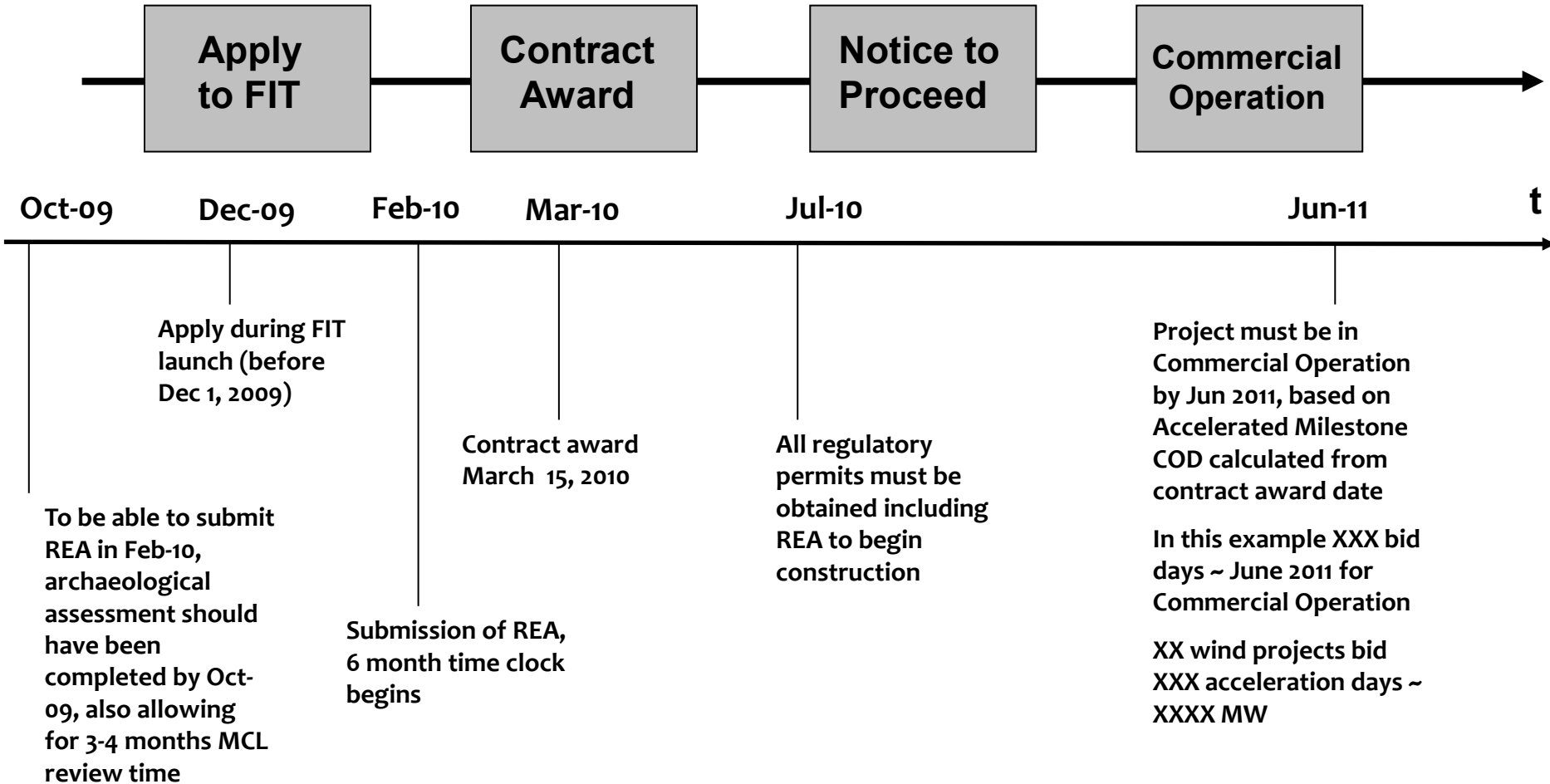


Timing with the Feed-in Tariff (FIT) program (1)



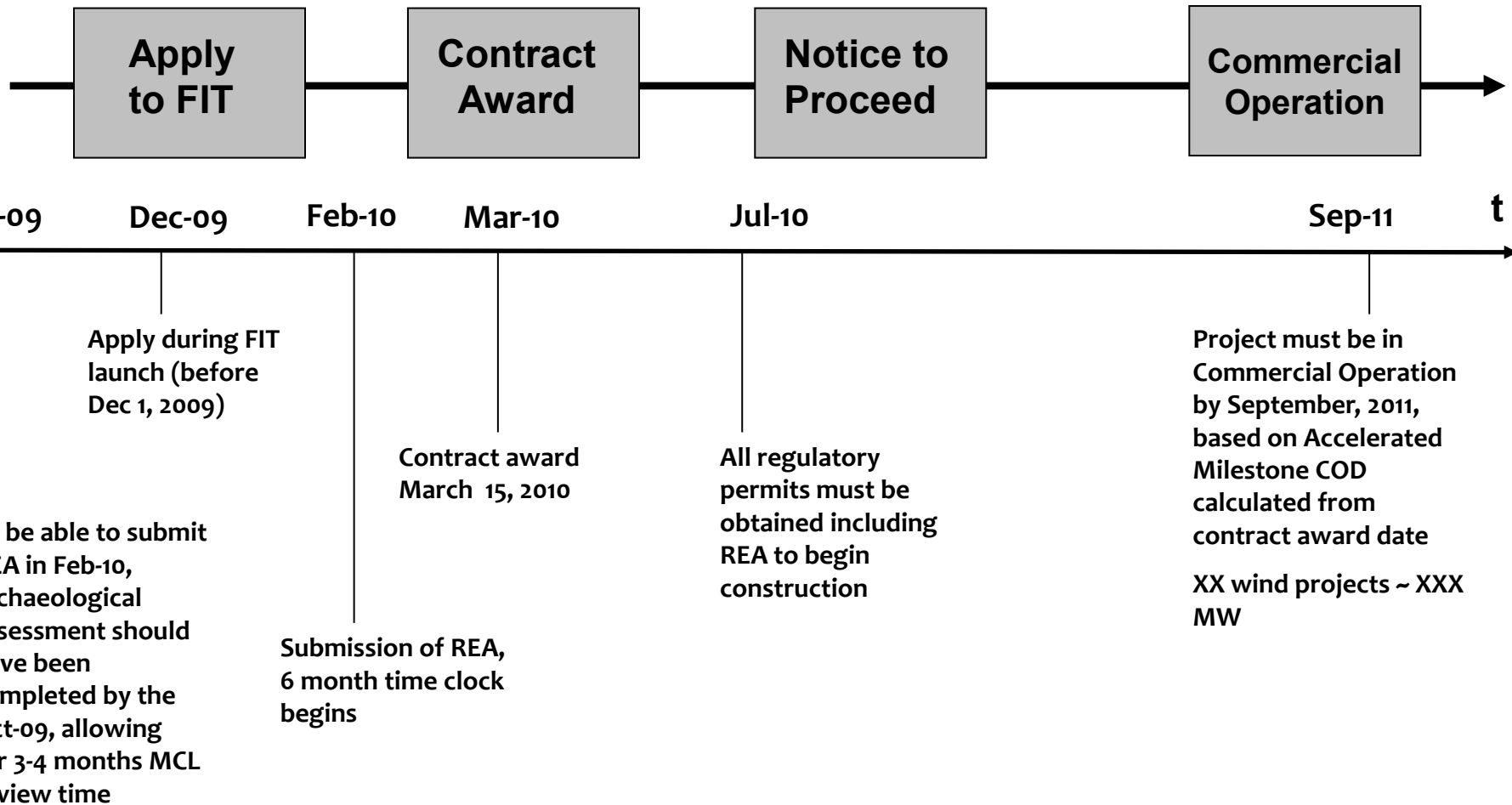


Timing with the Feed-in Tariff (FIT) program (2)



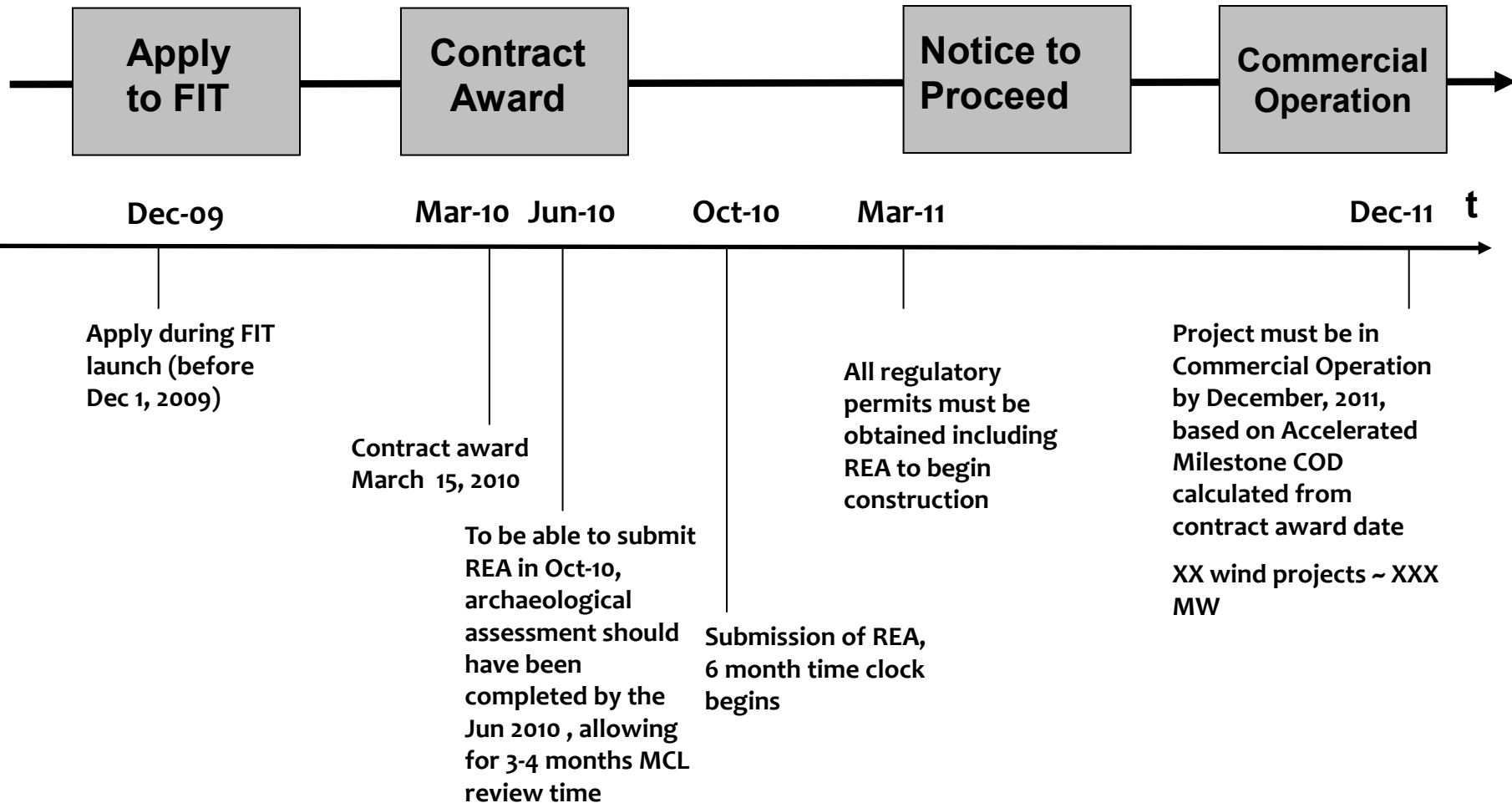


Timing with the Feed-in Tariff (FIT) program (3)





Timing with the Feed-in Tariff (FIT) program (4)





Concerned Proponents

- To date, the following proponents have expressed concern and/or requested meetings with Ministry of Culture:
 - Helimax, via email to REFO, December 12, 2009
 - International Power, via email to REFO, December 15, 2009
 - TCI Renewables, via email to REFO, December 14, 2009
 - CanWEA via an email to Sue Lo, ADM, Renewables and Energy Efficiency Division, MEI, December 22, 2009
 - NEXtera Energy, via email to REFO, December 23, 2009
 - ProWind, via email to REFO, January 13, 2010
 - NEXtera Energy, via two letters addressed to:
 - Richard Mortimer - Director, Programs and Services, MCL, December 22, 2009
 - Stephen Davidson, Assistant Deputy Minister, MCL, January 21, 2010
 - Doris Dumais, Director, Approvals Program, MOE, January 25, 2010
- All written correspondence was forwarded to MCL shortly after receipt of email



Ministry Positions - TBD

- MCL – Stage II sign off required for REA, potential solutions for “transition” projects to be discussed
- MOE – MCL sign off is necessary for complete submission, is a “condition of approval” possible?
- OMAFRA – Position is aligned with REA requirements, regardless of farmer no-till policies. Proponents have suggested that OMAFRA is not uniform in this position.
- MEI – Aligning Green Energy Act and various Ministry policies and procedures



Possible Solutions - TBD

- Proponents have suggested that the Stage II assessment be a Condition of Approval for the REA, rather than a pre-requisite.
 - This may be problematic for MOE and the 6-month service guarantee, which is contingent on a “complete submission”
 - Would need to align with public, municipal and aboriginal consultation
- REFO suggests Stage I clearance (partial clearance) for projects that receive a contract from Launch Phase, and have Commercial Operation Dates up to and including September/October 2011
 - Projects with a Commercial Operation date prior to September 2011 would have needed to complete their Stage II archaeological assessments by October 2009.
 - Projects after this date can complete their Stage II archaeological assessments in the April- June 2011 time period.
 - Developers would be fully liable for risks incurred
 - **Developers eligible for this partial clearance must have shown that they have made all reasonable efforts to complete the Stage II**
 - Stage II, III, and IV would occur as necessary, and would require approval as per conditions set out in REA
 - If archaeological resources were found, appropriate public, municipal and aboriginal consultation would be held.



Extra Slide: Heritage Assessments for Renewable Energy Projects

- Heritage assessments under the Renewable Energy Approval (REA) are required for:
 - Class 3 wind facilities (on-shore, 50 kW and upwards)
 - Class 3 solar facilities (> 10 kW, ground mounted)
 - Transmission lines < 50 km
 - Class 3 anaerobic digestion (off farm, any size)
 - Class 3 thermal treatment facilities (any location other than at a farm, biomass other than solely woodwaste)
- Current heritage assessment procedure (progressive)
 - Pre-Screening
 - Technical Report and Evaluation Stage
 - Mitigation Stage
- Due to the absence of a “licensed heritage expert”, heritage assessment are more subjective than archaeological assessments.

Renewable Energy Approvals Process

Ministry of the Environment

Introduction

To provide an overview of Renewable Energy Approval (REA) process and the approval process for renewable energy projects in Ontario

Context

- The *Green Energy and Green Economy Act* received Royal Assent on May 14, 2009.
- Renewable Energy Approval Regulation under the *Environmental Protection Act* (O. Reg. 359/09) brought into force on September 24, 2009.
- The Renewable Energy Approval (REA) is a coordinated environmental approval process for renewable energy generation projects.

Why does Ontario need these changes?

- Developing renewable energy sources and fostering a conservation oriented culture are cornerstones of Ontario's balanced plan to provide clean, reliable and affordable energy.
 - The new process will get renewable energy projects up and running faster in Ontario.
 - More renewable energy generation will diversify Ontario's energy supply mix and support the Province's commitment to phase-out coal-fired generation by 2014.
 - Investment in renewable energy will also help the Province meet its greenhouse gas reduction targets.



Key Features of the *Green Energy Act*

Feed in Tariff (FIT)

- Offered through Ontario Power Authority (OPA)
- Developers will have a set revenue stream according to the type and volume of energy (wind, solar, waterpower, biogas/biomass)
- Developers will also have the right to connect to the larger energy grid system, if OPA is satisfied with the facility's economic viability
- Developers can secure a FIT contract in parallel with obtaining a REA, but the REA will be a requirement of their "Notice to Proceed" for the FIT contract



Key Features of the *Green Energy Act*

Renewable Energy Facilitation Office

- One-window contact and advocate for renewable energy applicants
- Provide advice, information and liaison with or connection to appropriate staff and subject experts
- Develop and maintain tools and resources for applicants in collaboration with partner ministries and agencies
- Coordinate, track, monitor and be able to report to the Minister of Energy and Infrastructure on the progress of renewable energy projects through various stages of development along the lifecycle of a project

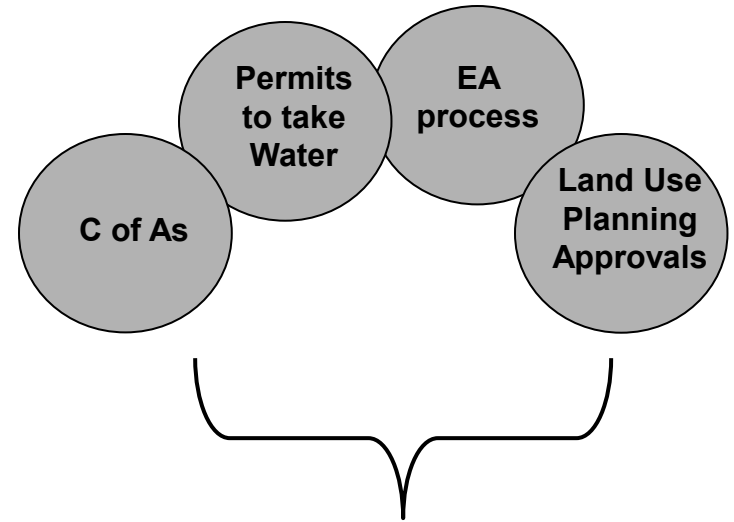
Key Features of the *Green Energy Act*

Renewable Energy Approval (REA)

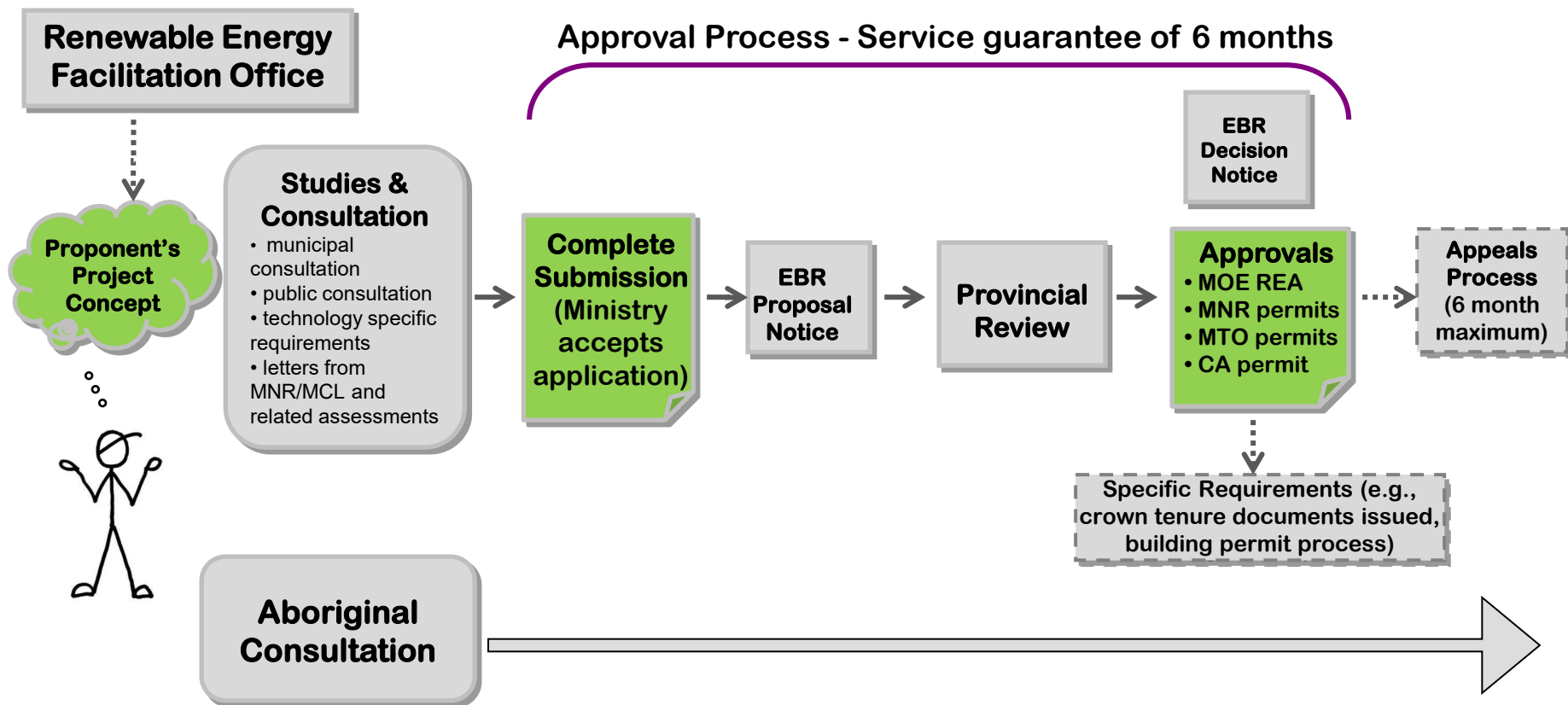
- Streamlined environmental approval process for renewable energy generation projects with a service guarantee
- Coordinated approach that provides certainty with respect to provincial environmental requirements and setbacks; ensures transparency and public review
- Service guarantee coordinated on approvals: MOE, MNR, MTO and Conservation Authorities
- Upfront coordination on identification of aboriginal communities province is requiring applicants to consult with (MEI, MNR, MOE, MAA)

Renewable Energy Approval (REA)

- The Ministry of the Environment's REA will be a single, new approval that integrates the environmental and health and safety matters traditionally dealt with through the following requirements:
 - existing land use planning (municipal government level)
 - environmental assessment (EA)
 - environmental approvals (Certificates of Approval)
 - water takings (Permit to take Water)



Renewable Energy Approval Process



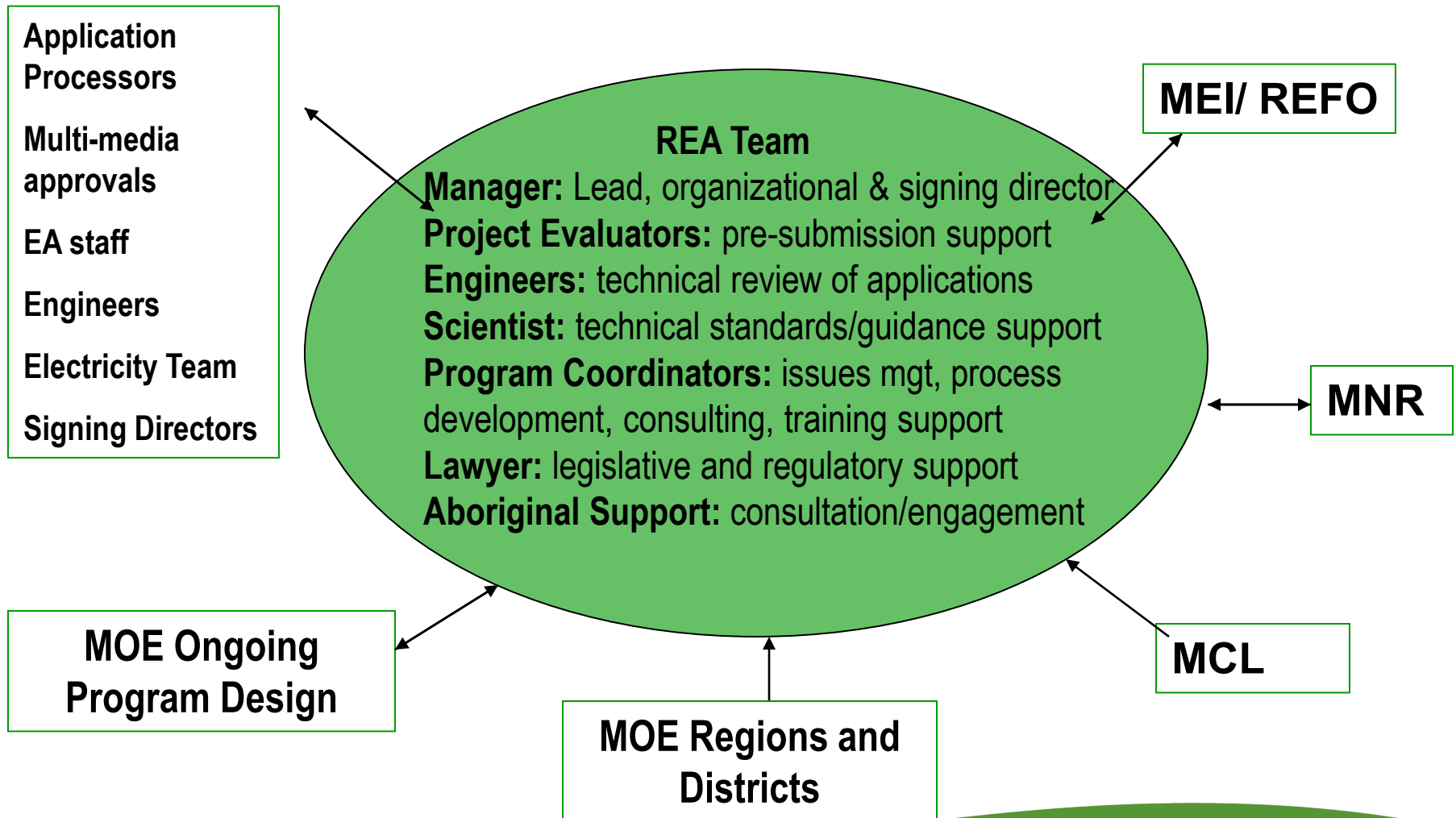
REA Project Requirements

- Most projects would meet a **general set of requirements** (e.g. project description, consultation plan, design and operations, construction, decommissioning plans and reports)
- **Setbacks** (i.e. wind turbines and bio-energy facilities) applied to natural heritage features, water bodies, residences
- Various **technological specific studies** (including noise, odour, natural heritage, cultural, etc.) depending on the scale and nature of the undertaking
- Some **smaller classes of renewable projects** would either not require a renewable energy approval or have even more streamlined requirements
 - E.g. micro-wind projects

REA Process Principles: Concepts for an Efficient and Effective Approval Process

- **Emitter Accountability** as applicants are responsible for their emissions and must meet MOE requirements. A Complete Submission is required in order for applications to be accepted.
- **Regulatory Efficiency** as MOE commitment to approval process review for improvement and enhancement via guidance, screening applications, new ways of doing business and outreach to the regulated community
- **Enhanced coordination** of application reviews through all required ministries and REFO.
- **Focused Review** with MOE staff following an established review standard to produce, review or audit technical information. MOE must demonstrate a fair and consistent approach and hold applicants accountable.

REA Team Functions and Linkages



Proposed Delivery Approach

Review undertaken by team of experienced professionals that can instil public confidence in the REA being issued

A focused MOE Renewable Energy Team will:

- be MOE's one window in for multi-media approval needs
- be equipped to meet 6 month turnaround time
- deal with proponents professionally and effectively
- provide a science and standards based approval
- manage technical complexities and take a review approach that is flexible enough to address site specific concerns when appropriate
- reassure the regulated and general public of level playing field and environmental and public health protection

Specific REA requirements for Wind

- REA is required for all wind projects >3kW
- Applications requirements (Appendix)
- Receptor setbacks, property and road setbacks
- Natural heritage provisions
 - Development prohibitions – surface water, areas of natural and scientific interest (ANSI)
- Cultural heritage provisions

Noise Receptor Setback

- Applicants can conduct a noise study to move closer than the setback in the matrix, up to a minimum of 550m
- Only exception from the 550m noise setback is if the can demonstrate that ambient noise levels due to road traffic exceeds 40dBA
- Setback does not apply to participating receptors
- A noise receptor is “participating” if a part of the facility is located on their property and there is some kind of agreement between the receptor and the facility owner

Noise Matrix

- Provides how far large projects will have to be located from residences and other receptors, including a **minimum setback of 550 m**

Number of Wind Turbines	Setback in metres (m) from closest Point of Reception corresponding to wind turbine Sound Power Levels in decibels (dBA)				
	102 dBA	103 - 104 dBA	105 dBA	106 - 107 dBA	> 107 dBA
1 – 5 turbines	550 m	600 m	850 m	950 m	Noise study required
6 - 10 turbines	650 m	700 m	1000 m	1200 m	
11 - 25 turbines	750 m	850 m	1250 m	1500 m	
26+ turbines	Noise study required				

Proposed setbacks in the noise matrix are consistent with the Ministry of the Environment's *Noise Guidelines for Wind Farms* (October 2008) and the noise level limit of 40 dBA at the Point of Reception regardless of wind speed.

Property and Road Setback

- Setbacks from property lines equal to or greater the hub height (approx 80m)
 - Applicants can submit a property line assessment to reduce the setback to a minimum of blade length plus 10m
- Setbacks from roads/railways equal to or greater equal to or greater then blade length plus 10 M (approx. 50m)
 - Developed in coordination with MTO

Compliance with Noise Limits – Operating Wind Turbine Facilities

The ministry is currently inspecting operating Wind Turbine facilities for compliance with their existing CsofA. The initial focus will be on the 17 largest facilities.

The inspections will include:

- Verification that the facilities are operating in accordance with their CofA
- Verification of turbine locations, receptor locations and setback distances in accordance with the applications submitted for CofA. GIS will be used to verify that the setbacks are as proposed.
- Measurement of sound levels from transformer substations.

Enforcement Approach:

- Non-compliance related to an administrative requirement of the C of A: written direction via a letter, with a 30 day window to achieve compliance
- Non-compliance related to the improper installation (e.g. location or distance from receptor) or any type of equipment in use: will be handled by SCB in consultation with the Districts and EAAB on a case by case basis.

Specific Requirements for Solar Projects

- REA is required for all ground mounted solar projects >10 kW
- Applications requirements (Appendix)
- Noise study
- Natural heritage provisions - Development prohibitions – surface water, areas of natural and scientific interest (ANSI), setbacks from significant woodlots, etc.
- Cultural heritage provisions

Noise Study for Solar Projects

- Applicants are required to submit a noise study as part of their application for a REA.
- This noise study must assess the potential impacts at nearby noise receptors (e.g. residence) due to sound emitted by the solar facility's electrical equipment (e.g. inverters, transformers).
- The application and noise study is required to demonstrate that the solar facility, as designed, can meet a 40 decibel noise level.

Specific Requirements for Biomass Projects

Anaerobic Digestion:

- 3 classes based on location and types of waste feed material
- **Operational Requirements**
 - **Class 1 and 2 Anaerobic Digestion Facilities (on-farm)**
 - » **250m** from nearest odour receptor; or
 - » **125m** from nearest odour receptor, if:
 - Generating ≤ 500 kW, and following 4 Best Mgmt Practices (BMPs); or
 - » **No prescribed setbacks**, if
 - » Generating > 500 kW and submit the following studies:
 - Emission Summary and Dispersion Modelling Report; Noise; and Odour Studies
 - **Class 2 Anaerobic Digestion Facilities must submit:**
 - » Effluent Management Plan Report; Hydrogeological Assessment Report; and Surface Water Assessment Report

Specific Requirements for Biomass Projects

Anaerobic Digestion Facilities (Continued)

- Class 3 Anaerobic Digestion Facilities:

» **Must be designed:**

- With a gas storage cover as prescribed by the regulation, and a high efficiency flare system; and

» **must submit:**

- Effluent Management Plan Report; Emission Summary and Dispersion Modelling Report; Hydrogeological Assessment Report; Noise Study Report; Odour Study Report; and Surface Water Assessment Report

(All Class 2 and 3 Anaerobic Digestion Facilities are subject to Financial Assurance requirements)

Biogas facilities include:

- » Generation facilities using biogas produced offsite
- » Generation facilities using biogas produced onsite through means other than anaerobic digestion, such as landfill gas capture
- » **These facilities must submit:** Noise study; Emission Summary and Dispersion Modelling Report; Odour study

Specific Requirements for Biomass Projects

Thermal Treatment:

- 3 classes based on types of feed material and the location
- **Operational Requirements**
 - **Class 1 (woodwaste only, any location) must submit:**
 - » Effluent Management Plan Report; Emission Summary and Dispersion Modelling Report (if not located on-farm); Noise Study Report (if not located on-farm); and Surface Water Assessment Report
 - **Class 2 (any biomass, on-farm) must submit:**
 - » Effluent Management Plan Report; and Surface Water Assessment Report
 - **Class 3 (any biomass, off-farm) must submit:**
 - » Effluent Management Plan Report; Emission Summary and Dispersion Modelling Report; Hydrogeological Assessment Report; Noise Study Report; and Surface Water Assessment Report

All Class 2 and 3 Thermal Treatment Facilities are subject to Financial Assurance requirements

Next Steps

- MOE is working internally and with partner ministries (MNR, MEI) to **develop processes, practices and procedures**
- **Internal staff training** continues
- **MOE website** has general information and detailed application requirements.
 - Fact sheets describing technology specific requirements, the consultation process, and a jurisdictional comparison.
 - Renewable Energy Approval Guide (coming soon)
 - Technical Guidance to follow, for EBR consultation
 - Proponents with projects considering application for approval can contact the MOE, Environmental Assessment and Approvals Branch (eaabgen.moe@ontario.ca)
- **MEI's Renewable Energy Facilitation Office (REFO)** has general information on all aspects of bringing a renewable energy project to life.
 - www.ontario.ca/greenenergyprojects.
 - 1-877-440-REFO (7336)
 - REFO@ontario.ca

Appendices

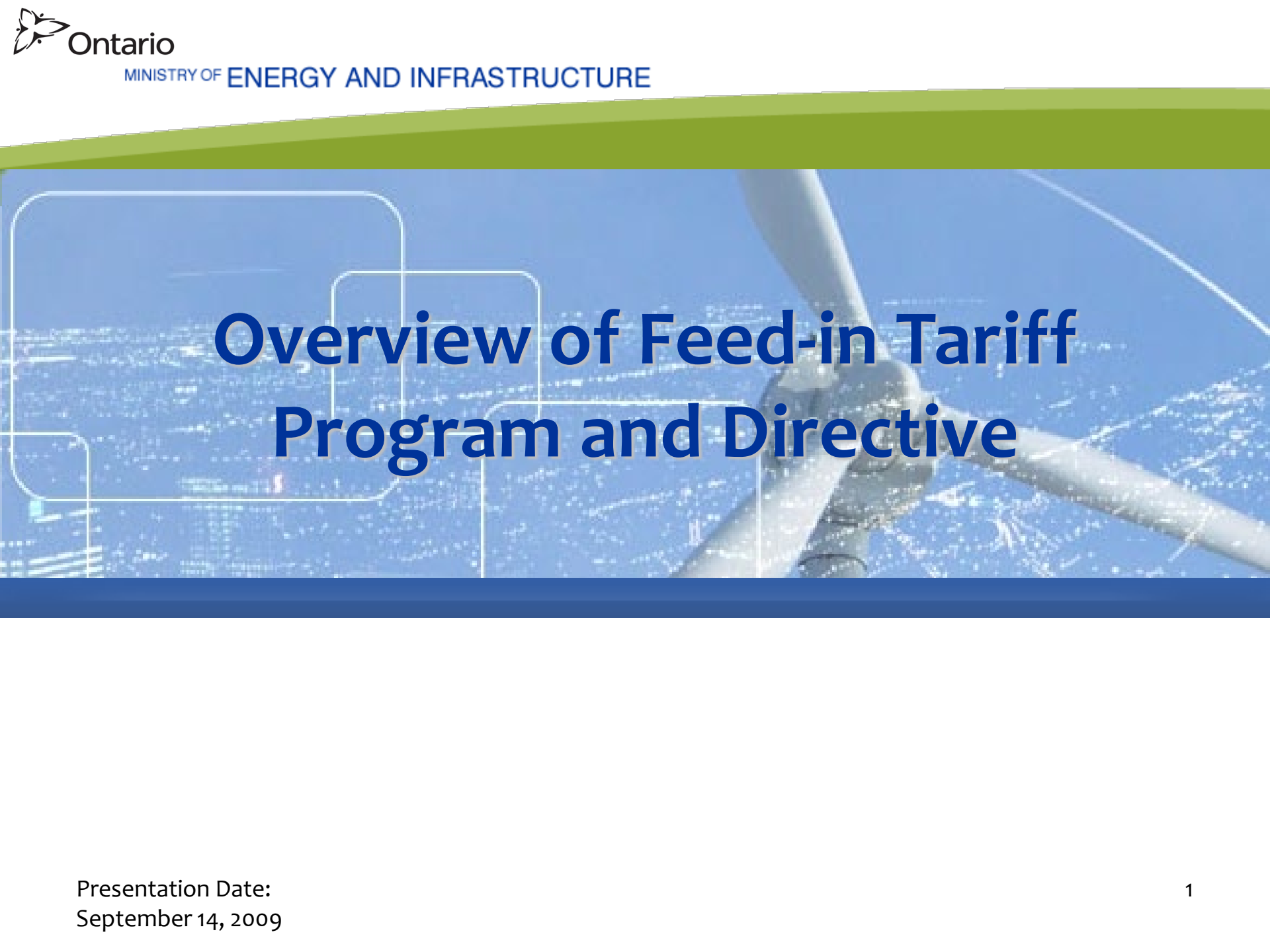
Complete Submission Requirements

- Project Description Report
- Construction Plan
- Design and Operations Plan
- Public Notice
- Community Consultation Summary
- Municipal Consultation Summary
- Aboriginal Consultation Summary
- Cultural Heritage Summary
- Natural Heritage Summary
- Water Bodies Summary
- Provincial Policy Plan Summary

Jurisdictional Comparison of Noise Limits and Required Setbacks from Wind Turbines

Jurisdiction	Noise Limit at nearest receptor	Applicable Setback Distances to receptor (based on Noise)
Ontario	40 dBA (Rural)	550 m (minimum)
Alberta	40 dBA (night time)	None *
British Columbia	40 dBA	None *
New Brunswick	Same as Ontario wind turbine guidelines	None *
Nova Scotia	Same as Ontario Industrial Noise guidelines	None *
Quebec	40 dBA (rural)	None *
California	50 dBA	None *
Minnesota	50 dBA (night)	None *
New York	50 dBA	Min. of 305 m *
Wisconsin	-	550 m
Belgium / Netherlands	40 dB	None *
France	No more than 3 dBA increase (night) or 5 dBA increase (day)	Based on noise increase pre and post Turbines *
Spain	Limits based on regional zoning and permits	None *
Denmark	45 dB at single dwelling, 40 dBA at multiple dwelling	None * (min. of 4x turbine height)
Germany	55/50 dBA (day) – 40/35 dBA (night) (region-specific)	None *
New Zealand	40 dB L _{90(10 min)} (or background plus 5dB) – 35 dB for specific receptors if required	None *
Australia	Same as New Zealand	None *

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Overview of Feed-in Tariff Program and Directive

Background

- The Ministry of Energy and Infrastructure will direct the Ontario Power Authority to implement a Feed-in Tariff Program (FIT), using authority provided under the *Green Energy Act*. The proposed direction includes sections on:
 1. Objectives and scope of the FIT Program
 2. Effective dates of Program
 3. Transmission Set-Aside and Economic Development Adder
 4. Transition from RESOP projects
 5. Domestic Content
 6. Restrictions on Prime Agricultural Land
 7. Permitting Biomass Generators
 8. Programs Supporting FIT
 9. Governance of Programs

Objectives and Scope of FIT Program

- The objectives of the FIT Program are to:
 1. Increase capacity of renewable energy supply to ensure adequate generation and reduce emissions
 2. Introduce a simpler method to procure and develop generation
 3. Enable new green industries through new investment and job creation
 4. Provide incentives for investment in renewable energy technologies
- The program will be open to the wind, hydro, solar and bioenergy renewable energy supply technologies.

Program Launch

- The Program will be announced on September 24 (TBC) followed by an information session on final FIT Program Rules.
- At FIT launch, OPA will be open for business to receive and process all FIT and microFIT Contract applications
- OPA will first process the most shovel-ready applications – those proposing “acceleration days” and meeting other criteria:
 - Obtained all necessary permits and approvals
 - Owns or has a signed contract to purchase a major piece of equipment manufactured in Ontario
 - Experience with similar facilities
 - Proof of financial stability.
- Launch period estimated to take 60 days, after which applications will be processed “first-come first-served.”
- All microFIT ($\leq 10\text{kW}$) and most projects $\leq 500\text{kW}$ will receive FIT contracts within 30 days

Transmission Set-Aside and Economic Development Adder

- There are two options for directing the OPA regarding transmission set-aside and economic development adder: 1) included within FIT directive or 2) issuing a separate directive during the Program Launch period.

Transmission Set-Aside

- The OPA will allocate available transmission capacity to FIT applicants through the Transmission Availability Test. A web-based Transmission Availability and Project Status (TAPS) tool will help potential developers determine where transmission capacity exists.
- For potential investor that is bringing a significant amount of new manufacturing to Ontario, transmission capacity will have to be set aside for the project or the project will have to be given priority access.
- The OPA shall hold in reserve 500 MW of bulk transmission capacity in [*Haldimand-Norfolk*] and an additional 2000 MW in 500 MW tranches for generating facilities whose proponents have signed a province-wide Framework Agreement.

Economic Development Adder

- The OPA shall provide an Economic Development Price Adder to proponents that:
 - develop significant new generation capacity
 - bring to the province new manufacturing capacity and associated green collar jobs, and
 - sign a province-wide Framework Agreement.

Transition from RESOP

- In order to facilitate commercial operation of additional renewable energy projects, the OPA shall offer RESOP contract holders that have not reached commercial operation the following options:
 1. There will be a 30 day window to rescind their contracts and apply for the FIT, replacing the requirement for a 12-month period without an OPA contract to apply for the FIT.
 2. Wind projects that are ready to start construction in 2010 would be offered 30 days to apply to amend their contract, provided they have obtained a Certificate of Approval from MOE and post a security of \$20,000/MW. They shall receive price of \$126/MWh instead of RESOP price of \$110/MWh, which includes 100% of the ecoEnergy credit instead of 50%
- Developers will be required to:
 - Rescind connection capacity priority and connection agreements
 - Compete on equal footing with other FIT applicants
 - Post security and meet all other FIT contract requirements, including Domestic Content
 - Meet any Renewable Energy Approval requirements (e.g., setbacks)
 - Pay liquidated damages if they don't reach commercial operation in 2010.

Domestic Content Requirements

- Domestic content provisions will be enforced through the FIT Contract.
- Developers who have executed contracts with equipment suppliers by the date of this directive will not be subject to domestic content requirements.
- MicroFIT contracts excluded (TBC).
- Wind power:
 - Developers who have signed a FIT contract before Dec. 31, 2011 will have to meet an Ontario content requirement of 25%.
 - Developers who signed a FIT contract after January 1, 2012 will have to meet an Ontario content requirement of 50%.
- Solar PV:
 - Developers who have signed a FIT contract before Dec. 31, 2011 will have to meet an Ontario content requirement of 50%.
 - Developers who have signed a FIT contract after January 1, 2012 will have to meet an Ontario content requirement of 60%.

Domestic Content - Attestation

1. When applying for a contract, an officer of the applicant will sign an acknowledgement confirming that they have read and understood the FIT Program Rules and Contract with respect to domestic content.
2. When applying for Notice to Proceed, developers will set out a domestic content plan documenting how they intend to meet the domestic content requirements for review and approval by the OPA.
 - Developers will indicate which components they will source in Ontario and what percentage of the total cost of the project is represented by those components. The OPA will provide an estimate of the percentage cost of individual components as a reference point for developers.
 - Developers will have to source a minimum number of components in Ontario; the number will rise as the domestic content requirement rises.
3. At commercial operation, developers will provide a statutory declaration that they have met the domestic content requirements.

Domestic Content Requirement for Wind – Pre 2012

Manufacturer signing FIT contract prior to December 31, 2011 must reach 25% domestic content.

Major Project Development Activity*	Percentage of Total Cost Manufactured in Ontario	OPA Estimate of % of Total Cost
1. Towers formed and shaped in Ontario, with Ontario steel		12%
2. Blades cast and molded in Ontario		18%
3. Nacelle “final assembly” in Ontario (at least three specified subcomponents e.g., gearbox, generator, brake, yaw system, pitch system, etc manufactured in Ontario.)		45%
4. Transformers, where transformer is wound in Ontario		5%
5. Construction, foundation and consulting, legal, and other services		20%
<u>REQUIREMENT UNDER FIT CONTRACT:</u> Minimum # of Required Ontario Activities	3 / 5	
Corresponding Level of Domestic Content	At least 25%	100%

Restrictions on Prime Agricultural Land and Biomass Generation

Prime Agricultural Land

- The OPA shall not enter into procurement contracts for energy generated by ground-mounted solar photovoltaic generation facilities greater than 100KW where those facilities are located on:
 1. land comprised of Canada Land Inventory Class 1 soils,
 2. land comprised of Canada Land Inventory Class 2 soils, or
 3. Specialty Crop Areas within the meaning of the 2005 Provincial Policy Statement.
- Minister to direct the OPA to permit ground-mounted solar photovoltaic facilities located on lands comprised of Canada Land Inventory Class 3 soils up to 1000 MW (nameplate capacity) allocated across the various geographic regions of the Province.

Biomass Generation

- The directive permits small biomass generation to use limited amounts of non-renewable fuel sources for start-up, combustion, stabilization and low combustion zone temperatures.

Programs Supporting FIT

- The Directive requires that the OPA include in its program rules the necessity for developers to effectively consult with aboriginal groups and require them to address the interests or concerns of aboriginal communities in good faith and in compliance with relevant laws, regulations and policies.
- The OPA is directed to support the participation of aboriginal and community groups by implementing a price adder for their projects, varying with the extent of economic interest that aboriginal or local community has in the project with projects in which they have a greater interest attracting a larger adder.
- The OPA is also directed to encourage aboriginal and local community projects by requiring application fees and security deposit requirements for such projects that are less than the standard levels.
- Specific support programs are available for communities, First Nation and Métis people and municipalities.
- See appendix for additional details on specific programs

Economic Connection Test (ECT)

General:

- The ECT assessment will be conducted every 6 months; the first test will be performed immediately following the initial transmission availability assessment (xx months after launch);
- Subsequent assessments will factor in updated FIT project proposals

Process:

- Where there is no available capacity a project will enter the FIT Reserve
- The ECT will look at the size, location and connection point of projects in the Reserve in order to:
 - group or cluster projects
 - identify enablers which meet the minimum OEB enabler criteria:
 - a) more than two renewable projects
 - b) greater than 100 MW total capacity
 - c) enabler line length greater than 10 km
 - determine the end points of the enabler, the connection voltage and the capacity
- The ECT process may also identify additional bulk and network upgrades, eg. protection system upgrades

ECT cont'd

Thresholds Triggering Development:

- OPA will apply the following economic thresholds for initiating project development work for enablers and other transmission projects:
 - \$500/KW for network transmission projects
 - \$200/KW for enabler projects (unsubscribed portions only)
- Projects that meet the threshold will be brought to the OEB to be designated appropriately so development work can begin
- Development work for priority transmission system projects will be initiated by the directive letter to Hydro One

Benefits:

- The triggering of development work signals the movement towards connection for generators proposing to connect to the line
- Projects proposed to connect to facilities moving to development are moved to FIT Production Line
- ECT will identify “cluster” and “enabler” opportunities; sharing facilities and reducing costs

Tx and Dx Cost Responsibility Now

Single Proponent (>10 MW)

Generator pays full cost of radial connection.



Connection Facility

Multiple Proponents (RES cluster)

Generator pays full cost of each radial connection (or must coordinate with other developers) – payment before construction.



Connection Facility

Connection Facility

Single Proponent (<10 MW)

Generator pays full cost of radial connection including any system improvement costs.



Connection Facility



System Upgrades

Transmission Network (>44 kV)

Orange Zones limit development

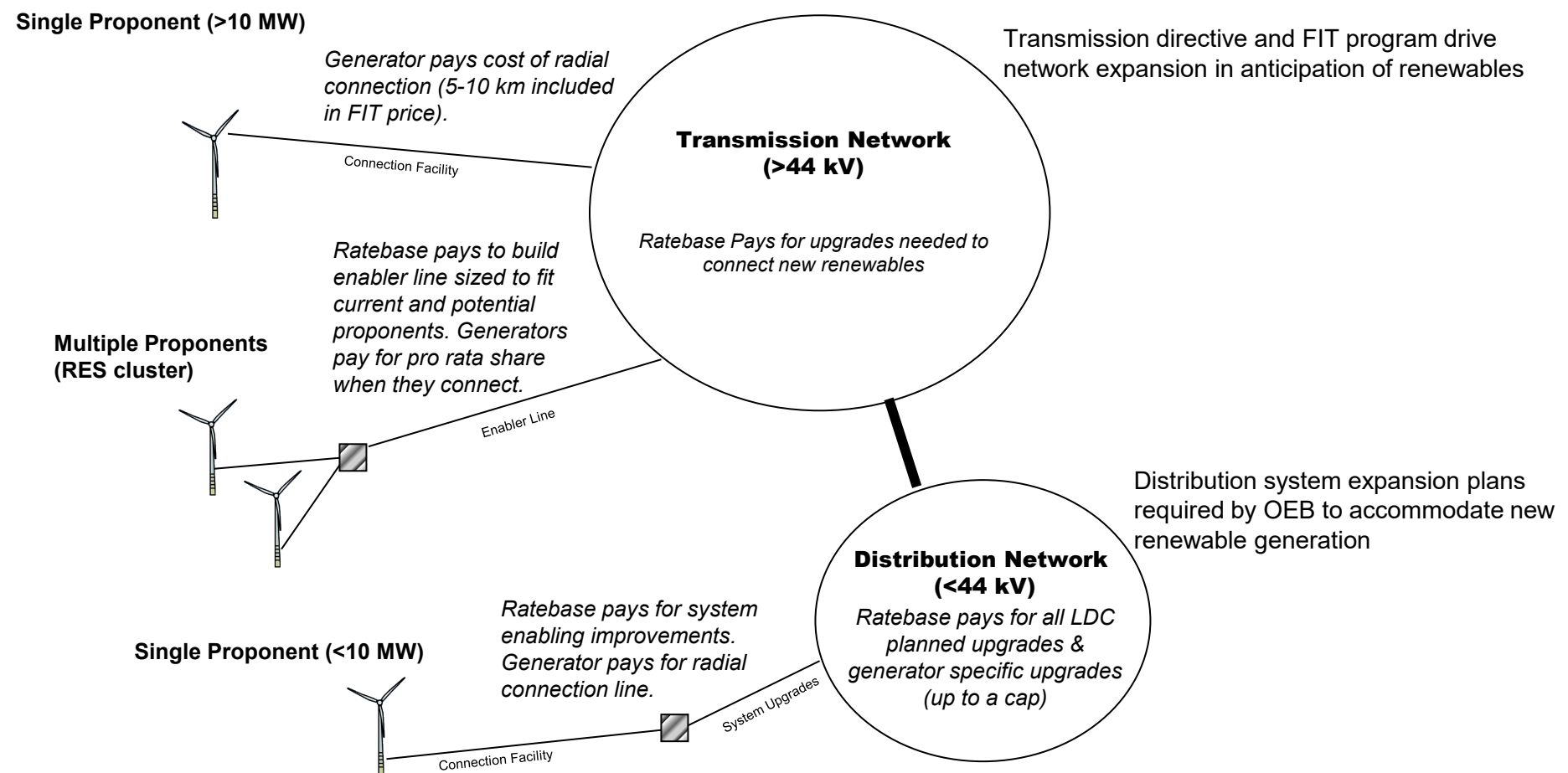
Distribution Network (<44 kV)

Generator pays full cost of distribution network upgrades – no incentive for LDC planning

Transmission System Planning based on defined need (not in anticipation of renewables).

Distribution System Planning by LDC's only based on defined need (not in anticipation of renewables)

Tx and Dx Cost Responsibility After FIT



Communications Rollout

Ontario's New Green Energy System is Open for Business

Green Energy, Green Jobs, Green Leadership

Timing September 24

Location TBD

Participants MEI, OPA

Storyline

- Beginning of a new era of green energy for Ontario
- Supporting economic development, new domestic content requirements and a Feed-in-Tariff program are now in place
- Ontario has a one-stop shop for renewable energy projects to get off the ground

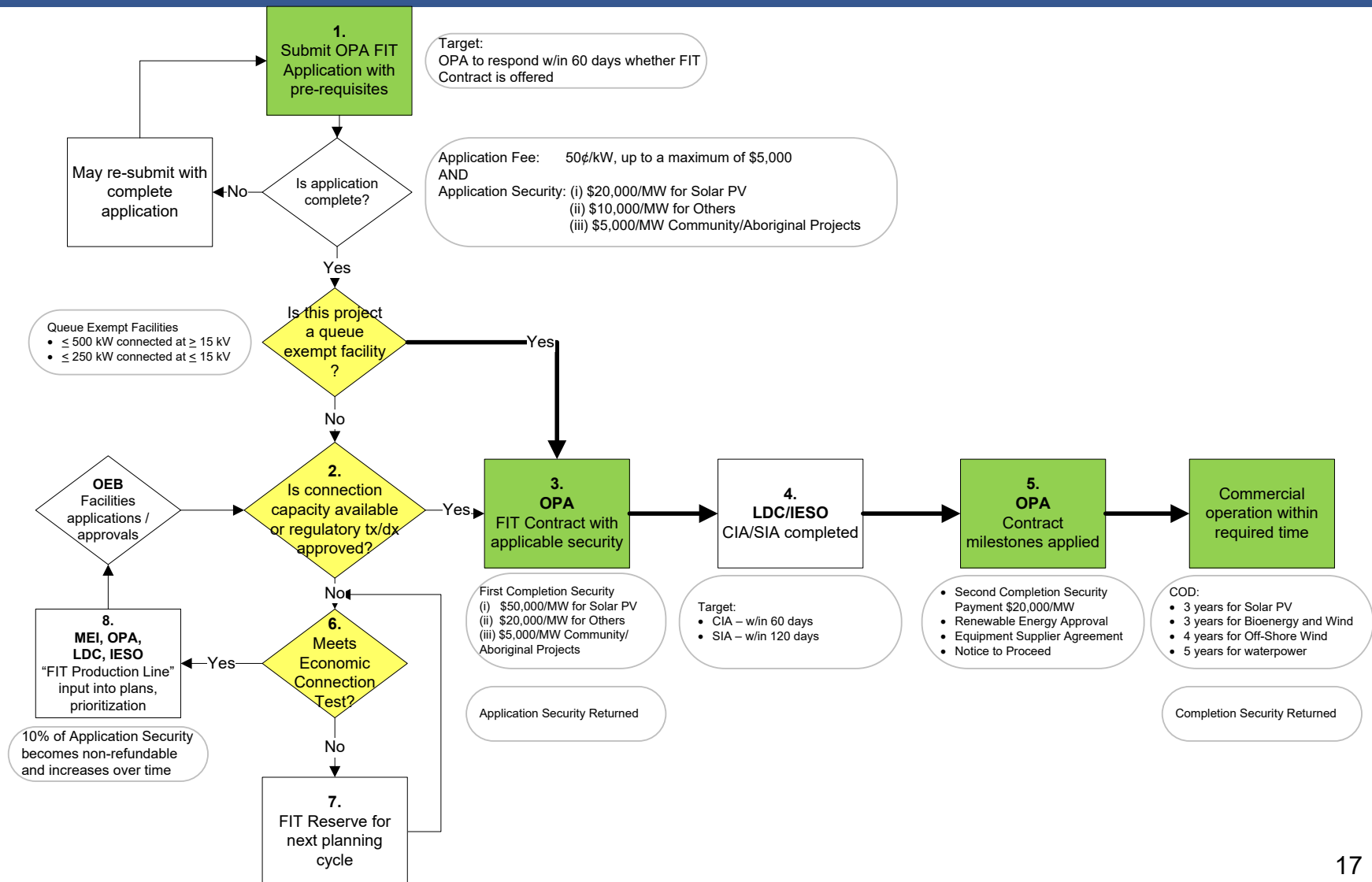
Key Messages

Ontario is now the North American leader in attracting renewable energy projects, jobs and an enhanced manufacturing sector.

Materials

News Release, Backgrounders, Web Content for REFO and FIT, "Open for Business"
Advertising

FIT Program Application Process



BRIEFING NOTE

TRILLIUM POWER REPORT ON ONTARIO'S OFFSHORE WIND POTENTIAL

ISSUE

Trillium Power Wind Corporation has released a report detailing the substantial potential for offshore wind in Ontario.

The report also brought forward criticisms with the FIT program and the MNR site release process.

Trillium Power Corporation plans to build 4 projects:

- Trillium Power Wind 1 – 710MW
- Trillium Power Wind 2 – 740MW
- The Great Lakes Array – 1600MW
- The Superior Array – 650MW

Trillium Power did not submit applications for FIT during the FIT launch period.

BACKGROUND

On January 18, 2009, Trillium Power Wind Corporation released a comprehensive, high-level report detailing offshore wind potential in Ontario's portion of The Great Lakes, as well as both economic and environmental benefits that would flow from offshore development.

The report demonstrates that the contiguous offshore areas already reserved under MNR's site release process would generate a total of 20,790 MW of offshore wind power.

According to Trillium, this would:

- Generate a total of \$253.6 billion in gross economic activity, assuming an average development cost of \$4 million/MW.
- At 50% domestic content levels, this would equal \$126.8 billion in gross economic activity over the next 15 years, equivalent to 3% of Ontario's GDP.

Trillium estimates that full deployment of Ontario's potential could create between 66,000 and 100,000 jobs, Ontario's GHG reduction targets would be exceeded by 56.3%, and would save 148.5 billion litres of fresh water per year.

Trillium also identified several policy issues that must be addressed before offshore development can move forward in an efficient and effective manner. Some of the major issues include:

- The 'carving out' of transmission costs;
- the reduction of planning, approvals and regulatory costs;
- the extending of offshore wind development leases from 20 to 50 years;
- the development of domestic content requirements specific to offshore wind; and
- Streamlining the timelines for the development process.

There are currently no operational offshore wind farms in North America.

HIGHLIGHTS OF CONCERNS RAISED IN REPORT

'Carving Out' Transmission Costs

The integration of offshore wind power into the existing onshore electrical grids efficiently and economically is raised as a critical issue, citing that the U.K. and German models have implemented full grid rate recovery mechanisms for both the expansion of onshore wind transmission networks and the development of offshore transmission. The report cites costs of approximately €1.25 per household per month to ratepayers.

The report recommends either implementing a similar system of 'carving out' transmission costs and paying for them on a rate-recovery basis, or increasing FIT rates for offshore, citing that in Europe transmission costs are 'carved out' and that FIT rates for offshore wind are higher than in Ontario, average approximately 22¢/kWh.

Reducing Developer Planning, Approvals and Regulatory Costs

The report states that planning, approvals and regulatory costs can often exceed tens of millions of dollars, and that the existing paradigm for FIT deposits favours larger developers (i.e. a 700MW wind farm would require deposits of \$21 million in cash or cash equivalents).

The report recommends that deposit costs for large wind projects should be capped at \$5 million, as they are required to pay for studies and other approvals made in addition to the \$10-20 million in development capital.

As cash deposits can have significant rate-of-return implications, the report also recommends the use of other financial products to meet FIT deposit and guarantee obligations such as title insurance in favour of contracting authorities – a method that's been used in Europe.

Extending Offshore Wind Development Leases

The report uses the UK example whereby initially, offshore wind development leases were set for 20-year terms (similar to other European jurisdictions), but retroactively increased all crown land leases for offshore wind to 50 years. This, in turn, lowered development costs by allowing developers to amortize their infrastructure costs over a 50- rather than 20-year period.

The report argues that meeting this benchmark would incentivize capital markets to participate in financing the sector.

Domestic Content

The report argues that the costs for onshore and offshore wind are apportioned differently, and like the FIT rates, domestic content requirements for offshore wind should be distinct from those for onshore wind.

As an example, the concrete pad 'foundation' for onshore wind towers is included in the cost of construction and onsite labour, but represents only a fraction of the overall cost. For offshore developments, though, the cost of the foundations can cost up to 20% as depths can average between 20m and 30m, requiring large underwater structures.

Domestic content activities should also be accepted by the contracting authority (OPA) before project development begins, as there is a risk for projects to be designated non-compliant after construction, allowing the contract to be cancelled.

Timeliness of the Project Development Process

At present, offshore wind projects require longer lead times, as projects are generally larger and more complex. The report recommends that a process allowing larger projects (300MW+) to undertake their System Impact Assessment prior or parallel to discussions with the OPA and MOE would reduce risks in the development process.

SUGGESTED RESPONSE

On the Trillium Report's Findings

The government is committed to developing clean, renewable sources of energy, so Ontarians will have a reliable and sustainable supply of electricity for the future. The development of new sources of renewable energy plays a critical role in helping to reduce the impact of climate change. The development of renewable energy projects and the protection of our natural environment are quite compatible priorities.

The government is pleased with the report's findings that Ontario's high-quality offshore wind resources may allow it to become a leading jurisdiction in the sector.

On General FIT

A number of energy project developers and manufacturers have expressed significant interest in the Ontario Feed-in Tariff (FIT) program, and have applied for contracts during the launch period of FIT (October 1, 2009 to November 30, 2009).

There are approximately 2500MW of available transmission connection capacity for FIT projects, and it is expected that with the overwhelming response to the program, there will be a number of projects that will not receive FIT contracts. FIT contracts will be awarded by the OPA in March 2010.

Moving forward FIT program rules will be reviewed every 2 years.

On Domestic Content

FIT domestic content provisions were developed in consultation with stakeholders and are designed to help ensure that the technology and the solutions behind renewable energy generation will create green jobs for Ontario.

Proponents and manufacturers have requested more flexible domestic content rules. In order to intelligently analyze developers' and manufacturers' requests for changes to domestic content requirements, MEI is planning to commission an independent analysis of the domestic content requirements for FIT and the responses from manufacturers and project developers requesting revisions to the requirements.

On MNR's Site Release (includes lease-lengths)

On September 24, 2009, MNR posted their intent to undertake a review of the wind and water site release policies and procedures on the EBR. The review was to be done in two phases. This approach will allow for the efficient review of the more straightforward administrative elements of site release (Phase I), followed by the more complex policy elements (Phase II).

In December 2009, MNR posted revised wind and waterpower policies and procedures on the EBR for public review and comment. The comment period closed on February 5, 2010.

Following the posting, MNR will undertake focused stakeholder engagement to solicit feedback on the proposed Phase I revisions, and enable pre-consultation on potential Phase II revisions.

On MOE Approvals for Offshore Wind

Off-shore wind facilities are subject to the REA but with unique requirements:

- An Offshore Wind Facility Report is required to evaluate the potential for negative environmental effects arising from the project and proposed mitigation measures.
- Province-wide standard setbacks have not been developed for off-shore projects at this time.
- Each application will be reviewed based on site-specific characteristics of the project and the extent to which the facility design will mitigate any negative environmental effects.

Currently the MOE, MNR, MCL and MEI are working together to develop policies and procedures for off-shore wind projects to provide greater certainty and clarity.

The MOE will be consulting with other partners and the public on the proposed procedures and requirements which will be implemented through an amendment to Regulation 359/09.

ATTACHMENTS

1. Trillium Power press release announcing the release of the report on Ontario's offshore wind potential.
2. Trillium "Round 1: Turbocharging Ontario's Economy Through the Development of its Unique Offshore Wind Resources" report.
3. Meeting note prepared for January 7 meeting with DM and VestasDM Vestas Meeting Note Jan 7 - 2009

Prepared By: Tomas Nikolakakos, Senior Project Advisor
Renewables and Energy Facilitation Branch
416-314-9481

Approved by: Mirrun Zaveri, Deputy Director
Renewables and Energy Facilitation Branch
416-212-7701

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

Sue Lo, ADM
Renewables and Energy Efficiency Division
416-327-8552

Date Prepared: February 8, 2010

MEETING NOTE

NAME OF ORGANIZATION: Vestas Wind Systems A/S

DATE/TIME OF MEETING: Monday, January 11th, 2009
Time 3 – 4 pm

LOCATION OF MEETING: Deputy Minister's Office

PURPOSE: To discuss Vestas proposal regarding export for credit to address domestic content requirements.

ATTENDEES: Saad Rafi, Deputy Minister, MEI
Sue Lo, ADM, Renewables and Energy Efficiency Division, MEI
Pearl Ing, Director, Renewables and Energy Facilitation Branch, MEI
TBD Vestas Wind Systems A/S
TBD Vestas America

AGENDA/KEY ISSUES:

Vestas has approached the ministry with a proposal regarding credit for export and partial credit to fulfill Ontario domestic content requirements.

NOTES ON AGENDA ITEMS:

1. Item 1 – Unspecified meeting request. Vestas likely wishes to discuss status of Vestas' proposal to permit credit export and proportional share of Designated Activities to fulfill Ontario domestic content requirements.

Background:

- On October 27th 2009, Sue Lo, ADM Renewables and Energy Efficiency Division, Karen Slawner, Renewables and Energy Facilitation Branch and Jonathan Cheszes, OPA met with Vestas (Gary Pundsack, Manager, Gov't Relations and Cynthia Wong, VP, Business Development). The Vestas representatives reiterated their concerns with the domestic content requirements and timelines; they underscored their support for the export credit/proportional share concepts. They also mentioned that the firm was considering manufacturing the hub/hub components in Ontario if the government would consider adopting the export credit model. Vestas also provided a letter to MEI ADM Sue Lo proposing:

- certain Designated Activities should have higher associated percentages
 - further clarification of the definitions under certain Designated Activities
 - additional flexibility for compliance through new export credit and proportional share schemes – see details below
 - one year delay in deadline for 50% domestic content requirement for wind energy projects (from 2012 until 2013)
- On November 25, 2009, Martha Wyrsh, President of Vestas-Canadian Wind Technology Inc. sent a letter and attachment to MEI Minister with additional information on Vestas' proposed export credit and proportional share models. The models propose to add the following components to the Ontario domestic content requirements:
 - Export credit - credit is given for domestic content requirements where the contract holder arranges for the export of an equivalent amount of product from a manufacturing facility located in Ontario
 - Proportional share - allow part of the equipment or services for a renewable energy project or a Designated Activity to be sourced from outside Ontario – would award partial credit for each of the relevant Designated Activities

Suggested Response:

- Like the U.S. and Quebec, Ontario is encouraging both generation and manufacturing in renewable energy, as industrialized countries transition to greener economies. The domestic content requirements are intended to ensure that Ontario dollars spent on generation create jobs and investment in Ontario.
- We are pleased to work with Vestas to develop Ontario's wind energy industry.
- We appreciate the concerns that your firm has outlined with respect to Ontario's domestic content requirements.
- We thank you for the helpful information you have submitted to the ministry including the example calculation demonstrating how input variations, such as proportional share can be used to meet domestic content requirements.
- Your submission is of interest to the ministry, but it requires considerable research and analysis by ministry staff.
- We want to assure you that your proposal is under careful review.
- Do you have any additional information you would like to provide or are there other approaches you would like the ministry to review?

KEY FACTS RE ORGANIZATION:

- Headquartered in Randers, Denmark, Vestas is the largest manufacturer of wind turbines, with about 26% of the world market, and over 21,000 employees. Within North America, Vestas Americas employs 900 people at its headquarters in

Portland, Oregon; about 1000 at its manufacturing facility near Denver, Colorado; and a handful at its Canadian office in Toronto. Vestas is completing a North American R&D Center in Houston, Texas.

- Vestas is also one of the most vertically-integrated of wind manufacturers, with four operating units dedicated to the manufacture of blades, control systems, nacelles and towers.
- In 2004-05, Vestas looked at building a manufacturing location in Ontario, which would have employed 450 persons. It took a close look at a former Siemens plant near Hamilton, but subsequently indicated it was putting off a decision to invest in North America.
- Having received a tip that Vestas was again looking, MEDT Investment Branch again contacted Vestas in 2006, but was told that Vestas would get back to the Branch if it reactivated its North American project. Vestas also met with representatives of the Ministry of Energy & Infrastructure, where they indicated that North America would likely be supplied from Asia or Europe.
- A Vestas representative from Denmark, Henrik Jensen, indicated during a Toronto offshore wind conference in October, 2009 that Vestas would set up its North American offshore wind office in Toronto (where it already has an office). Mr. Jensen went so far as to name the individual who would head up the office (Scott Keating).
- A meeting took place with Vestas in Europe on October 5, 2009 when Terrie Romano (MEDT's SEO Munich) and Suzanne Steensen (Canadian Embassy Copenhagen) met with Peter Brun, Vestas Government Relations. Vestas appeared to be considering how to enter the Ontario market but had not yet made any decisions. Mr. Brun indicated that although Vestas would have preferred no domestic content requirements that they could plan around the 25% requirement. He also emphasized that Vestas found the planned 50% domestic content requirement to be very problematic. Furthermore the company would no longer be willing to seriously consider production facilities unless they could foresee long-term sales of 1000 MW per year from any given location. Mr. Brun also suggested that Ontario should consider becoming a world leader in the commercialization of technology required to combine wind and hydro-electric power generation.
- Vestas Americas' opposition to domestic content requirements have been made clear to both MEI and MEDT.
- On Monday December 14th, Minister Gerretsen, Richard Todd, MEDT In-Market Business Development Consultant and Suzanne Steensen, Canadian Trade Commissioner, Copenhagen met at a wind farm in southern Sweden with Klaus Steen Mortensen, President of Vestas' Northern Europe operations based in Malmo, Sweden (they did not meet Vestas CEO Ditlev Engel as originally

planned). In addition some unspecified colleagues from the Vestas Government Relations Office joined the meeting. MEDT reports the meeting went well. The focus of the meeting appears to have been to confirm Ontario interest in Vestas' North American business operations and build a better working relationship.

Date Prepared: January 8, 2009

Prepared by: Leo Tasca
Manager
Renewable Energy Unit
416-326-3775

Approved by: Pearl Ing,
Director
Renewables and Energy Facilitation Branch
416-327-3868

Sue Lo, ADM
Renewables and Energy Efficiency Division
416-327-8552

BRIEFING NOTE

MNR SITE RELEASE POLICY CHANGES FOR WIND AND WATER

PHASE I POSTING ON THE ENVIRONMENTAL REGISTRY

ISSUE

The Ministry of Natural Resources (MNR) has proposed revisions to the *Crown Land Waterpower and Windpower Site Release and Development Review Policies and Procedures* document in order to align with the Green Energy Act (GEA).

This document will be posted on Ontario's Environmental Registry (EBR) on December 21, 2009, and will be applicable to new site release applicants.

Specifically, the site release applicants will be required to apply to the Feed-in Tariff (FIT) within a given timeframe; as such, MEI may be asked to comment.

BACKGROUND

"Site release" is the process by which MNR allows renewable energy developers to pursue project opportunities on Crown Land. As MNR is currently working through an extensive backlog of applications, the window-of-opportunities to apply for site release is currently closed.

On September 24, 2009, MNR posted their intent to undertake a review of the wind and water site release policies and procedures on the EBR. The review was to be done in two phases:

- Phase I – Administrative elements to provide clarity for those currently in site release; align site release with the direction of the GEA; and eliminate the duplication of work in relation to other permitting and approvals.
- Phase II – Complex policy elements of the review (to be initiated in January 2010) focusing on the long term application of site release and the policy direction for renewable energy developments on Crown land in the context of the GEA.

The posting indicated that proposed Phase I revisions would be posted on the EBR for comment in Fall 2009. This is now set to be posted on December 21, 2009.

CONCERNS FROM STAKEHOLDERS

On November 24, 2009, MNR responded to a CanWEA letter, clarifying how existing site release applications would be handled in relation to FIT. Existing site release applicants who apply to FIT will be prioritized; those that do not apply to FIT will still be eligible to retain their site release application, provided the land does not overlap with a site release applicant whose FIT application has been approved.

MNR has advised that they do not anticipate heavy concern from stakeholders in response to the Phase I posting, however the following issues may arise:

- Industry, Aboriginal communities/organizations and stakeholders may express concern that additional aspects of site release are not being dealt with during Phase I, and may be anxious to have MNR begin the Phase II review.
- Aboriginal communities may express disappointment with what they considered “rushed” Ontario government consultation that occurred in earlier GEA-related outreach in mid-2009.

SUGGESTED RESPONSE

The government is committed to developing clean, renewable sources of energy, so Ontarians will have a reliable and sustainable supply of electricity for the future. The development of new sources of renewable energy plays a critical role in helping to reduce the impact of climate change. The development of renewable energy projects and the protection of our natural environment are quite compatible priorities.

MNR’s phased approach will allow for the efficient review of the more straightforward administrative elements of site release (Phase I), followed by the more complex policy elements (Phase II).

The EBR posting will be supported by the revised wind and waterpower policies and procedures, and a summary document that provides a general overview of the revisions being proposed by MNR to assist the public in undertaking their review, and providing comments.

Following the posting, MNR will undertake focused stakeholder engagement to solicit feedback on the proposed Phase I revisions, and enable pre-consultation on potential Phase II revisions. MNR will also work with partner ministries to ensure a reasonable timeframe is achieved to provide information to Aboriginal communities/organizations about future sessions, to allow more time to accommodate participants’ schedules.

With respect to the mandatory application to the FIT program, water and wind applicants will be given an adequate timeframe to apply to FIT, in order to ensure testing of the site and project viability.

ATTACHMENTS

1. Letter from MNR to CANWEA regarding existing site release applications and alignment with FIT, November 24, 2009

Prepared By: Samira Viswanathan, Senior Project Advisor
Renewables and Energy Facilitation Branch
416-314-9481

Approved By: Demetra Koros, Team Leader
Renewables and Energy Facilitation Branch
416-314-9470

Date Prepared: December 19, 2009

**Ministry of Natural
Resources**

Natural Resource
Management Division

Room 6540, Whitney Block
99 Wellesley Street West
Toronto ON M7A 1W3
Tel: 416-314-6131
Fax: 416-314-1994

**Ministère des Richesses
naturelles**

Division d'Administration de
Ressources minérales

Édifice Whitney, bureau 6540
99, rue Wellesley Ouest
Toronto (Ontario) M7A 1W3
Tél.: 416-314-6131
Télééc.: 416-314-1994



Robert Hornung
President - Canadian Wind Energy Association
810 – 170 Laurier Ave. West
Ottawa, ON
K1P 5V5

November 24, 2009

Dear Mr. Hornung:

Thank you for your letter of November 5th 2009 outlining the concerns of the Canadian Wind Energy Association (CanWEA) with regard to the Ministry of Natural Resources' approach to aligning the goals of the Green Energy Act with our existing applications for developing Crown land sites.

I also appreciated the opportunity to directly discuss these issues with some of your members and can assure you that we have carefully considered them in subsequent discussions with our colleagues in the Ministry of Energy and Infrastructure (MEI) and the Ontario Power Authority (OPA).

In the interest of balancing the need for a fair process for wind applicants with the Ontario government's priority of identifying shovel ready projects for improved generation and transmission planning, the following alternative approach will be implemented in the following order of priority;

- Existing Crown land applicants who apply to FIT during the launch period, and who are awarded contracts by the OPA, will be given the highest priority to the Crown land sites applied for. This means that these applications will take precedence over all others for this site, and will receive priority attention from MNR.
- Existing Crown land applicants who apply to FIT and who are placed in the Production Line or the Reserve will have priority access to overlapping grid cells in their applications over non-FIT applicants.
- In both of the above cases where application(s) are received for the same grid cell(s), the MNR date and time stamp will determine the priority applicant on that site.

- For existing applicants who decide not to submit FIT applications, they will be eligible to retain all or portion(s) of their application(s) that are not overlapped by a proponent with an accepted FIT application for further review in MNR's Site Release process.

For all Crown land FIT applicants, the required FIT security will be refunded should wind resource testing demonstrate that a site does not have a viable wind regime as determined by the proponent.

The OPA has advised that there will be no change in the amount of security deposit required. However, FIT applicants who have not completed testing will also have the option of not specifying a connection point in their FIT application. Doing this will make them ineligible for a FIT contract and will automatically place them in the FIT Reserve if their application is accepted by the OPA. FIT Program applicants with projects that are placed into either the FIT Production Line and/or the FIT Reserve should have the flexibility proponents require with regard to the timelines for completing wind testing studies.

All Crown land applicants proceeding through FIT or MNR's regular Site Release process will need to submit all required application fees as per the Site Release process requirements.

In order to ensure that developers are making progress on their applications, MNR will establish a "milestone" schedule, whereby developers will be required to meet clear deliverables on specified dates over the testing period, to ensure ongoing progress is being made towards "shovel-readiness" of potential wind projects. We will be contacting your offices to convene a meeting to discuss such a schedule next week.

To reflect the commitments noted above, MNR's site release policies and procedures will be amended to clarify timelines related to windpower testing and procurement for all Crown land applicants to ensure that projects are proceeding toward a development decision at an appropriate pace. Once existing applications have been screened, and the supporting policy documents have been approved, MNR may consider new applications for Crown land in support of our green energy goals, including those linked to critical transmission planning requirements.

We believe this approach to be a fair and reasonable balance, which provides CanWEA's members the flexibility they need to obtain the requisite security and complete testing while at the same time ensuring ongoing progress to advance the government's green energy goals.

On a related matter, and to provide greater regulatory certainty for your members, I would also like to take this opportunity to clarify for CanWEA and its members that an application for Crown land does not create a legal entitlement or confer rights and, therefore, cannot be transferred. Where an applicant has received "applicant of record" status for a site, the applicant of record status may be transferred to an affiliate as defined under the *Ontario Business Corporation's Act* or other applicable legislation. Please also note that under authority of the *Public Lands Act* (section 2.1), the Minister of Natural Resources has the sole authority to approve or deny any application for the use of Crown land to support wind power testing or development.

If you would like to discuss this approach or have any questions with any of the matters I have raised please don't hesitate to contact me. I look forward to working with you on this important initiative.

Sincerely,

A handwritten signature in black ink, reading "Rosalyn Lawrence". The signature is fluid and cursive, with the first name "Rosalyn" and last name "Lawrence" clearly distinguishable.

Rosalyn Lawrence
Assistant Deputy Minister
Natural Resource Management Division

cc. Garry McKeever, Director, Office of Energy Supply- MEI
Pearl Ing, Director, Renewable Energy Facilitation Office, MEI
Jim MacDougall, Manager, FIT Design- Ontario Power Authority
Richard Duffy, Ontario Power Authority

BRIEFING NOTE

MCL STAGE II ARCHAEOLOGICAL STUDY REQUIREMENT UNDER O.REG. 359/09

ISSUE

There is concern amongst many developers that they will be unable to obtain a timely Ministry of Culture sign-off in order for them to obtain their Renewable Energy Approval (REA) from the Ministry of the Environment (MOE).

This will make it difficult for the developers to meet their commercial operation date (COD) through the Feed-in-Tariff (FIT) program.

BACKGROUND

The REA is applicable to most renewable energy projects (with the exception of those approved prior to September 24/09, some scale-renewable projects, and water power projects).

While a FIT contract can be issued in advance of a REA, the issuance of a Notice-to-Proceed (essentially, where the developer can begin construction) is contingent on the receipt of a REA and other necessary permits required for construction.

The government has committed to a 6-month review and approval time for a REA, contingent on the receipt of a "complete submission". A "complete submission" for a REA includes sign-off from the Ministry of Culture (MCL) and the Ministry of Natural Resources (MNR).

The developers that are planning to have such a COD within 2010 are a mix of projects:

- that have aggressively bid during launch; and,
- those that have been in a power purchase agreement prior to the FIT but are not yet in operation, but are still working on their environmental approvals

The COD will be based on contract date from the Ontario Power Authority (OPA). At this time it is not known when contracts will be issued from the OPA; however it is very likely that contract dates will not be in January 2010 as predicted at the outset of the FIT program.

Failure by the proponent to meet COD results in a payment of \$0.25/kW/day for each calendar day that COD is late.

In order to obtain MCL sign-off, warranted projects must complete a Stage II Archaeological Assessment (Stage II). Partial sign-off (partial clearance) may be given by MCL in support of a REA for a Stage III or IV Archaeological Assessment. This sign-off differs than how approvals under the Environmental Protection Act/Environmental Assessment Act worked prior to the REA. In the past, a proponent could complete the Stage II while completing the construction of their project, keeping in compliance with their Environmental Assessment (EA) requirements.

The former EA process differs from the REA process in that the EA process is a planning tool which is prepared in advance of the specific technical approvals necessary to gain full regulatory approval.

The new REA process is a front-end loaded complete approval, inclusive of the technical permissions required to gain full regulatory approval under the Environmental Protection Act. It is for this reason, that MCL is requesting a full Stage II to ensure the principle of avoidance during design is upheld, and to ensure that the consultation and public notice requirements required for a REA are inclusive of any findings from a Stage II. Notwithstanding, MCL is committed to the development of renewable energy and is open to a solution that enables projects to get online.

A "complete submission" of a REA does not include a FIT contract; meaning that the MOE will be reviewing and approving applications for a REA that may or may not "win" a contract in the short term. The nature of the FIT program enables developers to wait for adequate transmission build out. As such, the Renewable Energy Facilitation Office (REFO) is recommending that a REA should have an expiry date/time limitation to be based on the nature of the FIT program.

CONCERNS IDENTIFIED BY REFO

Developers would be required to invoke Force Majeure (full definition in Article 10.3 of the FIT contract), which includes:

any inability to obtain, or to secure the renewal or amendment of, any permit, certificate, Impact Assessment, licence or approval of any Governmental Authority, Transmitter or LDC required to perform or comply with any obligation under this Agreement, unless the revocation or modification of any such necessary permit, certificate, Impact Assessment, licence or approval was caused by the violation of the terms thereof or consented to by the Party invoking Force Majeure

Numerous projects invoking Force Majeure due to an inability to obtain their REA would be inconsistent with the Government's green energy mandate.

STEPS TAKEN BY REFO

The following has occurred (in chronological order) to date on this issue:

- REFO has held a conference call amongst MOE, MCL and OMAFRA to discuss the issue. The outcome was that MCL has continued to uphold their position that a full stage II is required for sign off, but made it clear that they are open to a solution if they are the "hold up" for renewable energy projects. OMAFRA does not have any policies or agreements that would require a farmer to keep their land in a no till state. Their position is that renewable energy developers need to meet the requirements of the REA including requirements for archaeological assessment.
- An email has been sent to Sue Lo from CanWEA stating that members feel that MCL's position of a completed Stage II is too onerous and may add undue delay to project development.
- REFO has written to MCL detailing proponents concerns and has specifically asked for a meeting with MCL in relation to two projects (Bornish wind farm and Adelaide wind farm) to further discuss the issue.
- A letter has been written to Richard Mortimer, the Director of Programs, Policy and Services, MCL, from NextEra Energy in relation to this issue and how it affects Bornish wind farm.

SOLUTIONS/NEXT STEPS

Partial clearance for projects that have CODs in 2010 or for projects that bid during the FIT launch period. The developers would be fully liable for any risks incurred, furthermore, they would have to complete the necessary consultations (aboriginal, community, and municipal) if any archaeological and/or heritage resources were found.

MCL should meet with proponents, archaeologists, and REFO to make sure that this situation is fully understood (including an understanding of what is required for a Stage II), and to identify areas for compromise that can satisfy both MCL's concerns for Archeological Assessment and ensure that proponents are able to meet their FIT COD.

ATTACHMENTS

Letter from NEXtera Energy to Richard Mortimer, Director, Programs and Services Branch, MCL

Date Prepared: January 4, 2010

Prepared By: Samira Viswanathan, Senior Project Advisor
Renewables and Energy Facilitation Branch
416-314-9481

Approved By: Demetra Koros, Team Leader
Renewables and Energy Facilitation Branch

416-314-9470

UPPER CANADA SOLAR GENERATION

ISSUE

The Premier will be going to visit a solar project/site by Upper Canada Solar Generation in eastern Ontario.

BACKGROUND

About the Company

- Upper Canada Solar Generation (UCSG) is headquartered in Elizabethtown-Kitley Township, in Eastern Ontario.
- UCSG was founded in 2007 with the opening of a solar test facility in Brockville, Ontario.
- The principle purpose of the testing facility was to research various types of alternative energy resources, with a focusing on solar PV.
- UCSG offers installation of solar panels in commercial, residential, agricultural and municipal settings.

Existing Projects

- There is limited information available on USGC's existing projects.
- USGC partnered with local Brockville company, L.A. Knapp Construction, to build a 100kW solar array on the L.A. Knapp's commercial property.

FIT Applications **CONFIDENTIAL**

- During the FIT launch period (October 1, 2009 – November 30, 2009), Upper Canada Solar submitted 3 applications for Feed-in Tariff contracts.
- All of three applications are for 10MW ground-mounted solar projects.
- All three applications are located in Ontario's Eastern region. Two of the proposed projects are in the Brockville area, and the third proposed project is in the Elizabethtown-Kitley area.

Additional Project – Brockville Memorial Centre

- UCSG is been working on a \$1.4-million rooftop solar project, which proposes 1,232 solar panels installed across the entire surface of the Brockville Memorial Centre's rooftop.
- The project would see up to 221kW of capacity installed across the entire surface of the Memorial Centre roof.
- It is currently unknown as to whether or not USGC has applied for a FIT contract for this project.
- The response to the Memorial Centre rooftop project has been positive, as it will reduce operating costs by nearly \$30,000 per year.
- In addition to the savings, a FIT contract for this project is estimated to generate nearly \$220,000 per year for the community.

Issues and Concerns

- No immediate issues or concerns have been identified with UCSG.
- USGC has been viewed has a community leader in the 'clean-tech' industry.

Prepared By: Tomas Nikolakakos, Senior Project Advisor
Renewables and Energy Facilitation Branch
416-212-7723

Approved by: Mirrun Zaveri, Deputy Director
Renewables and Energy Facilitation Branch
416-212-7701

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

Sue Lo, ADM
Renewables and Energy Efficiency Division
416-327-8552

Date Prepared: February 5, 2010

Community Energy Partnerships Program – Proposed Amendment to Minister's September 24th Directive

Issue:

MEI and OPA are recommending three additions to broaden the scope of CEPP to further help renewable energy project proponents in Ontario. If approved the changes would be made through an amending Minister's Directive:

1. Allow cooperatives developing projects over 10MW be eligible funds to cover soft costs under CEPP
2. Allow a rise in eligible funds from 200k to 500k for cooperatives
3. Allocate 500k for outreach and education.

Background on the Community Energy Partnerships Program:

- The Community Energy Partnerships Program (CEPP) was officially launched on May 10, 2010 by the Minister at the Ontario Sustainable Energy Association's (OSEA) Conference. The OPA has hired, through an RFP, a third party program manager to administer the program (this was required based on the Minister's Sept 24th Directive). The Community Power Fund (CPF) and Deloitte are currently the program managers of CEPP.
- Creating a program that provides soft costs for community owned projects stems from the Green Energy Act objective of helping to promote community based renewable energy projects in Ontario. These would be the costs associated with preliminary studies and assessments, such as those needed under the Renewable Energy Approvals process
- One of the objectives of CEPP is to facilitate the participation of communities in the development of renewable energy generation facilities and help 'level' the playing field for groups that could be excluded from developing renewable energy projects by financial barriers.
- CEPP help with the 'soft' costs associated with renewable energy project development for technologies including wind, solar PV, biogas, biomass, landfill gas and water power projects ranging in size from 10 kW to 10 MW. A maximum of \$200,000 is available for a community project.
- The fund is separated into two pools: Grant 1 (Design and Development) and Grant 2 (Regulatory Approvals), where through these two grant categories, applicants may receive funding for

activities associated with renewable energy project development, such as:

- Resource Assessment studies
 - Business plans
 - Legal costs
 - Tendering for consultants
 - Project management
 - REA studies
 - Membership agreements
 - Construction contracts
 - Community consultation
 - Sales and Marketing plans
- The applications go to an independent review committee that evaluates and approves funding for the projects.

Proposed amendments to the Community Energy Partnerships Program:

Allow cooperatives developing projects over 10MW be eligible under CEPP

Allow a rise in eligible funds from 200k to 500k for cooperative projects over 10MW

- Through discussions with the OPA, Community Power Fund and Deloitte, all three stakeholders, including MEI staff, have agreed that removing the 10MW cap for cooperatives would be beneficial to ensure that larger scale community owned projects have access to this program.
- It is difficult to estimate the overall administrative costs associated with this amendment as actual take up of the program is difficult to predict. There are only a handful of projects that would be eligible under this new program rule; CPF has indicated that they are currently aware of three large community owned wind projects that could potentially apply to the program.
- Community Power Fund, an organization with extensive experience and knowledge regarding the cooperative model for developing renewable energy projects, has indicated that cooperatives developing some of the larger projects (over 10MW) would benefit greatly from this Program by providing them with soft costs of up to \$500,000 to help with upfront consulting and costs of studies.
 - The increase to \$500K in soft costs is to recognize that developmental costs are generally greater for larger scale renewable projects and the current \$200K may not be sufficient to assist project proponents. For example, a 10MW wind project can cost up to \$32 million, with developmental

costs of up to \$1 million dollars. Compared with a smaller wind project of 1MW where developmental costs are approximately \$150,000 to \$200,000 dollars.

Considerations

- By allowing cooperatives to receive funding through CEPP for projects over 10 MW, the government will signal support for the cooperative-based renewable energy generation model in Ontario.

Through meetings with stakeholders, it has been made clear that cooperatives do not have the same access to financing from banks as commercial developers do and require financial help upfront to initiate renewable energy projects in their communities. Through this amendment, cooperative projects over 10MW will have access of up to \$500,000 in soft costs.

The understanding between MEI and OPA is that CEPP has a 'budget' of \$10 million a year. The overall budget was not stated in the original September 24th directive as the uptake and costs were unknown by the OPA. However, the amending directive will state an overall budget of \$10M for the program. As a general rule of thumb every one million dollar addition to the ratebase equals a 7 cent increase on the residential bill

- The expectation is that only a handful of community based projects over 10 MW will be eligible for the program. As an estimate, if the three community projects anticipated by CPF were to apply and receive the maximum amount of \$500,000 – that would amount to \$1.5 million in grants, or about 15% of the entire budget.
- Some non-cooperative entities, such as not-for-profit organizations, may argue that they are being treated unfairly and should also be eligible for funding
 - The rationale for excluding not for profits and other community type organizations was to ensure that the program costs remain manageable. There are hundreds of not-for-profit organizations in Ontario that could develop large-scale projects and potentially swamp the program.
 - The aim is to help 'truly' community-based renewable projects that involve as many Ontarians as possible, whether in one specific region or across different regions in the province.

Recommendation #1:

- Allow community cooperative projects over 10MW be eligible for development costs under CEPP

Recommendation #2:

- Allow community cooperative projects building projects over 10MW to be eligible of up to \$500K in developmental soft costs

Amend CEPP to provide some education and capacity building grants to not for profit organizations

- There are very few grants available for outreach and education capacity building for renewable energy in Ontario. Having CEPP provide for education/capacity building grants will help in bridging the gap that currently exists in the lack of funding currently available to proponents for education/outreach activities in the province.
- The various players in the community renewable energy sector (Ontario Sustainable Energy Association, Toronto Renewable Energy Cooperative) have expressed concern that despite the CEPP, there is a lack of funding support for education and capacity building in the Community Power sector. The CEPP currently is limited to providing project development grants only.
- There are currently a number of provincial organizations as well as local community organizations with mandates and programs focused on education and capacity building to support Community Power.
- The capacity building grant would be open to any non-profit, co-operative or charitable organization in Ontario (as defined in FIT Rules) that: provides support to community power, community economic development or if environmental stewardship falls within the organization's mandate.
- Eligible activities would range from: educational workshops, webinars and other outreach activities that engage members of a community to raise awareness and encourage the development of renewable energy projects.
- The proposed 'budget' for education/outreach funding would consist of a portion of the CEPP budget (i.e. it is not additional funding) and the overall cap on community engagement grants would be \$500,000 a year (ie. The \$500K is intended to be part of the \$10M CEPP budget, not additional to it)
- Third party administrators will be asked to create eligibility criteria to provide funding/grants.

Considerations

- The education/capacity grant will address the lack of funding for education and outreach activities associated with community based renewable energy project development in Ontario.
- The grant encourages community-based education activities that would educate Ontarians on the various forms of renewable energy, incentives, showcase successful projects in Ontario, and show how to create a co-operative and get involved in renewable energy in Ontario.
- Will help bridge some of the costs for non-profit entities that may not have access to much financing
- Some entities may argue that it is insufficient funding for education/outreach activities
- If there are a number of applications for the education grant, the OPA may meet its cap of \$500K sooner than anticipated. This will lead to the rejection of some applications due to lack of funding.

Recommendation #3:

- Move forward with education/outreach grants and cap yearly at \$500,000 as part of the Community Energy Partnerships Program current budget

Next Steps

- Assess timing for issuing the directive and consider communication opportunities for Minister.
- If directive is approved and sent to OPA, CPF/Deloitte will be asked to create clear program rules associated with the two amendments above. The OPA and program managers have indicated that it will take approximately three months for proponents to start applying to the new program changes.
- CEPP will continue to accept applications under the current program rules.

Communications

- The proposed additions to the program will be 'good news' to cooperatives developing projects as they lack the access to capital and financing compared to developers.
- The upcoming Community Power Fund conference on November 15 and 16 could be a good venue to announce the new amendments to the program. As the program managers will need approximately 3 months from the directive being sent out to creating the new program guidelines in CEPP.

- Another option could be to allow OPA and the program managers to work in the background on creating the program guidelines and send the directive to the OPA closer to program launch.

Prepared By:
Sunita Chander, Team Lead
Special Projects Unit
Renewables and Energy Facilitation Branch, REED
416-324-9473, September 7, 2010

Approved By:
Pearl Ing, Director
Renewables and Energy Facilitation Branch, REED
416-327-3868

Sue Lo, ADM
Renewables and Energy Efficiency Division, REED
416-327-8552

Appendix

Definition of Community

- The current definition of community under FIT and under CEPP is fairly broad, it includes:
 - one or more individuals resident in Ontario;

- a Registered Charity with its head office in Ontario;

Community Projects that were awarded FIT Contracts over 10MW

- a Not-For-Profit Organization with its head office in Ontario;
- a “co-operative corporation”, as defined in the Co-operative Corporations Act (Ontario), all of whose members are resident in Ontario (a “Co-op”);
- a private corporation whose shareholders all fall into categories (a) – (d) above, and for whom commercial electricity generation is not their primary business or employment;
- a partnership or limited partnership whose partners all fall into categories (a) – (d) above, and for whom commercial electricity generation is not their primary business or employment; or
- any other organization that would be considered to have a 100% Community Participation Level under the FIT rules.

Current applications under CEPP

- CEPP has received 33 applications as August. Seventeen of the applications will go to the review committee at the end of this month. Of those 17 (14 are solar 2 are wind, 1 is water).
- Breakdown of the 17 projects by technology and size project listed in the chart below:

Type	Size (kW)
Solar Ground	100
Solar Roof	150
Solar Roof	100
Solar Roof	250
Solar Roof	250
Solar Roof	96
Wind	9,000
Wind	9,000
Solar Roof	190
Solar Ground	1,400
Solar Roof	100
Solar Roof	250
Solar Roof	250
Solar Roof	100
Solar Roof	100
Solar Roof	250
Water	1,400

Profile of community projects that could be eligible

Project Name under the revised CEPP rules		Nameplate Capacity (MW)
Clean Breeze Wind Park	Baltimore	13
Zep Wind Farm Ganaraska	Orono	20
Farm Owned Power (Melancthon) Ltd.	Shelburne	100
Grey Highlands Clean Energy	Singhampton	20
Community Projects that did not get a contract from FIT Launch period over 10MW (in ECT)		
Northern Bruce Peninsula	Lion's Head	150
Lakewind/Bervie	Kincardine	20
Schlegel Wind Farm I	Huron Kinloss	21
Zero Emission People Pleasant bay	Wellington	20
Polar Bear Wind Park	Wellington	20
Community Projects that applied to FIT post-Launch over 10MW (in ECT)		
HAF Energy Phase 2	Caistors Centre	11
Major Partner Wind Energy Corp	Shelburne	100
Wainfleet Wind Farm Phase 2	Wainfleet	11
Wind works Power Park 1	West Lorne	65
Wind Works Power Park II	Iona Station	100

A&T Energy Proposed Solar Energy Project

ISSUE:

Solar energy project developer A&T Energy requesting a set-aside of transmission capacity on the grid for Community Power projects during the Feed in Tariff initialization period, since they are concerned about the viability of their proposed project. The group has indicated that it will be raising its concerns in the media.

SUGGESTED RESPONSE:

- There are a number of groups who have expressed interest in developing renewable energy projects in Ontario under the new Green Energy Act. The government has set up a competitive process where proponents are asked to demonstrate the “shovel-readiness” of their projects. The development of renewable energy projects in the coming months will stimulate new investment and job creation in Ontario.
- The Ontario government has developed special mechanisms under the Green Energy Act to help encourage participation by Community groups in energy projects:
 - Community based projects are eligible to receive a graduated incentive, based on the percentage of local ownership, of up to 1 cent/kilowatt hour in addition to standard Feed-in-Tariff rates.
 - Ontario has introduced the Community Energy Partnerships Program, whereby community groups, including co-ops, non-profit groups and local partnerships would be eligible for one time financial assistance of up to \$200,000 for project planning costs, as well as environmental and engineering studies.
- Ontario is supporting economic development and job creation through the requirements for domestic content in renewable energy projects.

BACKGROUND:

- A&T Energy is proposing a 7.5MW solar photovoltaic project in the township of Rita Val-Harty, near Kapuskasing.
- The company met with staff from the MEI Renewable Energy Facilitation Office (REFO) on October 13, 2009.
- A&T Energy wrote a letter to the Premier on September 25, 2009 requesting a set-aside of transmission capacity on the grid for Community Power projects.

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- The Ontario Sustainable Energy Association (OSEA) mentioned the A&T Energy project in a letter to Minister Smitherman dated October 15, 2009. OSEA requested that Aboriginal and Community Power projects be allowed to retain their Connection Impact Assessment (current FIT rules require CIAs to be forfeited), and proposed a 200MW allocation of transmission capacity to Aboriginal and Community Power projects. The OSEA letter also mentioned an example of an Aboriginal project on Manitoulin Island which faced competition for transmission capacity from a commercial developer.
- A&T Energy has suggested that Community Power projects are not able to effectively compete for limited transmission capacity on the grid, since the Feed in Tariff rules during the launch period (Oct. 1 – Nov. 30, 2009) tend to favour commercial developers. The company has specifically mentioned that it is expecting to face competition from a European energy project developer.
- During the launch period, energy projects in different regions are required to compete for access to grid capacity – preference will be given to projects which commit to an earlier “milestone” date of commercial operation (e.g. more “shovel-ready”). A&T Energy has suggested that commercial project developers are in a better position than Community Power projects to commit to earlier dates, since they have the financial capacity to pay liquidated damages for projects that are late.
- Energy projects can obtain even earlier commercial operation “milestone” dates through the use of “acceleration days” – these are awarded if projects can show the OPA that they meet the following criteria (one point awarded for each category):
 1. Does not require a renewable energy approval
 2. Major equipment component confirmed
 3. Successful experience with similar projects
 4. Financial backing
- A&T Energy’s proposed project may only be able to meet two of the four criteria for obtaining more favourable access to the transmission grid:
 1. Does not require a renewable energy approval – NO
 - their project does require Renewable Energy Approval
 2. Major equipment component confirmed – TO BE DETERMINED
 - the company has indicated that they have confirmed the availability of major equipment components. However, there are questions about whether the company has access to equipment which would meet the FIT domestic content requirements. Further information has been requested from A&T Energy.

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3. Successful experience with similar projects – NO
 - The company has indicated that they have experience in the forestry sector and in construction project management. It does not appear that this would meet the FIT criteria, which call for experience with similar projects (e.g. solar energy projects). Further information has been requested from A&T Energy.
 4. Financial backing – TO BE DETERMINED
 - A&T Energy has indicated that it has arranged debt financing for its project, which is contingent on obtaining Feed in Tariff contract. MEI is seeking clarification from the OPA on whether this financing arrangement would meet the criteria.
- A&T Energy has indicated that their project is situated on land which is a mix of Canada Land Inventory Class 3 and 4 lands. The project could be affected by the restrictions on solar energy projects on Class 3 land. OMAFRA land inventory maps for this region are not readily available – these have been requested from OMAFRA staff.
 - A&T Energy has not yet begun work on the approvals necessary for their energy project. This will involve compliance with the Renewable Energy Approval (REA) process, and input from MNR (project is not on Crown Land, but will have to adhere to Natural Heritage requirements).

Date: October 23, 2009

Prepared by: Chris Quirke (416-314-9467)

Approved by: Mirrun Zaveri (416-212-7701)
Deputy Director, Renewable Energy Facilitation Office

Approved by: Sue Lo, ADM
Renewables and Energy Efficiency
Ministry of Energy and Infrastructure

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Municipal Approvals and the Green Energy Act

Issue:

The *Green Energy Act* (GEA) removes *Planning Act* requirements from the approvals process for energy projects. What areas of municipal jurisdiction over approvals for energy projects remain?

Key Points:

- The new Renewable Energy Approval (REA) process under the GEA integrates existing environmental assessment, environmental emission/water-taking approvals, and municipal land use planning issues into a single process, while continuing to ensure protection of public health and the natural environment.
- Land use planning approvals under the *Planning Act*, which were formerly required for renewable energy projects, have been replaced with **provincial standards** that proponents would be required to meet to obtain provincial environmental approval.
- Municipalities continue to have some authority under the *Municipal Act* and other legislation around certain aspects of renewable energy projects – for example by virtue of their ownership of land and infrastructure, and through the Building Permit process.

Background:

New Approvals Process for Renewable Energy Projects

- The GEA amends acts administered by MOE, MNR and MMAH in order to implement an improved environmental approvals process for renewable energy projects. Key features of this new process include:
 - Replacing existing local land use planning approvals required for renewable energy projects with **provincial standards** that proponents would be required to meet to obtain provincial environmental approval.
 -
 - Where previously a proponent was required to submit several applications to MOE for various approvals (i.e. noise, air, waste water

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and Permits to Take Water), the **Renewable Energy Approval** incorporates the various media into one consolidated approval.

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- o ~~Creating a single multi-media REA Renewable Energy Approval (REA) administered by the MOE at MOE to incorporate the noise/air, waste water and waste Certificates of Approval and Permits to Take Water.~~

- o **Setting transparent requirements (such as setbacks, studies, and aboriginal, community, and municipal public consultation/notice, etc.) that must be done early in the process not as to meet Renewable Energy Approval submission requirements, a pre-condition to being considered for a REA (pre-submission requirements).**

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- o **Coordinating between MOE and MNR** on approvals and permits and providing a **service guarantee** for proponents of renewable energy projects.
- o MNR is working to remove barriers to renewable energy development through amendments to:
 - *The Provincial Parks and Conservation Reserves Act* and the *Public Land Act* that would reduce the time required to obtain approvals;
 - *The Niagara Escarpment Planning and Development Act* and the *Conservation Authorities Act* to remove/reduce permitting processes that are addressed through other mechanisms to protect the natural environment; and
 - *The Ministry of Natural Resources Act* to enable an up-front complete submission process that provides clarity and certainty to proponents on what information they need to move forward with an application.
- o To support the new process, a **Renewable Energy Facilitation Office** has been established at MEI to serve as a one-window point of access to government for renewable projects for interested parties and renewable energy proponents should they wish to use such a service.

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Examples of Remaining Municipal Approvals

- Municipalities still control use of land that they own. Proponents of renewable energy projects would be responsible for working out agreements with a municipality if the project impacted, or required changes to, municipally-owned infrastructure such as roads or buried cables.
- For example, where a municipality owns roads or rights-of-way that will be used to access a renewable energy facility, a lease agreement or other legal

contract may be worked out between the municipality and the proponent to govern this use.

- Municipalities have regulatory powers through the Municipal Act relating to noise, odour, vibration, outdoor illumination including indoor lighting that can be seen from outdoors.
- Municipalities may also require Building Permits on certain renewable energy generation projects, which includes but is not limited to:
 - a solar collector that is mounted on a building and has a face area equal to or greater than 5 m².
 - a structure that supports a wind turbine generator having a rated output of more than 3 kW
- Building permits still apply to renewable energy generation projects. Building permits may apply to renewable energy generation projects. Exceptions are outlined in the Building Code Act, 1992, Ontario Regulation 350/06, Section 1.3.11 Designated Structures:
 - Section 1.3.11 expands the definition of building to include certain renewable energy projects that are applicable to the Building Code
 - a solar collector that is mounted on a building and has a face area equal to or greater than 5 m².
 - a structure that supports a wind turbine generator having a rated output of more than 3 kW
 - there may be additional renewable energy project exceptions that are not listed in the Building Code.
- Subject to Section 129 of the Municipal Act, municipalities may regulate noise, odour, vibration, outdoor illumination including indoor lighting that can be seen from outdoors. Permits can be obtained from the municipality if activities potentially interfere with the appropriate by-laws.

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Status of Existing Planning Approvals

- Site plan agreements were previously used for renewable energy generation projects. Existing site plan agreements issued before proclamation will remain in force.
- An existing Official Plan or zoning bylaw no longer applies to a renewable energy generation project.

Local Consultation Requirements under REA

- The REA requires renewable energy generation project proponents to consult with the local municipality on issues that impact municipal services or infrastructure (site access, easements, service connections, etc.)
- Proponents will be required to submit a form documenting the issues identified. This form must be distributed to the municipality at least 90 days before the final public consultation meeting.
- Proponents must show how they addressed municipal concerns, or why they were unable to do so.

Local Barriers to Small-Scale Renewables

- Under Section 3 of the GEA, local barriers to small scale renewable projects that exist through **local by-laws**, builder's covenants and condominium by-laws can be removed through regulation.
- MEI is developing a regulation that would permit the installation of benign small scale renewable energy projects such as solar photo voltaic/solar thermal and ground source heat pumps despite any local restrictions.
- The proposed regulation would permit these small scale projects, while ensuring health, safety, heritage and environmental concerns are taken into account.
- As part of the process to develop a regulation, MEI has consulted with municipal, renewable energy and building representatives.
- Notice of the proposed regulation was also posted on the Environmental Registry for comment for 30 days, ending June 11, 2009. MEI received 14 comments on the proposal.
- The ministry is working with ministries such as MMAH, MOE, MSBCS and MCL to ensure that health, safety, environment and cultural concerns are not impacted. In addition, MEI will consult with municipal, housing and renewable energy industry associations.

Date prepared: November 16, 2009

Prepared by: Suzanne Coultres (416-326-4571)
Regulatory Affairs & Strategic Policy

With input from: xxxx
Renewables and Energy Efficiency

Approved by: Kaili Sermat-Harding (416-327-5555)
Director, Strategic Policy & Research

BRIEFING NOTE

WALPOLE ISLAND FIRST NATION WIND BJEKER PROJECT

ISSUES:

Transmission

Walpole Island First Nation ("WIFN") wrote to Premier Dalton McGuinty on November 3, 2009, requesting assistance through a ministerial directive to the OPA to secure a 10 MW transmission set-aside at the Wallaceburg transmission station for the WIFN project.

The WIFN project is located in an area with severe transmission constraints. Existing transmission is limited, and the available transmission in the area is further reduced by the amount set aside for the use of the Korean Consortium. This threatens the WIFN project since it may lead to significant delays (e.g. it may take 8+ years to commission the project instead of the 2 years that the proponent thinks is a realistic time frame for obtaining permits and constructing the project). Such delays could result in the failure of the project.

In the event that the project fails, the WIFN will lose a valuable economic opportunity. The failure of the project could also threaten the success of other projects in the region since it is possible that members of the WIFN would attempt to obstruct other renewable energy projects through the aboriginal consultation process.

In the event that the WIFN project succeeds, it could be an early example of the success of the *Green Energy and Green Economy Act* in allowing First Nations groups to participate in Ontario's electricity sector.

MEI needs to determine how it will respond to the WIFN request for a transmission set-aside. Note also that other proponents have made similar requests for transmission set-asides and to this end, MEI needs to determine a consistent response to such requests.

Viability Under Competitive FIT Process

The WIFN project, while a viable project that could have substantial benefits for the WIFN community, is not well placed to compete in the FIT launch process. It has relatively poor wind resources, an inexperienced development team, and relatively poor financing. It is competing against extremely sophisticated and well financed proponents with better wind resources, in an area with very constrained transmission. For these reasons, the OPA believes that WIFN's project will not succeed in the FIT launch process. If the project does not succeed in the launch process, it will likely go into the FIT reserve, with the expected attendant delays.

Impact on Other Projects

WIFN is capable of acting as a barrier to the success of other projects in the region via the aboriginal consultation process for renewable energy projects.

Minor Issues

The WIFN team has cited a number of minor issues that would present barriers to WIFN making a FIT application during the FIT launch. These issues do not appear to be insoluble and significant progress has already been made towards addressing them.

1. WIFN indicated that it could not comply with environmental permitting requirements because regulators were not clear about what permits would be needed. This was addressed at the meeting held on November 23, 2009, where various regulatory authorities clarified the permitting process that would be required for the WIFN project. Further questions in this area will be addressed on an ongoing basis by REFO, MOE and INAC.
2. WIFN is concerned about certain issues regarding the OPA contract as written; for example, it includes tax provisions (which normally wouldn't apply to First Nations parties) and the Notice to Proceed pre-conditions require a proponent to have all necessary permits before they can construct while the federal environmental permitting process provides permits after construction. On review of the OPA contract, the WIFN concerns do not appear to be substantive.
3. The WIFN team has indicated that if the WIFN project were put into the FIT reserve, the WIFN team would find the cost of maintaining security with the OPA too onerous and would ultimately be unable to develop the project.

If the foregoing minor issues are not resolved, the WIFN will likely not be able to bid into the FIT launch and would not have an opportunity to be put into the FIT reserve.

BACKGROUND:

Overview and Status of Project

WIFN is planning a 10 MW wind project on St. Anne's Island on the WIFN reserve. The proponent will be structured as a partnership between WIFN, Chatham-Kent Energy Inc. and Corix Utilities ("Corix"). The WIFN team has undertaken a variety of studies in various stages of completion and has initiated an application for a Section 28.2 permit under the *Indian Act* which would allow

them to develop a commercial project on reserve land. In turn, the application for a Section 28.2 permit has triggered a Federal environmental assessment ("Federal EA"). The Federal EA process was substantively begun November 23 at a meeting with MOE, WIFN, Corix, REFO, and a variety of representatives from INAC and Transport Canada. Representatives from INAC indicated that they expect Federal EA requirements to be similar to those required under the MOE's Renewable Energy Approval.¹ The WIFN project currently holds a CIA that puts it in priority order for connection to the grid. WIFN would have to rescind this CIA in order to bid into the FIT launch process.

Based on the November 23rd meeting, in a best case scenario, the WIFN project could be commissioned in approximately two years (e.g. have completed construction and received all required Federal permits). The WIFN project probably does not require any provincial permits as it is entirely located on reserve land (note that a small portion of the transmission associated with the project will be located on land that appears to be disputed; however, the facts on this are unclear. WIFN will be submitting materials on this issue to MOE in the near future). WIFN has not yet engaged with MNR.

The wind resources for the WIFN project are not ideal. In addition, construction and equipment costs relating to the project may be higher than usual since the project will be located on swampy ground.

s.15.1, s.19 in part

NEXT STEPS

REFO is in the process of co-ordinating a meeting to be held the week of November 23 between the WIFN team and the OPA to review and if necessary to address the WIFN concerns about the OPA process.

Prepared by:

¹ During the meeting, INAC requested training from MOE on the REA process. They also appear to expect that MOE will act as a reviewing body for the Federal EA process. MOE's ability or willingness to participate in such a way is uncertain.

Prepared by: Petra Fisher, Senior Project Advisor
Renewable Energy Facilitation Office
416-212-7721
November 24, 2009

Reviewed by: •

Reviewed by: •

October 30 December 17, 2009 – B(05A)

WIND POWER

ISSUE:

On December 8, 2009, Gengrowth and Boralex's 10 MW Swanton Line wind farm, located near Merlin, in Chatham-Kent, reached commercial operation.

On December 17, 2009, Gengrowth and Boralex's 10 MW Bisnett Line wind farm, located near Erie Beach, in Chatham-Kent, reached commercial operation.

KEY MESSAGES

- Finding clean, affordable and sustainable sources of electricity is a top priority of our government. Wind projects are an important part of Ontario's drive toward a cleaner, greener energy future.
- Wind power has a small environmental footprint: it is a sustainable, clean form of energy that does not rely on finite fuel sources or emit any by-products such as greenhouse gas emissions during electricity production.
- Wind projects also bring many other benefits to Ontario, including the creation of jobs and injection of money into local host communities.
- Ontario is home to the 199.5 MW Melancthon EcoPower Centre, the largest operational wind facility in Canada.
- In January 2009, the Ontario Power Authority awarded contracts for close to 500 MW of new wind energy projects under the RES III RFP process. When complete, these wind farms will provide enough electricity for more than 120,000 homes.
- Ontario now has ~~almost over~~ 1,240 megawatts of wind power online generated by over ~~687~~ 70 wind turbines. In 2003, there was only 15 megawatts of wind power generated by ten turbines. This is nearly an 80-fold increase in wind power capacity.
- In addition, there are signed contracts for another 1,160 MW of wind power projects that are either under construction or development.
- These wind projects will help clean up our air and reduce our reliance on fossil fuels – helping us to attain the goal of closing all coal-fired generating stations in Ontario by 2014.
- In 2008, wind-powered generation in Ontario increased by 37%, contributing 1.4 terawatt-hours – equivalent to the annual ~~usage~~ of about 140,000 homes.

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If asked about Toronto Hydro's proposed anemometer near the Scarborough Bluffs:

- I am aware that there is a high level of public interest in the proposal for a wind research anemometer in Lake Ontario near the Scarborough Bluffs.
- No decision to proceed with a potential offshore wind farm has been made.
- Currently, Toronto Hydro Energy Services is seeking approval from the Ministry of Natural Resources to lease Crown land for a research platform to measure the offshore wind resources.
- Any further projects (i.e. an offshore wind farm) are subject to a separate environmental assessment process with full agency and public participation.
- Under the new *Green Energy and Green Economy Act*, projects will require a new "renewable energy approval" under the Environmental Protection Act from the Ministry of the Environment. This approval will include provincial requirements and setbacks to address environmental and human health issues, replacing the existing environmental approvals and environmental assessment requirements that exist today. This new approval will be coordinated with any existing MNR approvals that might apply.

Any further questions about the anemometer project should be directed to Toronto Hydro or to the Ministry of Natural Resources.

If Asked About Public Opposition To Wind Farms:

- We need to assume full responsibility in the face of climate change and bring on new renewable energy generation. The new Green Energy Act ensures that all environmental and safety concerns will be addressed and the Ministry of the Environment will establish and fund academic research to examine potential public health effects of renewable energy projects. However, if we are to take advantage of the employment opportunities related to green generation, our approvals processes must be timely and must not be impeded by aesthetic concerns.

If Asked About Wind Turbines and Birds:

- Bird mortality from wind turbines is small compared to other human-related sources, such as high-rise buildings and houses. Climate change poses a far more serious threat to birds than turbines. Renewable energy sources such as wind have little or no net carbon dioxide or other greenhouse gas emissions.
- On average, 2 birds ~~are get~~ killed per wind turbine per year. In comparison, an estimated 1 to 10 birds ~~are get~~ killed per structure per year across the United States,

including houses. A tall, glass high-rise building can kill ~~more than~~[in excess of](#) 500 birds per year.

- This concern can be addressed by understanding avian behaviour and migratory patterns, and siting wind farms accordingly.

If Asked About Wind and Land Use Issues:

- Turbines co-exist nicely with farms, supplying additional income with minimal impact on the usable land.
- Only about 5% of the land area required for utility-scale wind farms is occupied by turbines, access roads and other equipment, leaving 95% of the land free for other compatible uses such as farming.

If Asked About Noise:

- Wind turbines do make an audible “swoosh” sound caused by the rotation of the blades. The actual sound level is influenced by many factors, including turbine type, wind speed and topography. The sound is often masked by the surrounding outdoor environment.
- Modern wind turbines do not create a significant amount of low-frequency noise – the infrasound (sound lower than 20 Hz) is inaudible and is not harmful to humans.
- Ontario has stringent noise regulations that wind facilities must meet in order to proceed to construction. ~~These regulations which~~ are in line with ~~those of~~ other jurisdictions. Commercial wind turbine generators in Ontario are required to obtain a Certificate of Approval for Noise under the Environmental Protection Act (EPA), ensuring wind farms meet the Province’s noise limits.
- The Ministry of Environment monitors and responds to new scientific, technical and other developments [related to noise abatement](#) in the wind sector.

If Asked About Shadow Flicker:

- Shadow flicker is used to describe the changes in light intensity caused by moving turbine blades and the shadows they cast. Flicker effects from modern turbines are below the threshold of concern to be harmful to humans.
- The range of shadow flicker can be accurately predicted through modeling software before wind turbine installation, and incorporated into the site design.

If Asked About Visual Impacts of Wind:

- Public opinions on the visual impacts of wind farms are subjective. However, through community consultation and careful design processes, the visual impacts of wind farms can be minimized.

BACKGROUND

Wind Energy Status

- Ontario is currently in first place for installed wind energy in Canada:

Total Online Wind Capacity from Renewables RFPs:	1083.6 MW
Total Online Wind Capacity Pre-October 2003:	14.61 MW
Total Online NEW Wind Capacity from RESOP	755.38 MW*
<u>Total Online Wind Capacity - Other:</u>	<u>8.20 MW</u>
Grand Total:	11861.79 MW

* Four online RESOP wind projects (totaling 12.21 MW) are pre-October 2003 wind facilities. This capacity is included in the pre-October 2003 total above.

- Wind projects under development:

○ The OPA has signed contracts for 53 projects representing 370 MW of potential wind energy capacity under the Renewable Energy Standard Offer Program (RESOP). Four of the 53 projects (totaling 12.21 MW) are pre-2003 wind facilities. This capacity is included in the pre-October 2003 total above. See House Note B17 – Standard Offer for further details.

○ 40 wind RESOP projects totaling 379.2 MW terminated their contracts to bid into the Feed-in Tariff.

○ In addition to the wind online, there are currently signed contracts for 794 MW of wind power in Ontario, either under construction or in various stages of development.

~~○ The OPA has signed contracts for 93 projects representing 739 MW of potential wind energy capacity under the Renewable Energy Standard Offer Program. Four of the 93 projects (totaling 12.21 MW) are pre-2003 wind facilities. This capacity is included in the pre-October 2003 total above. See House Note B17 – Standard Offer for further details.~~

~~○ In addition to the wind online, there are currently signed contracts for 1,163 MW of wind power in Ontario, either under construction or in various stages of development.~~

- Turbines:

○ In 2003, there were only 15 MW of wind power in operation in Ontario, from 10 wind turbines. Ontario now has almost over 1,240 MW of wind power capacity online from more than over 678 wind turbines.

○ The RES III RFP projects announced on January 23, 2009 will add a bout round another 240 turbines to the provincial totale - which would bring Ontario to more than over 900 turbines when these projects come online by 2012.

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- Developers have been moving to larger capacity turbines, in part, to meet setback requirements, therefore, the projected number of turbines has decreased.
- Ontario's wind farms produced 1.4 terawatt-hours in 2008. In 2007, wind power generation in Ontario measured 1.04 terawatt-hours. In 2006, wind contributed 0.44 ~~terawatt-hours~~^{TWh}. The increased output in 2007 and 2008 is a result of increased wind capacity coming into service ~~through the 2006-08 period~~.

Wind Energy Across Canada

- Canada currently has an installed capacity of ~~2,858~~^{3,170} MW.

PROVINCE	INSTALLED WIND ENERGY CAPACITY
Ontario*	~~1,168~~ ^{1,181} MW*
Quebec	~~659.3~~ ^{531.8} MW
Alberta	~~589.9~~ ^{23.9} MW
Saskatchewan	171.2 MW
PEI	151.6 MW
Manitoba	104.0 MW
<u>British Columbia</u>	<u>102.0 MW</u>
New Brunswick	96.0 MW
Nova Scotia	59.3 MW
Newfoundland	54.4 MW
Yukon	0.8 MW

Source: CanWEA (www.canwea.ca)

*Ontario total may include micro wind generators not tracked by CanWEA.

Feed-in Tariff (FIT)

- For more information on the FIT, please see House Note H12a – Feed-in Tariff.

Results of RES III RFP

- On January 23, 2009, Minister Smitherman together with the Ontario Power Authority announced the results of the Renewable Energy Supply III (RES III) RFP. The RES III initiative resulted in six winning wind projects representing 492.1 megawatts of new renewable energy supply for the province.
- When complete, these six wind farms will provide enough electricity for more than 120,000 homes.

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- It is estimated that more than~~over~~ 1,100 direct construction and permanent jobs will be created by the projects, as well as another 1,100 indirect jobs (manufacturing of building materials, provision of services such as engineering design, legal, accounting and real estate).
- An estimated \$3 million will be paid out in annual lease payments to hundreds of landowners who host wind turbines for these projects. The projects will also generate about \$1 million in municipal tax revenues each year.
- The projects represent a combined \$1.3~~25~~ billion in capital costs, which will be privately financed.

RES III Project status

(Future in-service dates and highlighted number of turbines CONFIDENTIAL)

Project	Source	Size (MW)	# of Turbines	Status	In-Service Date
Greenwich Windfarm	Wind	98.9	43	In approvals	December 2011
Byran Wind	Wind	64.5	34	In approvals	2011
Kruger Energy Chatham Wind	Wind	101.2	44	In approvals	October 2011
Gosfield Wind	Wind	50.6	22	Under construction	December 2010
Raleigh Wind Energy Centre	Wind	78.0	52	Approvals complete. Construction not yet started.	TBD 2010
Talbot Windfarm	Wind	98.9	43	In approvals	December 2011
TOTAL ONLINE		0.0	0		
TOTAL		492.1	238		

Project	Source	Size (MW)	# of Turbines	Status	In-Service Date
Greenwich Windfarm	Wind	98.9	43	In approvals	December 2011
Byran Wind	Wind	64.5	34	In approvals	2011
Kruger Energy Chatham Wind	Wind	101.2	44	In approvals	October 2011
Gosfield Wind	Wind	50.6	22	Under construction	December 2010
Raleigh Wind Energy Centre	Wind	78.0	52	Approvals complete. Construction not yet started.	TBD 2010
Talbot Windfarm	Wind	98.9	43	In approvals	December 2011
TOTAL ONLINE		0.0	0		
TOTAL		492.1	238		

- None of the RES III projects will go through the Renewable Energy Approval (REA) process. Proponents of wind facilities that have issued a Notice of Completion and have entered into a power purchase agreement with the OPA (including projects that are currently in the elevation review process) do not have ~~are not required to obtain~~ an REA requirement. These projects must continue following the Environmental Screening Process in accordance with O. Reg. 116 and obtain all required MoE Certificates of Approval and

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permits. These projects, however, must comply with the provisions related to noise, road, and property setbacks in the new REA regulation.

- The projects which did not receive a Certificate of Approval for noise by September 24th, 2009, must comply with the noise, road, and property setbacks under the new REA regulation. Only Gosfield acquired its Certificate of Approval in time to avoid the new setbacks.
 - SkyPower's Byran project reduced the number of turbines from 43 to 34 to meet the new setbacks. They are seeking compensation in the form of an increase of 1 cent/kWhr from 13.5 to 14.5 cents/kWh for 20 years (about \$15 million).
 - RES' Talbot and Greenwich projects are each changing from 66 1.5 MW turbines (CONFIDENTIAL) to 43 2.3 MW turbines (CONFIDENTIAL for Greenwich).
 - Independent of the setback requirements, Brookfield's Gosfield project is changing from 28 1.8 MW to 22 2.3 MW turbines.

RES I and II RFP Wind Projects

- There were 19 successful contracts in the two renewables RFPs administered by the Ministry of Energy in 2004 and 2005. Of these, there were 13 wind power contracts for 9 projects; 2 contracts were terminated and the remaining 11 contracts for 8 projects are all online.
- These projects represent a total capital investment in our province of more than over \$2.4 billion – and will provide enough power to supply close to 300,000 homes.

RES I and II RFPs – Summary of Wind Projects

Project	Procurement Type	Size (MW)	# of Turbines	Location	In-Service Date
Melancthon I Wind	RES I	67.5	45	Shelburne	March 2006
Kingsbridge I Wind	RES I	39.6	22	Goderich	March 2006
Erie Shores Wind	RES I	99.0	66	Port Burwell	May 2006
Prince I Wind	RES I	99.0	66	Sault Ste. Marie	September 2006
Prince II Wind	RES II	90.0	60	Sault Ste. Marie	November 2006
Ripley Wind	RES II	76.0	38	Ripley	December 2007
KEPA Wind Farm	RES II	101.2	44	Port Alma	October 2008
Melancthon II Wind	RES II	132.0	88	Shelburne	November 2008
Enbridge Ontario Wind A & B	RES II	181.5	110	Kincardine	February 2009
Wolfe Island Wind	RES II	197.8	86	Kingston	June 2009
TOTAL		1083.6	625		

Utility-size Standard Offer Wind Projects Online

- There are 755.37 MW of new wind power online from the Renewable Energy Standard Offer Program and 12.21 MW online from before October 2003. Almost all of this comes from utility-scale wind turbines:

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Project	Developer	Size (MW)	# of Turbines	Location	In-Service Date
Port Albert Wind Turbine	Private	0.66	1	Port Albert	Dec 2001
Huron Wind	OPG/Bruce Power	9.00	5	Kincardine	Nov 2002
Ferndale Wind Farm (RESOP)	Sky Generation Inc	1.80	1	Ferndale	Nov 2002
Exhibition Place Wind Turbine	Toronto Hydro/Windshare	0.75	1	Toronto	Jan 2003
Dunnville Wind Turbine	Rosa Flora Limited	0.60	1	Dunnville	Oct 2006
Ravenswood Wind Farm (RESOP)	Sky Generation Inc	6.60	4	Grand Bend	Jan 2008
Frogmore Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Jun 2008
Cultus Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Jun 2008
Cruickshank Wind Farm	Enbridge	8.25	5	Tiverton	Sep 2008
Mohawk Point Wind Farm	AIM PowerGen	9.90	6	Dunnville	Oct 2008
Clear Creek Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Nov 2008
Swanton Line Wind Farm	Gengrowth / Boralex	10.00	5	Merlin	Dec 2009
Bisnett Line Wind Farm	Gengrowth / Boralex	10.00	5	Erie Beach	Dec 2009
Total (after Oct 2003)		75.05	44		
Total		87.26	52		

Project	Developer	Size (MW)	# of Turbines	Location	In-Service Date
Port Albert Wind Turbine	Private	0.66	1	Port Albert	Dec 2001
Huron Wind	OPG/Bruce Power	9.00	5	Kincardine	Nov 2002
Ferndale Wind Farm (RESOP)	Sky Generation Inc	1.80	1	Ferndale	Nov 2002
Exhibition Place Wind Turbine	Toronto Hydro/Windshare	0.75	1	Toronto	Jan 2003
Dunnville Wind Turbine	Rosa Flora Limited	0.60	1	Dunnville	Oct 2006
Ravenswood Wind Farm (RESOP)	Sky Generation Inc	6.60	4	Grand Bend	Jan 2008
Frogmore Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Jun 2008
Cultus Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Jun 2008
Cruickshank Wind Farm	Enbridge	8.25	5	Tiverton	Sep 2008
Mohawk Point Wind Farm	AIM PowerGen	9.90	6	Dunnville	Oct 2008
Clear Creek Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Nov 2008
Total (after Oct 2003)		55.05	33		
Total		67.26	38		

Wind Development in Quebec and Local Content Issues

- In May 2008, Hydro-Québec signed contracts for 15 wind projects totaling 2,004 MW. The average price of the winning bids was 10.5¢/kWh (8.7¢/kWh for the energy, 1.3¢/kWh for transmission, and 0.5¢/kWh for other services).
- In accordance with a Québec government regulation, all the winning bids met the following criteria:
 - At least 60% of the total cost of each wind farm must be incurred in Québec, and
 - At least 30% of the cost of the wind turbines must be incurred in the regional county municipality of Matane and the administrative region of Gaspésie–Îles-de-la-Madeleine
- Quebec has several advantages over Ontario with respect to bringing on new wind power. The wind regime in the Gaspé region is significantly better than what is available in Ontario. As a result, prices for wind power are 20 to 30 percent lower. Also Quebec has extensive amounts of storage hydro that can be ramped up and down to match the variability of wind generation.

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- The 1994 Agreement on Internal Trade signed by the 10 provinces, two territories and federal government prevents Ontario and its agencies from requiring Ontario content in procurements. Quebec excluded Hydro-Québec from the provisions of the procurement chapter of the agreement when it was negotiated.

Wind Turbine Noise Issues

- Commercial wind turbine generators are required to obtain a Certificate of Approval (Noise) under section 9 of the Environmental Protection Act (EPA).
- The Ministry of the Environment's (MOE) Sound Level Limits for Stationary Sources (1995) describes the noise levels that must be met by all industrial projects, including wind turbine projects.
- In 2004, the MOE published a guidance document to assist in interpreting the MOE Sound Level Limits specifically for wind turbines. This guidance document was based on the best available science at the time. Noise limits for wind turbines were based on existing MOE Noise Guidelines, with allowances for wind-generated background noise. Development of the guidance document included a review of noise requirements used for wind turbines in other jurisdictions, and consultation with industry experts.
- A 2006 dissertation by G.P. van den Berg asserts that during stable atmospheric conditions (which usually occur at night), wind speeds are higher at wind-turbine height than they are at lower levels. Because of this, van den Berg asserts that noise from wind turbines is not masked by wind-generated background noise at lower levels.
- Citizens concerned with wind projects often quote the van den Berg paper, and argue that the MOE should revise its noise guidelines for wind turbines as a result of the findings of these studies.
- In March 2007, the MOE initiated a review of its noise policy for wind turbines. The purpose of the MOE's review was to assess whether the MOE's current approach for regulating noise impacts from wind turbines continues to be appropriate in light of more recent studies and information as well as guidelines and policies of other jurisdictions.
- To support the review, the MOE retained a noise expert (Ryerson professor Dr. Ramani Ramakrishnan) to review the findings of the van den Berg dissertation and other relevant scientific literature, and to review wind turbine noise guidelines and policies of other jurisdictions. The noise expert's final report was made available on the Environmental Registry on April 28, 2008.
- Ramakrishnan's report claims van den Berg's work did not provide scientific evidence for increased noise annoyance from wind farms. However, the work of other researchers showed that local terrain conditions can impact the local meteorology and thereby the resulting noise levels.

- The final report suggested that Ontario's standards on wind turbine set backs are sound for most situations, but that additional concerns would still need to be addressed in the next round of revisions to their noise assessment process. This includes responding to the results of future research providing scientifically consistent data for effects such as meteorology, human response and turbine noise source character.
- On June 3, 2008, the Ministry of Environment posted draft clarifications to its Noise Guidelines for Wind Farms for public consultation on the Environmental Registry. After review comments from stakeholders, the ministry posted its final clarifications on the Environmental Registry as a Decision Notice on October 17, 2008.
- On September 24, 2009, the Ministry of Environment's Renewable Energy Approval process became law. Wind facilities over 50 kW generating a noise level of 102 dBA or louder must meet a minimum 550m setback from non-participant dwellings. Where ambient noise from road traffic is louder than 40 dBA, turbines may be closer.

Offshore Wind Development in Ontario

Ministry of Natural Resources' Offshore Wind Moratorium

- The Ministry of Natural Resources lifted its deferral on offshore wind power projects on February 20, 2008 and accepted new onshore and offshore site release applications until December 10, 2008.
- All applicants must undergo a review by MNR to ensure preliminary requirements are met before they can be awarded Applicant of Record status, which allows them to pursue the approvals required to construct and operate a wind power facility. All proposed facilities must go through applicable environmental approvals at MOE as well.
- Off-shore wind projects are much more expensive than on-shore projects (30 to 50 percent). The proposed tariffs under the Feed-in Tariff Program provide a higher price for off-shore wind projects in recognition of the higher costs.
- Currently there are no offshore projects that have contracts with the Ontario Power Authority.

Updated by: Clarence Cheng, Policy Analyst,
Renewable Energy
416-325-5027
~~October 30~~December 17, 2009

Approved by: Karen Slawner, Coordinator
Renewable Energy
416-325-14-94725765
~~December 17~~October 30, 2009

CONFIDENTIAL – FOR MINISTER'S USE ONLY

Leo Tasca, Manager
Renewable Energy
416-326-3775
December 21, 2009

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868
December 17, 2009

Sue Lo, ADM
Renewables and Energy Efficiency Division
(416) 327-8552
December 17~~October 30~~, 2009

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RENEWABLE ENERGY STANDARD OFFER

ISSUE:

On September 24th, 2009, Minister Smitherman directed the Ontario Power Authority to launch the Feed-in Tariff program.

For information about Minister Smitherman's January 23rd directive on biogas projects and RESOP, please see House Note B05C.

Suggested Response:

- Ontario is at the centre of an energy renaissance that will change the way we generate, consume and conserve energy.
- Through the Green Energy Act, Ontario has moved to stimulate a new, green economy and create a new generation of green jobs, while protecting our environment.
- At the heart of the Green Energy Act is North America's most comprehensive Feed-In Tariff (FIT), which will spark the development of renewable energy projects.
- On September 24, 2009, Ontario introduced new rules that will help provide a stable investment climate that gives companies the confidence to invest in Ontario, hire our workers, and produce and sell renewable energy.
- We have had great success with the Standard Offer Program to date, signing contracts for more than the 1,000 MW of renewable energy ~~- we expected it would take ten years, but we did it in just over one year~~~~we expected in 10 years in just over one.~~
- As part of the *Green Energy Act*, Ontario plans to modernize its electricity transmission system to make it more reliable and ~~better~~~~more~~ able to accommodate renewable power. By enabling smart grid investments, the bill would better equip the electricity grid to handle the many smaller, renewable sources of energy the bill would help bring online.

General:

- The Standard Offer Program was a bold new step that allowed small, local, renewable energy producers including farmers and co-operatives to get into the energy market. Through this program, and now the Feed-in Tariff program, we are giving Ontarians the opportunity to help strengthen our energy system, reduce our reliance on coal, and clean up our air.

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- Setting standard rates for small renewable power projects is part of the government's plan to build a clean, affordable, reliable and sustainable energy supply in Ontario.
- There are ~~44500~~ projects with executed contracts under the Standard Offer Program to date. Taken together, these projects have the potential to generate ~~1,400~~1,000 megawatts of renewable energy.

If asked about Ontario's commitment to renewable energy:

- Finding clean, affordable and sustainable sources of electricity is a top priority of the Ontario Government.
- We are committed to reducing the environmental footprint of electricity generation in Ontario. There are ~~more than~~over 3,000 megawatts of signed contracts for new renewables.
- Through the *Green Energy Act*, Ontario has moved to stimulate a new, green economy and create a new generation of green jobs, while protecting our environment.

If asked about the transition of RESOP contract holders into the FIT:

- Solar PV, waterpower and biogas RESOP projects of 500 kW or less that have purchased equipment by October 1, 2009 may convert to a FIT contract. They will be deemed to have met the domestic content rules.
- People in Ontario have heard the message about the importance of renewable energy. Many were "early adopters" and installed their projects in anticipation of a feed-in tariff program. Many early adopters incurred huge personal financial costs to develop renewable projects even when the projects were uneconomic. These small scale renewable energy projects should be ~~should be~~ properly compensated by moving them to the feed-in tariff rates. This will help make those projects more economical on a go-forward basis.
- RESOP contract holders that have not reached commercial operation were given 60 days from the official launch date to rescind their contracts and apply to the FIT Program if they wish.
- Applicants will have to rescind their completed connection impact assessment with their respective local distribution company and meet all of the FIT Program requirements, including those for domestic content and security payments.
- Other projects with OPA contracts are not eligible to transition to the FIT and/or microFIT Programs.
- This policy strikes a balance between fairness for early adopters, the expectation that parties who signed a contract will honour them, and levels the playing field for the development and construction of new projects.

BACKGROUND

Renewable Energy Standard Offer Program (RESOP) Progress

- As of ~~September 30~~ December 17, 2009, the OPA had ~~44500~~ executed RESOP contracts, representing 1, ~~424009~~ megawatts of renewable energy:

Table 1: Executed RESOP contracts by energy source

Type	Contracted Capacity as of ~~September 30~~ <u>December 17</u> , 2009
Solar	~~524,826~~ <u>34,826</u> MW (~~524,826,950~~ kW*)
BioEnergy	~~872~~ MW
Water Power	~~7433~~ MW
Wind	~~739370~~ MW

* 1 megawatt (MW) = 1,000 kilowatts (kW)

- As of ~~September 30~~ December 17, 2009, ~~202199~~ projects representing ~~12160~~ MW of renewable energy had reached Commercial Operation under RESOP. Some of this on-line capacity comes from existing projects grand-fathered under the (RESOP) program rules (including pre-Oct 2, 2003 projects). ~~192189~~ of the ~~202199~~ projects, representing ~~96135~~ MW, are renewable energy projects in-service after October 2003.

Table 2: In-service RESOP projects by energy source

As of December 17, 2009		Project Source				
In-Service Date		Wind	SolarPV	Water	Bio-Energy	Grand Total
	Capacity [kW]	12,210		7,645	4,625	24,480
Pre- Oct 2 2003	Number of Projects	4		5	1	10
	Capacity [kW]	75,377	28,419	10,029	21,499	135,324
Post-Oct 2 2003	Number of Projects	13	157	9	13	192
Total Capacity [kW]		87,587	28,419	17,674	26,124	159,804
Total Number of Projects		17	157	14	14	202

As of September 30, 2009		Project Source				
In-Service Date		Wind	SolarPV	Water	Bio-Energy	Grand Total
	Capacity [kW]	12,210		7,645	4,625	24,480
~~Pre- Oct 2 2003~~	~~Number of Projects~~	~~4~~		~~5~~	~~1~~	~~10~~
	Capacity [kW]	55,377	9,419	10,029	21,499	96,324
Post-Oct 2 2003	Number of Projects	11	156	9	13	189
Total Capacity [kW]		67,587	9,419	17,674	26,124	120,804
Total Number of Projects		15	156	14	14	199

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Recent RESOP Projects Online

• ~~Mohawk Point Wind Farm~~

- ~~AIM PowerGen's 9.9 MW Mohawk Point Wind Farm came into service on October 17, 2008. The project is located southeast of Dunnville on the north shore of Lake Erie, and consists of six 1.65 MW Vestas V82 turbines.~~

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• ~~Welland Canal Weir 1 and 2~~

- ~~Rankin Renewable Power's Welland Canal Weir 1 (2 MW) and Weir 2 (2 MW) generating facilities in St. Catharines reached commercial operation in November 2008.~~

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• ~~Clear Creek Wind Farm~~

- ~~AIM PowerGen's 9.9 MW Clear Creek Wind Farm came into service on November 14th, 2008. The project is located west of Port Burwell on the north shore of Lake Erie and consists of six 1.65 MW Vestas V82 turbines.~~

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• ~~Glanbrook Landfill Gas Power Plant~~

- ~~The City of Hamilton's 3.2 MW Glanbrook Landfill Gas Power Plant came into service on November 19th, 2008.~~

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• Waterloo Landfill Gas Power Plant

- The second phase, 1.6 MW of Waterloo Landfill Gas Power Plant entered service on December 3rd 2008. The first phase, 4.625 MW, entered service in 1999 and was grandfathered into RESOP. The third and final phase, 1.6 MW is expected to come into service in mid 2010. The total capacity will be 7.825 MW.

• Sarnia Solar 2

- ~~Enbridge's 10 MW Sarnia Solar 2 came online December 7, 2009. It had declared commercial operation on December 24, 2008, before construction was complete. Sarnia Solar 2 is part of an 80 MW solar farm. A 1 MW phase of Enbridge's 10 MW Sarnia Solar 2 came online December 24th 2008. Sarnia Solar 2 is part of a 60 MW solar farm, 20 MW of which is owned by Enbridge, and the rest by First Solar~~

Commented [s1]: Suggest keeping the 2 Sarnia projects together, unless there's a good reason to separate them.

Commented [C2]: Projects are listed by COD (commercial operation date), which is convenient for updates because only projects from the past 12 months are listed here. In the past, multi-phase projects have also been listed separately. I can put these in any order; I'm not fussed.

• Sarnia Solar 5

- Enbridge's 10 MW Sarnia Solar 5 declared commercial operation on November 25, 2009. Together with Sarnia Solar 2, it is the largest solar farm in Canada. Sarnia Solar 2 and 5 are part of an 80 MW solar farm.

• Welland Canal Weir 3

- Rankin Renewable Power's Welland Canal Weir 3 (2 MW) generating facility in Niagara-on-the-Lake reached commercial operation in September 2009.

• First Light

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- SkyPower and SunEdison's First Light solar farm came online September 28th, 2009. The project is located in Stone Mills. It is contracted for 9 MW but has a capacity of 7.5 MW (CONFIDENTIAL).

Sarnia Solar 5

Enbridge's 10 MW Sarnia Solar 5 declared commercial operation on November 25, 2009. Together with Sarnia Solar 2, it is the largest solar farm in Canada. Sarnia Solar 2 and 5 are part of an 80 MW solar farm.

• Swanton Line

- Gengrowth and Boralex's 10 MW Swanton Line wind farm reached commercial operation on December 8th 2009. It is located near Merlin, in Chatham-Kent.

• Bisnett Line

- Gengrowth and Boralex's 10 MW Bisnett Line wind farm reached commercial operation on December 17th 2009. It is located near Erie Beach, in Chatham-Kent.

Transition into FIT

- Transition policies from RESOP to FIT will
 - help serious developers build their projects
 - give an indication to the OPA how much transmission space will be freed up by contract-holders who are not likely to build.
- First, RESOP contract holders that have not reached commercial operation haved until November 30, 2009 (60 days from the official launch date) to rescind their contracts and apply to the FIT Program if they wish.

- 46 projects totaling 423 MW terminated their RESOP contracts:

	BioMass	SolarPV	Water	Wind	Total
Capacity (MW)	5.76	0.00	38.18	379.20	423
Number of Projects	1	1	4	40	46

- Advanced RESOP FIT amendment option: There is a second option for non-solar RESOP projects that have not reached commercial operation but have received a certificate of approval, permit to take water or renewable energy approval. These projects must reach commercial operation by the end of 2010. These projects were given the option to receive a higher price and the right to retain 100%, instead of 50%, of any ecoENERGY incentive (1 c/kWh). The increase in price was set at 41% of the difference between the RESOP price without peak incentives and the FIT price without peak incentives. In exchange, they had to post completion and performance security, and must pay liquidated damages if they fail to achieve operation by the end of 2010..
 - Qualifying wind projects were given 30 days from when the FIT program started accepting applications to apply (November 30, 2009). There is a second option for wind RESOP projects that have not reached commercial operation, but have received their Certificate of Approval from the Ministry of the

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Environment and are able to achieve commercial operation in 2010. For 30 days from when the FIT program starts accepting applications, these projects were given the option to receive a higher price of 12.1 c/kWh and the right to retain 100%, instead of 50%, of any ecoENERGY incentive (1 c/kWh). In exchange, they must post completion and performance security.

- The OPA received applications for 18 Advanced RESOP Amendments (165.8 MW).
- On November 30, 2009, the same offer was extended to other non-solar RESOP generators with a deadline of January 8, 2010. There are no eligible landfill gas projects.
- As of December 7, 2009, the OPA has received 17 applications for Advanced RESOP Amendments totaling 158 MW:

As of December 7, 2009, the OPA has received 17 applications for Advanced RESOP Amendments totaling 158 MW:

Another 7 projects (63 MW) were eligible for Advanced RESOP, but proponents for these projects indicated that they intend to rescind and apply for FIT. This includes all 6 Wind Prospect projects.

	Price, excluding peak incentive [c/kWh]	Eligible Projects		Applications	
		Number	MW	Number	MW
Wind	12.10	ARFA option no longer available		17	158.4
Hydro	11.94	4	15.05	0	0
Biogas	12.59	2	4.49	0	0
Biomass	12.22	2	15.76	0	0

- One-year extension: The third option is directed at large solar projects, but was open to all non-waterpower projects larger than 10 kW. Barring force majeure, RESOP projects must reach commercial operation within three years of receiving their contract. The OPA is offering a one-year extension in exchange for security and liquidated damage provisions. Developers must deposit \$20/kW, which is refundable upon achieving commercial operation. Liquidated damages of \$0.1/kW/day up to 200 days apply for failing to meet the milestone. This offer was available from August 24, 2009 through October 30, 2009.

- The OPA received 46 applications for a one-year extension totaling 442 MW:

	BioMass	LandFill	SolarPV	Wind	Total
Number of Projects	1	1	41	3	46
Capacity (MW)	10	3.2	398.88	29.8	441.88

- Grandfathering: RESOP, net-metered, merchant or not-yet-in-service projects that are 500 kW or less and have purchased equipment or have reached commercial operation by October 1, 2009 are eligible to be grandfathered into the FIT or microFIT. The grandfathering option excludes non-utility generators.
 - Most of the eligible projects may apply to the FIT or microFIT program; RESOP projects larger than 10kW and less than or equal to 500 kW may have their contract amended to the FIT price.
 - These projects are deemed to have met domestic content requirements.

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- They must be online by December 31, 2010, or for the micro non-RESOP projects, must be online within 12 months of the microFIT conditional contract offer. Projects larger than 10 kW will be liable to pay liquidated damages if they fail to meet this deadline. Micro projects revert to their old contract, if applicable.
- The amendment application should be made to the OPA by November 30, 2009.

Ontario Energy Board (OEB) distribution system code capacity allocation amendment

- The OEB amended the Distribution System Code (DSC) to move from a queue based system to a capacity allocation based system for distribution line space. The amendment mirrors the security deposit structure of the Feed-in Tariff to avoid "squatters" in the queue.
- Security deposits apply to RESOP projects that have not reached commercial operation and are larger than 250 kW if connected to a line running at less than 15 kV, or larger than 500 kW if connected to a line running at 15 kV or greater. This includes RESOP projects taking part in the Advance RESOP FIT amendment and the one year extension options.
 - A security deposit of \$20,000 / MW must be paid within 60 days of being notified by their distributor. For projects with a connection cost agreement, notification must have taken place 60 days from September 21st.
 - A second security deposit of \$20,000 / MW must be paid at the end of 15 months from when the connection cost agreement was signed.
- Projects which presently have distribution line space but do not pay a required deposit will lose their capacity allocation. This will clear space for serious developers.

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Program Implementation Issues

- Uptake in RESOP exceeded the initial program goal, with contracts for the 1,000 megawatts expected over ten years signed in just over one year.
- As a result of this success, program implementation issues came up.
- The major issues are:
 - Grid capacity limits – applications have outstripped transmission availability.
 - The development of commercial projects instead of local proponents building community-based projects.
 - Monopolization of grid capacity by commercial proponents at the expense of smaller and community based projects, in particular bio-based farm projects.
 - Price exposure from the unexpected rapid uptake in RESOP, particularly of solar projects.

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RESOP Program Review

- On May 13, 2008, the OPA announced the launch of their scheduled two-year review of the Standard Offer Program. The review involved extensive consultation with stakeholders and prospective program participants in the spring and summer of 2008.
- The OPA addressed specific issues to improve program fairness up front. Stakeholders had the opportunity to raise technology, pricing and other issues throughout the program review; however, consultation on these items was to occur in the Fall of 2008 after discussion and finalization of the proposed fairness changes.
- Since the start of the RESOP review process:
 - The OPA has continued to accept RESOP applications from potential program participants in areas with transmission capability.
 - RESOP applications received after 5 p.m. EDT on May 12, 2008 are processed according to the new rules. Micro-scale projects (10 kilowatts or less) and farm-based bioenergy projects (up to 250 kilowatts) have continued to be processed under the current rules.
- Minister Smitherman introduced the Green Energy Act on February 23rd, 2009 which was passed on May 14th, 2009. One of its features is a feed-in tariff which will replace RESOP. For more information on the feed-in tariff, please see house note H12A Green Energy Act - Feed-in-Tariff.
- Since the Feed-in Tariff program launched, the OPA has stopped offering RESOP contracts.

Micro Generation

- Under the SOP, micro-generators are considered those participants with systems having nameplate ratings of less than 10 kilowatts (kW). The majority of micro-generation projects are expected to be residential-sized solar photovoltaic (PV) installations.
- Several potential barriers to participation of micro-size solar PV projects in the SOP were identified. These included high capital costs (\$10,000-\$15,000 for a typical 1 kW solar system), generator licensing fees with the OEB, connection charges, secondary account charges with local utilities, and metering costs.
- In recognition of these challenges, the OPA has worked closely with the OEB, the Ministry of Energy and stakeholders to address program barriers.

Community Power Fund

- The Community Power Fund is an independent organization founded in 2007 by the Ontario Sustainable Energy Association (OSEA) with \$3 million in seed money from the Government of Ontario.
- On January 29, 2008, the Community Power Fund announced the disbursement of \$1.1 million in grant money to 15 different community power groups. The successful applicants included:
 - 80 MW of First Nations wind projects in northern and southwestern Ontario;
 - A small water power project (3 MW) in northeastern Ontario;
 - A Toronto housing co-operative solar thermal initiative; and
 - A project involving 13 southwestern Ontario families working together to develop 50-70 MW of wind power on their land.
- The Community Power Fund anticipates all of the proposed projects will be eligible to apply into the Renewable Energy Standard Offer Program.
- The grant funds provided will mainly be used for pre-development work and assessing the feasibility of the proposed projects. Not all of the projects will necessarily proceed.

Standard Offer Program Eligibility and Pricing:

- The Renewable Standard Offer Program is open to any renewable resource type that qualifies as a renewable resource in the Renewable Energy Supply II RFP, including wind, water, solar, and some bio-mass.
- The maximum project size is limited to 10 megawatts (MW). No minimum project size has been established. Projects are to be connected to the distribution system (at 50 kV or less). There is no maximum capacity limit for the program other than those determined by the technical limitations of the local distribution and transmission system.
- For the first year of commercial operation, all eligible renewable resource type projects (except solar PV) will be paid a base rate of 11 cents per kilowatt hour for all kilowatt hours delivered. Projects that can demonstrate generation control will be eligible for an additional 3.52 cents per kilowatt hour for all electricity delivered during on-peak hours.
- A price of 42 cents per kilowatt hour was set for solar photovoltaic (PV) projects in order to conduct price discovery on this technology.
- To be eligible, projects must have been brought in-service after January 1, 2000.

Updated by: Clarence Cheng, Policy Analyst

CONFIDENTIAL – FOR MINISTER'S USE ONLY

Renewable Energy
416-325-5027
~~November 2~~December 17, 2009

Approved by: ~~Karen Slawner, Coordinator~~Leo Tasca, Manager
Renewable Energy
~~416-326-3775~~TBD416-325-5765
~~December 21~~December 17, 2009

~~Leo Tasca, Manager~~
~~Renewable Energy~~
~~416-326-3775~~
~~December 17, 2009~~

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868
December 17, 2009

Sue Lo, ADM
Renewables and Energy Efficiency Division
(416-)327-8552
December 17November 2, 2009

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GREEN ENERGY ACT AND RENEWABLE ENERGY APPROVALS

ISSUE:

- On September 24, 2009 the Renewable Energy Act (REA) regulation and other regulatory amendments supporting the Green Energy Act (GEA) came into force.

MINISTRY POSITION/RESPONSE:

- The *Green Energy Act* is a key step in the province's plan to combat climate change. An increased emphasis on renewable energy generation and conservation will reduce greenhouse gas emissions and create thousands of green jobs in Ontario.
- Our priority is that those renewable sources of energy are developed in a way that is protective of human health and the environment. We're confident our renewable energy approval ensures that protection.
- The changes to the environmental approval process are a significant step forward for Ontario. The improved approach provides certainty with respect to provincial standards and ensures transparency and public review.
- This new approvals process will help grow Ontario's green economy by providing certainty and service guarantees for renewable energy projects, encourage new investment in renewable energy sources and help create well-paying green jobs.

- We have taken a cautious approach when setting standards for wind setbacks and noise limits to protect Ontarians. Ontario is leader in establishing clear setbacks for renewable energy projects that are protective of human health and the environment.
- Ontario is a leader in establishing clear setbacks that are protective of human health and the environment.
- Enforcement is also key to protecting the health of Ontarians. We are committed to ensuring existing and new projects meet provincial requirements. These requirements involve careful consideration of projects' potential impacts on human health and safety and the environment.

IF ASKED ABOUT MOE'S CONSULTATION

- The Ministry of the Environment conducted an open and thorough public consultation process that led to requirements for renewable energy projects in Ontario that are protective of human health and the environment.
- The public was consulted on the proposed approval requirements through the Environmental Registry and public meetings that were held across the province.
- All comments received were taken into consideration prior to finalizing our regulation for renewable energy projects.

- On November 6, 2009, the Decision Notice for the Renewable Energy Approval was posted to the Environmental Registry. All the comments and submissions received during the comment period are available for viewing at Ministry regional and district offices

IF ASKED ABOUT ENVIRONMENTAL AND HEALTH IMPACTS

- We are committed to ensuring that renewable energy projects are protective of human health and the environment.
- Applicants are required to meet the same standards across the province, including a minimum setback of 550 metres for the placement of wind turbines.
- We have taken a cautious approach when setting standards for wind setbacks and noise limits to protect Ontarians. Ontario is leader in establishing clear setbacks for renewable energy projects that are protective of human health and the environment.
- The Ministry of the Environment will be taking compliance and enforcement measures to support these new requirements.

- Going forward, the Ministry of the Environment will develop the science to monitor and measure low frequency noise, as currently there are no established and accepted protocols. In the future, wind farm operators may be required, through conditions of the Renewable Energy Approval, to monitor and address perceptible low frequency noise once acceptable protocols for doing so have been established.
- As always, our policy and requirements are based on science as we strive for continuous improvement. As new information comes to light, we will review and propose amendments, as necessary, to our requirements – as we do for all other environmental standards today.

IF ASKED SPECIFICALLY ABOUT A MORATORIUM

- We are aware of the health concerns some people have expressed, and the government has fully reviewed the literature on the potential health impact of wind turbines.
- The literature review revealed that while there are anecdotal reports of symptoms, there is no scientific evidence, to date, to demonstrate causal association between wind turbine noise and adverse health effects.

- In light of the absence of a causal link to adverse health effects and the new approval requirements for wind turbines, we believe that a moratorium on wind turbines is not warranted at this time.
- The government is committed to protecting the health of residents in communities that are the home to wind projects. In so doing the province **is** establishing an academic research chair looking into renewable energy technologies.

IF ASKED ABOUT THE ACADEMIC RESEARCH CHAIR

- We are moving forward with establishing an academic research chair for the ongoing study of renewable energy technologies and health.
- The Chair will examine the potential public health effects of renewable energy projects. It is proposed that the Chair will focus on emerging science and technology related to wind turbines and is expected to explore health effects from other renewable energy sources.
- On **November 18, 2009**, the Council of Ontario Universities announced the launch of the competitive process on behalf of the Ontario government for the chair in Renewable Energy Technologies **and Health**.
- We are working through the arms length agency that will administer the funds and establish the Chair to ensure there is a process that is accountable and transparent.

- This is a common practice and we are taking the time to ensure that the right process is followed and that we find the best person with the right experience and expertise for the job.

IF ASKED ABOUT COURT APPLICATION FOR A JUDICIAL REVIEW CONCERNING PRECAUTIONARY PRINCIPLE AND POTENTIAL HEALTH EFFECTS FROM RENEWABLE ENERGY

- I understand there is an application for a judicial review of the *Green Energy Act*. Given the application is before the courts, it would be inappropriate for me to comment further on the application.
- We are committed to ensuring that renewable energy projects are protective of human health and the environment.

BACKGROUND:

On The *Green Energy and Green Economy Act*:

- The *Green Energy and Green Economy Act, 2009* (GEGEA) is an initiative led by the Ministry of Energy and Infrastructure (MEI).
- A key feature of the GEGEA is legislative changes to the approval process for renewable energy projects. Key features of this new process include:
 - Replacing existing local land use planning approvals required for renewable energy projects with **provincial standards** that proponents must meet to obtain provincial environmental approval.
 - Creating a **single multi-media Renewable Energy Approval at the Ministry of the Environment** which incorporate the review done to date for noise/air, waste water and waste Certificates of Approval and Permits to Take Water.
 - Setting transparent requirements (such as setbacks, studies, consultation/notice, etc.) that proposed projects must meet to apply for a **Renewable Energy Approval**.
 - **Coordination between MOE and Ministry of Natural Resources** approvals/permits to provide a **service guarantee** for proponents of renewable energy projects.
 - A **Renewable Energy Facilitation Office (REFO)** with the Ministry of Energy and Infrastructure to serve as a point of access to government for renewable projects for interested parties and renewable energy proponents should they wish to use such a service.
- MEI coordinated a 30 day Environmental Registry posting on the proposed *Green Energy and Green Economy Act*. The posting closed on March 26 and generated over 500 comments.
- The Standing Committee on General Government held hearings in Toronto, Sault Ste. Marie, London and Ottawa Ontario as it considered the proposed *Green Energy Act*. Approximately 130 presentations were made, as well as over 300 written submissions.
- The GEGEA received Royal Assent in the Legislature on May 14th, 2009.
- The REA regulation and related regulatory amendments to support the *Green Energy Act* came into force on September 24, 2009.

On the Renewable Energy Approval process:

- The MOE brought forward for public comment proposed content for a Renewable Energy Approval regulation, detailing the requirements and setbacks for an improved Renewable Energy Approval process for renewable energy projects.
- The proposed content for the Renewable Energy Approval regulation described the Ministry of the Environment's approvals process, including:
 - **General requirements** for proposed renewable energy projects, such as public notice, municipal and aboriginal consultation and archaeological and heritage studies.
 - **Setbacks** and study alternatives to protect natural heritage and sensitive water features.
 - **Technology-specific requirements and setbacks** for different types of renewable energy generation projects; wind, solar, water and bio-energy.
 - **Transition provisions** for facilities that have already completed environmental assessment or approval under existing processes.
 - A new **appeals regime** for projects applying for a Renewable Energy Approval.
- In addition to the Renewable Energy Approval posting, the MOE also posted amendments to five existing regulations to the Environmental Registry; three amend regulations under the *Environmental Assessment Act* (Regulations 101, 116, and 334) and two amend regulations under the *Environmental Bill of Rights Act* (Regulations 73 and 681).

On the role of municipalities in the REA process:

- Renewable energy project **proponents will be required to consult with the municipality** on related municipal infrastructure and servicing issues including:
 - proposed project area and property boundaries;
 - proposed road access location;
 - location and type of municipal service connections that may be required;
 - traffic management plans during construction and operation;
 - construction plans related to rehabilitation of temporary disturbance areas and any municipal infrastructure that may be damaged during construction; and
 - emergency management procedures/safety protocols as specified in the Response Plan;
- Proponents are required to consult with municipalities 90 days prior to the last public meeting. They must use a form provided by the Director of MOE to record this consultation and include the form with their REA application. The proponent will be required to provide this documentation and explain how the proponent attempted to address any issues raised during municipal consultation.

On the health and safety issues raised by Wind Concerns Ontario:

- Wind Concerns Ontario (WCO), an umbrella organization of small, community groups concerned with the effects of wind turbines on health and safety has been raising health and safety concerns related to wind turbine development in the Province throughout the development of the *Green Energy and Green Economy Act* and the proposed Renewable Energy Approval requirements and setbacks.
- The main issues raised by WCO are related to wind turbines and their emission of audible sound and low-frequency noise. **They are calling** for a moratorium on wind farms until an epidemiological study of the potential health effects of wind turbines is conducted.
- **As of September 24, 2009, WCO asserts that 98 Ontarians are being affected by wind turbines.** These figures are presented by WCO and are a result of surveys distributed within community groups near wind turbine developments.
- WCO representatives participated in the MOE's technical sessions and public workshops and made a presentation to the Government's Standing Committee related to the *Green Energy and Green Economy Act*. WCO took these opportunities to raise concerns related to turbines and their effect on health and safety. WCO members also participated in the MOE's Public Information Sessions related to the Renewable Energy Approval requirements and setbacks and submitted comments during the Environmental Bill of Rights (EBR) consultation period.
- **The Ministry of Health and Long-term Care has publicly stated that a full literature review on the potential health impacts of wind turbines revealed that while there are anecdotal reports of symptoms, there is no scientific evidence, to date, to demonstrate causal association between wind turbine noise and adverse health effects. In light of the absence of a causal link to adverse health effects and the new approval requirements for wind turbines, a moratorium on wind turbines is not warranted at this time.**
- **The Chief Medical Officer of Health has agreed to undertake a review of existing information and to consult with the Ontario Agency for Health Protection and Promotion (OAHPP) and local Medical Officers of Health on health effects related to wind turbines. The results of the review and consultation will be summarized in a report expected to be complete early in 2010.**

On MPP Bruce Murdoch's proposed resolution and the court application for a Judicial Review concerning the "precautionary principle" and potential health effects from renewable energy:

- Bruce-Grey-Owen Sound MPP Bill Murdoch introduced a resolution in the legislature on October 29, **2009** calling for moratorium on wind turbine projects. MPP Murdoch called on the province and its chief medical doctor to state whether or not wind turbines cause health problems for people who live near them.

- MPP Murdoch's private member bill was debated and defeated in the legislature on October 29, 2009.
- Members of the public have raised concerns regarding health effects from wind farm operations including: health effects from noise, infrasound, shadow flicker, and stray voltage.
- Ontario-wide, there are over 40 wind projects (including those both operational and under development) that have completed MOE's Environmental Assessment and approval requirements prior to proclamation (September 24, 2009) and will not be required to meet REA requirements.
- There are approximately 7 wind projects that have not yet been built but meet the transition requirements of the regulation. All of these projects will have to meet the new REA setback requirements.

On the application for a judicial review:

- On October 19, 2009, an application for a judicial review of the new Renewable Energy Approvals regulation (Reg. 359/09) was filed.
- The applicant's allegations include that scientific uncertainty exists regarding the potential health effects of wind turbines and that new regulatory approvals process does not take account of this. The applicant refers to the "precautionary principle" referred to in the Ministry's Statement of Environmental Values (SEV) and asserts that the regulation does not comply with the SEV, the common law and international law. The applicant is seeking:
 - To have the sections of the Regulation related to wind energy projects declared invalid and
 - An injunction to restrain the Director from approving any wind projects.
- No court date has been set. MOE and MEI legal counsel will be working with the Crown Law Office Civil (CLOC) to determine next steps and will seek MOE staff direction in advising the CLOC.

On the *Wind Turbine Sound and Health Effects* report prepared for the American Wind Energy Association and the Canadian Wind Energy Association:

- On December 15, 2009, the American Wind Energy Association and the Canadian Wind Energy Association released the report *Wind Turbine Sound and Health Effects: An Expert Panel Review*.
- The methodology for the study consisted of review, analysis, and discussion by an expert panel of the large body of peer-reviewed literature related to sound and health effects in general, sound produced by wind turbines and review of potential environmental exposures associated with wind turbine operations, such as low frequency sound, infrasound and vibration. The panel then assessed the plausible biological effects of exposure to wind turbine sound.

- The panel reached consensus on the following conclusions:
 - There is no evidence that the audible or sub-audible sounds emitted by wind turbines have any direct adverse physiological effects.
 - The ground-borne vibration from wind turbines are too weak to be detected by, or to affect, humans.
 - The sounds emitted by wind turbines are not unique. Based on the levels and frequencies of the sound exposures in occupational settings, sounds from wind turbines could plausibly have direct health consequences.

- With respect to infrasound and low frequency sound, the report states that there is no evidence for direct physiological effects from either infrasound or low frequency sound at the levels generated by wind turbines.

- Sounds from wind turbines were found to be more annoying than several other environmental sources at comparable sound levels. There appears to be a strong correlation between noise annoyance and negative opinion of the impact of wind turbines on the landscape.

- An annoyance factor to wind turbine sounds exists. Associated stresses from annoyance, heightened by rhetoric, fears and negative publicity may contribute to symptoms described by some people living near rural wind turbines.

- Some reports have suggested a link between low frequency sound from wind turbines and adverse health effects. The report questions the claims because of the low level of sound cited, lack of diagnostic specificity associated with health effects reported and the lack of a control group in the study.

- Wind turbine syndrome promoted by Dr. Nina Pierpont is criticized. Dr. Pierpont's case study contacted anybody believing their health had been adversely affected by wind turbines. The report asserts that there was selection bias because people who already think they have been affected by wind turbines self select to participate.

- The report concludes that sound from wind turbines does not pose a risk of hearing loss or other adverse health effect in humans. Sub-audible, low frequency sound and infrasound do not pose a risk to human health.

On the Canadian Wind Energy Association Concerns:

- CanWEA submitted a formal letter in response to the Ministry's EBR Registry posting, citing their concerns around the proposed noise setback of 550 metres, property setback, Environmental Review Tribunal (ERT) appeals process and transition provisions.

- In response to the comments received on the EBR posting, which included CanWEA's concerns, the following were incorporated into the final REA Regulation:
 - The mandatory 550 metre noise setback was retained, with the introduction of an exception where the applicant could demonstrate that the ambient noise resulting from road traffic exceeds 40 dBA
 - Turbines are required to meet a property setback of hub height (approx. 80 metres) with a provision to allow the setback to be reduced to a minimum of blade length plus 10 metres (approx. 50? metres) instead of the originally proposed setback of hub height plus blade length (approx. 125 metres)
 - The timeline for the ERT appeals process was shortened to six months instead of the originally proposed nine months
 - Wind projects that have their notice of completion and a contract with the Ontario Power Authority prior to September 24, 2009 are subject to the previous process. All other wind projects that were not significantly advanced in the approval process by September 24, 2009 are subject to the new REA requirements.

On Stakeholder Consultation:

- On June 9, 2009, the Ministry of the Environment posted proposed content for a Renewable Energy Approval regulation to the Environmental Registry (EBR# 010-6516) for public comment for 45 days. The public comment period ended on July 24, 2009.
- The Ministry of the Environment coordinated this posting with the Ministry of Natural Resources' (MNR) posting of their policy document explaining MNR's proposed requirements and setbacks related to natural heritage, wildlife, and crown lands. MNR received approximately 500 responses to their posting.
- Approximately 1300 comments were submitted in response to the Environmental Registry posting: "Proposed Content for the Renewable Energy Approval Regulation under the *Environmental Protection Act*".
- On November 6, 2009, the Decision Notice for the Renewable Energy Approval regulation was posted to the Environmental Registry.
- In coordination with the release of the Decision Notice, MOE sent both hardcopy and electronic copies of all the comments and submissions that the Ministry received during the comment period to its regional and district offices for public access.
- The following details the predominant issues raised and comments made to the Environmental Registry:

Setbacks for Wind Turbines

- The EBR proposal notice contained a matrix approach to noise setbacks that proposed a **mandatory minimum 550 metre setback** for wind turbines. It was also proposed that a noise study could be completed based on a 40 dBA noise limit at

the point of reception to site turbines closer than the proposed matrix, however under no circumstances could wind turbines be sited closer than 550 metres.

- The largest number of comments received on the EBR proposal notice focussed on this issue. Community groups, ratepayer associations, professionals and the public all raised concerns about the potential for negative health impacts associated with the noise from wind turbines. Many included references to studies, reports and surveys from Ontario and other jurisdictions. Proponents, some municipalities, some environmental groups, landowners who want to host turbines and some members of the public argued that the 550 metre setback was too restrictive and would unnecessarily restrict a clean, green form of renewable energy development in Ontario.
- Comments on the proposed **property setbacks** for wind projects were varied, ranging from support for the proposed setback of a distance equal to or more than the turbine hub height plus blade length (approximately 125 metres) and comments indicating support for a maximum property setback of blade plus 10 metres. People from all sides of the issue were found to argue for either side – including the public, community organizations, environmental groups, municipalities, proponents, associations representing various interests and other interested stakeholders.

Small Scale Wind Turbines

- The EBR proposal notice defined **small scale wind turbines** as those with a name plate capacity greater than 3 kW with a sound power level rating of less than 102 dBA, proposing these facilities would not be required to conform to technical requirements proposed for larger wind turbines. A number of comments were received from the public and wind turbine developers arguing that this would be an overly onerous process acting as a disincentive to what is an emerging and relatively low impact form of renewable energy generation.

Transition Projects

- Numerous comments were received regarding the rules for **transition projects**, particularly wind energy projects, currently at various stages of provincial and municipal approvals prior to the new regulation coming into effect. Comments from the public indicated that these wind energy projects should be required to conform to the proposed 550 metre setback for wind turbines. Those with an interest in these projects, including proponents, land owners and some municipalities recommended that these facilities be allowed to continue with the current requirements under the “Noise Guidelines for Wind Farms – October 2008”.

Consultation

- Requirements for consultation were outlined in the EBR proposal, including public notice and public meetings, municipal consultation on matters related to servicing and infrastructure and aboriginal consultation. Comments on the posting from the public emphasized the need to notify members of the public by registered mail. Municipalities indicated that consultation should happen early enough for the analysis and work to be done by municipal staff.

Natural Heritage and Water Features

- The EBR proposal notice contained a chart with proposed **setbacks for “significant” natural heritage and water features** that generally proposed a 120 metres setback, with an option in some cases to decrease the setback based on an environmental impact study, demonstrating the ability to mitigate negative impacts. Comments on the posting indicated that no wind turbine development should be allowed in important bird areas and renewable energy projects should not occur in significant natural heritage features with appropriate setback distances at the discretion of the approving Director. Comments also indicated that development should not be permitted within locally, regionally and provincially significant natural heritage features and proponents should be required to assess and identify locally, regionally and provincially significant natural heritage features within 120 metres of proposed projects. Comments also indicated that consultation with Conservation Authorities should be required. These comments were primarily submitted by the public.

Renewable Energy Approval Process

- It was argued in the comments received from a variety of interests that **requirements should be appropriate to the scale and nature of the facility and include site-specific criteria**. Comments submitted primarily from the public indicated that renewable energy generation projects should not be subject to requirements that are more onerous than any other form of development. Comments primarily from proponents and industry associations also noted the need to streamline approvals between ministries and harmonize approvals with the federal government.

Solar Energy Facilities

- The EBR proposal notice indicated that **solar energy facilities** greater than 10 kW would be required to obtain a renewable energy approval but with limited technical requirements. It was also proposed that additional financial assurance would be required for ground mounted solar facilities as part of decommissioning. Comments from both the solar industry and the public argued that roof top and wall mounted solar projects should be exempt from obtaining a renewable energy approval. Seen as a building installation similar to a heating, ventilating and air conditioning unit, the REA requirements proposed were seen as too onerous and a disincentive to the growth of a rooftop solar alternative for industrial and residential use in Ontario. Municipalities, landowners and industry raised concerns that the financial assurance requirements were not based in science and would create an overwhelming financial barrier for solar projects

Water Power Facilities

- It was proposed that **water power facilities** other than kinetic power generation and hydro dams with a head of less than 2 metres will require a renewable energy approval. The posting proposed that natural heritage and water requirements will not apply and be replaced with technical requirements and Ministry of Natural Resources approvals. It was also proposed that facilities greater than 200 MW will also require an individual EA as part of their Renewable Energy Application. Comments received, primarily from municipalities and proponents, indicated great

concern that the proposed REA process would add additional burden rather than improve approval processes.

Appeal Process

- Comments on the posting indicated that the nine month **appeal timeline** for the ERT to render a decision was too long and should be amended. These comments were submitted by community organizations, the public and industry associations. Comments also indicated that appeals made by unsubstantiated third parties and appeals that are frivolous and vexatious should not be considered by the ERT. These comments were submitted primarily by the public.
- The Province held six evening Public Information Sessions to consult on the proposed content for a Renewable Energy Approval regulation at the following locations:
 - Ottawa – Monday, June 15, 2009
 - Thunder Bay – Tuesday, June 16, 2009
 - Chatham-Kent – Thursday, June 18, 2009
 - Bruce County – Monday, June 22, 2009
 - Sault Ste. Marie – Wednesday, June 24, 2009
 - Toronto – Thursday, June 25, 2009
- The Ministry's approach has provided opportunities for stakeholder input, including:
 - Separate sessions with renewable energy proponents, environmental non-governmental organizations and municipalities.
 - Technical workshops with experts on renewable energy technologies the week of March 9, 2009.
 - Three multi-sector workshops open to the public were held on March 23, 25, and 26, 2009 in Toronto.
- Multi-sector workshops were well-attended by the public and a number of stakeholders, including:
 - Project proponents (i.e., renewable energy project developers)
 - Municipalities and municipal associations (e.g., Association of Municipalities of Ontario)
 - Environmental non-governmental organizations (ENGOS)
 - Community groups
 - Professional organizations (e.g., Ontario Society of Professional Engineers)
- The multi-sector workshops provided these stakeholders with opportunities to share their perspectives on proposed regulated and policy requirements for approvals for renewable energy projects in Ontario that are protective of human health and the environment.

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Approved by: Marcia Wallace, Manager
Renewable Energy Project
416 327-9466

Kevin Perry, Director
Program Planning and Implementation Branch
416 327-9730

Paul Evans, ADM
Environmental Programs Division
(416) 314-9530

INFORMATION NOTE

Chatham-Kent Ground Mounted Solar PV Proposal

The Municipality of Chatham-Kent has written to the Ministry regarding a developer's proposal to lease part of a municipally-owned site for the installation of a solar facility. The developer wishes to pursue a FIT application for the site.

The proposed site is on Canada Land Inventory (CLI) Class 2 land, and is zoned agricultural, making it ineligible for a FIT contract under the OPA's current rules.

The municipality has requested special consideration on the basis that former land uses have rendered the site unusable for agriculture.

KEY POINTS:

- Chatham-Kent recently informed the Ministry that it has undertaken soil analysis in an attempt to show that the site in question is not Class 1, 2 or 3 land. (Results of this analysis appear to be pending.)
- The OPA has yet to receive a FIT application for this project, and as such, the project is not in priority sequence for approval during the FIT launch period.
- The OPA has advised MEI staff that the location of the proposed project is in an area of transmission constraints, and as such, if an application was to be submitted and approved, the project would most likely end up in the FIT reserve.

ANALYSIS:

- As a general principle, MEI staff feel that while proponents contemplating new ground mounted solar photovoltaic projects now have clear direction to avoid CLI Class 1 and 2 lands, projects which were being planned prior to the GEA may face transitional issues.
- MEI staff agree with advice from partner ministries (OMAFRA and MAH) that changing the rules around FIT eligibility, e.g. through adjustments to CLI mapping or a more broad interpretation of the non-agricultural land use exemption, would cause inconsistency and confusion.
 - MEI staff do not recommend the use of a soil study as proof that this project should be eligible for a FIT contract.

- Based on the limited information provided to MEI staff, the Chatham-Kent proposal may meet the spirit of the Minister's direction to the OPA around protecting prime agricultural land, if indeed the site is unusable for agriculture.

RECOMMENDED NEXT STEPS:

- MEI staff recommend a staff-level meeting with the Chatham-Kent planner to better understand the details of this project. The meeting could include discussion of the transmission constraints facing the region.

BACKGROUND:

Details of Chatham-Kent Proposal

- The site is CLI Class 2 and is zoned agricultural. However, according to the municipality, the following unique conditions exist:
 - A portion of the lands, approx 1ha, was a former landfill site. Ponds occupy an additional 1 ha.
 - The rest of the site has remained inactive. All of the lands have been stripped of topsoil and a one metre clay layer.
 - In the past 5 years the Municipality has been planting trees and incorporating trails on the site in an attempt to naturalize it.
 - The waste footprint has been inactive (not accepting waste) since March 31st, 1981 and is now closed and capped.
- The municipality believes that, given recent uses, a detailed soil study would indicate that the soil is no longer Class 2. Chatham-Kent recently commissioned such a study (results appear to be pending).
- The municipality believes that a combination of site remediation and alternative energy generation could complement one another at this site, and is asking for "limited and cautious flexibility in the guidelines and/or in OPA/OMAFRA practices" to allow the application to go forward.

Restrictions on Solar Photovoltaic Energy Projects on Prime Agricultural Land in the Minister's Direction to the OPA

- Part of the Minister's September 24, 2009 direction to OPA on the FIT directed the OPA not to enter into contracts for ground-mounted solar PV projects greater than 100 kilowatts (kW) whose facilities are located on:
 - Lands comprised of Canada Land Inventory (CLI) Class 1 or 2 soils
 - Specialty crop areas within the meaning of the 2005 Provincial Policy Statement (PPS).

- The restrictions are meant to protect prime agricultural land from being taken out of useful production for 20 years or more due to solar photovoltaic project development, particularly given the amount of land available across the province that is not prime agricultural or zoned for agriculture.

Exemption to the Restriction in the Minister's Direction

- Subsequent to the directive being issued, the ministry has clarified that any lands that have been municipally zoned for 'non-agricultural purposes' in a zoning by-law by **October 1, 2009** would be exempt from the Class 1 and 2 restrictions.
- This exemption was created in recognition of the fact that, irrespective of soil classification, if a Class 2 plot of land has been zoned, for example, for industrial use, then it is no longer being used as prime agricultural land. Therefore, allowing solar development would meet the spirit of the directive.

Prepared by: Suzanne Coultres (416-326-4571)
Advisor, Policy and Projects
Regulatory Affairs and Strategic Policy

With input from: Chris Quirke/Tomas Nikolakakos
Renewable Energy Facilitation Office

Approved by: Kaili Sermat-Harding (416-327-5555)
Director, Strategic Policy and Research

Pearl Ing (416-327-3868)
Director, Renewables and Energy Facilitation

~~December 17~~~~January 14~~~~October 30, 2010~~~~2009~~ - B(05)

GREEN POWER

ISSUE:

What is the status of Ontario's green energy supply since the Minister On September 24th, 2009, Minister Smitherman directed the Ontario Power Authority to launch the Feed-in Tariff program on September 24, 2009? The Ontario Power Authority began accepting applications October 4th, 2009.

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For information about the Renewable Energy Standard Offer Program Review, please see House Note B17 – Renewable Energy Standard Offer; for information on the Feed-in Tariff, please see House Note H12a – Green Energy Act – Feed-in Tariff.

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SUGGESTED RESPONSE

- Ontario is committed to reducing the environmental footprint of electricity generation across the province.
- In February, the OPA will start offering FIT contracts beginning with Capacity Allocation Exempt projects (500 or kW or less), and continuing in March with the rest of the FIT Program.
- Since October 2003, the McGuinty government has signed contracts representing about ~~2,73,000~~ MW of new renewable energy supply from large and small-scale projects across Ontario. ~~Over~~~~About~~ ~~1,3200~~ MW of these projects have reached commercial operation and are generating clean, green electricity from wind, water, sun and bio-based resources. This represents ~~\$3.02-8~~ billion of investment and ~~over~~ ~~4,700~~~~about 4,300~~~~over 3,600~~ direct and indirect jobs.
- ~~On June 26, 2009, Canadian Hydro Developers announced commercial operation of its 197.8 MW wind farm on Wolfe Island.~~
- ~~Ontario is home to the 199.5 MW Melancthon EcoPower Centre, which is the largest wind facility in service in Canada.~~
- Wind projects are an important part of Ontario's drive toward a cleaner, greener energy future. Ontario now has ~~nearly 1,200~~~~over 1,400~~ megawatts of wind power online generated by over ~~6780~~ wind turbines. This includes the 197.8 wind farm on Wolfe Island and the 199.5 Melancthon EcoPower Centre – Canada's largest wind

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facility. In 2003, there were only 15 megawatts of wind power generated by ten turbines.

If Asked About OPA's Integrated Power System Plan (IPSP) Review:

- Finding clean, affordable and sustainable sources of electricity is a top priority of the Ontario Government. That's why I have asked the Ontario Power Authority to review its long-term energy strategy as it relates to renewable energy and conservation.
- This review will ensure Ontario is maximizing its potential to provide clean, green, renewable power to homes and businesses across the province, and a new generation of "green-collar" careers and industry.

If Asked About Investment in Ontario's Green Industry:

- Ontario is actively pursuing investment in new manufacturing and service infrastructure for green energy. The Ministry of Energy and Infrastructure is working closely with the Ministry of Economic Development and the Ministry of International Trade and Investment to attract and assist local and global manufacturers through MITI's international trade activities, and through programs such as the Next Generation of Jobs Fund.

- Ontario is very focused on developing the skills and training for the jobs to support green power. The Ministry of Research and Innovation, through various programs, and through the Ontario Centres of Excellence, has put a strong focus on alternative energies at Ontario's colleges and universities. The Ministry of Northern Development and Mines is providing support for a program that will turn out electricians with the skills to service wind power projects.



- ~~And other government ministries are working with green energy companies to offer training. Sault College, with the help of Brookfield Power, Northern Development and Mines and others, is offering a Wind Energy Training Program which is turning out electricians with the skills to service wind power projects.~~

- New renewable energy supply that is online or under construction total about 1,400~~1,455~~ MW of large and small-scale projects across Ontario representing over \$5.1~~5.19~~4.9 billion of investment and over 6,000~~6,070~~ direct and indirect jobs.

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BACKGROUND

Renewable Energy in Ontario:

- Ontario currently has ~~more than~~ 9,000 megawatts of *installed* renewable energy capacity:

~~Renewables Online~~

Procurement Initiatives	Total MW projects		Wind MW projects		Solar PV MW projects		Water MW projects		Bio-Energy MW projects	
Existing (pre-Oct 2003)	7,694.40	66	2.40	2	0.00	0	7,626.50	62	65.50	2
Grandfathered RESOP (pre-Oct 2003)	24.48	10	12.21	4	0.00	0	7.65	5	4.63	1
New RESOP	159.67	195	81.98	14	38.17	158	18.03	10	21.50	13
RES I, II + III	1,124.00	15	1,083.60	10	0.00	0	31.00	2	9.40	3
OPG Hydro	253.50	6	0.00	0	0.00	0	253.50	6	0.00	0
Other	59.20	4	8.20	3	0.00	0	0.00	0	51.00	1
Total	9,315.25	296	1,188.39	33	38.17	158	7,936.67	85	152.02	20
New Online	1,596.37	220	1,173.78	27	38.17	158	302.53	18	81.90	17
New Online (gov procurements)	1,296.17	211	1,165.58	24	38.17	158	61.53	13	30.90	16

Procurement Initiatives	Total MW projects		Wind MW projects		Solar PV MW projects		Water MW projects		Bio-Energy MW projects	
Existing (pre-Oct 2003)	7,694.40	66	2.40	2	0.00	0	7,626.50	62	65.50	2
Grandfathered RESOP (pre-Oct 2003)	24.48	10	12.21	4	0.00	0	7.65	5	4.63	1
New RESOP	135.32	192	75.38	13	28.42	157	10.03	9	21.50	13
RES I, II + III	1,124.00	15	1,083.60	10	0.00	0	31.00	2	9.40	3
OPG Hydro	253.50	6	0.00	0	0.00	0	253.50	6	0.00	0
Other	8.20	3	8.20	3	0.00	0	0.00	0	0.00	0
Total	9,239.90	292	1,181.79	32	28.42	157	7,928.67	84	101.02	19
New Online	1,521.02	216	1,167.18	26	28.42	157	294.53	17	30.90	16
New Online (gov procurements)	1,271.82	208	1,158.98	23	28.42	157	53.53	12	30.90	16

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Procurement Initiatives	Total MW projects	Wind MW projects	Solar PV MW projects	Water MW projects	Bio-Energy MW projects
Existing (pre-Oct 2003)	7,677.40 65	2.40 2	0.00 0	7,609.50 61	65.50 2
Grandfathered RESOP (pre-Oct 2003)	24.48 10	12.21 4	0.00 0	7.65 5	4.63 1
New RESOP	96.32 189	55.38 11	9.42 156	10.03 9	21.50 13
RES I, II + III	1,124.00 15	1,083.60 10	0.00 0	31.00 2	9.40 3
OPG Hydro	185.50 6	0.00 0	0.00 0	185.50 6	0.00 0
Other	8.20 3	8.20 3	0.00 0	0.00 0	0.00 0
Total	9,115.90 288	1,161.79 30	9.42 156	7,843.67 83	101.02 19
New Online	1,414.02 213	1,147.18 24	9.42 156	226.53 17	30.90 16
New Online (gov procurements)	1,232.82 205	1,138.98 21	9.42 156	53.53 12	30.90 16

Government procurements exclude private initiatives like windfarms contracting to Bullfrog and OPG's runner upgrade program.

- The Province's procurement programs have brought ~~about 1,300~~^{over 1,200} megawatts of new renewable energy on-line since October 2003, including 1,124 MW from completed RFPs and ~~160~~¹³⁵ MW from the Renewable Energy Standard Offer Program (RESOP).
- Ontario has an additional 1,480 megawatts of renewable energy under contract:
 - 423 MW of RESOP contracts were terminated and are applying for the Feed-in Tariff (see B17 Standard Offer Contract for more details).

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Additional Renewables Contracted

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Procurement Initiatives	MW	Total projects	MW	Wind projects	MW	Solar PV projects	MW	Water projects	MW	Bio-Energy projects
New RESOP	827.67	195	278.82	35	486.16	146	7.05	3	55.64	11
RES I, II + III	508.10	7	492.10	6	0.00	0	16.00	1	0.00	0
OPG Hydro	50.39	3	0.00	0	0.00	0	50.39	3	0.00	0
Total	1,386.16	205	770.92	41	486.16	146	73.44	7	55.64	11

Procurement Initiatives	MW	Total projects	MW	Wind projects	MW	Solar PV projects	MW	Water projects	MW	Bio-Energy projects
New RESOP	849.22	198	282.12	36	496.41	147	15.05	4	55.64	11
RES I, II + III	508.10	7	492.10	6	0.00	0	16.00	1	0.00	0
OPG Hydro	50.39	3	0.00	0	0.00	0	50.39	3	0.00	0
Total	1,407.71	208	774.22	42	496.41	147	81.44	8	55.64	11

Procurement Initiatives	MW	Total projects	MW	Wind projects	MW	Solar PV projects	MW	Water projects	MW	Bio-Energy projects
New RESOP	1,299.89	246	671.33	78	514.53	149	53.23	8	60.80	11
RES I, II + III	508.10	7	492.10	6	0.00	0	16.00	1	0.00	0
OPG Hydro	50.39	3	0.00	0	0.00	0	50.39	3	0.00	0
Total	1,858.38	256	1163.43	84	514.53	149	119.62	12	60.80	11

- In addition, OPG is bringing on additional generation at Niagara equivalent to 200 MW.

Feed in Tariff (FIT)

- The Ontario Power Authority began accepting Feed-in-Tariff (FIT) applications October 1st, 2009.
- A feed-in tariff is a standard price to promote the development of community-based and large commercial renewable energy projects. It provides a guarantee of market-viable prices for energy generated from renewable energy sources, such as solar, wind (onshore and offshore), water, biogas, biomass, and landfill gas.
- A feed-in tariff program is combined with “as of right connection” which would make it easier for proponents to connect to the grid (as network expansion is encouraged) and streamlined approvals processes to facilitate new renewables once basic economic and technical criteria are met.
- Renewable energy projects that generate less than 10 kW of electricity have a different application process than larger commercial projects and will be administered as micro-feed-in tariff (microFIT) projects.

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- On December 16th, 2009, the Ontario Power Authority announced that they have started sending out conditional contract offers to the first 700 microFIT applicants.
- For details on the FIT, please see House Note H12a – Feed-in Tariff
- For a table outlining current renewable energy projects please see Appendix One.

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Status of RES I, II and III RFP Projects
(Expected in-service dates and highlighted number of turbines are **CONFIDENTIAL**)

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Project	Procurement Type	Source	Size (MW)	# of Turbines	Status	In-Service Date
Eastview Landfill Gas	RES I	Landfill gas	2.5	N/A	On-line	August 2005
Glen Miller Hydro	RES I	Hydro	8.0	N/A	On-line	December 2005
Melancthon I Wind	RES I	Wind	67.5	45	On-line	March 2006
Kingsbridge I Wind	RES I	Wind	39.6	22	On-line	March 2006
Erie Shores Wind	RES I	Wind	99.0	66	On-line	May 2006
Hamilton Digester Gas	RES I	Biogas	1.6	N/A	On-line	July 2006
Prince I Wind	RES I	Wind	99.0	66	On-line	September 2006
Trail Road Landfill Gas	RES I	Landfill gas	5.3	N/A	On-line	January 2007
Umbata Falls	RES I	Hydro	23.0	N/A	On-line	November 2008
Prince II Wind	RES II	Wind	90.0	60	On-line	November 2006
Ripley Wind	RES II	Wind	76.0	38	On-line	December 2007
KEPA Wind Farm	RES II	Wind	101.2	44	On-line	October 2008
Melancthon II Wind	RES II	Wind	132.0	88	On-line	November 2008
Enbridge Ontario Wind A & B	RES II	Wind	181.5	110	On-line	February 2009
Wolfe Island Wind	RES II	Wind	197.8	86	On-line	June 2009
Yellow Falls Hydro	RES II	Hydro	16.0	N/A	In approvals	2013
Greenwich Windfarm	RES III	Wind	98.9	43	In approvals	December 2011
Byran Wind	RES III	Wind	64.5	34	In approvals	2011
Kruger Energy Chatham Wind	RES III	Wind	101.2	44	In approvals	October 2011
Gosfield Wind	RES III	Wind	50.6	22	Under construction	December 2010
Raleigh Wind Energy Centre	RES III	Wind	78.0	52	Approvals complete. Construction not yet started.	TBD 2010
Talbot Windfarm	RES III	Wind	98.9	43	In approvals	December 2011
TOTAL ONLINE			1,124.0	625		
TOTAL			1,632.1	863		

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Project	Procurement Type	Source	Size (MW)	# of Turbines	Status	In-Service Date
Eastview Landfill Gas	RES I	Landfill gas	2.5	N/A	On-line	August 2005
Glen Miller Hydro	RES I	Hydro	8.0	N/A	On-line	December 2005
Melancthon I Wind	RES I	Wind	67.5	45	On-line	March 2006
Kingsbridge I Wind	RES I	Wind	39.6	22	On-line	March 2006
Erie Shores Wind	RES I	Wind	99.0	66	On-line	May 2006
Hamilton Digester Gas	RES I	Biogas	1.6	N/A	On-line	July 2006
Prince I Wind	RES I	Wind	99.0	66	On-line	September 2006
Trail Road Landfill Gas	RES I	Landfill gas	5.3	N/A	On-line	January 2007
Umbata Falls	RES I	Hydro	23.0	N/A	On-line	November 2008
Prince II Wind	RES II	Wind	90.0	60	On-line	November 2006
Ripley Wind	RES II	Wind	76.0	38	On-line	December 2007
KEPA Wind Farm	RES II	Wind	101.2	44	On-line	October 2008
Melancthon II Wind	RES II	Wind	132.0	88	On-line	November 2008
& B	RES II	Wind	181.5	110	On-line	February 2009
Wolfe Island Wind	RES II	Wind	197.8	86	On-line	June 2009
Yellow Falls Hydro	RES II	Hydro	16.0	N/A	In approvals	2013
Greenwich Windfarm	RES III	Wind	98.9	43	In approvals	December 2011
Byran Wind	RES III	Wind	64.5	34	In approvals	2011
Wind	RES III	Wind	101.2	44	In approvals	October 2011
Gosfield Wind	RES III	Wind	50.6	22	Under construction	December 2010
Raleigh Wind Energy Centre	RES III	Wind	78.0	52	Approvals complete. Construction not yet started.	TBD 2010
Talbot Windfarm	RES III	Wind	98.9	43	In approvals	December 2011
TOTAL ONLINE			1,124.0	625		
TOTAL			1,632.1	863		

RFP Projects Status Summary:

Status of RFPs	Renewable Capacity
Online	1124.0 MW
Under Construction	50.6 MW
Approvals Pending	457.5 MW

Wind Energy Status

- Ontario is currently in first place for installed wind energy in Canada:

Total Online Wind Capacity from Renewables RFPs: 1083.6 MW
 Total Online Wind Capacity Pre-October 2003: 14.61 MW
 Total Online NEW Wind Capacity from RESOP: ~~755.3~~ 881.98 MW*
 Total Online Wind Capacity - Other: 8.20 MW

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Grand Total: 1161.79 MW

* Four online RESOP wind projects (totaling 12.21 MW) are pre-October 2003 wind facilities. This capacity is included in the pre-October 2003 total above.

- Wind projects under development:
 - The OPA has signed contracts for 953 projects representing 373739370 MW of potential wind energy capacity under the Renewable Energy Standard Offer Program. Four of the 953 projects (totaling 12.21 MW) are pre-2003 wind facilities. This capacity is included in the pre-October 2003 total above. See House Note B17 – Standard Offer for further details.
 - In addition to the wind online, there are currently signed contracts for 7717741,164 MW of wind power in Ontario, either under construction or in various stages of development.
- Turbines:
 - In 2003, there were only 15 MW of wind power in operation in Ontario, from 10 wind turbines. Ontario now has ~~nearly over~~ 1,4200 MW of wind power capacity online from over 6780 wind turbines.
 - The RES III RFP projects announced on January 23, 2009 will add around another 240 turbines to the province - which would bring Ontario to over 900 turbines when these projects come online by 2012.
 - Developers have been moving to larger capacity turbines, in part to meet setback requirements, therefore the projected number of turbines has decreased.
- For more information, please see House Note B05A – Wind Power.

Solar Energy Status

- The OPA has signed 3054 RESOP contracts totalling 52445 MW with potential solar PV projects under the Renewable Energy Standard Offer Program. These include micro-generation systems (10 kilowatts or less) up to large-scale solar farms 10 megawatts in size.
- The OPA has signed RESOP contracts for 55 large solar farms (500kW or more) representing 52225 MW and for 250249 smaller and micro-scale PV projects (500 kW or less) representing 2.0697066 MW.

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- 1578 projects totaling 38,228.4 MW have reached commercial operation to date.

- **CONFIDENTIAL:** About 27,537.2 MW from 34 large projects have reached commercial operation under RESOP as of December 7, 2009 January 13, 2010 (see below).

- 154 smaller and micro-scale projects totaling 919 kilowatts have reached commercial operation under RESOP as of December 7, 2009.

- 156 projects totaling 9.4 MW have reached commercial operation to date.

- About 8.5 MW from 2 large projects have reached commercial operation under RESOP as of September 30, 2009.

- 154 smaller and micro-scale projects totaling 919 kilowatts have reached commercial operation under RESOP as of September 30, 2009.

- For more information, please see House Note B05B – Solar Power.

Bio-Energy Status

- Ontario currently has 15204 MW of bio-based generation capacity on-line:

Total Online Bioenergy Capacity Pre-October 2003:	70 MW	(3 stations)
Total Online Bioenergy Capacity from Renewables RFPs:	9 MW	(3 stations)
Total Online NEW Bioenergy Capacity from RESOP*	21 MW	(<u>123</u> stations)
<u>Total Online Bioenergy Capacity – Other</u>	<u>51 MW</u>	<u>(1 station)</u>
Grand Total:	<u>15204</u> MW	<u>(4820)</u> stations)

- The OPA has signed 25 RESOP contracts* for bio-energy projects representing 827 MW of generation capacity:
 - 14 of these projects* totalling 26 MW have reached commercial operation under RESOP.
 - Of this 26 MW, 21 MW is new bio-based capacity coming online after October 2003*.
- For more information, please see House Note B05C – Bio-Energy.

* The expansion to the grandfathered RESOP project, Waterloo Landfill Gas Power Plant is counted as a separate and new project and contract throughout.

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Water Power Status

- Ontario currently has ~~7,937.929~~⁸⁴⁴ MW of installed water power capacity.
- 7,911⁸²⁶ MW of hydroelectric capacity is on-line from ~~6970~~ larger generating stations. Another ~~1485~~ water power projects ~~totaling~~^{totaling} ~~2648~~ MW are generating electricity for the provincial grid under the Renewable Energy Standard Offer Program.
- The Renewables RFPs resulted in 3 successful water power projects totaling 47 MW. Of these, two are on-line (Glen Miller 8 MW, and Umbata Falls 23 MW) and one is in approvals (Yellow Falls 16 MW).
- The OPA has signed ~~1822~~ RESOP contracts for water power projects representing ~~3370.9~~ MW of generation capacity:
 - ~~1514~~ of these projects totaling ~~17.67~~^{25.67} MW have come into commercial operation under RESOP.
 - ~~TenNine~~ of the ~~1514~~, totaling ~~198~~.03 MW, are new water power projects coming on-line after October 2003.
- Since 2003, Ontario has brought ~~295303~~²⁷ MW of new water power on line. Of this, ~~6254~~ MW are from government procurements. The balance is from OPG's runner upgrade program.
- The OPA and Ontario Power Generation have signed contracts for OPG's 12.5 MW Lac Seul, 6 MW Healey Falls, 9 MW Hound Chute and 34 MW Upper Mattagami hydroelectric stations. Lac Seul reached commercial operation in February 2009; the others are currently under construction. A similar power purchase agreement is currently being negotiated with the OPA for OPG's 450 MW Lower Mattagami water power project.
- OPG is also bringing on additional generation at Niagara equivalent to 200 MW.
- For more information, please see House Note B05D – Water Power.

GOVERNMENT INITIATIVES

Renewables RFP I and II

- ◆~~There were 19 successful projects in the two renewables RFPs administered by the Ministry of Energy in 2004 and 2005. Of these projects, 16 are now up and running; 1 is in approvals; and 2 contracts have been terminated.~~
- ◆~~These projects represent a total capital investment in our province of over \$2.5 billion—and will provide enough power to supply over 300,000 homes.~~

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- ◆ The average price of the selected projects was just under \$80 per megawatt-hour for the first RFP and just over \$86 per megawatt-hour for the second RFP.

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Renewable Energy Standard Offer Program (RESOP)

- ◆ RESOP was launched in November 2006 by the Ontario Power Authority (OPA). Under the plan, the OPA will enter into a 20-year Power Purchase Agreement, at a pre-established price, for electricity from small renewable-energy generators.
- ◆ Electricity from wind, biomass, biogas, or small hydroelectric sources is currently purchased at a base price of 11.08 cents per kilowatt-hour. Solar power sold to the electricity grid under RESOP will receive a price of 42 cents per kilowatt-hour.
- ◆ To be eligible, projects must produce power from a renewable resource, have a capacity of up to 10 megawatts and connect directly to the distribution system. For more information, please see House Note B17—Standard Offer.
- ◆ Since the Feed-in-Tariff program was launched, the Ontario Power Authority has stopped offering RESOP contracts.

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Renewables III RFP

- ◆ The OPA issued the final Renewable Energy Supply III Request for Proposals for 500 MW of renewable-energy supply on August 22, 2008.
- ◆ The RES III RFP document includes specific language to address instructions in the 2,000 MW Ministerial Directive that First Nations and Métis peoples be consulted early in the planning and development of new renewable energy projects, and that the OPA develop guidelines and purposes for this purpose.
- ◆ 23 proposals were received by the OPA on October 28, 2008.
- ◆ Winning projects were announced on January 23, 2009. There were six winning projects, all of them wind, totalling 492.1 MW of new renewable supply.
- ◆ The six projects are expected to be in service by 2012. The contracts are for a 20-year term.
- ◆ For more details, please see House Note B05A—Wind Power.

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Feed-in-Tariff (FIT)

On December 14th, 2009, the Ministry of Energy and Infrastructure and the Ontario Power Authority announced that more than 700 microFIT contract offers have been made.

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- ◆ Please see House Note H12a—Feed-in-Tariff

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Amendments to Supply Mix Directive Issued June 13, 2006

- ◆ On September 18, 2008, Minister Smitherman directed the OPA to revisit its proposed Integrated Power System Plan to enhance its current emphasis on renewable energy and conservation and establish new targets in these areas.
- ◆ Specifically, the review is to consider the following areas:
 - The amount and diversity of renewable energy sources in the supply mix;
 - The improvement of transmission capacity in the 'Orange Zone' in northern Ontario and other parts of the province that is limiting the development of new renewable energy supply;
 - The potential of existing coal fired assets to be converted to biomass;
 - The availability of distributed generation;
 - The potential for pumped storage to contribute to the energy supply during peak times; and
 - The viability of accelerating the achievement of stated conservation targets, including a review of the deployment and utilization of Smart Meters.
- ◆ Additionally, the Ministerial Direction requests the OPA undertake an enhanced process of consultation with First Nation and Métis communities in light of potential duty to consult obligations. Furthermore, we would ask that the principle of Aboriginal partnership opportunities be considered in matters of both generation and transmission.
- ◆ The OPA is to provide an amended and revised IPSP to the Ontario Energy Board by March 18, 2009.
- ◆ The Directive notes that all other aspects of the Supply Mix Directive dated June 13, 2006, will remain in full effect and the related elements of the IPSP should continue to move forward during the six-month review period.

Supply Mix Directive and IPSP

- ◆ On June 13, 2006, the Government directed the OPA to create an Integrated Power System Plan (IPSP) that would double the current electricity capacity from renewable sources.
- ◆ The directive instructed the OPA to increase Ontario's use of renewable energy such as hydroelectric, wind, solar, and biomass for electricity generation. The IPSP should assist the government in meeting its target for 2010 of increasing the installed capacity of new renewable energy sources by 2,700 MW from the 2003 base, and increase the total electricity capacity of renewable energy sources used in Ontario to 15,700 MW by 2025.
- ◆ The direction also instructed the OPA to strengthen the transmission system in order to:

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- Enable the achievement of the supply mix goals set out in the directive;
- Facilitate the development and use of renewable energy resources such as wind power, hydroelectric power and biomass in parts of the province where the most significant development opportunities exist;
- Promote system efficiency and congestion reduction and facilitate the integration of new supply, all in a manner consistent with the need to cost effectively maintain system reliability.

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- ◆ On August 29, 2007, the OPA filed its 20-year plan with the Ontario Energy Board for review and approval.

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- ◆ In its IPSP, the OPA included specific planning targets by energy source for the 2010 renewable resources goal and the longer term 2025 target. The 2025 target for renewables capacity is 15,700 MW. Planned procurements to meet this goal include 2,921 MW of hydroelectric projects, 3,039 MW of wind and 450 MW of bio-energy.

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- ◆ While solar potential in Ontario is large, the OPA assumed most new additions will come from small projects (less than 500 kW) and addresses these under conservation resources. 88 MW of large-scale solar is assumed under committed resources for meeting the 2010 renewables target. The IPSP notes that large solar facilities currently committed under RESOP may not all proceed to development.

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- ◆ It was assumed that new large solar facilities will replace any projects that do not proceed, with no net incremental capacity beyond the 88 MW. Therefore planned large solar projects are presented as 0 MW under both the 2010 and 2025 planning targets. This assumption will be reviewed in future plans as solar technologies and associated economics improve.

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Updated by: Clarence Cheng, Policy Analyst,
Renewable ~~Energy and Clean Energy~~
416-326-7287-325-5027
~~October 30~~ December 17, 2009 January 14, 2010

Approved by: Leo Tasca, Manager
Renewable Energy
416-326-3775
January 194, 2010

~~Karen Slawner, Coordinator~~
~~Renewable Energy~~
~~416-314-9472~~ ~~225-5765~~
~~December 17~~ October 30, 2009

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

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January 194, 2010
December 17, 2009

Sue Lo, ADM
Renewables and Energy Efficiency Division
(416) 327-8552
January 194, 2010

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APPENDICES

APPENDIX 1 - RENEWABLE ENERGY PROJECTS

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Renewables Online

Procurement Initiatives	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Existing (pre-Oct 2003)	7,694.40	66	2.40	2	0.00	0	7,626.50	62	65.50	2
Grandfathered RESOP (pre-Oct 2003)	24.48	10	12.21	4	0.00	0	7.65	5	4.63	1
New RESOP	159.67	195	81.98	14	38.17	158	18.03	10	21.50	13
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OPG Hydro	253.50	6	0.00	0	0.00	0	253.50	6	0.00	0
Other	59.20	4	8.20	3	0.00	0	0.00	0	51.00	1
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Government procurements exclude private initiatives like windfarms contracting to Bullfrog and OPG's runner upgrade program.

Additional Renewables Contracted

Procurement Initiatives	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
New RESOP	827.67	195	278.82	35	486.16	146	7.05	3	55.64	11
RES I, II + III	508.10	7	492.10	6	0.00	0	16.00	1	0.00	0
OPG Hydro	50.39	3	0.00	0	0.00	0	50.39	3	0.00	0
Total	1,386.16	205	770.92	41	486.16	146	73.44	7	55.64	11

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Status of RES I, II and III RFP Projects

(Expected in-service dates and highlighted number of turbines are CONFIDENTIAL)

Project	Procurement Type	Source	Size (MW)	# of Turbines	Status	In-Service Date
Eastview Landfill Gas	RES I	Landfill gas	2.5	N/A	On-line	August 2005
Glen Miller Hydro	RES I	Hydro	8.0	N/A	On-line	December 2005
Melancthon I Wind	RES I	Wind	67.5	45	On-line	March 2006
Kingsbridge I Wind	RES I	Wind	39.6	22	On-line	March 2006
Erie Shores Wind	RES I	Wind	99.0	66	On-line	May 2006
Hamilton Digester Gas	RES I	Biogas	1.6	N/A	On-line	July 2006
Prince I Wind	RES I	Wind	99.0	66	On-line	September 2006
Trail Road Landfill Gas	RES I	Landfill gas	5.3	N/A	On-line	January 2007
Umbata Falls	RES I	Hydro	23.0	N/A	On-line	November 2008
Prince II Wind	RES II	Wind	90.0	60	On-line	November 2006
Ripley Wind	RES II	Wind	76.0	38	On-line	December 2007
KEPA Wind Farm	RES II	Wind	101.2	44	On-line	October 2008
Melancthon II Wind	RES II	Wind	132.0	88	On-line	November 2008
Enbridge Ontario Wind A & B	RES II	Wind	181.5	110	On-line	February 2009
Wolfe Island Wind	RES II	Wind	197.8	86	On-line	June 2009
Yellow Falls Hydro	RES II	Hydro	16.0	N/A	In approvals	2013
Greenwich Windfarm	RES III	Wind	98.9	43	In approvals	December 2011
Byran Wind	RES III	Wind	64.5	34	In approvals	2011
Kruger Energy Chatham Wind	RES III	Wind	101.2	44	In approvals	October 2011
Gosfield Wind	RES III	Wind	50.6	22	Under construction	December 2010
Raleigh Wind Energy Centre	RES III	Wind	78.0	52	Approvals complete. Construction not yet started.	TBD 2010
Talbot Windfarm	RES III	Wind	98.9	43	In approvals	December 2011
TOTAL ONLINE			1,124.0	625		
TOTAL			1,632.1	863		

RFP Projects Status Summary:

Status of RFPs	Renewable Capacity
<u>Online</u>	<u>1124.0 MW</u>
<u>Under Construction</u>	<u>50.6 MW</u>
<u>Approvals Pending</u>	<u>457.5 MW</u>

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APPENDIX 2

GOVERNMENT INITIATIVES PRIOR TO FIT

Renewables RFP I and II

- There were 19 successful projects in the two renewables RFPs administered by the Ministry of Energy in 2004 and 2005. Of these projects, 16 are now up and running; 1 is in approvals; and 2 contracts have been terminated.
- These projects represent a total capital investment in our province of over \$2.5 billion – and will provide enough power to supply over 300,000 homes.
- The average price of the selected projects was just under \$80 per megawatt-hour for the first RFP and just over \$86 per megawatt-hour for the second RFP.

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Renewable Energy Standard Offer Program (RESOP)

- RESOP was launched in November 2006 by the Ontario Power Authority (OPA). Under the plan, the OPA will enter into a 20-year Power Purchase Agreement, at a pre-established price, for electricity from small renewable energy generators.
- Electricity from wind, biomass, biogas, or small hydroelectric sources is currently purchased at a base price of 11.08 cents per kilowatt-hour. Solar power sold to the electricity grid under RESOP will receive a price of 42 cents per kilowatt-hour.
- To be eligible, projects must produce power from a renewable resource, have a capacity of up to 10 megawatts and connect directly to the distribution system. For more information, please see House Note B17 – Standard Offer.
- Since the Feed-in Tariff program was launched, the Ontario Power Authority has stopped offering RESOP contracts.

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Renewables III RFP

- The OPA issued the final Renewable Energy Supply III Request for Proposals for 500 MW of renewable energy supply on August 22, 2008.
- The RES III RFP document includes specific language to address instructions in the 2,000 MW Ministerial Directive that First Nations and Métis peoples be consulted early in the planning and development of new renewable energy projects, and that the OPA develop guidelines and purposes for this purpose.
- 23 proposals were received by the OPA on October 28, 2008.

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- Winning projects were announced on January 23, 2009. There were six winning projects, all of them wind, totalling 492.1 MW of new renewable supply.
- The six projects are expected to be in service by 2012. The contracts are for a 20-year term.
- For more details, please see House Note B05A – Wind Power.

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Amendments to Supply Mix Directive Issued June 13, 2006

- On September 18, 2008, Minister Smitherman directed the OPA to revisit its proposed Integrated Power System Plan to enhance its current emphasis on renewable energy and conservation and establish new targets in these areas.
- Specifically, the review is to consider the following areas:
 - The amount and diversity of renewable energy sources in the supply mix;
 - The improvement of transmission capacity in the 'Orange Zone' in northern Ontario and other parts of the province that is limiting the development of new renewable energy supply;
 - The potential of existing coal-fired assets to be converted to biomass;
 - The availability of distributed generation;
 - The potential for pumped storage to contribute to the energy supply during peak times; and
 - The viability of accelerating the achievement of stated conservation targets, including a review of the deployment and utilization of Smart Meters.
- Additionally, the Ministerial Direction requests the OPA undertake an enhanced process of consultation with First Nation and Métis communities in light of potential duty to consult obligations. Furthermore, we would ask that the principle of Aboriginal partnership opportunities be considered in matters of both generation and transmission.
- The OPA is to provide an amended and revised IPSP to the Ontario Energy Board by March 18, 2009.
- The Directive notes that all other aspects of the Supply Mix Directive dated June 13, 2006, will remain in full effect and the related elements of the IPSP should continue to move forward during the six-month review period.

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Supply Mix Directive and IPSP

- On June 13, 2006, the Government directed the OPA to create an Integrated Power System Plan (IPSP) that would double the current electricity capacity from renewable sources.
- The directive instructed the OPA to increase Ontario's use of renewable energy such as hydroelectric, wind, solar, and biomass for electricity generation. The IPSP should assist the government in meeting its target for 2010 of increasing the installed capacity of new renewable energy sources by 2,700 MW from the 2003 base, and increase the total electricity capacity of renewable energy sources used in Ontario to 15,700 MW by 2025.
- The direction also instructed the OPA to strengthen the transmission system in order to:
 - Enable the achievement of the supply mix goals set out in the directive;
 - Facilitate the development and use of renewable energy resources such as wind power, hydroelectric power and biomass in parts of the province where the most significant development opportunities exist;
 - Promote system efficiency and congestion reduction and facilitate the integration of new supply, all in a manner consistent with the need to cost effectively maintain system reliability.
- On August 29, 2007, the OPA filed its 20-year plan with the Ontario Energy Board for review and approval.
- In its IPSP, the OPA included specific planning targets by energy source for the 2010 renewable resources goal and the longer term 2025 target. The 2025 target for renewables capacity is 15,700 MW. Planned procurements to meet this goal include 2,921 MW of hydroelectric projects, 3,039 MW of wind and 450 MW of bio-energy.
- While solar potential in Ontario is large, the OPA assumed most new additions will come from small projects (less than 500 kW) and addresses these under conservation resources. 88 MW of large-scale solar is assumed under committed resources for meeting the 2010 renewables target. The IPSP notes that large solar facilities currently committed under RESOP may not all proceed to development.
- It was assumed that new large solar facilities will replace any projects that do not proceed, with no net incremental capacity beyond the 88 MW. Therefore planned large solar projects are presented as 0 MW under both the 2010 and 2025 planning targets. This assumption will be reviewed in future plans as solar technologies and associated economics improve.

~~December 17~~October 30, 2009—

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~~December 10, 2009~~ January 19, 2010 – B(05B)

SOLAR POWER

ISSUE:

~~Ontario is on track to becoming a North American lead in solar power. The first 20 MW phase of Enbridge's 80 MW solar farm, the Sarnia Solar Project, reached~~

For information about Solar Thermal Initiatives please see house note C02.

SUGGESTED RESPONSE:

General

- ~~• I would like to congratulate Enbridge and First Solar on having reached commercial operation on Sarnia Solar 2 and 5. This 20 MW solar farm is the largest in Canada.~~
- ~~• I would like to congratulate SkyPower and SunEdison for having reached commercial operation on First Light 1. This solar farm, with a contracted capacity of 9 MW, is presently the second largest in Canada.~~
- ~~• Since the launch of the Renewable Energy Standard Offer Program in November 2006, the OPA has signed over 300 contracts with potential solar PV projects. These include micro-generation systems (10 kilowatts or less) up to large-scale solar farms 10 megawatts in size.~~
- ~~• I am pleased that the Standard Offer Program generated so much interest in developing solar power projects in our province. Solar projects account for one-third of the total capacity of signed RESOP contracts, second only to wind.~~
- Finding clean, affordable and sustainable sources of electricity is a top priority of our government.
- Ontario has attracted some of the largest planned solar projects in the world.
- Under the Renewable Energy Standard Offer Program, the OPA signed over 300 contracts with potential solar PV projects. These include micro-generation systems (10 kilowatts or less) up to large-scale solar farms 10 megawatts in size.
- I am pleased that the Standard Offer Program generated so much interest in developing solar power projects in our province. Solar projects account for half

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~~one-third~~ of the total capacity of signed RESOP contracts, ~~second only to wind.~~

- Under the Feed-in Tariff Program, the Ontario Power Authority will foster ~~even~~ more renewable energy, including solar power, where generators are paid a reasonable price for the electricity they produce over a period of time. The price for solar PV ranges from 44.3 to 80.2 cents per kWh, depending on the size and ~~type of application of the project.~~

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- We are looking at how best to get more roof-top solar into the system because it provides a valuable potential source of power right where the load is and often right when we need it – at peak times.

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Recent and Notable Projects On-line

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~~The first 10 MW phase of EDF EN's Arnprior Solar Project, reached commercial operation on December 31, 2010.~~

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~~The first 20 MW phase of Enbridge's 80 MW solar farm, the Sarnia Solar Project, reached commercial operation on December 7, 2009. This 20 MW solar farm is the largest in Canada.~~

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- ~~The first phase of SkyPower and SunEdison's joint venture solar farm, First Light 1, reached commercial operation on September 28, 2009. This solar farm, with a contracted capacity of 9 MW, is presently the second largest in Canada.~~

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If asked about how the government is going to encourage the solar PV industry moving forward:

- ~~We are looking at how best to get more roof-top solar into the system because it provides a valuable potential source of power right where the load is and often right when we need it – at peak times.~~

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- ~~Under the Feed-in Tariff Program, the Ontario Power Authority will foster more renewable energy, including solar power, where generators are paid a reasonable price for the electricity they produce over a period of time. The price for solar PV ranges from 44.3 to 80.2 cents per kWh, depending on the size and application of the project.~~

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Background

BACKGROUND**Solar Energy Current Status**

- There are 38.3 MW of solar PV capacity online in Ontario:

(New) RESOP	38.2 MW
Other (no OPA contract)	0.2 MW
Total	38.3 MW

BACKGROUND

- Ontario has the most solar PV capacity online of any Canadian jurisdiction and is in the top ten jurisdictions in Canada and the United States.
- The three largest Canadian solar farms are in Ontario.

Recent and Notable Solar Projects On-line

- The first 10 MW phase of EDF EN's Arnprior Solar Project, reached commercial operation on December 31, 2010.
- The first 20 MW phase of Enbridge's 80 MW solar farm, the Sarnia Solar Project, reached commercial operation on December 7, 2009. This 20 MW solar farm is the largest in Canada.
- The first phase of SkyPower and SunEdison's joint venture solar farm, First Light 1, reached commercial operation on September 28, 2009. This solar farm, with a contracted capacity of 9 MW, is presently the second largest in Canada.

Solar Power and RESOP

- Under the Renewable Energy Standard Offer Program (RESOP) rules, solar energy is paid 42 cents per kilowatt hour for electricity fed into the province's grid.
- The OPA signed 30⁵⁴ RESOP contracts totaling 52⁵⁴ MW of solar PV projects under the Renewable Energy Standard Offer Program. These include micro-generation systems (10 kilowatts or less) up to large-scale solar farms 10 megawatts in size.
- 158 RESOP projects totaling 38.2 MW have reached commercial operation to date.

Large Projects

- OPA signed contracts for ~~The OPA signed RESOP contracts for~~ 55 large solar farms (500 kW or more) representing 52³² MW
- 41 of the large projects, totaling 393 MW, have applied for a 1 year contract extension, and for 250⁴⁹ smaller and micro-scale PV projects (500 kW or less)

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representing ~~2.07069~~ MW.

~~1578 projects totaling 328.42 MW have reached commercial operation to date.~~

- **CONFIDENTIAL:** About ~~27.537.2~~ MW from ~~34~~ large projects have reached commercial operation under RESOP as of ~~December 7, 2009~~ ~~January 13, 2010~~ (see below).

Small and Micro-Scale Projects (500kW or less)

• OPA signed contracts for 249 small and micro-scale PV projects (500 kW or less) representing 2.069 MW.

• ~~154 smaller~~ and micro-scale projects totaling 919 kilowatts have reached commercial operation under RESOP as of ~~December 7, 2009~~ ~~January 13, 2010~~.

~~41 of the large projects, totaling 393 MW, have applied for a 1 year contract extension.~~

- Micro RESOP projects, i.e. projects 10 kW or smaller, will be transitioned into the micro FIT program.
- For more information, please see House Note B17 – Renewable Energy Standard Offer.

Solar Farms in Commercial Operation

Arnprior B

- Arnprior B, the first phase of EDF EN's Arnprior solar project reached commercial operation on December 31, 2009. It is located in Ottawa. It has a RESOP contract with the OPA for 10 MW.
- On October 14th, EDF EN Canada held a dedication ceremony for its Arnprior solar farm with Minister Smitherman in attendance.

LoyaltyOne (AIR MILES) customer call-centre open house

- LoyaltyOne has a 165 kW rooftop system in Mississauga that went online in December 2009. It applied to the OPA for a FIT contract.
- It is the largest rooftop system in Canada; the second largest is the 110 kW system on the Jean Canfield Building in Charlottetown, PEI.

Sarnia 2 and 5

- Sarnia 2, a 10 MW solar farm contracted under RESOP, came online on December 7, 2009. It had declared commercial operation in December 2008 before construction was complete.
- Sarnia 5, a 10 MW solar farm contracted under RESOP, reached commercial operation on November 25, 2009.
- These are part of a larger 80 MW farm owned by Enbridge and being constructed and operated by First Solar.

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- SunSaver 1, a 113 kW ground-mounted solar PV project near Innerkip contracted under RESOP, reached commercial operation in February 2009.
 - First Light 1
 - On September 28th, 2009, the first phase of SkyPower and SunEdison's joint venture solar farm, First Light 1, reached commercial operation. It is located in Stone Mills, 30 km northwest of Kingston. It has a RESOP contract with the OPA for 9 MW.
- CONFIDENTIAL. First Light 1 can only generate 7.5 MW at the grid connection point. The project had insufficient land for the contracted 9 MW.
- On October 14th, 2009, SkyPower and SunEdison celebrated the opening of First Light with Minister Smitherman in attendance.

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Solar Farms Under Development

- RESOP contracts for a total of 55 large solar farms representing 523 MW were signed. The majority of these contracts are held by five proponents: First Solar Inc (formerly held by OptiSolar Farms Canada Inc.) (13), SkyPower (9), Enbridge (8), Pod Generating Group (6) and EDF EN Canada (6).

First Solar (formerly OptiSolar Farms Canada Inc.)

- First Solar has contracts for one 5 MW and twelve 10 MW solar farms under RESOP. First Solar is also constructing and operating eight 10 MW projects for Enbridge, of which 20 MW is online.
- On April 3, 2009, First Solar Inc. of California announced that they had completed acquisition of OptiSolar's projects in Ontario and California.
- Two of the First Solar contracts are for a two phase, 20-megawatt solar farm located in an industrial park in Petrolia.
- First Solar has another 11 RESOP contracts for large solar farms in Tilbury (1 x 10 MW and 1 x 5 MW), Belmont (2 x 10 MW), St Clair Township (2 x 10 MW), Sombra (2 x 10 MW), Amherstburg (1 x 10 MW), Hagersville/Nanticoke (2 x 10 MW).

- CONFIDENTIAL: All of First Solar's projects except for Petrolia 1 and 2, and Tilbury 1 have applied for a 1-year contract extension.

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Enbridge

- Enbridge has eight 10 MW RESOP contracts. They constitute an 80 MW solar PV project, located near Sarnia.
- ~~The On October 2, 2009, Enbridge Inc. and First Solar, Inc. 20 megawatt facility announced on October 2, 2009 near Sarnia that they have entered into an agreement for Enbridge to acquire a 20 megawatt solar energy project that First~~

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~~Solar was developing and was then constructing near Sarnia, Ontario. This 20 MW is now in operation.~~

- On December 8, 2009, Enbridge and First Solar announced they have entered into an agreement for Enbridge to acquire the remaining 60 MW of the Sarnia project for \$300 million. The 60 MW phase is expected ~~to start construction in December 2009 and~~ to be completed in December 2010.
- First Solar will provide operations and maintenance services under a long-term contract.
- CONFIDENTIAL: All of Enbridge's projects that have not yet reached commercial operation have applied for a 1-year contract extension.

SkyPower Limited (CIM Group) (formerly held by SkyPower Corporation)

- On November 20, 2009, CIM group, real estate fund manager based in California, closed its purchase of SkyPower. SkyPower has 9 RESOP contracts, totaling 89.12 MW. Of the 9 contracts, 5 will be built, owned and operated in a joint venture with U.S. based SunEdison LLC.
 - First Light 1, which reached commercial operation-
 - First Light 3, Ryerse, Erie Ridge and 13th Sideroad.
- In addition to First Light 1, SkyPower has 8 RESOP contracts with the OPA with a total capacity of 79.12 MW.

Project	Location	Size (MW)	Joint Venture with SunEdison?	Applied for one-year extension RESOP transition option?	Contractual milestone commercial operation date
Ryerse Solar Farm	Port Dover (Norfolk County),	9.12	Y	Y	May 2011 – extended by force majeure (CONFIDENTIAL)
13 th Sideroad	Norfolk County	10.00	Y	Y	January 2012
Little Creek	Greater Napanee	10.00		Y	January 2012
Erie Ridge	Chatham-Kent	10.00	Y	Y	May 2012
Bowlker Rd. Solar Project	Thunder Bay	10.00		Y	June 2011
Fort William First Nations Solar Farm	Thunder Bay	10.00		Y	September 2011
First Light 3	Stone Mills	10.00	Y	Y	May 2012
First Light 2	Stone Mills	10.00		Y	January 2012

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POD Generating Group

- POD Generating Group has executed 60 MW of RESOP contracts for six 10 MW solar PV projects in Sault Ste Marie.

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EDF EN Canada

- EDF EN Canada holds 60 MW of RESOP contracts for three solar projects Arnprior A and B (2 x 10 MW), Elmsley North and South, near Smith Falls (2 x 10 MW) and St. Isidore (2 x 10 MW).
- On October 14th, EDF EN Canada held a dedication ceremony for its Arnprior solar farm with Minister Smitherman in attendance. Arnprior is a 20 MW facility located in Ottawa. It is expected to be in service by the end of 2009. The first phase (10MW) reached commercial operation in December 2009. The other half is expected to achieve commercial operation in January 2010.

Other Solar Projects in Development

~~LoyaltyOne (AIR MILES) customer call centre open house~~

- ~~LoyaltyOne has a 165 kW rooftop system in Mississauga.~~

- ~~It will be the largest rooftop system in Canada when it goes online; presently the largest is the 110 kW system on the Jean Canfield Building in Charlottetown, PEI.~~

- ~~LoyaltyOne is expecting the system will be in service by the end of 2009.~~

Small and Micro PV Projects

- ~~250-249 RESOP contracts for smaller and micro-scale PV systems (500 kW or less) have been signed by the OPA, representing 2.07069 megawatts of solar generating capacity.~~

- ~~154 smaller and micro-scale projects totaling 919 kilowatts have reached commercial operation under RESOP as of December 7, 2009 January 13, 2010.~~

- ~~Residential solar PV projects under the Renewable Energy Standard Offer Program were not affected by the OPA's program review announcement in May 2008. New applications for micro PV (10 kW or less) were accepted and processed as usual until the OPA stopped offering RESOP contracts after the FIT program launched.~~

Solar Facts

- ~~Ontario has the most solar PV capacity online of any Canadian jurisdiction and is in the top ten jurisdictions in Canada and the United States.~~

~~The three largest Canadian solar farms are in Ontario.~~

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•According to the most recent full-year data, with the first 20-MW of Samia Solar now online, Ontario's installed solar capacity exceeds all but 5 US states, including sunny places like Florida and Texas.

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•According to the most recent full-year data, after Arnprior comes online, Ontario's installed solar capacity will exceed all but 2 US states, including sunny places like Florida and Texas.

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Updated by: Clarence Cheng, Policy Analyst
Renewable Energy Unit
416-325-5027/326-7287
~~December 9, 2009~~ January 19, 2010

Karen Slawner, Coordinator
Renewable Energy Unit
416-314-9472
January 19, 2010

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Approved by: Leo Tasca, Manager
Renewable Energy Unit
416-326-3775
January 19, 2010

~~Karen Slawner, Coordinator~~
~~Renewable Energy~~
~~416-325-5765~~
~~December 9, 2009~~

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868
January 19, 2010
~~December 9, 2009~~

Sue Lo, ADM
Renewables and Energy Efficiency Division
(416) 327-8552
January 19, 2010

~~December 18, 2009~~ January 1954, 2010 - H(12a)
Green Energy Act – Feed-In-Tariff

ISSUE:

On September 24th, 2009, Minister Smitherman directed the Ontario Power Authority to launch the Feed-in Tariff program. The Ontario Power Authority began accepting applications October 1st, 2009. How has the FIT program been progressing since then?

~~On December 16th, 2009, the Ontario Power Authority announced that they have started sending out conditional contract offers to the first 700 microFIT applicants.~~

SUGGESTED RESPONSE:

General

- ~~Ontario is at the centre of an energy renaissance that will change the way we generate, consume and conserve energy.~~
- Through the Green Energy Act, Ontario has moved to stimulate a new, green economy and create a new generation of green jobs, while protecting our environment.
- ~~At the heart of the Green Energy Act is North America's most comprehensive Feed-in Tariff (FIT), which will spark the development of renewable energy projects by offering guaranteed incentives to developers of wind, water, solar, biomass and biogas sourced power..~~
- ~~The tariff offers guaranteed incentives to developers of wind, water, solar, biomass and biogas sourced power. This will help us get clean, green energy projects online quicker.~~
- On September 24, 2009, Ontario introduced new rules that will help provide a stable investment climate that gives companies the confidence to invest in Ontario, hire our workers, and produce and sell renewable energy.
- ~~As demonstrated in other jurisdictions, a~~ feed-in tariff model, with clear rules that are combined with a right to access to the grid ~~and with certainty about regulation~~, is not about targets or limits. It's about creating a sound ~~certainty around the~~ investor climate. If you are willing to make the investment, we will buy the power. If the project is economically feasible, we will connect it - ~~And we will do so faster~~ -than it's been done before. ~~Targets are about limits.~~
- ~~Ontario has learned from other jurisdictions that Feed-in Tariffs provide a fair and transparent incentive to encourage the development of all types and sizes of renewable energy projects, including First Nation, Métis and community-based projects.~~

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- ~~The FIT Program would bring significant benefits to the province.~~ More renewable energy projects in Ontario will mean more transmission and distribution development, and more jobs and economic development for Ontario communities.
- Domestic content provisions within the Feed-in Tariff program help to ensure that the technology and the solutions behind renewable energy generation will be based in Ontario.
- ~~Since October 2003, more than 1,200 MW~~about 1,300 MW of new renewable energy projects have come online in Ontario.

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If asked about the OPA's consultation process:

- ~~The Ontario Power Authority (OPA) led the implementation of Ontario's proposed Feed-in Tariff (FIT) Program. The OPA coordinated with other energy agencies, the Ontario Energy Board (OEB) and the Independent Electricity System Operator (IESO).~~
- ~~The OPA consulted with renewable energy stakeholders on the design of the Feed-in Tariff program between March 17th 2009 and May 12th, 2009.~~
- ~~The OPA later held a 3-week consultation on the draft Program Rules and Prices that were posted July 10, 2009.~~
- ~~Webcasts of consultations are made available on the OPA's website.~~

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If asked about Prices:

- The diversified energy supply mix, along with a combination of both regulated and market prices will help maintain stability in electricity pricing.
- The proposed FIT prices differ based on project size and type of renewable energy technology and were developed based on experience here in Ontario and in other jurisdictions.
- ~~Prices differ based on project size and type of renewable energy technology.~~
- They cover capital, operating and maintenance costs and allow for a reasonable return on investment over a 20-year (40-year for waterpower) contract term.

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If asked about the application process-Program Launch:

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- The Ontario Power Authority ~~is responsible for administering FIT and has been accepting applications since.~~ Applications will be accepted starting October 1, 2009.

- Projects ~~that are~~ expected to be completed first ~~will~~ have priority access to existing connection capacity on the grid. During the first 60 days of the program, developers may shorten the period for which they are contractually bound to reach commercial operation. Grid space is then allocated based on these dates.
- Renewable energy projects that generate less than 10 kW of electricity ~~will~~ have a different application process ~~that n-larger-commercial-projects-and~~ will be administered as micro feed-in tariff (microFIT) projects.
- On December 16th, 2009, the Ontario Power Authority announced that they have started sending out conditional contract offers to the first 700 microFIT applicants.
- Dedicated websites went live September 30, 2009, providing step-by-step instructions and materials to assist developers, homeowners and small businesses with program requirements and the application process.
- Information on renewable energy development and approvals can also be accessed through the provincial government's Renewable Energy Facilitation Office.

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If asked about Domestic Content:

- ~~Ontario wants green energy business. The domestic content requirements will help ensure that jobs will be created, investment is committed and that the renewable energy industry grows across the province.~~
- We are looking to increase interest in the Ontario market and in Ontario as a home base for renewable energy investment and manufacturing. Ontario wants green energy business.
- The Ministry of Energy and Infrastructure and the Ministry of Economic Development and Trade consulted stakeholders to determine a challenging but workable path to increase domestic content in renewable energy projects.
- Developers will be required to have a certain percentage of their project cost come from Ontario goods and labour at the time they reach commercial operation.
- For wind, the requirement will start at 25% and increase to 50% on Jan. 1, 2012.
- For micro solar PV (10 kW or smaller), the requirement will start at 40% and increase to 60% on Jan. 1, 2011.
- For larger solar PV, the requirement will start at 50% and increase to 60% on Jan. 1, 2011.

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If asked about the transition of RESOP contract holders into the FIT:

- Solar PV, waterpower and biogas RESOP projects of 500 kW or less that have purchased equipment by October 1, 2009 may convert to a FIT contract. They will be deemed to have met the domestic content rules.
- People in Ontario have heard the message about the importance of renewable energy. Many were "early adopters" ~~who and installed their projects in anticipation of a feed-in tariff program. Many early adopters~~ incurred huge personal financial costs to develop renewable projects even when the projects were uneconomic.
- ~~These small scale renewable energy projects should be properly compensated by moving them to the feed-in tariff rates. This will help make those projects more economical on a go-forward basis. We want to make sure that they can benefit from this program and contribute to the supply of renewable energy in the province.~~
- ~~RESOP contract holders that did have not reached commercial operation were ill be~~ given 60 days from the official launch date to rescind their contracts and apply to the FIT Program ~~if they wish.~~
- ~~Applicants were required ill have to~~ rescind their completed connection impact assessment with their respective local distribution company and meet all of the FIT Program requirements, including those for domestic content and security payments.
- ~~Other projects with OPA contracts are not eligible to transition to the FIT and/or microFIT Programs.~~
- This policy strikes a balance between fairness for early adopters, the expectation that ~~parties who signed a contracts~~ will ~~be honoured honour them~~, and levels the playing field for the development and construction of new projects.

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If asked about solar farms on prime agricultural land:

- I have directed the OPA that there is to be no ground-mounted solar procurement above 100 kilowatts on class 1 and 2 or Specialty Crop Areas to provide continued

protection of such lands. Some ground-mounted solar procurement, up to 500 megawatts, will be allowed on Class 3 lands, allocated on a regional basis.

- We believe that it is possible to strike a balance and do both – encourage solar development and protect our prime agricultural lands. While agricultural lands are attractive for solar development for a variety of reasons, it is important to note that there is plenty of land in the province of Ontario suitable for solar development that is not prime agricultural land.

If asked about regional allocation for solar projects:

- Using the Regional Administrative Boundary Allocations (RABA) system, the province will be divided by county into 4 regions (North, East, Central and West). The 500 MW cap will then be allocated proportionally and will be based on the amount of Class 3 soil land within each region.
- ~~This decision was made as part of the commitment to strike a balance between protection of prime agricultural lands and encouraging solar development.~~ By establishing regional allocations of the cap, we can help protect against significant clustering of projects and provide for a more balanced distribution across the province.
- The RABA boundaries are used by various ministries and government agencies such as the Ontario Realty Corporation to divide the province into administrative regions. We feel these boundaries are realistic and reflect the norm when it comes to identifying different regions of the province.

BACKGROUND:

- A feed-in tariff is a standard price to promote the development of community-based and large commercial renewable energy projects. It ~~provides a guarantee~~ of market-viable prices for energy generated from renewable energy sources, such as solar, wind (onshore and offshore), water, biogas, biomass, and landfill gas. It allows projects of different types and sizes to have a reasonable rate of return.
- The Ontario Power Authority is responsible for establishing prices for most renewable energy supply categories under the new feed-in tariff program (see Appendix One for prices).
- There are also price adders to provide additional incentives and support to Aboriginal groups and communities (see Appendix One).
- Aboriginal or community projects are eligible for a price adder in proportion to the percentage of equity ownership by the Aboriginal or community group (See Appendix One)
- A project may receive both adders. The same economic interest may not count towards both the Aboriginal and Community Price Adders. The total adder may not exceed the greater of the maximums of the Aboriginal or Community Price Adders.

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- On September 30, 2009, the OPA corrected the FIT contract to include a 10 MW cap on individual solar PV projects.

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- A feed-in tariff program is administered by the OPA and will help provide certainty to project proponents that their energy will be purchased at a fair price. The tariff is combined with “as of right connection” which would make it easier for proponents to connect to the grid (as network expansion is encouraged) and streamlined approvals processes to facilitate new renewables once basic economic and technical criteria are met.

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~~□ In combination with “as of right connection” which would make it easier for proponents to connect to the grid as network expansion is encouraged, streamlined approvals processes, will help facilitate new renewables once basic economic and technical criteria are met.~~

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- ~~The Ontario Power Authority is responsible for administering FIT.~~

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- Renewable energy projects that generate less than 10 kW of electricity will have a different application process than larger commercial projects and will be administered as micro-feed-in tariff (microFIT) projects.

- The OPA held weekly consultation sessions with renewable energy stakeholders on the design of the Feed-in Tariff program from March 17th, 2009 to May 12th, 2009. On May 12th, 2009, the Ontario Power Authority updated proposed prices for the Feed-in Tariff and on June 8th, 2009 posted a draft contract. The OPA held an additional 3-week consultation period on the draft Program Rules and prices that were posted on July 10, 2009. Webcasts of consultations are made available on the OPA's website.

- In response to stakeholder consultation, the OPA revised the proposed Program Rules. The revisions focused on:
 - How to give priority to applications that are able to come into service more quickly
 - The addition of two new price categories for on-farm biomass generation
 - The clarification of the transmission and distribution availability test processes

- ~~The OPA has been accepting applications since October 1st, 2009.~~

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- The FIT program rules and prices will be reviewed at least every two years.

Current Status of Fit and microFIT Applications:

microFIT Applications

- As of November 30, 2009, the Ontario Power Authority received 1,193 microFIT applications with a potential output of 8.6 MW of electricity. ~~Ontario Power Authority is continuing to review and verify these applications.~~

•

- Breakdown of microFIT applications received as of December 1, 2009:

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Energy Source	Number of Applications	Capacity (kW)
Biogas	0	0
Landfill Gas	0	0
Renewable biomass	4	40
Solar Photovoltaic (PV)	1,166	8,382
Water	1	2
Wind	22	187
Total	1,193	8,611

- In the week of December 14, 2009, the OP~~Antario Power Authority~~ started sending out conditional contract offers to the first 700 microFIT applicants the week of December 14th, subject to applicants obtaining approval to connect to the electricity grid from their local distribution.
- People whose microFIT applications were submitted by November 30, 2009 and who have not yet received a contract offer should hear from the Ontario Power Authority by January 15, 2010.

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FIT Applications

- The Ontario Power Authority has estimated ~~that there is approximately~~ 2,500 megawatts of available transmission connection capacity for FIT projects.
- As of December 1, 2009 the Ontario Power Authority received 1,022 FIT applications with about 8,000 MW of potential electricity generation. The Ontario Power Authority ~~is~~ continuesing to review and verify these applications and will giving e-priority to "shovel-ready" projects.
- Of the 8,000 MW, 79% of capacity is wind and 16% is solar.
- In February, the OPA will start offering FIT contracts beginning with Capacity Allocation Exempt projects (500 or kW or less), and continuing in March with the rest of the FIT Program.
- CONFIDENTIAL: Applications totaled more than 10,000 MW. Some proponents bid the same project into multiple connection points and others did not complete the application process. This reduced the estimated potential capacity to about 8,000 MW. Breakdown of FIT applications received as of November 30, 2009:

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Energy Source	Number of Applications	Capacity (kW)
Biogas	8	25,560
Ground Mounted Solar PV	183	1,440,012
Land Fill Gas	6	28,912
Offshore Wind	5	330,912
Onshore Wind	192	7,616,700
On-Farm Biogas	26	8,775
Renewable biomass	11	110,071
Rooftop Solar PV	504	114,639
Water	87	354,491

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Total	1,022	10,029,181

•Prior to offering a contract, FIT applications are require an extensive-reviewed by the Ontario Power Authority, local distribution companies, Hydro One and the Independent Electricity System Operator. FIT contracts will be offered after this review. The Ontario Power Authority expects the review to be complete in April 2009 given the unexpectedly high number of applications.

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Prices:

•The Ontario Power Authority is responsible for establishing prices for most renewable energy supply categories under the new feed-in tariff program.

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Feed-In Tariff Prices				
Renewable Fuel	Type	Size tranche	Contract Price ¢/kWh	Escalation Percentage**
Biomass* ^Δ		≤ 10 MW	13.8	20%
		> 10 MW	13.0	
Biogas* ^Δ	On-Farm	> 10 kW ≤ 100 kW	19.5	20%
		> 100 kW ≤ 250 kW	18.5	
	Any-type	≤ 500 kW	16.0	
		> 500 kW ≤ 10 MW	14.7	
		> 10 MW	10.4	
Waterpower* ^Δ		≤ 10 MW	13.1	20%
		> 10 MW < 50 MW	12.2	
Landfill gas* ^Δ		≤ 10 MW	11.1	20%
		> 10 MW	10.3	
Solar PV	Any-type	≤ 10 kW	80.2	0%
	Rooftop	> 10 ≤ 250 kW	71.3	
		> 250 ≤ 500 kW	63.5	
		> 500 kW	53.9	
	Ground Mounted ^Δ	> 10 kW ≤ 10 MW	44.3	
Wind ^Δ	Onshore	Any-size	13.5	20%
	Offshore	Any-size	19.0	

*Peak Performance Factor of x1.35 during On-Peak and x0.90 during Off-Peak applies for non-microFIT projects.

^ΔAboriginal Price Adder and Community Price Adder eligible as outlined below for non-microFIT projects.

**Escalation Percentage based on the Consumer Price Index will be applied to eligible Renewable Fuels as calculated in FIT Contract. The Base Date is September 30, 2009

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The following table shows the maximum level of the Aboriginal and community price adders a project could receive in addition to the contract price:

	Wind	PV (Ground Mounted)	Water	Biogas	Biomass	Landfill Gas
Maximum Aboriginal Price Adder (\$/kWh)	1.5	1.5	0.9	0.6	0.6	0.6
Maximum Community Price Adder (\$/kWh)	1.0	1.0	0.6	0.4	0.4	0.4

- Aboriginal or community projects are eligible for a price adder in proportion to the percentage of equity ownership by the Aboriginal or community group, as set out below:

Percentage of Control	Percentage of corresponding price adder
50% to 100%	100%
10% to 50%	Double the percentage of control
0% to 10%	0%

- A project may receive both adders. The same economic interest may not count towards both the Aboriginal and Community Price Adders. The total adder may not exceed the greater of the maximums of the Aboriginal or Community Price Adders.

- On September 30, 2009, the OPA corrected the FIT contract to include a 10 MW cap on individual solar PV projects.

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Domestic Content requirements:

- The Ministry of Energy and Infrastructure (MEI) and Ministry of Economic Development and Trade (MEDT) consulted with solar and wind manufacturers as well as developers and industry associations on domestic content. Several sessions were held during the month of May, 2009.
- Developers will be required to have a certain percentage of their project cost come from Ontario goods and labour at the time they reach commercial operation. This requirement will increase after time. For wind, the requirement will start at 25% and increase to 50% after December 31, 2011. For micro solar PV (10 kW or smaller), the requirement will start at 40% and increase to 60% after December 31, 2010. For larger solar PV, the requirement will start at 50% and increase to 60% after December 31, 2010.
- Developers are allocated the qualifying percentage for performing the corresponding designated activity. If the designated activity is partially done, the developer receives 0% for that activity.

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- On September 30, 2009, in response to stakeholder feedback, the OPA amended the microFIT solar PV domestic content requirements, making the categories consistent with the larger-than-10 kW silicon PV requirements. This will make it easier for microFIT applicants to meet domestic content requirements and get their renewable energy projects on-line faster.

Program Process (projects larger than 10 kW):

- As part of the application process, large project applications go through a transmission availability test (TAT) and distribution availability test (DAT). If there is existing space on the grid, or there are confirmed developments that would enable connection scheduled to come online by the milestone date of the project's commercial operation, then the project passes and the contract offer is made.
- Only upon receipt of a contract is the developer permitted to apply for their connection impact assessment, customer impact assessment, and system impact assessment (as applicable). FiT program participants may not get these beforehand.
- Projects must get a Notice to Proceed (NTP) from the OPA before starting construction. To receive their NTP, developers must have:
 - completed their connection impact assessment, customer impact assessment and system impact assessment as applicable
 - Obtained their Renewable Energy Approval,
 - A domestic content plan (if applicable)
 - A financing plan
- In the event that a project does not pass the Transmission and Distribution Availability Test(s) (if applicable) the application will be subjected to the next Economic Connection Test (ECT), together with all other projects whose applications are awaiting the next scheduled ECT. The ECT is designed to ensure that the costs of connecting a project, parts of which may be ultimately borne by ratepayers, are reasonable. The Test will be run at least once every 6 months for each region of the Province.
- Based on the outcome of the ECT, the projects could then be placed in either the FIT Production Line, or the FIT Reserve. Alternatively, proponents would be given an option to withdraw their FIT applications.
 - **The FIT Production Line** is designed for the projects whose connection costs are determined to be economic through the ECT analysis. These projects will provide input for the future transmission and distribution planning processes.

Once in the Production Line, the projects will be subjected to the TAT/DAT before each subsequent Economic Connection Test is run, to see whether new grid capacity has become available as a result of new construction, approvals, or withdrawals of earlier FIT applications.

Each time a Production Line application is subjected to the ECT, an additional portion of its application security becomes at risk in the event that the project withdraws from the FIT program.

- **The FIT Reserve** will host the applications for projects where the connection costs were deemed to be uneconomic as a result of the ECT, but whose proponents chose to remain in the FIT program in anticipation of future transmission or distribution developments that would potentially justify the connection. As with the projects in the Production Line, the Reserve projects would be subjected to the regular Transmission/Distribution Availability and the Economic Connection Tests. .
- Applicants with projects in the Production Line and the Reserve are allowed to revise the technical details of their application with prior written notice to the OPA, if they believe that these revisions could affect their projects' ability to connect. The only application details that cannot be revised without losing the project timestamp are those regarding the Renewable Fuel Type, Project Location or Capacity.
- Applications can stay in the FIT Production Line, the Reserve or the combination of the two for up to 10 years.

Capacity allocation exempt projects:

- Capacity allocation exempt projects are small projects connected to the distribution system. A small generator is 250 kW or less when connected to a line less than 15 kV, or 500 kW or less when connected to a 15 kV or higher line.
- These projects are not required to submit application security; however, completion and performance security are required.
- These projects proceed directly to a FIT contract after the application has been reviewed and is found to be complete – they are therefore not subject to the transmission and distribution availability tests, the economic connection test, the FIT production line or the FIT reserve.
- Requirements for receiving Notice to Proceed are the same as large projects.

microFIT (10 kW or smaller)

- For microFIT, the following are not available or do not apply: the on-farm bio-gas price, the community or Aboriginal price adders, on/off peak pricing. Micro projects may apply to FIT, but would have to meet all the requirements of the FIT contract.
- Domestic content rules for solar PV apply.
- microFIT projects proceed directly to a FIT contract after the application has been reviewed and is found to be complete – they are therefore not subject to the transmission and distribution availability tests, the economic connection test, the FIT production line or the FIT reserve.

- microFIT projects do not require Notice to Proceed from the OPA before construction.
- microFIT projects do not have to submit an application fee, nor application security nor completion and performance securities.
- Once the LDC connects the microFIT project, the OPA will start paying for generation.
- The OPA may check projects' domestic content levels and renewable energy approval status (as applicable) as part of the auditing process.

Transmission/Distribution

- In the longer run, Ontario is undertaking an expansion and renewal of the province's transmission facilities. Twenty transmission projects as well as investments into the distribution network were announced in September 2009 to help ensure there is enough capacity for renewable generation resulting from the FIT and the Green Energy Act. The projects represent an investment of about \$2.3 billion over the next three years.

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- For information on transmission or distribution issues, including the Ontario Energy Board's amendment to the Transmission System Code on the cost responsibility of enabler lines, please see House Note E02.

Program specific fees and securities (application fee, application security, completion and performance securities):

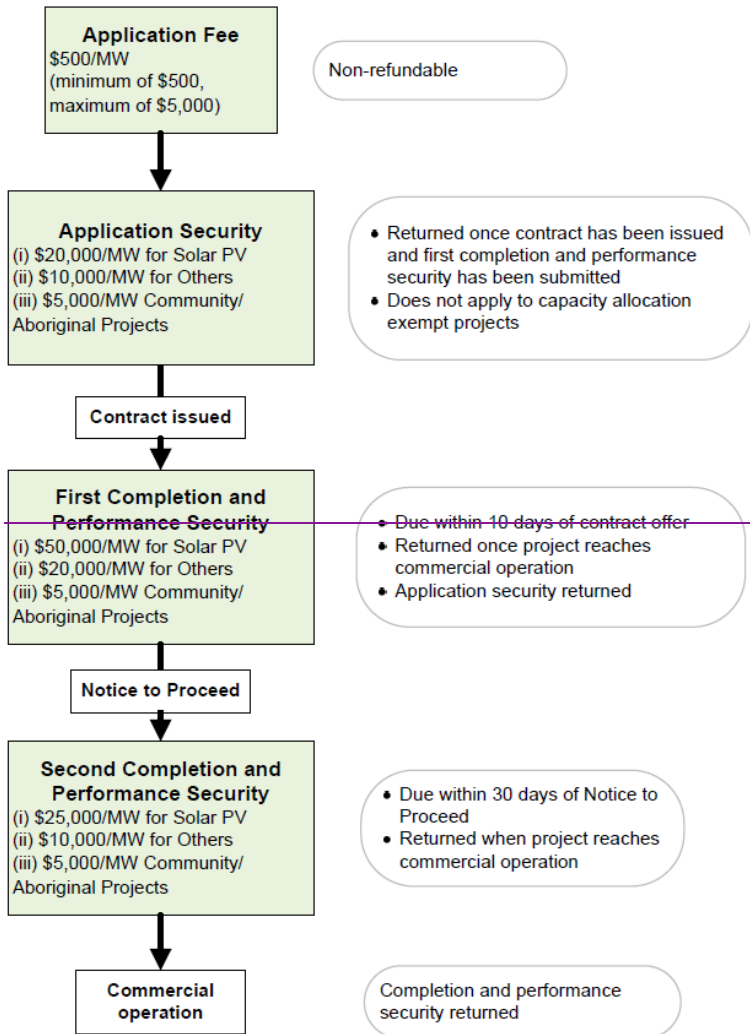
- ~~MicroFIT projects (≤10 kW) are exempt from all program specific fees and securities.~~
- ~~Capacity allocation exempt projects are exempt from the application security.~~
- ~~Other FIT projects have to pay an application fee and put up security at different points of the project (see flow chart below):~~
 - ~~The application security discourages projects which are unlikely to reach commercial operation from applying. It prevents transmission and distribution companies from being overwhelmed by the required number of assessments of the impacts of additional generation.~~
 - ~~The completion and performance security payments provide a measure of certainty that FIT Program contract holders will complete their projects as intended. They help to prevent projects from taking up transmission and distribution wire capacity which do not intend to build.~~
- ~~Aboriginal and community based projects with greater than 50% participation levels require less security.~~

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FIT Program Launch:

- The FIT Program requires that commercial operation be reached within a certain time of contract signing depending on the technology:
 - three years for wind, solar and bioenergy
 - four years for off-shore wind
 - five years for waterpower.

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• During program launch (the first 60 days of the program), developers will have the option on the application form to select commercial operation acceleration days that will shorten the commercial operation date (COD) deadline. Applications will be prioritized based on expected COD. This means that projects that are expected to be completed first will have priority access to existing connection capacity on the grid.

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• All applicants will be allowed to submit up to 365 COD acceleration days. If a developer wishes to submit a higher number of acceleration days, it must submit evidence that it has met one or more of four criteria upon which its project will be assigned a score.

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◦ The criteria are:

- do not require a renewable energy approval
- major equipment component confirmed
- successful experience with similar projects
- financial backing.

◦ For every criterion that the developer meets, it will be allowed to select an additional 90 COD acceleration days. In order to qualify, it must submit evidence to the OPA with its application that demonstrates the criteria have been met.

• If a developer is awarded a contract after submitting COD acceleration days, it will be subject to liquidated damages if it fails to achieve commercial operation within the time specified in its application. This is intended to ensure that projects reach commercial operation within the time committed in the application.

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◦ Liquidated damages are \$250/MW per day, for no more than the number of COD acceleration days submitted.

Transition into FIT

• Transition policies from RESOP to FIT will

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- help serious developers build their projects
- give an indication to the OPA how much transmission space will be freed up by contract holders who are not likely to build.

• First, RESOP contract holders that have not reached commercial operation have until November 30, 2009 (60 days from the official launch date) to rescind their contracts and apply to the FIT Program if they wish.

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• Advanced RESOP FIT amendment option: There is a second option for non-solar RESOP projects that have not reached commercial operation but have received a certificate of approval, permit to take water or renewable energy approval. These projects must reach commercial operation by the end of 2010. These projects were given the option to receive a higher price and the right to retain 100%, instead of 50%, of any ecoENERGY incentive (1 ¢/kWh). In exchange, they had to post completion and performance security, and must pay liquidated damages if they fail to achieve operation by the end of 2010.

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◦ For more details, please see house note B(17) – Renewable Energy Standard Offer

• ~~The third option is directed at large solar projects, but is open to all non-waterpower projects larger than 10kW. Barring force majeure, RESOP projects must reach commercial operation within three years of receiving their contract. The OPA offered a one-year extension in exchange for security and liquidated damage provisions. Developers must deposit \$20/kW, which is refundable upon achieving commercial operation. Liquidated damages of \$0.1/kW/day up to 200 days apply for failing to meet the milestone. This offer was available from August 24, 2009 through October 30, 2009.~~

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• ~~Grandfathering: RESOP, net-metered, merchant or not-yet-in-service projects that are 500 kW or less and have purchased equipment or have reached commercial operation by October 1, 2009 are eligible to be converted into the FIT or microFIT. The grandfathering option does not apply to waterpower projects covered by the May 7th 2009 direction to the OPA (re: Negotiating new contracts with Hydro-electric Generation facilities).~~

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- ~~Most of the eligible projects may apply to the FIT or microFIT program; RESOP projects larger than 10kW and less than or equal to 500 kW may have their contract amended to the FIT price.~~
- ~~These projects are deemed to have met domestic content requirements.~~
- ~~They must be online by December 31, 2010, or for the micro non-RESOP projects, must be online within 12 months of the microFIT conditional contract offer. Projects larger than 10 kW will be liable to pay liquidated damages if they fail to meet this deadline. Micro-projects revert to their old contract, if applicable.~~
- ~~The amendment application should be made to the OPA by November 30, 2009.~~

Solar PV on prime agricultural land:

- As part of the FIT directive issued on September 24th, 2009, restrictions were placed on the placement of ground-mounted solar PV projects larger than 100 kW. They may not go on Class 1 or 2 land or Specialty Crop Areas. Up to 500 MW may go on Class 3 land, allocated in proportion to the amount of class 3 land in the four Regional Administrative Boundary Alignments (North, West, East and Central).
- As part of the directive issued on September 30th, 2009, 100 MW of the 500 MW was reserved. 100 MW of the amount that would have been allocated to the West region is reserved for proponents who have signed a province-wide framework agreement with the province.
- The restrictions/caps outlined for CLI classes 1, 2 and 3 soils do **not** apply to lands zoned for non-agricultural purposes as of October 1, 2009.

Quick Facts:

• ~~Since October 2003, about 1,300 MW~~ more than 1,200 MW of new renewable energy projects have come online in Ontario.

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- ◆ In October 2003, there were 15 MW of wind power from 10 utility scale turbines in Ontario. Today, there are almost 1,200 MW online from over 6780 turbines. By the end of 2012, there will be at least 900 turbines.

Quick Renewable Energy Facts:

— Since October 2003, about 1,300 MW of new renewable energy projects have come online in Ontario.

— In October 2003, there were 15 MW of wind power from 10 utility scale turbines in Ontario. Today, there are almost 1,200 MW online from over 680 turbines. By the end of 2012, there will be at least 900 turbines.

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Legislative authorities over FIT:**SCHEDULE B ELECTRICITY ACT, 1998****7. Part II.2 of the Act is amended by adding the following section:****Feed-in tariff program**

25.35 (1) The Minister may direct the OPA to develop a feed-in tariff program that is designed to procure energy from renewable energy sources under such circumstances and conditions, in consideration of such factors and within such period as the Minister may require.

Minister's directives

(2) The Minister may issue, and the OPA shall follow in preparing its feed-in tariff program, directives that set out the goals to be achieved during the period to be covered by the program, including goals relating to,

- (a) the participation by aboriginal peoples in the development and establishment of renewable energy projects;
- (b) the involvement of members of the local community in the development and establishment of renewable energy projects; and
- (c) domestic content.

Definition

(3) In this section,

“feed-in tariff program” means a program for procurement, including a procurement process, providing standard program rules, standard contracts and standard pricing regarding classes of generation facilities differentiated by energy source or fuel type, generator capacity and the manner by which the generation facility is used, deployed, installed or located.

Ability to restrict OPA procurement on certain type of lands, e.g. agricultural lands:**SCHEDULE B ELECTRICITY ACT, 1998****14.****(5) Subsection 114 (1.3) of the Act is amended by adding the following clause:**

(g.1) prescribing locations or land or classes of locations or land where the OPA shall not provide for a procurement process or enter into a contract for energy from a prescribed renewable energy generation facility or a prescribed class of renewable energy generation facility;

With input from: Dmitry Balashov, Policy Analyst
Transmission and Distribution Policy
416-325-6728
September 25, 2009

Updated by Clarence Cheng, Policy Analyst
Renewables
416-~~325-5027~~326-7287
~~December 16, 2009~~January 14, 2010

Approved by: ~~Karen Slawner, Coordinator~~
~~Renewables~~
~~416-314-9472~~
~~December 16, 2009~~

Leo Tasca, Manager
Renewables
416-326-3775
January 19, 2010

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~~December 21, 2009~~

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

January 19, 2010

~~December 18, 2009~~

Sue Lo, ADM
Renewables and Energy Efficiency Division
416-327-8552

January 19, 2010

APPENDICES

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APPENDIX 1 – FIT PRICES:

Feed-In Tariff Prices				
Renewable Fuel	Type	Size tranche	Contract Price ¢/kWh	Escalation Percentage**
<u>Biomass</u> *^		<u>≤ 10 MW</u>	<u>13.8</u>	<u>20%</u>
		<u>> 10 MW</u>	<u>13.0</u>	
<u>Biogas</u> *^	<u>On-Farm</u>	<u>> 10 kW ≤ 100 kW</u>	<u>19.5</u>	<u>20%</u>
		<u>> 100 kW ≤ 250 kW</u>	<u>18.5</u>	
	<u>Any type</u>	<u>≤ 500 kW</u>	<u>16.0</u>	
		<u>> 500 kW ≤ 10 MW</u>	<u>14.7</u>	
		<u>> 10 MW</u>	<u>10.4</u>	
<u>Waterpower</u> *^		<u>≤ 10 MW</u>	<u>13.1</u>	<u>20%</u>
		<u>> 10 MW < 50 MW</u>	<u>12.2</u>	
<u>Landfill gas</u> *^		<u>≤ 10 MW</u>	<u>11.1</u>	<u>20%</u>
		<u>> 10 MW</u>	<u>10.3</u>	
<u>Solar PV</u>	<u>Any type</u>	<u>≤ 10 kW</u>	<u>80.2</u>	<u>0%</u>
	<u>Rooftop</u>	<u>> 10 ≤ 250 kW</u>	<u>71.3</u>	
		<u>> 250 ≤ 500 kW</u>	<u>63.5</u>	
		<u>> 500 kW</u>	<u>53.9</u>	
	<u>Ground Mounted</u> [^]	<u>> 10 kW ≤ 10 MW</u>	<u>44.3</u>	
<u>Wind</u> [^]	<u>Onshore</u>	<u>Any size</u>	<u>13.5</u>	<u>20%</u>
	<u>Offshore</u>	<u>Any size</u>	<u>19.0</u>	

*Peak Performance Factor of x1.35 during On-Peak and x0.90 during Off-Peak applies for non-microFIT projects.

[^]Aboriginal Price Adder and Community Price Adder eligible as outlined below for non-microFIT projects.

**Escalation Percentage based on the Consumer Price Index will be applied to eligible Renewable Fuels as calculated in FIT Contract. The Base Date is September 30, 2009

The following table shows the maximum level of the Aboriginal and community price adders a project could receive in addition to the contract price:

	Wind	PV (Ground Mounted)	Water	Biogas	Biomass	Landfill Gas
<u>Maximum Aboriginal Price Adder</u> (¢/kWh)	<u>1.5</u>	<u>1.5</u>	<u>0.9</u>	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>

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<u>Maximum Community Price Adder (\$/kWh)</u>	<u>1.0</u>	<u>1.0</u>	<u>0.6</u>	<u>0.4</u>	<u>0.4</u>	<u>0.4</u>

<u>Percentage of Control</u>	<u>Percentage of corresponding price adder</u>
<u>50% to 100%</u>	<u>100%</u>
<u>10% to 50%</u>	<u>Double the percentage of control</u>
<u>0% to 10%</u>	<u>0%</u>

APPENDIX 24 – MicroFIT AND FIT FEE AND APPLICATION INFORMATION

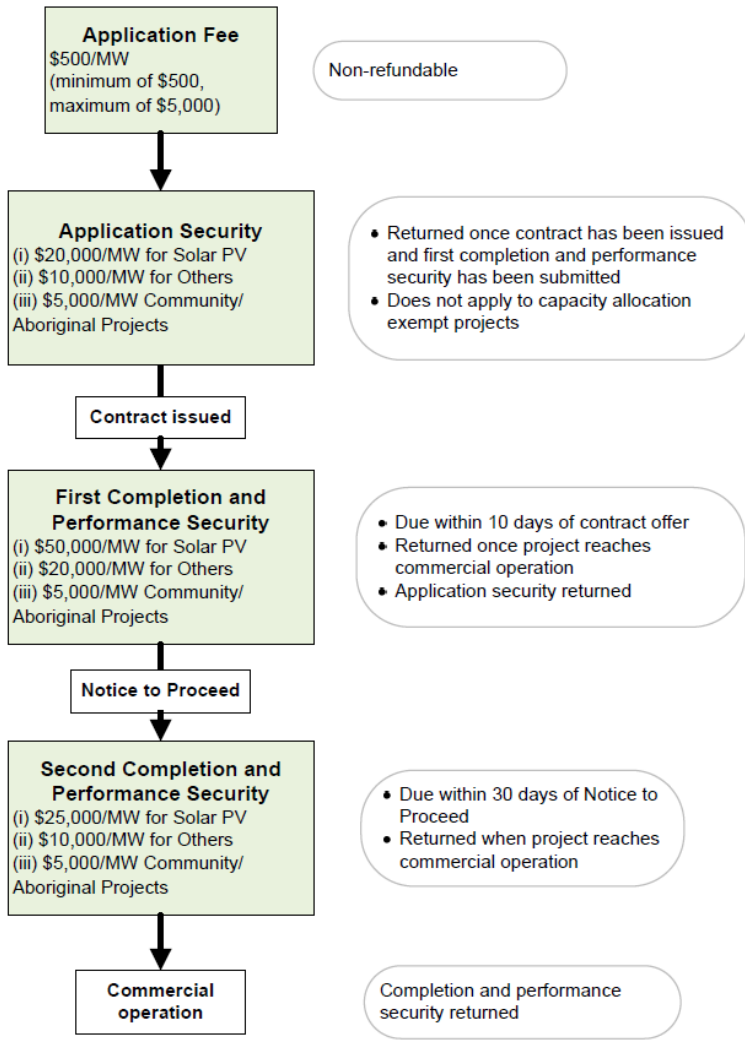
- MicroFIT projects (≤10 kW) are exempt from all program specific fees and securities.
- Capacity allocation exempt projects are exempt from the application security.
- Other FIT projects have to pay an application fee and put up security at different points of the project (see flow chart below).
 - The application security discourages projects which are unlikely to reach commercial operation from applying. It prevents transmission and distribution companies from being overwhelmed by the required number of assessments of the impacts of additional generation.
 - The completion and performance security payments provide a measure of certainty that FIT Program contract holders will complete their projects as intended. They help to prevent projects from taking up transmission and distribution wire capacity which do not intend to build.
- Aboriginal and community based projects with greater than 50% participation levels require less security.

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FIT Program:

- The FIT Program requires that commercial operation be reached within a certain time of contract signing depending on the technology:
 - three years for wind, solar and bioenergy
 - four years for off-shore wind
 - five years for waterpower.

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- During program launch (the first 60 days of the program), developers had the option on the application form to select commercial operation acceleration days that will shorten the commercial operation date (COD) deadline. Applications will be prioritized based on expected COD. This means that projects that are expected to be completed first will have priority access to existing connection capacity on the grid.
- All applicants will be allowed to submit up to 365 COD acceleration days. If a developer wishes to submit a higher number of acceleration days, it must submit evidence that it has met one or more of four criteria upon which its project will be assigned a score.
 - The criteria are:
 - do not require a renewable energy approval
 - major equipment component confirmed
 - successful experience with similar projects
 - financial backing.
 - For every criterion that the developer meets, it will be allowed to select an additional 90 COD acceleration days. In order to qualify, it must submit evidence to the OPA with its application that demonstrates the criteria have been met.
- If a developer is awarded a contract after submitting COD acceleration days, it will be subject to liquidated damages if it fails to achieve commercial operation within the time specified in its application. This is intended to ensure that projects reach commercial operation within the time committed in the application.
 - Liquidated damages are \$250/MW per day, for no more than the number of COD acceleration days submitted.

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APPENDIX 32 - TRANSITION POLICIES FROM RESOP INTO FIT

- Transition policies from RESOP to FIT will
 - help serious developers build their projects
 - give an indication to the OPA how much transmission space will be freed up by contract-holders who are not likely to build.
- First, RESOP contract holders that have not reached commercial operation have until November 30, 2009 (60 days from the official launch date) to rescind their contracts and apply to the FIT Program if they wish.
- Advanced RESOP FIT amendment option: There is a second option for non-solar RESOP projects that have not reached commercial operation but have received a certificate of approval, permit to take water or renewable energy approval. These projects must reach commercial operation by the end of 2010. These projects were given the option to receive a higher price and the right to retain 100%, instead of 50%, of any ecoENERGY incentive (1 c/kWh). In exchange, they had to post completion and performance security, and must pay liquidated damages if they fail to achieve operation by the end of 2010.
 - For more details, please see house note B(17) – Renewable Energy Standard Offer

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- The third option is directed at large solar projects, but is open to all non-waterpower projects larger than 10kW. Barring force majeure, RESOP projects must reach commercial operation within three years of receiving their contract. The OPA offered a one-year extension in exchange for security and liquidated damage provisions. Developers must deposit \$20/kW, which is refundable upon achieving commercial operation. Liquidated damages of \$0.1/kW/day up to 200 days apply for failing to meet the milestone. This offer was available from August 24, 2009 through October 30, 2009.
- Grandfathering: RESOP, net-metered, merchant or not-yet-in-service projects that are 500 kW or less and have purchased equipment or have reached commercial operation by October 1, 2009 are eligible to be converted into the FIT or microFIT. The grandfathering option does not apply to waterpower projects covered by the May 7th 2009 direction to the OPA (re: Negotiating new contracts with Hydro-electric Generation facilities).
 - Most of the eligible projects may apply to the FIT or microFIT program; RESOP projects larger than 10kW and less than or equal to 500 kW may have their contract amended to the FIT price.
 - These projects are deemed to have met domestic content requirements.
 - They must be online by December 31, 2010, or for the micro non-RESOP projects, must be online within 12 months of the microFIT conditional contract offer. Projects larger than 10 kW will be liable to pay liquidated damages if they fail to meet this deadline. Micro projects revert to their old contract, if applicable.
 - The amendment application should be made to the OPA by November 30, 2009.

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Appendix 43 - Legislative authorities over FIT:

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SCHEDULE B ELECTRICITY ACT, 1998

7. Part II.2 of the Act is amended by adding the following section:

Feed-in tariff program

25.35 (1) The Minister may direct the OPA to develop a feed-in tariff program that is designed to procure energy from renewable energy sources under such circumstances and conditions, in consideration of such factors and within such period as the Minister may require.

Minister's directives

(2) The Minister may issue, and the OPA shall follow in preparing its feed-in tariff program, directives that set out the goals to be achieved during the period to be covered by the program, including goals relating to,

- (a) the participation by aboriginal peoples in the development and establishment of renewable energy projects;
- (b) the involvement of members of the local community in the development and establishment of renewable energy projects; and
- (c) domestic content.

Definition

(3) In this section,

“feed-in tariff program” means a program for procurement, including a procurement process, providing standard program rules, standard contracts and standard pricing regarding classes of generation facilities differentiated by energy source or fuel type, generator capacity and the manner by which the generation facility is used, deployed, installed or located.

Ability to restrict OPA procurement on certain type of lands, e.g. agricultural lands:

SCHEDULE B ELECTRICITY ACT, 1998

14.

(5) Subsection 114 (1.3) of the Act is amended by adding the following clause:

(g.1) prescribing locations or land or classes of locations or land where the OPA shall not provide for a procurement process or enter into a contract for energy from a prescribed renewable energy generation facility or a prescribed class of renewable energy generation facility;

~~December 18, 2009~~

GREEN POWER

ISSUE:

The Green Energy and Green Economy Act, which received Royal Assent on May 14, 2009, will make Ontario a leader in North America in building renewable energy, encouraging energy conservation and creating green jobs.

For information about the Renewable Energy Standard Offer Program Review, please see House Note B17 – Renewable Energy Standard Offer.

SUGGESTED RESPONSE

- Ontario is committed to reducing the environmental footprint of electricity generation across the province.
- Since October 2003, the McGuinty government has signed contracts representing about 3,000 MW of new renewable energy supply from large and small-scale projects across Ontario. Over 1,200 MW of these projects have reached commercial operation and are generating clean, green electricity from wind, water, sun and bio-based resources. This represents \$2.7 billion of investment and over 2,900 direct and indirect jobs.
- On June 26, 2009, Canadian Hydro Developers announced commercial operation of its 197.8 MW wind farm on Wolfe Island.
- Ontario is home to the 199.5 MW Melancthon EcoPower Centre, which is the largest wind facility in service in Canada.
- Wind projects are an important part of Ontario's drive toward a cleaner, greener energy future. Ontario now has over 1,100 megawatts of wind power online generated by over 670 wind turbines. In 2003, there were only 15 megawatts of wind power generated by ten turbines.

If Asked About OPA's IPSP Review:

- Finding clean, affordable and sustainable sources of electricity is a top priority of the Ontario Government. That's why I have asked the Ontario Power Authority to review its long-term energy strategy as it relates to renewable energy and conservation.

- This review will ensure Ontario is maximizing its potential to provide clean, green, renewable power to homes and businesses across the province, and a new generation of “green-collar” careers and industry.

If Asked About Investment in Ontario’s Green Industry:

- Ontario is actively pursuing investment in new manufacturing and service infrastructure for green energy. The Ministry of Energy and Infrastructure is working closely with the Ministry of Economic Development and the Ministry of International Trade and Investment to attract and assist local and global manufacturers through MITI's international trade activities, and through programs such as the Next Generation of Jobs Fund.
- Ontario is very focused on developing the skills and training for the jobs to support green power. The Ministry of Research and Innovation, through various programs, and through the Ontario Centres of Excellence, has put a strong focus on alternative energies at Ontario’s colleges and universities.
- And other government ministries are working with green energy companies to offer training. Sault College, with the help of Brookfield Power, Northern Development and Mines and others, is offering a Wind Energy Training Program which is turning out electricians with the skills to service wind power projects.
- New renewable energy supply that is online or under construction total 1,455 MW of large and small-scale projects across Ontario representing over \$4.6 billion of investment and over 4,200 direct and indirect jobs.

BACKGROUND

Renewable Energy in Ontario:

- Ontario currently has over 9,000 megawatts of *installed* renewable energy capacity:

Renewables Online

Procurement Initiatives	Total MW	projects	Wind MW	projects	Solar PV MW	projects	Water MW	projects	Bio-Energy MW	projects
Existing (pre-Oct 2003)	7,686.40	65	2.40	2	0.00	0	7,618.50	61	65.50	2
Grandfathered RESOP (pre-Oct 2003)	24.48	10	12.21	4	0.00	0	7.65	5	4.63	1
New RESOP	86.81	185	55.37	10	1.92	154	8.03	8	21.50	13
RES I, II + III	1,124.00	15	1,083.60	10	0.00	0	31.00	2	9.40	3
OPG Hydro	185.50	6	0.00	0	0.00	0	185.50	6	0.00	0
Other	8.20	3	8.20	3	0.00	0	0.00	0	0.00	0
Total	9,115.39	284	1,161.78	29	1.92	154	7,850.67	82	101.02	19
New Online	1,404.51	209	1,147.17	23	1.92	154	224.53	16	30.90	16
New Online (gov procurements)	1,223.31	201	1,138.97	20	1.92	154	51.53	11	30.90	16

- The Province's procurement programs have brought over 1,200 megawatts of *new* renewable energy on-line since October 2003, including 1,124 MW from completed RFPs and 87 MW from the Renewable Energy Standard Offer Program.
- Ontario has an additional 1,800 megawatts of renewable energy under contract:

Additional Renewables Contracted

Procurement Initiatives	Total MW	projects	Wind MW	projects	Solar PV MW	projects	Water MW	projects	Bio-Energy MW	projects
New RESOP	1,303.98	248	677.94	79	523.53	151	51.71	8	50.80	10
RES I, II + III	508.10	7	492.10	6	0.00	0	16.00	1	0.00	0
OPG Hydro	50.39	3	0.00	0	0.00	0	50.39	3	0.00	0
Total	1,862.47	258	1170.04	85	523.53	151	118.10	12	50.80	10

- In addition, OPG is bringing on additional generation at Niagara equivalent to 200 MW.

Status of RES I, II and III RFP Projects (Expected in-service dates confidential)

Project	Procurement Type	Source	Size (MW)	# of Turbines	Status	In-Service Date
Eastview Landfill Gas	RES I	Landfill gas	2.5	N/A	On-line	August 2005
Glen Miller Hydro	RES I	Hydro	8.0	N/A	On-line	December 2005
Melancthon I Wind	RES I	Wind	67.5	45	On-line	March 2006
Kingsbridge I Wind	RES I	Wind	39.6	22	On-line	March 2006
Erie Shores Wind	RES I	Wind	99.0	66	On-line	May 2006
Hamilton Digester Gas	RES I	Biogas	1.6	N/A	On-line	July 2006
Prince I Wind	RES I	Wind	99.0	66	On-line	September 2006
Trail Road Landfill Gas	RES I	Landfill gas	5.3	N/A	On-line	January 2007
Umbata Falls	RES I	Hydro	23.0	N/A	On-line	November 2008
Prince II Wind	RES II	Wind	90.0	60	On-line	November 2006
Ripley Wind	RES II	Wind	76.0	38	On-line	December 2007
KEPA Wind Farm	RES II	Wind	101.2	44	On-line	October 2008
Melancthon II Wind	RES II	Wind	132.0	88	On-line	November 2008
Enbridge Ontario Wind A & B	RES II	Wind	181.5	110	On-line	February 2009
Wolfe Island Wind	RES II	Wind	197.8	86	On-line	June 2009
Yellow Falls Hydro	RES II	Hydro	16.0	N/A	In approvals	TBD
Greenwich Windfarm	RES III	Wind	99.0	66	contract awarded	December 2011
Byran Wind	RES III	Wind	64.5	43	contract awarded	2011
Kruger Energy Chatham Wind	RES III	Wind	101.2	44	contract awarded	October 2011
Gosfield Wind	RES III	Wind	50.4	28	contract awarded	December 2012
Raleigh Wind Energy Centre	RES III	Wind	78.0	52	contract awarded	TBD 2010
Talbot Windfarm	RES III	Wind	99.0	66	contract awarded	December 2011
Blue Highlands Wind*	RES I	Wind	49.5	-	Cancelled	Cancelled
Kingsbridge II Wind*	RES II	Wind	158.7	69	Cancelled	Cancelled
TOTAL ONLINE			1124.0	625		
TOTAL			1632.1	924		

*Not included in Total MW or Total # of Turbines

RFP Projects Status Summary:

Status of RFPs	Renewable Capacity
Online	1124.0 MW
Under Construction	0 MW
Approvals Pending	16.0 MW
RES III Contracts Signed	492.1 MW
Terminated	208.2 MW

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Wind Energy Status

- Ontario is currently in first place for installed wind energy in Canada:

Total Online Wind Capacity from Renewables RFPs:	1083.6 MW
Total Online Wind Capacity Pre-October 2003:	14.61 MW
Total Online NEW Wind Capacity from RESOP	55.37 MW*
<u>Total Online Wind Capacity - Other:</u>	<u>8.20 MW</u>
Grand Total:	1161.78 MW

* Four online RESOP wind projects (totaling 12.21 MW) are pre-October 2003 wind facilities. This capacity is included in the pre-October 2003 total above.

- Wind projects under development:
 - As of June 30, 2009, there were executed contracts for 93 projects representing 746 MW of potential wind energy capacity under the Renewable Energy Standard Offer Program. Four of the 93 projects (totaling 12.21 MW) are pre-2003 wind facilities. This capacity is included in the pre-October 2003 total above. See House Note B17 – Standard Offer for further details.
 - In addition to the wind online, there are currently signed contracts for 1,170 MW of wind power in Ontario, either under construction or in various stages of development.
- Turbines:
 - In 2003, there were only 15 MW of wind power in operation in Ontario, from 10 wind turbines. Ontario now has over 1,100 MW of wind power capacity online from 675 wind turbines.
 - The RES III RFP projects announced on January 23, 2009 will add around another 300 turbines to the province - which would bring Ontario to at least 975 turbines when these projects come online by 2012.
- For more information, please see House Note B05A – Wind Power.

Solar Energy Status

- The OPA has signed 305 RESOP contracts totalling 525 MW with potential solar PV projects under the Renewable Energy Standard Offer Program as of June 30, 2009. These include micro-generation systems (10 kilowatts or less) up to large-scale solar farms 10 megawatts in size.
- As of June 30, 2009, the OPA has signed RESOP contracts for 55 large solar farms (500kW or more) representing 523.38 MW and for 250 smaller and micro-scale PV projects

(500 kW or less) representing 2.070 MW.

- 154 projects totalling 1.917 MW have reached commercial operation to date.
 - A 1 MW phase of a 10 MW project reached commercial operation in December 2008. (It is presently out-of-service while First Solar upgrades the panels.)
 - 153 smaller and micro-scale projects totalling 917 kilowatts have reached commercial operation under RESOP as of June 30, 2009.
- For more information, please see House Note B05B – Solar Power.

Bio-Energy Status

- Ontario currently has 101 MW of bio-based generation capacity on-line:

Total Online Bioenergy Capacity Pre-October 2003:	70 MW	(3 stations)
Total Online Bioenergy Capacity from Renewables RFPs:	9 MW	(3 stations)
<u>Total Online NEW Bioenergy Capacity from RESOP*</u>	<u>21 MW</u>	<u>(12 stations)</u>
Grand Total:	101 MW	(18 stations)

- As of June 30, 2009, 24 RESOP contracts* for bio-energy projects have been signed by the OPA representing 77 MW of generation capacity:
 - 14 of these projects* totalling 26 MW have reached commercial operation under RESOP.
 - Of this 26 MW, 21 MW is new bio-based capacity coming online after October 2003*.
- For more information, please see House Note B05C – Bio-Energy.

*** The expansion to the grandfathered RESOP project, Waterloo Landfill Gas Power Plant is counted as a separate and new project and contract throughout.**

Water Power Status

- Ontario currently has 7,851 MW of installed water power capacity.
- 7,835 MW of hydroelectric capacity is on-line from 69 larger generating stations. Another 13 water power projects totaling about 16 MW are generating electricity for the provincial grid under the Renewable Energy Standard Offer Program.
- The Renewables RFPs resulted in 3 successful water power projects totaling 47 MW. Of these two are on-line (Glen Miller 8 MW, and Umbata Falls 23 MW) and one is in approvals (Yellow Falls 16 MW).
- As of June 30, 2009, 22 RESOP contracts for water power projects have been signed by

the OPA, representing 70.9 MW of generation capacity:

- Thirteen of these projects totaling 15.67 MW have come into commercial operation under RESOP.
 - Eight of the thirteen (totaling 8.03 MW) are new water power projects coming on-line after October 2003.
- Since 2003, Ontario has brought about 225 MW of new water power on line. Of this, 52 MW are from government procurements.
 - The OPA and Ontario Power Generation have signed contracts for OPG's 12.5 MW Lac Seul, 6 MW Healey Falls, 9 MW Hound Chute and 34 MW Upper Mattagami hydroelectric stations. Lac Seul reached commercial operation in February 2009; the others are currently under construction. A similar power purchase agreement is currently being negotiated with the OPA for OPG's 450 MW Lower Mattagami water power project.
 - OPG is also bringing on additional generation at Niagara equivalent to 200 MW.
 - For more information, please see House Note B05D – Water Power.

GOVERNMENT INITIATIVES

Renewables RFP I and II

- There were 19 successful projects in the two renewables RFPs administered by the Ministry of Energy in 2004 and 2005. Of these projects, 16 are now up and running; 1 is in approvals; and 2 contracts have been terminated.
- These projects represent a total capital investment in our province of over \$2.5 billion – and will provide enough power to supply over 300,000 homes.
- The average price of the selected projects was just under \$80 per megawatt-hour for the first RFP and just over \$86 per megawatt-hour for the second RFP.

Renewable Energy Standard Offer Program (RESOP)

- RESOP was launched in November 2006 by the Ontario Power Authority (OPA). Under the plan, the OPA will enter into a 20-year Power Purchase Agreement, at a pre-established price, for electricity from small renewable energy generators.
- Electricity from wind, biomass, biogas, or small hydroelectric sources is currently purchased at a base price of 11.08 cents per kilowatt-hour. Solar power sold to the electricity grid under RESOP will receive a price of 42 cents per kilowatt-hour.

- To be eligible, projects must produce power from a renewable resource, have a capacity of up to 10 megawatts and connect directly to the distribution system. For more information, please see House Note B17 – Standard Offer.

Renewables III RFP

- The OPA issued the final Renewable Energy Supply III Request for Proposals for 500 MW of renewable energy supply on August 22, 2008.
- The RES III RFP document includes specific language to address instructions in the 2,000 MW Ministerial Directive that First Nations and Métis peoples be consulted early in the planning and development of new renewable energy projects, and that the OPA develop guidelines and purposes for this purpose.
- 23 proposals were received by the OPA on October 28, 2008.
- Winning projects were announced on January 23, 2009. There were six winning projects, all of them wind, totalling 492.1 MW of new renewable supply.
- The six projects are expected to be in service by 2012. The contracts are for a 20-year term.

Amendments to Supply Mix Directive Issued June 13, 2006

- On September 18, 2008, Minister Smitherman directed the OPA to revisit its proposed Integrated Power System Plan to enhance its current emphasis on renewable energy and conservation and establish new targets in these areas.
- Specifically, the review is to consider the following areas:
 - The amount and diversity of renewable energy sources in the supply mix;
 - The improvement of transmission capacity in the 'Orange Zone' in northern Ontario and other parts of the province that is limiting the development of new renewable energy supply;
 - The potential of existing coal-fired assets to be converted to biomass;
 - The availability of distributed generation;
 - The potential for pumped storage to contribute to the energy supply during peak times; and
 - The viability of accelerating the achievement of stated conservation targets, including a review of the deployment and utilization of Smart Meters.
- Additionally, the Ministerial Direction requests the OPA undertake an enhanced process of consultation with First Nation and Métis communities in light of potential duty to consult obligations. Furthermore, we would ask that the principle of Aboriginal partnership opportunities be considered in matters of both generation and transmission.

- The OPA is to provide an amended and revised IPSP to the Ontario Energy Board by March 18, 2009.
- The Directive notes that all other aspects of the Supply Mix Directive dated June 13, 2006, will remain in full effect and the related elements of the IPSP should continue to move forward during the six-month review period.

Supply Mix Directive and IPSP

- On June 13, 2006, the Government directed the OPA to create an Integrated Power System Plan (IPSP) that would double the current electricity capacity from renewable sources.
- The directive instructed the OPA to increase Ontario's use of renewable energy such as hydroelectric, wind, solar, and biomass for electricity generation. The IPSP should assist the government in meeting its target for 2010 of increasing the installed capacity of new renewable energy sources by 2,700 MW from the 2003 base, and increase the total electricity capacity of renewable energy sources used in Ontario to 15,700 MW by 2025.
- The direction also instructed the OPA to strengthen the transmission system in order to:
 - Enable the achievement of the supply mix goals set out in the directive;
 - Facilitate the development and use of renewable energy resources such as wind power, hydroelectric power and biomass in parts of the province where the most significant development opportunities exist;
 - Promote system efficiency and congestion reduction and facilitate the integration of new supply, all in a manner consistent with the need to cost effectively maintain system reliability.
- On August 29, 2007, the OPA filed its 20-year plan with the Ontario Energy Board for review and approval.
- In its IPSP, the OPA included specific planning targets by energy source for the 2010 renewable resources goal and the longer term 2025 target. The 2025 target for renewables capacity is 15,700 MW. Planned procurements to meet this goal include 2,921 MW of hydroelectric projects, 3,039 MW of wind and 450 MW of bio-energy.
- While solar potential in Ontario is large, the OPA assumed most new additions will come from small projects (less than 500 kW) and addresses these under conservation resources. 88 MW of large-scale solar is assumed under committed resources for meeting the 2010 renewables target. The IPSP notes that large solar facilities currently committed under RESOP may not all proceed to development.
- It was assumed that new large solar facilities will replace any projects that do not proceed, with no net incremental capacity beyond the 88 MW. Therefore planned large solar projects are presented as 0 MW under both the 2010 and 2025 planning targets. This

assumption will be reviewed in future plans as solar technologies and associated economics improve.

Prepared by: Amy Gibson, Senior Advisor
416-325-5765
September 4, 2008

Updated by: Clarence Cheng, Policy Analyst,
Renewable and Clean Energy
416- 325-5027
August 24, 2009

Approved by: Perry Cecchini, Manager
Renewable and Clean Energy
416-325-6593
August 24, 2009

Garry McKeever, Director
Energy Supply and Competition
416-325-8627
August 24, 2009

Rick Jennings, ADM
Office of Energy Supply, Transmission and Distribution
416-314-6190
August 24, 2009

GREEN POWER

ISSUE:

The Green Energy and Green Economy Act, which received Royal Assent on May 14, 2009, will make Ontario a leader in North America in building renewable energy, encouraging energy conservation and creating green jobs.

For information about the Renewable Energy Standard Offer Program Review, please see House Note B17 – Renewable Energy Standard Offer.

SUGGESTED RESPONSE

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- Since October 2003, the McGuinty government has signed contracts representing about 3,000 MW of new renewable energy supply from large and small-scale projects across Ontario. Over 1,200 MW of these projects have reached commercial operation and are generating clean, green electricity from wind, water, sun and bio-based resources. This represents \$2.7 billion of investment and over 3,400 direct and indirect jobs.
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- Ontario is home to the 199.5 MW Melancthon EcoPower Centre, which is the largest wind facility in service in Canada.
- Wind projects are an important part of Ontario's drive toward a cleaner, greener energy future. Ontario now has over 1,100 megawatts of wind power online generated by over 670 wind turbines. In 2003, there were only 15 megawatts of wind power generated by ten turbines.

If Asked About OPA's IPSP Review:

- Finding clean, affordable and sustainable sources of electricity is a top priority of the Ontario Government. That's why I have asked the Ontario Power Authority to review its long-term energy strategy as it relates to renewable energy and conservation.

- This review will ensure Ontario is maximizing its potential to provide clean, green, renewable power to homes and businesses across the province, and a new generation of “green-collar” careers and industry.

If Asked About Investment in Ontario’s Green Industry:

- Ontario is actively pursuing investment in new manufacturing and service infrastructure for green energy. The Ministry of Energy and Infrastructure is working closely with the Ministry of Economic Development and the Ministry of International Trade and Investment to attract and assist local and global manufacturers through MITI's international trade activities, and through programs such as the Next Generation of Jobs Fund.
- Ontario is very focused on developing the skills and training for the jobs to support green power. The Ministry of Research and Innovation, through various programs, and through the Ontario Centres of Excellence, has put a strong focus on alternative energies at Ontario’s colleges and universities.
- And other government ministries are working with green energy companies to offer training. Sault College, with the help of Brookfield Power, Northern Development and Mines and others, is offering a Wind Energy Training Program which is turning out electricians with the skills to service wind power projects.
- New renewable energy supply that is online or under construction total 1,455 MW of large and small-scale projects across Ontario representing over \$4.6 billion of investment and over 4,900 direct and indirect jobs.

BACKGROUND

Renewable Energy in Ontario:

- Ontario currently has over 9,000 megawatts of *installed* renewable energy capacity:

Renewables Online

Procurement Initiatives	Total MW	projects	Wind MW	projects	Solar PV MW	projects	Water MW	projects	Bio-Energy MW	projects
Existing (pre-Oct 2003)	7,686.40	65	2.40	2	0.00	0	7,618.50	61	65.50	2
Grandfathered RESOP (pre-Oct 2003)	24.48	10	12.21	4	0.00	0	7.65	5	4.63	1
New RESOP	86.81	185	55.37	10	1.92	154	8.03	8	21.50	13
RES I, II + III	1,124.00	15	1,083.60	10	0.00	0	31.00	2	9.40	3
OPG Hydro	185.50	6	0.00	0	0.00	0	185.50	6	0.00	0
Other	8.20	3	8.20	3	0.00	0	0.00	0	0.00	0
Total	9,115.39	284	1,161.78	29	1.92	154	7,850.67	82	101.02	19
New Online	1,404.51	209	1,147.17	23	1.92	154	224.53	16	30.90	16
New Online (gov procurements)	1,223.31	201	1,138.97	20	1.92	154	51.53	11	30.90	16

- The Province's procurement programs have brought over 1,200 megawatts of *new* renewable energy on-line since October 2003, including 1,124 MW from completed RFPs and 87 MW from the Renewable Energy Standard Offer Program.
- Ontario has an additional 1,800 megawatts of renewable energy under contract:

Additional Renewables Contracted

Procurement Initiatives	Total MW	projects	Wind MW	projects	Solar PV MW	projects	Water MW	projects	Bio-Energy MW	projects
New RESOP	1,303.98	248	677.94	79	523.53	151	51.71	8	50.80	10
RES I, II + III	508.10	7	492.10	6	0.00	0	16.00	1	0.00	0
OPG Hydro	50.39	3	0.00	0	0.00	0	50.39	3	0.00	0
Total	1,862.47	258	1170.04	85	523.53	151	118.10	12	50.80	10

- In addition, OPG is bringing on additional generation at Niagara equivalent to 200 MW.

Status of RES I, II and III RFP Projects (Expected in-service dates confidential)

Project	Procurement Type	Source	Size (MW)	# of Turbines	Status	In-Service Date
Eastview Landfill Gas	RES I	Landfill gas	2.5	N/A	On-line	August 2005
Glen Miller Hydro	RES I	Hydro	8.0	N/A	On-line	December 2005
Melancthon I Wind	RES I	Wind	67.5	45	On-line	March 2006
Kingsbridge I Wind	RES I	Wind	39.6	22	On-line	March 2006
Erie Shores Wind	RES I	Wind	99.0	66	On-line	May 2006
Hamilton Digester Gas	RES I	Biogas	1.6	N/A	On-line	July 2006
Prince I Wind	RES I	Wind	99.0	66	On-line	September 2006
Trail Road Landfill Gas	RES I	Landfill gas	5.3	N/A	On-line	January 2007
Umbata Falls	RES I	Hydro	23.0	N/A	On-line	November 2008
Prince II Wind	RES II	Wind	90.0	60	On-line	November 2006
Ripley Wind	RES II	Wind	76.0	38	On-line	December 2007
KEPA Wind Farm	RES II	Wind	101.2	44	On-line	October 2008
Melancthon II Wind	RES II	Wind	132.0	88	On-line	November 2008
Enbridge Ontario Wind A & B	RES II	Wind	181.5	110	On-line	February 2009
Wolfe Island Wind	RES II	Wind	197.8	86	On-line	June 2009
Yellow Falls Hydro	RES II	Hydro	16.0	N/A	In approvals	TBD
Greenwich Windfarm	RES III	Wind	99.0	66	contract awarded	December 2011
Byran Wind	RES III	Wind	64.5	43	contract awarded	2011
Kruger Energy Chatham Wind	RES III	Wind	101.2	44	contract awarded	October 2011
Gosfield Wind	RES III	Wind	50.4	28	contract awarded	December 2012
Raleigh Wind Energy Centre	RES III	Wind	78.0	52	contract awarded	TBD 2010
Talbot Windfarm	RES III	Wind	99.0	66	contract awarded	December 2011
Blue Highlands Wind*	RES I	Wind	49.5	-	Cancelled	Cancelled
Kingsbridge II Wind*	RES II	Wind	158.7	69	Cancelled	Cancelled
TOTAL ONLINE			1124.0	625		
TOTAL			1632.1	924		

*Not included in Total MW or Total # of Turbines

RFP Projects Status Summary:

Status of RFPs	Renewable Capacity
Online	1124.0 MW
Under Construction	0 MW
Approvals Pending	16.0 MW
RES III Contracts Signed	492.1 MW
Terminated	208.2 MW

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Wind Energy Status

- Ontario is currently in first place for installed wind energy in Canada:

Total Online Wind Capacity from Renewables RFPs:	1083.6 MW
Total Online Wind Capacity Pre-October 2003:	14.61 MW
Total Online NEW Wind Capacity from RESOP	55.37 MW*
<u>Total Online Wind Capacity - Other:</u>	<u>8.20 MW</u>
Grand Total:	1161.78 MW

* Four online RESOP wind projects (totaling 12.21 MW) are pre-October 2003 wind facilities. This capacity is included in the pre-October 2003 total above.

- Wind projects under development:
 - As of June 30, 2009, there were executed contracts for 93 projects representing 746 MW of potential wind energy capacity under the Renewable Energy Standard Offer Program. Four of the 93 projects (totaling 12.21 MW) are pre-2003 wind facilities. This capacity is included in the pre-October 2003 total above. See House Note B17 – Standard Offer for further details.
 - In addition to the wind online, there are currently signed contracts for 1,170 MW of wind power in Ontario, either under construction or in various stages of development.
- Turbines:
 - In 2003, there were only 15 MW of wind power in operation in Ontario, from 10 wind turbines. Ontario now has over 1,100 MW of wind power capacity online from 675 wind turbines.
 - The RES III RFP projects announced on January 23, 2009 will add around another 300 turbines to the province - which would bring Ontario to at least 975 turbines when these projects come online by 2012.
- For more information, please see House Note B05A – Wind Power.

Solar Energy Status

- The OPA has signed 305 RESOP contracts totalling 525 MW with potential solar PV projects under the Renewable Energy Standard Offer Program as of June 30, 2009. These include micro-generation systems (10 kilowatts or less) up to large-scale solar farms 10 megawatts in size.
- As of June 30, 2009, the OPA has signed RESOP contracts for 55 large solar farms (500kW or more) representing 523.38 MW and for 250 smaller and micro-scale PV projects

(500 kW or less) representing 2.070 MW.

- 154 projects totalling 1.917 MW have reached commercial operation to date.
 - A 1 MW phase of a 10 MW project reached commercial operation in December 2008. (It is presently out-of-service while First Solar upgrades the panels.)
 - 153 smaller and micro-scale projects totalling 917 kilowatts have reached commercial operation under RESOP as of June 30, 2009.
- For more information, please see House Note B05B – Solar Power.

Bio-Energy Status

- Ontario currently has 101 MW of bio-based generation capacity on-line:

Total Online Bioenergy Capacity Pre-October 2003:	70 MW	(3 stations)
Total Online Bioenergy Capacity from Renewables RFPs:	9 MW	(3 stations)
Total Online NEW Bioenergy Capacity from RESOP*	21 MW	(12 stations)
Grand Total:	101 MW	(18 stations)

- As of June 30, 2009, 24 RESOP contracts* for bio-energy projects have been signed by the OPA representing 77 MW of generation capacity:
 - 14 of these projects* totalling 26 MW have reached commercial operation under RESOP.
 - Of this 26 MW, 21 MW is new bio-based capacity coming online after October 2003*.
- For more information, please see House Note B05C – Bio-Energy.

*** The expansion to the grandfathered RESOP project, Waterloo Landfill Gas Power Plant is counted as a separate and new project and contract throughout.**

Water Power Status

- Ontario currently has 7,851 MW of installed water power capacity.
- 7,835 MW of hydroelectric capacity is on-line from 69 larger generating stations. Another 13 water power projects totaling about 16 MW are generating electricity for the provincial grid under the Renewable Energy Standard Offer Program.
- The Renewables RFPs resulted in 3 successful water power projects totaling 47 MW. Of these two are on-line (Glen Miller 8 MW, and Umbata Falls 23 MW) and one is in approvals (Yellow Falls 16 MW).
- As of June 30, 2009, 22 RESOP contracts for water power projects have been signed by

the OPA, representing 70.9 MW of generation capacity:

- Thirteen of these projects totaling 15.67 MW have come into commercial operation under RESOP.
 - Eight of the thirteen (totaling 8.03 MW) are new water power projects coming on-line after October 2003.
- Since 2003, Ontario has brought about 225 MW of new water power on line. Of this, 52 MW are from government procurements.
 - The OPA and Ontario Power Generation have signed contracts for OPG's 12.5 MW Lac Seul, 6 MW Healey Falls, 9 MW Hound Chute and 34 MW Upper Mattagami hydroelectric stations. Lac Seul reached commercial operation in February 2009; the others are currently under construction. A similar power purchase agreement is currently being negotiated with the OPA for OPG's 450 MW Lower Mattagami water power project.
 - OPG is also bringing on additional generation at Niagara equivalent to 200 MW.
 - For more information, please see House Note B05D – Water Power.

GOVERNMENT INITIATIVES

Renewables RFP I and II

- There were 19 successful projects in the two renewables RFPs administered by the Ministry of Energy in 2004 and 2005. Of these projects, 16 are now up and running; 1 is in approvals; and 2 contracts have been terminated.
- These projects represent a total capital investment in our province of over \$2.5 billion – and will provide enough power to supply over 300,000 homes.
- The average price of the selected projects was just under \$80 per megawatt-hour for the first RFP and just over \$86 per megawatt-hour for the second RFP.

Renewable Energy Standard Offer Program (RESOP)

- RESOP was launched in November 2006 by the Ontario Power Authority (OPA). Under the plan, the OPA will enter into a 20-year Power Purchase Agreement, at a pre-established price, for electricity from small renewable energy generators.
- Electricity from wind, biomass, biogas, or small hydroelectric sources is currently purchased at a base price of 11.08 cents per kilowatt-hour. Solar power sold to the electricity grid under RESOP will receive a price of 42 cents per kilowatt-hour.

- To be eligible, projects must produce power from a renewable resource, have a capacity of up to 10 megawatts and connect directly to the distribution system. For more information, please see House Note B17 – Standard Offer.

Renewables III RFP

- The OPA issued the final Renewable Energy Supply III Request for Proposals for 500 MW of renewable energy supply on August 22, 2008.
- The RES III RFP document includes specific language to address instructions in the 2,000 MW Ministerial Directive that First Nations and Métis peoples be consulted early in the planning and development of new renewable energy projects, and that the OPA develop guidelines and purposes for this purpose.
- 23 proposals were received by the OPA on October 28, 2008.
- Winning projects were announced on January 23, 2009. There were six winning projects, all of them wind, totalling 492.1 MW of new renewable supply.
- The six projects are expected to be in service by 2012. The contracts are for a 20-year term.

Amendments to Supply Mix Directive Issued June 13, 2006

- On September 18, 2008, Minister Smitherman directed the OPA to revisit its proposed Integrated Power System Plan to enhance its current emphasis on renewable energy and conservation and establish new targets in these areas.
- Specifically, the review is to consider the following areas:
 - The amount and diversity of renewable energy sources in the supply mix;
 - The improvement of transmission capacity in the 'Orange Zone' in northern Ontario and other parts of the province that is limiting the development of new renewable energy supply;
 - The potential of existing coal-fired assets to be converted to biomass;
 - The availability of distributed generation;
 - The potential for pumped storage to contribute to the energy supply during peak times; and
 - The viability of accelerating the achievement of stated conservation targets, including a review of the deployment and utilization of Smart Meters.
- Additionally, the Ministerial Direction requests the OPA undertake an enhanced process of consultation with First Nation and Métis communities in light of potential duty to consult obligations. Furthermore, we would ask that the principle of Aboriginal partnership opportunities be considered in matters of both generation and transmission.

- The OPA is to provide an amended and revised IPSP to the Ontario Energy Board by March 18, 2009.
- The Directive notes that all other aspects of the Supply Mix Directive dated June 13, 2006, will remain in full effect and the related elements of the IPSP should continue to move forward during the six-month review period.

Supply Mix Directive and IPSP

- On June 13, 2006, the Government directed the OPA to create an Integrated Power System Plan (IPSP) that would double the current electricity capacity from renewable sources.
- The directive instructed the OPA to increase Ontario's use of renewable energy such as hydroelectric, wind, solar, and biomass for electricity generation. The IPSP should assist the government in meeting its target for 2010 of increasing the installed capacity of new renewable energy sources by 2,700 MW from the 2003 base, and increase the total electricity capacity of renewable energy sources used in Ontario to 15,700 MW by 2025.
- The direction also instructed the OPA to strengthen the transmission system in order to:
 - Enable the achievement of the supply mix goals set out in the directive;
 - Facilitate the development and use of renewable energy resources such as wind power, hydroelectric power and biomass in parts of the province where the most significant development opportunities exist;
 - Promote system efficiency and congestion reduction and facilitate the integration of new supply, all in a manner consistent with the need to cost effectively maintain system reliability.
- On August 29, 2007, the OPA filed its 20-year plan with the Ontario Energy Board for review and approval.
- In its IPSP, the OPA included specific planning targets by energy source for the 2010 renewable resources goal and the longer term 2025 target. The 2025 target for renewables capacity is 15,700 MW. Planned procurements to meet this goal include 2,921 MW of hydroelectric projects, 3,039 MW of wind and 450 MW of bio-energy.
- While solar potential in Ontario is large, the OPA assumed most new additions will come from small projects (less than 500 kW) and addresses these under conservation resources. 88 MW of large-scale solar is assumed under committed resources for meeting the 2010 renewables target. The IPSP notes that large solar facilities currently committed under RESOP may not all proceed to development.
- It was assumed that new large solar facilities will replace any projects that do not proceed, with no net incremental capacity beyond the 88 MW. Therefore planned large solar projects are presented as 0 MW under both the 2010 and 2025 planning targets. This

assumption will be reviewed in future plans as solar technologies and associated economics improve.

Prepared by: Amy Gibson, Senior Advisor
416-325-5765
September 4, 2008

Updated by: Clarence Cheng, Policy Analyst,
Renewable and Clean Energy
416- 325-5027
August 4, 2009

Approved by: Perry Cecchini, Manager
Renewable and Clean Energy
416-325-6593
August 4, 2009

Garry McKeever, Director
Energy Supply and Competition
416-325-8627
August 4, 2009

Rick Jennings, ADM
Office of Energy Supply, Transmission and Distribution
416-314-6190
August 4, 2009

GREEN POWER

ISSUE:

The Green Energy and Green Economy Act, which received Royal Assent on May 14, 2009, will make Ontario a leader in North America in building renewable energy, encouraging energy conservation and creating green jobs.

For information about the Renewable Energy Standard Offer Program Review, please see House Note B17 – Renewable Energy Standard Offer.

SUGGESTED RESPONSE

- Ontario is committed to reducing the environmental footprint of electricity generation across the province.
- Since October 2003, the McGuinty government has signed contracts representing about 3,000 MW of new renewable energy supply from large and small-scale projects across Ontario. Over 1,200 MW of these projects have reached commercial operation and are generating clean, green electricity from wind, water, sun and bio-based resources. This represents \$2.7 billion of investment and **over 2,900** direct and indirect jobs.
- On June 26, 2009, Canadian Hydro Developers announced commercial operation of its 197.8 MW wind farm on Wolfe Island.
- Ontario is home to the 199.5 MW Melancthon EcoPower Centre, which is the largest wind facility in service in Canada.
- Wind projects are an important part of Ontario's drive toward a cleaner, greener energy future. Ontario now has over 1,100 megawatts of wind power online generated by over 670 wind turbines. In 2003, there were only 15 megawatts of wind power generated by ten turbines.

If Asked About OPA's IPSP Review:

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Renewable Energy in Ontario:

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GOVERNMENT INITIATIVES

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Renewable Energy Standard Offer Program (RESOP)

- RESOP was launched in November 2006 by the Ontario Power Authority (OPA). Under the plan, the OPA will enter into a 20-year Power Purchase Agreement, at a pre-established price, for electricity from small renewable energy generators.
- Electricity from wind, biomass, biogas, or small hydroelectric sources is currently purchased at a base price of 11.08 cents per kilowatt-hour. Solar power sold to the electricity grid under RESOP will receive a price of 42 cents per kilowatt-hour.

- To be eligible, projects must produce power from a renewable resource, have a capacity of up to 10 megawatts and connect directly to the distribution system. For more information, please see House Note B17 – Standard Offer.

Renewables III RFP

- The OPA issued the final Renewable Energy Supply III Request for Proposals for 500 MW of renewable energy supply on August 22, 2008.
- The RES III RFP document includes specific language to address instructions in the 2,000 MW Ministerial Directive that First Nations and Métis peoples be consulted early in the planning and development of new renewable energy projects, and that the OPA develop guidelines and purposes for this purpose.
- 23 proposals were received by the OPA on October 28, 2008.
- Winning projects were announced on January 23, 2009. There were six winning projects, all of them wind, totalling 492.1 MW of new renewable supply.
- The six projects are expected to be in service by 2012. The contracts are for a 20-year term.

Amendments to Supply Mix Directive Issued June 13, 2006

- On September 18, 2008, Minister Smitherman directed the OPA to revisit its proposed Integrated Power System Plan to enhance its current emphasis on renewable energy and conservation and establish new targets in these areas.
- Specifically, the review is to consider the following areas:
 - The amount and diversity of renewable energy sources in the supply mix;
 - The improvement of transmission capacity in the 'Orange Zone' in northern Ontario and other parts of the province that is limiting the development of new renewable energy supply;
 - The potential of existing coal-fired assets to be converted to biomass;
 - The availability of distributed generation;
 - The potential for pumped storage to contribute to the energy supply during peak times; and
 - The viability of accelerating the achievement of stated conservation targets, including a review of the deployment and utilization of Smart Meters.
- Additionally, the Ministerial Direction requests the OPA undertake an enhanced process of consultation with First Nation and Métis communities in light of potential duty to consult obligations. Furthermore, we would ask that the principle of Aboriginal partnership opportunities be considered in matters of both generation and transmission.

- The OPA is to provide an amended and revised IPSP to the Ontario Energy Board by March 18, 2009.
- The Directive notes that all other aspects of the Supply Mix Directive dated June 13, 2006, will remain in full effect and the related elements of the IPSP should continue to move forward during the six-month review period.

Supply Mix Directive and IPSP

- On June 13, 2006, the Government directed the OPA to create an Integrated Power System Plan (IPSP) that would double the current electricity capacity from renewable sources.
- The directive instructed the OPA to increase Ontario's use of renewable energy such as hydroelectric, wind, solar, and biomass for electricity generation. The IPSP should assist the government in meeting its target for 2010 of increasing the installed capacity of new renewable energy sources by 2,700 MW from the 2003 base, and increase the total electricity capacity of renewable energy sources used in Ontario to 15,700 MW by 2025.
- The direction also instructed the OPA to strengthen the transmission system in order to:
 - Enable the achievement of the supply mix goals set out in the directive;
 - Facilitate the development and use of renewable energy resources such as wind power, hydroelectric power and biomass in parts of the province where the most significant development opportunities exist;
 - Promote system efficiency and congestion reduction and facilitate the integration of new supply, all in a manner consistent with the need to cost effectively maintain system reliability.
- On August 29, 2007, the OPA filed its 20-year plan with the Ontario Energy Board for review and approval.
- In its IPSP, the OPA included specific planning targets by energy source for the 2010 renewable resources goal and the longer term 2025 target. The 2025 target for renewables capacity is 15,700 MW. Planned procurements to meet this goal include 2,921 MW of hydroelectric projects, 3,039 MW of wind and 450 MW of bio-energy.
- While solar potential in Ontario is large, the OPA assumed most new additions will come from small projects (less than 500 kW) and addresses these under conservation resources. 88 MW of large-scale solar is assumed under committed resources for meeting the 2010 renewables target. The IPSP notes that large solar facilities currently committed under RESOP may not all proceed to development.
- It was assumed that new large solar facilities will replace any projects that do not proceed, with no net incremental capacity beyond the 88 MW. Therefore planned large solar projects are presented as 0 MW under both the 2010 and 2025 planning targets. This

assumption will be reviewed in future plans as solar technologies and associated economics improve.

Prepared by: Amy Gibson, Senior Advisor
416-325-5765
September 4, 2008

Updated by: Clarence Cheng, Policy Analyst,
Renewable and Clean Energy
416- 325-5027
August 24, 2009

Approved by: Perry Cecchini, Manager
Renewable and Clean Energy
416-325-6593
August 24, 2009

Garry McKeever, Director
Energy Supply and Competition
416-325-8627
August 24, 2009

Rick Jennings, ADM
Office of Energy Supply, Transmission and Distribution
416-314-6190
August 24, 2009

WIND POWER

ISSUE:

On December 8, 2009, Gengrowth and Boralex's 10 MW Swanton Line wind farm, located near Merlin, in Chatham-Kent, reached commercial operation.

On December 17, 2009, Gengrowth and Boralex's 10 MW Bisnett Line wind farm, located near Erie Beach, in Chatham-Kent, reached commercial operation.

KEY MESSAGES

- Finding clean, affordable and sustainable sources of electricity is a top priority of our government. Wind projects are an important part of Ontario's drive toward a cleaner, greener energy future.
- Wind power has a small environmental footprint: it is a sustainable, clean form of energy that does not rely on finite fuel sources or emit any by-products such as greenhouse gas emissions during electricity production.
- Wind projects also bring many other benefits to Ontario, including the creation of jobs and injection of money into local host communities.
- Ontario is home to the 199.5 MW Melancthon EcoPower Centre, the largest operational wind facility in Canada.
- In January 2009, the Ontario Power Authority awarded contracts for close to 500 MW of new wind energy projects under the RES III RFP process. When complete, these wind farms will provide enough electricity for more than 120,000 homes.
- Ontario now has almost 1,200 megawatts of wind power online generated by over 680 wind turbines. In 2003, there was only 15 megawatts of wind power generated by ten turbines. This is nearly an 80-fold increase in wind power capacity.
- In addition, there are signed contracts for another 1,160 MW of wind power projects that are either under construction or development.
- These wind projects will help clean up our air and reduce our reliance on fossil fuels – helping us to attain the goal of closing all coal-fired generating stations in Ontario by 2014.
- In 2008, wind-powered generation in Ontario increased by 37%, contributing 1.4 terawatt-hours – equivalent to the annual usage of about 140,000 homes.

If asked about Toronto Hydro's proposed anemometer near the Scarborough Bluffs:

- I am aware that there is a high level of public interest in the proposal for a wind research anemometer in Lake Ontario near the Scarborough Bluffs.
- No decision to proceed with a potential offshore wind farm has been made.
- Currently, Toronto Hydro Energy Services is seeking approval from the Ministry of Natural Resources to lease Crown land for a research platform to measure the offshore wind resources.
- Any further projects (i.e. an offshore wind farm) are subject to a separate environmental assessment process with full agency and public participation.
- Under the new *Green Energy and Green Economy Act*, projects will require a new "renewable energy approval" under the Environmental Protection Act from the Ministry of the Environment. This approval will include provincial requirements and setbacks to address environmental and human health issues, replacing the existing environmental approvals and environmental assessment requirements that exist today. This new approval will be coordinated with any existing MNR approvals that might apply.

Any further questions about the anemometer project should be directed to Toronto Hydro or to the Ministry of Natural Resources.

If Asked About Public Opposition To Wind Farms:

- We need to assume full responsibility in the face of climate change and bring on new renewable energy generation. The new Green Energy Act ensures that all environmental and safety concerns will be addressed and the Ministry of the Environment will establish and fund academic research to examine potential public health effects of renewable energy projects. However, if we are to take advantage of the employment opportunities related to green generation, our approvals processes must be timely and must not be impeded by aesthetic concerns.

If Asked About Wind Turbines and Birds:

- Bird mortality from wind turbines is small compared to other human-related sources, such as high-rise buildings and houses. Climate change poses a far more serious threat to birds than turbines. Renewable energy sources such as wind have little or no net carbon dioxide or other greenhouse gas emissions.

- On average, 2 birds are killed per wind turbine per year. In comparison, an estimated 1 to 10 birds are killed per structure per year across the United States, including houses. A tall, glass high-rise building can kill more than 500 birds per year.
- This concern can be addressed by understanding avian behaviour and migratory patterns, and siting wind farms accordingly.

If Asked About Wind and Land Use Issues:

- Turbines co-exist nicely with farms, supplying additional income with minimal impact on the usable land.
- Only about 5% of the land area required for utility-scale wind farms is occupied by turbines, access roads and other equipment, leaving 95% of the land free for other compatible uses such as farming.

If Asked About Noise:

- Wind turbines do make an audible “swoosh” sound caused by the rotation of the blades. The actual sound level is influenced by many factors, including turbine type, wind speed and topography. The sound is often masked by the surrounding outdoor environment.
- Modern wind turbines do not create a significant amount of low-frequency noise – the infrasound (sound lower than 20 Hz) is inaudible and is not harmful to humans.
- Ontario has stringent noise regulations that wind facilities must meet in order to proceed to construction. These regulations are in line with those of other jurisdictions. Commercial wind turbine generators in Ontario are required to obtain a Certificate of Approval for Noise under the Environmental Protection Act (EPA), ensuring wind farms meet the Province’s noise limits.
- The Ministry of Environment monitors and responds to new scientific, technical and other developments related to noise abatement in the wind sector.

If Asked About Shadow Flicker:

- Shadow flicker is used to describe the changes in light intensity caused by moving turbine blades and the shadows they cast. Flicker effects from modern turbines are below the threshold of concern to be harmful to humans.
- The range of shadow flicker can be accurately predicted through modeling software before wind turbine installation, and incorporated into the site design.

If Asked About Visual Impacts of Wind:

- Public opinions on the visual impacts of wind farms are subjective. However, through community consultation and careful design processes, the visual impacts of wind farms can be minimized.

BACKGROUND

Wind Energy Status

- Ontario is currently in first place for installed wind energy in Canada:

Total Online Wind Capacity from Renewables RFPs:	1083.6 MW
Total Online Wind Capacity Pre-October 2003:	14.61 MW
Total Online NEW Wind Capacity from RESOP	75.38 MW*
<u>Total Online Wind Capacity - Other:</u>	<u>8.20 MW</u>
Grand Total:	1181.79 MW

* Four online RESOP wind projects (totaling 12.21 MW) are pre-October 2003 wind facilities. This capacity is included in the pre-October 2003 total above.

- Wind projects under development:
 - The OPA has signed contracts for 53 projects representing 370 MW of potential wind energy capacity under the Renewable Energy Standard Offer Program (RESOP). Four of the 53 projects (totaling 12.21 MW) are pre-2003 wind facilities. This capacity is included in the pre-October 2003 total above. See House Note B17 – Standard Offer for further details.
 - 40 wind RESOP projects totaling 379.2 MW terminated their contracts to bid into the Feed-in Tariff.
 - In addition to the wind online, there are currently signed contracts for 794 MW of wind power in Ontario, either under construction or in various stages of development.
- Turbines:
 - In 2003, there were only 15 MW of wind power in operation in Ontario, from 10 wind turbines. Ontario now has almost 1,200 MW of wind power capacity online from more than 680 wind turbines.
 - The RES III RFP projects announced on January 23, 2009 will add about 240 turbines to the provincial total - which would bring Ontario to more than 900 turbines when these projects come online by 2012.
 - Developers have been moving to larger capacity turbines, in part, to meet setback requirements, therefore, the projected number of turbines has decreased.
- Ontario's wind farms produced 1.4 terawatt-hours in 2008. In 2007, wind power generation in Ontario measured 1.04 terawatt-hours. In 2006, wind contributed 0.44 terawatt-hours. The increased output in 2007 and 2008 is a result of increased wind capacity coming into service.

Wind Energy Across Canada

- Canada currently has an installed capacity of 3,170 MW.

PROVINCE	INSTALLED WIND ENERGY CAPACITY
Ontario*	1,181.8 MW*
Quebec	659.3 MW
Alberta	589.9 MW
Saskatchewan	171.2 MW
PEI	151.6 MW
Manitoba	104.0 MW
British Columbia	102.0 MW
New Brunswick	96.0 MW
Nova Scotia	59.3 MW
Newfoundland	54.4 MW
Yukon	0.8 MW

Source: CanWEA (www.canwea.ca)

*Ontario total may include micro wind generators not tracked by CanWEA.

Feed-in Tariff (FIT)

- For more information on the FIT, please see House Note H12a – Feed-in Tariff.

Results of RES III RFP

- On January 23, 2009, Minister Smitherman together with the Ontario Power Authority announced the results of the Renewable Energy Supply III (RES III) RFP. The RES III initiative resulted in six winning wind projects representing 492.1 megawatts of new renewable energy supply for the province.
- When complete, these six wind farms will provide enough electricity for more than 120,000 homes.
- It is estimated that more than 1,100 direct construction and permanent jobs will be created by the projects, as well as another 1,100 indirect jobs (manufacturing of building materials, provision of services such as engineering design, legal, accounting and real estate).
- An estimated \$3 million will be paid out in annual lease payments to hundreds of landowners who host wind turbines for these projects. The projects will also generate about \$1 million in municipal tax revenues each year.

- The projects represent a combined \$1.35 billion in capital costs, which will be privately financed.

RES III Project status

(Future in-service dates and highlighted number of turbines CONFIDENTIAL)

Project	Source	Size (MW)	# of Turbines	Status	In-Service Date
Greenwich Windfarm	Wind	98.9	43	In approvals	December 2011
Byran Wind	Wind	64.5	34	In approvals	2011
Kruger Energy Chatham Wind	Wind	101.2	44	In approvals	October 2011
Gosfield Wind	Wind	50.6	22	Under construction	December 2010
Raleigh Wind Energy Centre	Wind	78.0	52	Approvals complete. Construction not yet started.	TBD 2010
Talbot Windfarm	Wind	98.9	43	In approvals	December 2011
TOTAL ONLINE		0.0	0		
TOTAL		492.1	238		

- None of the RES III projects will go through the Renewable Energy Approval (REA) process. Proponents of wind facilities that have issued a Notice of Completion and have entered into a power purchase agreement with the OPA (including projects that are currently in the elevation review process) do not have an REA requirement. These projects must continue following the Environmental Screening Process in accordance with O. Reg. 116 and obtain all required MoE Certificates of Approval and permits. These projects, however, must comply with the provisions related to noise, road, and property setbacks in the new REA regulation.
- The projects which did not receive a Certificate of Approval for noise by September 24th, 2009, must comply with the noise, road, and property setbacks under the new REA regulation. Only Gosfield acquired its Certificate of Approval in time to avoid the new setbacks.
 - SkyPower's Byran project reduced the number of turbines from 43 to 34 to meet the new setbacks. They are seeking compensation in the form of an increase of 1 cent/kWhr from 13.5 to 14.5 cents/kWh for 20 years (about \$15 million).
 - RES' Talbot and Greenwich projects are each changing from 66 1.5 MW turbines (CONFIDENTIAL) to 43 2.3 MW turbines (CONFIDENTIAL for Greenwich).
 - Independent of the setback requirements, Brookfield's Gosfield project is changing from 28 1.8 MW to 22 2.3 MW turbines.

RES I and II RFP Wind Projects

- There were 19 successful contracts in the two renewables RFPs administered by the Ministry of Energy in 2004 and 2005. Of these, there were 13 wind power contracts for 9 projects; 2 contracts were terminated and the remaining 11 contracts for 8 projects are all online.

- These projects represent a total capital investment in our province of more than \$2.4 billion – and will provide enough power to supply close to 300,000 homes.

RES I and II RFPs – Summary of Wind Projects

Project	Procurement Type	Size (MW)	# of Turbines	Location	In-Service Date
Melancthon I Wind	RES I	67.5	45	Shelburne	March 2006
Kingsbridge I Wind	RES I	39.6	22	Goderich	March 2006
Erie Shores Wind	RES I	99.0	66	Port Burwell	May 2006
Prince I Wind	RES I	99.0	66	Sault Ste. Marie	September 2006
Prince II Wind	RES II	90.0	60	Sault Ste. Marie	November 2006
Ripley Wind	RES II	76.0	38	Ripley	December 2007
KEPA Wind Farm	RES II	101.2	44	Port Alma	October 2008
Melancthon II Wind	RES II	132.0	88	Shelburne	November 2008
Enbridge Ontario Wind A & B	RES II	181.5	110	Kincardine	February 2009
Wolfe Island Wind	RES II	197.8	86	Kingston	June 2009
TOTAL		1083.6	625		

Utility-size Standard Offer Wind Projects Online

- There are 75.37 MW of new wind power online from the Renewable Energy Standard Offer Program and 12.21 MW online from before October 2003. Almost all of this comes from utility-scale wind turbines:

Project	Developer	Size (MW)	# of Turbines	Location	In-Service Date
Port Albert Wind Turbine	Private	0.66	1	Port Albert	Dec 2001
Huron Wind	OPG/Bruce Power	9.00	5	Kincardine	Nov 2002
Ferndale Wind Farm (RESOP)	Sky Generation Inc	1.80	1	Ferndale	Nov 2002
Exhibition Place Wind Turbine	Toronto Hydro/Windshare	0.75	1	Toronto	Jan 2003
Dunnville Wind Turbine	Rosa Flora Limited	0.60	1	Dunnville	Oct 2006
Ravenswood Wind Farm (RESOP)	Sky Generation Inc	6.60	4	Grand Bend	Jan 2008
Frogmore Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Jun 2008
Cultus Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Jun 2008
Cruickshank Wind Farm	Enbridge	8.25	5	Tiverton	Sep 2008
Mohawk Point Wind Farm	AIM PowerGen	9.90	6	Dunnville	Oct 2008
Clear Creek Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Nov 2008
Swanton Line Wind Farm	Gengrowth / Boralex	10.00	5	Merlin	Dec 2009
Bisnett Line Wind Farm	Gengrowth / Boralex	10.00	5	Erie Beach	Dec 2009
Total (after Oct 2003)		75.05	44		
Total		87.26	52		

Wind Development in Quebec and Local Content Issues

- In May 2008, Hydro-Québec signed contracts for 15 wind projects totaling 2,004 MW. The average price of the winning bids was 10.5¢/kWh (8.7¢/kWh for the energy, 1.3¢/kWh for transmission, and 0.5¢/kWh for other services).

- In accordance with a Québec government regulation, all the winning bids met the following criteria:
 - At least 60% of the total cost of each wind farm must be incurred in Québec, and
 - At least 30% of the cost of the wind turbines must be incurred in the regional county municipality of Matane and the administrative region of Gaspésie–Îles-de-la-Madeleine
- Quebec has several advantages over Ontario with respect to bringing on new wind power. The wind regime in the Gaspé region is significantly better than what is available in Ontario. As a result, prices for wind power are 20 to 30 percent lower. Also Quebec has extensive amounts of storage hydro that can be ramped up and down to match the variability of wind generation.
- The 1994 Agreement on Internal Trade signed by the 10 provinces, two territories and federal government prevents Ontario and its agencies from requiring Ontario content in procurements. Quebec excluded Hydro-Québec from the provisions of the procurement chapter of the agreement when it was negotiated.

Wind Turbine Noise Issues

- Commercial wind turbine generators are required to obtain a Certificate of Approval (Noise) under section 9 of the Environmental Protection Act (EPA).
- The Ministry of the Environment's (MOE) Sound Level Limits for Stationary Sources (1995) describes the noise levels that must be met by all industrial projects, including wind turbine projects.
- In 2004, the MOE published a guidance document to assist in interpreting the MOE Sound Level Limits specifically for wind turbines. This guidance document was based on the best available science at the time. Noise limits for wind turbines were based on existing MOE Noise Guidelines, with allowances for wind-generated background noise. Development of the guidance document included a review of noise requirements used for wind turbines in other jurisdictions, and consultation with industry experts.
- A 2006 dissertation by G.P. van den Berg asserts that during stable atmospheric conditions (which usually occur at night), wind speeds are higher at wind-turbine height than they are at lower levels. Because of this, van den Berg asserts that noise from wind turbines is not masked by wind-generated background noise at lower levels.
- Citizens concerned with wind projects often quote the van den Berg paper, and argue that the MOE should revise its noise guidelines for wind turbines as a result of the findings of these studies.
- In March 2007, the MOE initiated a review of its noise policy for wind turbines. The purpose of the MOE's review was to assess whether the MOE's current approach for regulating noise impacts from wind turbines continues to be appropriate in light of more recent studies and information as well as guidelines and policies of other jurisdictions.

- To support the review, the MOE retained a noise expert (Ryerson professor Dr. Ramani Ramakrishnan) to review the findings of the van den Berg dissertation and other relevant scientific literature, and to review wind turbine noise guidelines and policies of other jurisdictions. The noise expert's final report was made available on the Environmental Registry on April 28, 2008.
- Ramakrishnan's report claims van den Berg's work did not provide scientific evidence for increased noise annoyance from wind farms. However, the work of other researchers showed that local terrain conditions can impact the local meteorology and thereby the resulting noise levels.
- The final report suggested that Ontario's standards on wind turbine set backs are sound for most situations, but that additional concerns would still need to be addressed in the next round of revisions to their noise assessment process. This includes responding to the results of future research providing scientifically consistent data for effects such as meteorology, human response and turbine noise source character.
- On June 3, 2008, the Ministry of Environment posted draft clarifications to its Noise Guidelines for Wind Farms for public consultation on the Environmental Registry. After review comments from stakeholders, the ministry posted its final clarifications on the Environmental Registry as a Decision Notice on October 17, 2008.
- On September 24, 2009, the Ministry of Environment's Renewable Energy Approval process became law. Wind facilities over 50 kW generating a noise level of 102 dBA or louder must meet a minimum 550m setback from non-participant dwellings. Where ambient noise from road traffic is louder than 40 dBA, turbines may be closer.

Offshore Wind Development in Ontario

Ministry of Natural Resources' Offshore Wind Moratorium

- The Ministry of Natural Resources lifted its deferral on offshore wind power projects on February 20, 2008 and accepted new onshore and offshore site release applications until December 10, 2008.
- All applicants must undergo a review by MNR to ensure preliminary requirements are met before they can be awarded Applicant of Record status, which allows them to pursue the approvals required to construct and operate a wind power facility. All proposed facilities must go through applicable environmental approvals at MOE as well.
- Off-shore wind projects are much more expensive than on-shore projects (30 to 50 percent). The proposed tariffs under the Feed-in Tariff Program provide a higher price for off-shore wind projects in recognition of the higher costs.
- Currently there are no offshore projects that have contracts with the Ontario Power Authority.

Updated by: Clarence Cheng, Policy Analyst,
Renewable Energy
416-325-5027
December 17, 2009

Approved by: Karen Slawner, Coordinator
Renewable Energy
416-314-9472
December 17, 2009

Leo Tasca, Manager
Renewable Energy
416-326-3775
December 21, 2009

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868
December 21, 2009

Sue Lo, ADM
Renewables and Energy Efficiency Division
(416) 327-8552
December , 2009

WIND POWER

ISSUE:

On June 26, 2009, Canadian Hydro Developers' 197.8 MW Wolfe Island EcoPower Centre reached commercial operation near Kingston, Ontario.

KEY MESSAGES

- Finding clean, affordable and sustainable sources of electricity is a top priority of our government. Wind projects are an important part of Ontario's drive toward a cleaner, greener energy future.
- Wind power has a small environmental footprint: it is a sustainable, clean form of energy that does not rely on finite fuel sources or emit any by-products such as greenhouse gas emissions during electricity production.
- Wind projects also bring many other benefits to Ontario, including the creation of jobs and injection of money into local host communities.
- Ontario is home to the 199.5 MW Melancthon EcoPower Centre, the largest operational wind facility in Canada.
- In January 2009, the Ontario Power Authority awarded contracts for close to 500 MW of new wind energy projects under the RES III RFP process. When complete, these wind farms will provide enough electricity for more than 120,000 homes.
- Ontario now has over 1,100 megawatts of wind power online generated by over 670 wind turbines. In 2003, there was only 15 megawatts of wind power generated by ten turbines. This is nearly an 80-fold increase in wind power capacity.
- In addition, there are signed contracts for another 1,170 MW of wind power projects that are either under construction or development.
- These wind projects will help clean up our air and reduce our reliance on fossil fuels – helping us to attain the goal of closing all coal-fired generating stations in Ontario by 2014.
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- I am aware that there is a high level of public interest in the proposal for a wind research anemometer in Lake Ontario near the Scarborough Bluffs.

- No decision to proceed with a potential offshore wind farm has been made.
- Currently, Toronto Hydro Energy Services is seeking approval from the Ministry of Natural Resources to lease Crown land for a research platform to measure the offshore wind resources.
- Any further projects (i.e. an offshore wind farm) are subject to a separate environmental assessment process with full agency and public participation.
- Under the new *Green Energy and Green Economy Act*, projects will require a new “renewable energy approval” under the Environmental Protection Act from the Ministry of the Environment. This approval will include provincial requirements and setbacks to address environmental and human health issues, replacing the existing environmental approvals and environmental assessment requirements that exist today. This new approval will be coordinated with any existing MNR approvals that might apply.

Any further questions about the anemometer project should be directed to Toronto Hydro or to the Ministry of Natural Resources.

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- On average, 2 birds get killed per wind turbine per year. In comparison, an estimated 1 to 10 birds get killed per structure per year across the United States, including houses. A tall, glass high-rise building can kill in excess of 500 birds per year.
- This concern can be addressed by understanding avian behaviour and migratory patterns, and siting wind farms accordingly.

If Asked About Wind and Land Use Issues:

- Turbines co-exist nicely with farms, supplying additional income with minimal impact on the usable land.
- Only about 5% of the land area required for utility-scale wind farms is occupied by turbines, access roads and other equipment, leaving 95% of the land free for other compatible uses such as farming.

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- The Ministry of Environment monitors and responds to new scientific, technical and other developments in the wind sector.

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- Shadow flicker is used to describe the changes in light intensity caused by moving turbine blades and the shadows they cast. Flicker effects from modern turbines are below the threshold of concern to be harmful to humans.
- The range of shadow flicker can be accurately predicted through modeling software before wind turbine installation, and incorporated into the site design.

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BACKGROUND

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<u>Total Online Wind Capacity - Other:</u>	<u>8.20 MW</u>
Grand Total:	1161.78 MW

* Four online RESOP wind projects (totaling 12.21 MW) are pre-October 2003 wind facilities. This capacity is included in the pre-October 2003 total above.

- Wind projects under development:
 - As of June 30, 2009, there were executed contracts for 93 projects representing 746 MW of potential wind energy capacity under the Renewable Energy Standard Offer Program. Four of the 93 projects (totaling 12.21 MW) are pre-2003 wind facilities. This capacity is included in the pre-October 2003 total above. See House Note B17 – Standard Offer for further details.
 - In addition to the wind online, there are currently signed contracts for 1,170 MW of wind power in Ontario, either under construction or in various stages of development.
- Turbines:
 - In 2003, there were only 15 MW of wind power in operation in Ontario, from 10 wind turbines. Ontario now has over 1,100 MW of wind power capacity online from over 670 wind turbines.
 - The RES III RFP projects announced on January 23, 2009 will add around another 300 turbines to the province - which would bring Ontario to at least 975 turbines when these projects come online by 2012.
- Ontario's wind farms produced 1.4 terawatt-hours in 2008. In 2007, wind power generation in Ontario measured 1.04 terawatt-hours. In 2006, wind contributed 0.44 TWh. The increased output in 2007 and 2008 is a result of increased wind capacity coming into service through the 2006-8 period.

Wind Energy Across Canada

- Canada currently has an installed capacity of 2,778 MW.

PROVINCE	INSTALLED WIND ENERGY CAPACITY
Ontario*	1161.78 MW*
Quebec	531.75 MW
Alberta	523.86 MW
Saskatchewan	171.18 MW
Manitoba	103.95 MW
New Brunswick	96.00 MW
PEI	72.36 MW
Nova Scotia	59.26 MW
Newfoundland	54.39 MW
British Columbia	3.00 MW
Yukon	0.81 MW

Source: CanWEA (www.canwea.ca)

*Ontario total may include micro wind generators not tracked by CanWEA.

Results of RES III RFP

- On January 23, 2009, Minister Smitherman together with the Ontario Power Authority announced the results of the Renewable Energy Supply III (RES III) RFP. The RES III initiative resulted in six winning wind projects representing 492.1 megawatts of new renewable energy supply for the province.
- When complete, these six wind farms will provide enough electricity for more than 120,000 homes.
- It is estimated that over 1,100 direct construction and permanent jobs will be created by the projects, as well as another 1,100 indirect jobs (manufacturing of building materials, provision of services such as engineering design, legal, accounting and real estate).
- An estimated \$3 million will be paid out in annual lease payments to hundreds of landowners who host wind turbines for these projects. The projects will also generate about \$1 million in municipal tax revenues each year.
- The projects represent a combined \$1.32 billion in capital costs, which will be privately financed.

RES I and II RFP Wind Projects

- There were 19 successful contracts in the two renewables RFPs administered by the Ministry of Energy in 2004 and 2005. Of these, there were 13 wind power contracts for 9 projects; 2 contracts were terminated and the remaining 11 contracts for 8 projects are all online.
- These projects represent a total capital investment in our province of over \$2.4 billion – and will provide enough power to supply close to 300,000 homes.

RES I and II RFPs – Summary of Wind Projects

Project	Procurement Type	Size (MW)	# of Turbines	Location	In-Service Date
Melancthon I Wind	RES I	67.5	45	Shelburne	March 2006
Kingsbridge I Wind	RES I	39.6	22	Goderich	March 2006
Erie Shores Wind	RES I	99.0	66	Port Burwell	May 2006
Prince I Wind	RES I	99.0	66	Sault Ste. Marie	September 2006
Prince II Wind	RES II	90.0	60	Sault Ste. Marie	November 2006
Ripley Wind	RES II	76.0	38	Ripley	December 2007
KEPA Wind Farm	RES II	101.2	44	Port Alma	October 2008
Melancthon II Wind	RES II	132.0	88	Shelburne	November 2008
Enbridge Ontario Wind A & B	RES II	181.5	110	Kincardine	February 2009
Wolfe Island Wind	RES II	197.8	86	Kingston	June 2009
Blue Highlands Wind*	RES I	49.5	-		Cancelled
Kingsbridge II Wind*	RES II	158.7	69		Cancelled
TOTAL		1083.6	625		

*Not included in Total MW or Total # of Turbines

Utility-size Standard Offer Wind Projects Online

- There are 55.37 MW of new wind power online from the Renewable Energy Standard Offer Program and 12.21 MW online from before October 2003.

Project	Developer	Size (MW)	# of Turbines	Location	In-Service Date
Port Albert Wind Turbine	Private	0.66	1	Port Albert	Dec 2001
Huron Wind	OPG/Bruce Power	9.00	5	Kincardine	Nov 2002
Ferndale Wind Farm (RESOP)	Sky Generation Inc	1.80	1	Ferndale	Nov 2002
Exhibition Place Wind Turbine	Toronto Hydro/Windshare	0.75	1	Toronto	Jan 2003
Dunnville Wind Turbine	Rosa Flora Limited	0.60	1	Dunnville	Oct 2006
Ravenswood Wind Farm (RESOP)	Sky Generation Inc	6.60	4	Grand Bend	Jan 2008
Frogmore Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Jun 2008
Cultus Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Jun 2008
Cruikshank Wind Farm	Enbridge	8.25	5	Tiverton	Sep 2008
Mohawk Point Wind Farm	AIM PowerGen	9.90	6	Dunnville	Oct 2008
Clear Creek Wind Farm	AIM PowerGen	9.90	6	Port Burwell	Nov 2008
Total (after Oct 2003)		55.05	33		
Total		67.26	38		

Wind Development in Quebec and Local Content Issues

- In May 2008, Hydro-Québec signed contracts for 15 wind projects totaling 2,004 MW. The average price of the winning bids was 10.5¢/kWh (8.7¢/kWh for the energy, 1.3¢/kWh for transmission, and 0.5¢/kWh for other services).
- In accordance with a Québec government regulation, all the winning bids met the following criteria:
 - At least 60% of the total cost of each wind farm must be incurred in Québec, and
 - At least 30% of the cost of the wind turbines must be incurred in the regional county municipality of Matane and the administrative region of Gaspésie–Îles-de-la-Madeleine
- Quebec has several advantages over Ontario with respect to bringing on new wind power. The wind regime in the Gaspé region is significantly better than what is available in Ontario. As a result, prices for wind power are in 20 to 30 percent lower. Also Quebec has extensive amounts of storage hydro that can be ramped up and down to match the variability of wind generation.
- The 1994 Agreement on Internal Trade signed by the 10 provinces, two territories and federal government prevents Ontario and its agencies from requiring Ontario content in procurements. Quebec excluded Hydro-Québec from the provisions of the procurement chapter of the agreement when it was negotiated.

Wind Turbine Noise Issues

- Commercial wind turbine generators are required to obtain a Certificate of Approval (Noise) under section 9 of the Environmental Protection Act (EPA).
- The Ministry of the Environment's (MOE) Sound Level Limits for Stationary Sources (1995) describe the noise levels that must be met by all industrial projects, including wind turbine projects.
- In 2004, the MOE published a guidance document to assist in interpreting the MOE Sound Level Limits specifically for wind turbines. This guidance document was based on best available science at the time. Noise limits for wind turbines were based on existing MOE Noise Guidelines, with allowances for wind-generated background noise. Development of the guidance document included a review of noise requirements used for wind turbines in other jurisdictions, and consultation with industry experts.
- A 2006 dissertation by G.P. van den Berg asserts that during stable atmospheric conditions (which usually occur at night), wind speeds are higher at wind-turbine height than they are at lower levels. Because of this, van den Berg asserts that noise from wind turbines is not masked by wind-generated background noise at lower levels.

- Citizens concerned with wind projects often quote the van den Berg paper, and argue that the MOE should revise its noise guidelines for wind turbines as a result of the findings of these studies.
- In March 2007, the MOE initiated a review of its noise policy for wind turbines. The purpose of the MOE's review was to assess whether the MOE's current approach for regulating noise impacts from wind turbines continues to be appropriate in light of more recent studies and information as well as guidelines and policies of other jurisdictions.
- To support the review, the MOE retained a noise expert (Ryerson professor Dr. Ramani Ramakrishnan) to review the findings of the van den Berg dissertation and other relevant scientific literature, and to review wind turbine noise guidelines and policies of other jurisdictions. The noise expert's final report was made available on the Environmental Registry on April 28, 2008.
- Ramakrishnan's report claims van den Berg's work did not provide scientific evidence for increased noise annoyance from wind farms. However, the work of other researchers showed that local terrain conditions can impact the local meteorology and thereby the resulting noise levels.
- The final report suggested that Ontario's standards on wind turbine set backs are sound for most situations, but that additional concerns would still need to be addressed in the next round of revisions to their noise assessment process. This includes responding to the results of future research providing scientifically consistent data for effects such as meteorology, human response and turbine noise source character.
- On June 3, 2008, the Ministry of Environment posted draft clarifications to its Noise Guidelines for Wind Farms for public consultation on the Environmental Registry. After review comments from stakeholders, the ministry posted its final clarifications on the Environmental Registry as a Decision Notice on October 17, 2008.

Offshore Wind Development in Ontario

Ministry of Natural Resources' Offshore Wind Moratorium

- The Ministry of Natural Resources lifted its deferral on offshore wind power projects on February 20, 2008 and accepted new onshore and offshore site release applications until December 10, 2008.
- All applicants must undergo a review by MNR to ensure preliminary requirements are met before they can be awarded Applicant of Record status, which allows them to pursue the approvals required to construct and operate a wind power facility. All proposed facilities must go through applicable environmental approvals at MOE as well.
- Off-shore wind projects are much more expensive than on-shore projects (30 to 50 percent). The proposed tariffs under the Feed-in Tariff Program provide a higher price for off-shore wind projects in recognition of the higher costs.

- Currently there are no offshore projects that have contracts with the Ontario Power Authority.

Created by: Amy Gibson
Renewable Energy Supply
416-325-5765
July 31, 2009

Updated by: Clarence Cheng, Policy Analyst,
Renewable and Clean Energy
416- 325-5027
August 4, 2009

Approved by: Perry Cecchini, Manager
Renewable and Clean Energy
416-325-6593
August 4, 2009

Garry McKeever, Director
Energy Supply and Competition
(416) 325-8627
August 4, 2009

Rick Jennings, ADM
Office of Energy Supply, Transmission and Distribution
(416) 314-6190
August 4, 2009

SOLAR POWER

ISSUE:

The Ontario Power Authority has signed contracts for over 500 megawatts of solar PV projects under the Renewable Energy Standard Offer Program.

For information about Solar Thermal Initiatives please see house note C02.

SUGGESTED RESPONSE:

General

- **Since the launch of the Renewable Energy Standard Offer Program in November 2006, the OPA has signed over 300 contracts with potential solar PV projects. These include micro-generation systems (10 kilowatts or less) up to large-scale solar farms 10 megawatts in size.**
- **I am pleased that the Standard Offer Program generated so much interest in developing solar power projects in our province. Solar projects account for one-third of the total capacity of signed RESOP contracts, second only to wind.**
- **Finding clean, affordable and sustainable sources of electricity is a top priority of our government.**
- **Ontario has attracted some of the largest planned solar projects in the world.**
- **The province has also launched a solar task force to encourage solar system installations in 100,000 homes.**

If asked about how the government is going to encourage the solar PV industry moving forward:

- **The OPA will be looking at how best to integrate solar into our current distribution system.**
- **We would also like to try and determine how best to get more roof-top solar into the system, as that provides the most valuable power – peaking power close to load.**
- **Under the proposed Feed-in Tariff Program, the Ontario Power Authority will foster more renewable energy, including solar power, where generators are paid a reasonable price for the electricity they produce over a period of time. The proposed price for solar PV ranges from 44.3 cents per kWh to 80.2 cents, depending on the size and application of the project.**

BACKGROUND

Solar Power and RESOP

- Under the Renewable Energy Standard Offer Program (RESOP) rules, solar energy is paid 42 cents per kilowatt hour for electricity fed into the province's grid.
- The OPA has signed 305 RESOP contracts totaling 525 MW with potential solar PV projects under the Renewable Energy Standard Offer Program as of June 30, 2009. These include micro-generation systems (10 kilowatts or less) up to large-scale solar farms 10 megawatts in size.
- As of June 30, 2009, the OPA has signed RESOP contracts for 55 large solar farms (500kW or more) representing 523.38 MW and for 250 smaller and micro-scale PV projects (500 kW or less) representing 2.070 MW.
- 154 projects totaling 1.917 MW have reached commercial operation to date.
 - A 1 MW phase of a 10 MW project reached commercial operation in December 2008. (It is presently out-of-service while First Solar upgrades the panels.)
 - 153 smaller and micro-scale projects totaling 917 kilowatts have reached commercial operation under RESOP as of June 30, 2009.
- For more information, please see House Note B17 – Renewable Energy Standard Offer.

Solar Farms Under Development

- As of June 30, 2009, RESOP contracts for a total of 55 large solar farms representing 523 MW have been signed. The majority of these contracts are held by four proponents: First Solar Inc (formerly held by OptiSolar Farms Canada Inc.) (21), SkyPower (9), Pod Generating Group (6) and PV North Limited Partnership (6).

First Solar (formerly OptiSolar Farms Canada Inc.)

- OptiSolar Farms Canada Inc. executed contracts for one 5 MW and twenty 10 MW solar farms under RESOP.
- Six of these projects are to be located in Sarnia, and represent phases of a continuous 60-megawatt solar generating facility. The Sarnia project represents one of the largest solar power generating stations planned in Canada.
- OptiSolar began work in the fall of 2008 to install panels at the Sarnia site, and by the winter of 2009 panels representing 2.5 MW of generating capacity had been connected.

- Work on the Sarnia project slowed in January 2009 when OptiSolar's parent company in the U.S. announced major layoffs, impacting the manufacturing of the panels destined for Sarnia.
- Two of the OptiSolar contracts are for a two phase, 20-megawatt solar farm located in an industrial park in Petrolia.
- OptiSolar executed another 13 RESOP contracts for large solar farms in Tilbury (1 x 10 MW and 1 x 5MW), Sarnia (2 x 10 MW), Belmont (2 x 10 MW) , St Clair Township (2 x 10 MW), Sombra (2 x 10 MW), Amherstburg (1 x 10 MW), Hagersville/Nanticoke (2 x 10 MW).
- On April 3, 2009, First Solar Inc. of California announced that they had completed acquisition of OptiSolar's projects in Ontario and California.
- The Sarnia Observer reported on July 29, 2009 that First Solar was pulling out the OptiSolar collector panels installed at the Sarnia site and replacing them with more efficient panels.
- Construction is expected to be completed next year, with a break over the winter.
- The move will reportedly reduce the project's physical footprint but substantially boost the solar farm's output of electricity. The First Solar panels will reduce the overall footprint of the project from 470 hectares to 445 hectares.

SkyPower Corporation

SkyPower Corporation has executed RESOP contracts with the OPA for nine solar farms in Ontario with a total capacity of 87.24 MW.

- The 9.12 MW Ryerse Solar Farm will be located in Port Dover (Norfolk County), while the 9.12 MW Bowlker Rd. Solar Project and the 10 MW Fort William First Nations Solar Farm will both be located in Thunder Bay.
- The SkyPower solar farms will be built, owned and operated in a joint venture partnership with U.S. based SunEdison LLC.
- Four additional solar farms are planned by SkyPower in Norfolk (10 MW), Napanee (10 MW) and Stone Mills (10 MW and 9 MW).
- In April 2008, SkyPower announced that they had broken ground on the 19 MW First Light (formerly 'Lennox') solar farm, located in Stone Mills near Kingston. First Light will be built in two stages. The company anticipates to have completed construction by the end of 2009.

POD Generating Group

- POD Generating Group has executed 60 MW of RESOP contracts for six 10 MW solar PV projects in Sault Ste Marie.

PV North Limited Partnership

- PV North Limited Partnership executed 60 MW of RESOP contracts for three solar projects in Arnprior (2 x 10 MW), Smith Falls (2 x 10 MW) and St. Isidore (2 x 10 MW).

Small and Micro PV Projects

- 250 RESOP contracts for smaller and micro-scale PV systems (500 kW or less) have been signed by the OPA, representing 2.070 megawatts of solar generating capacity.
- 153 smaller and micro-scale projects totaling 917 kilowatts have reached commercial operation under RESOP as of June 30, 2009.
- A 25 kilowatt solar PV system on the roof of the Hershey Centre in Mississauga reached commercial operation in April 2007. Jointly funded by Enersource Hydro Mississauga and the City of Mississauga, the system consists of 144 PV panels and represents the largest solar energy installation in Mississauga. The project will generate revenue of approximately \$12,500 per year under Ontario's Renewable Energy Standard Offer Program. The project is also expected to reduce carbon dioxide emissions by 25,000 kilograms annually for approximately 25 years.
- Residential solar PV projects under the Renewable Energy Standard Offer Program are not affected by the OPA's program review announcement in May 2008. New applications for micro PV (10 kW or less) have continued to be accepted and processed as usual.

Prepared by: Amy Gibson
Senior Advisor
416-325-5765
July 31, 2009

Updated by: Clarence Cheng
Policy Analyst
416-325-5027
August 4, 2009

Approved by: Perry Cecchini, Manager
Renewable and Clean Energy
416-325-6593
August 4, 2009

Garry McKeever, Director
Energy Supply and Competition
(416) 325-8627
August 4, 2009

Rick Jennings, ADM
Office of Energy Supply, Transmission and Distribution
(416) 314-6190
August 4, 2009

Green Energy Act – Feed-In-Tariff

ISSUE:

On September 24th, 2009, Minister Smitherman directed the Ontario Power Authority to launch the Feed-in Tariff program. The Ontario Power Authority began accepting applications October 1st, 2009.

On December 16th, 2009, the Ontario Power Authority announced that they have started sending out conditional contract offers to the first 700 microFIT applicants.

SUGGESTED RESPONSE:

General

- Ontario is at the centre of an energy renaissance that will change the way we generate, consume and conserve energy.
- Through the Green Energy Act, Ontario has moved to stimulate a new, green economy and create a new generation of green jobs, while protecting our environment.
- At the heart of the Green Energy Act is North America's most comprehensive Feed-in Tariff (FIT), which will spark the development of renewable energy projects.
- The tariff offers guaranteed incentives to developers of wind, water, solar, biomass and biogas sourced power. This will help us get clean, green energy projects online quicker.
- On September 24, 2009, Ontario introduced new rules that will help provide a stable investment climate that gives companies the confidence to invest in Ontario, hire our workers, and produce and sell renewable energy.
- A feed-in tariff model, combined with right to access to the grid and with certainty about regulation, is not about targets or limits. It's about creating certainty around the investor climate if you are willing to make the investment, we will buy the power. If the project is economically feasible, we will connect it. And we will do so faster than it's been done before. Targets are about limits.
- Ontario has learned from other jurisdictions that Feed-in Tariffs provide a fair and transparent incentive to encourage the development of all types and sizes of renewable energy projects, including First Nation, Métis and community-based projects.
- The FIT Program would bring significant benefits to the province. More renewable energy projects in Ontario will mean more transmission and distribution development,

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and more jobs and economic development for Ontario communities.

- Domestic content provisions within the Feed-in Tariff program help to ensure that the technology and the solutions behind renewable energy generation will be based in Ontario.
- Since October 2003, more than 1,200 MW of new renewable energy projects have come online in Ontario.

If asked about the OPA's consultation process:

- The Ontario Power Authority (OPA) led the implementation of Ontario's proposed Feed-in Tariff (FIT) Program. The OPA coordinated with other energy agencies, the Ontario Energy Board (OEB) and the Independent Electricity System Operator (IESO).
- The OPA consulted with renewable energy stakeholders on the design of the Feed-in Tariff program between March 17th 2009 and May 12th, 2009.
- The OPA later held a 3-week consultation on the draft Program Rules and Prices that were posted July 10, 2009.
- Webcasts of consultations are made available on the OPA's website.

If asked about Prices:

- The diversified energy supply mix, along with a combination of both regulated and market prices will help maintain stability in electricity pricing.
- The proposed FIT prices were developed based on experience here in Ontario and in other jurisdictions.
- Prices differ based on project size and type of renewable energy technology.
- They cover capital, operating and maintenance costs and allow for a reasonable return on investment over a 20-year (40-year for waterpower) contract term.

If asked about Program Launch:

- The Ontario Power Authority is responsible for administering FIT. Applications will be accepted starting October 1, 2009.
- Projects that are expected to be completed first will have priority access to existing connection capacity on the grid. During the first 60 days of the program, developers may shorten the period for which they are contractually bound to reach commercial

operation. Grid space is then allocated based on these dates.

- Renewable energy projects that generate less than 10 kW of electricity will have a different application process than larger commercial projects and will be administered as micro feed-in tariff (microFIT) projects.
- Dedicated websites went live September 30, 2009, providing step-by-step instructions and materials to assist developers, homeowners and small businesses with program requirements and the application process.
- Information on renewable energy development and approvals can also be accessed through the provincial government's Renewable Energy Facilitation Office.

If asked about Domestic Content:

- Ontario wants green energy business. The domestic content requirements will help ensure that jobs will be created, investment is committed and that the renewable energy industry grows across the province.
- We are looking to increase interest in the Ontario market and in Ontario as a home base for renewable energy investment and manufacturing.
- The Ministry of Energy and Infrastructure and the Ministry of Economic Development and Trade consulted stakeholders to determine a challenging but workable path to increase domestic content in renewable energy projects.
- Developers will be required to have a certain percentage of their project cost come from Ontario goods and labour at the time they reach commercial operation.
- For wind, the requirement will start at 25% and increase to 50% on Jan. 1, 2012.
- For micro solar PV (10 kW or smaller), the requirement will start at 40% and increase to 60% on Jan. 1, 2011.
- For larger solar PV, the requirement will start at 50% and increase to 60% on Jan. 1, 2011.

If asked about the transition of RESOP contract holders into the FIT:

- Solar PV, waterpower and biogas RESOP projects of 500 kW or less that have purchased equipment by October 1, 2009 may convert to a FIT contract. They will be deemed to have met the domestic content rules.
- People in Ontario have heard the message about the importance of renewable energy. Many were "early adopters" and installed their projects in anticipation of a feed-in tariff program. Many early adopters incurred huge personal financial costs to develop renewable projects even when the projects were uneconomic.
- These small scale renewable energy projects should be properly compensated by moving them to the feed-in tariff rates. This will help make those projects more economical on a go-forward basis. We want to make sure that they can benefit from this program and contribute to the supply of renewable energy in the province.
- RESOP contract holders that have not reached commercial operation will be given 60 days from the official launch date to rescind their contracts and apply to the FIT Program if they wish.
- Applicants will have to rescind their completed connection impact assessment with their respective local distribution company and meet all of the FIT Program requirements, including those for domestic content and security payments.
- Other projects with OPA contracts are not eligible to transition to the FIT and/or microFIT Programs.
- This policy strikes a balance between fairness for early adopters, the expectation that parties who signed a contract will honour them, and levels the playing field for the development and construction of new projects.

If asked about solar farms on prime agricultural land:

- I have directed the OPA that there is to be no ground-mounted solar procurement above 100 kilowatts on class 1 and 2 or Specialty Crop Areas to provide continued protection of such lands. Some ground-mounted solar procurement, up to 500 megawatts, will be allowed on Class 3 lands, allocated on a regional basis.
- We believe that it is possible to strike a balance and do both – encourage solar development and protect our prime agricultural lands. While agricultural lands are attractive for solar development for a variety of reasons, it is important to note that there is plenty of land in the province of Ontario suitable for solar development that is not prime agricultural land.

If asked about regional allocation for solar projects:

- Using the Regional Administrative Boundary Allocations (RABA) system, the province will be divided by county into 4 regions (North, East, Central and West). The 500 MW cap will then be allocated proportionally and will be based on the amount of Class 3 soil land within each region.
- This decision was made as part of the commitment to strike a balance between protection of prime agricultural lands and encouraging solar development. By establishing regional allocations of the cap, we can help protect against significant clustering of projects and provide for a more balanced distribution across the province.
- The RABA boundaries are used by various ministries and government agencies such as the Ontario Realty Corporation to divide the province into administrative regions. We feel these boundaries are realistic and reflect the norm when it comes to identifying different regions of the province.

BACKGROUND:

- A feed-in tariff is a standard price to promote the development of community-based and large commercial renewable energy projects. It provides a guarantee of market-viable prices for energy generated from renewable energy sources, such as solar, wind (onshore and offshore), water, biogas, biomass, and landfill gas. It allows projects of different types and sizes to have a reasonable rate of return.
- A feed-in tariff program will help provide certainty to project proponents that their energy will be purchased at a fair price. In combination with “as of right connection” which would make it easier for proponents to connect to the grid as network expansion is encouraged, streamlined approvals processes, will help facilitate new renewables once basic economic and technical criteria are met.
- The Ontario Power Authority is responsible for administering FIT.
- Renewable energy projects that generate less than 10 kW of electricity will have a different application process than larger commercial projects and will be administered as micro-feed-in tariff (microFIT) projects.
- The OPA held weekly consultation sessions with renewable energy stakeholders on the design of the Feed-in Tariff program from March 17th, 2009 to May 12th, 2009. On May 12th, 2009, the Ontario Power Authority updated proposed prices for the Feed-in Tariff and on June 8th, 2009 posted a draft contract. The OPA held an additional 3-week consultation period on the draft Program Rules and prices that were posted on July 10, 2009.
- In response to stakeholder consultation, the OPA revised the proposed Program Rules. The revisions focused on:

- How to give priority to applications that are able to come into service more quickly
- The addition of two new price categories for on-farm biomass generation
- The clarification of the transmission and distribution availability test processes
- The OPA has been accepting applications since October 1st, 2009.
- The FIT program rules and prices will be reviewed at least every two years.

Applications:

microFIT Applications

- As of November 30, 2009, the Ontario Power Authority received 1,193 microFIT applications with a potential output of 8.6 MW of electricity. Ontario Power Authority is continuing to review and verify these applications.
- Breakdown of microFIT applications received as of December 1, 2009:

Energy Source	Number of Applications	Capacity (kW)
Biogas	0	0
Landfill Gas	0	0
Renewable biomass	4	40
Solar Photovoltaic (PV)	1,166	8,382
Water	1	2
Wind	22	187
Total	1,193	8,611

- In the week of December 14, 2009, the Ontario Power Authority started sending out conditional contract offers to the first 700 microFIT applicants subject to applicants obtaining approval to connect to the electricity grid from their local distribution.
- People whose microFIT applications were submitted by November 30, 2009 and who have not yet received a contract offer should hear from the Ontario Power Authority by January 15, 2010.

FIT Applications

- The Ontario Power Authority has estimated that there is approximately 2,500 megawatts of available transmission connection capacity for FIT projects.
- As of December 1, 2009 the Ontario Power Authority received 1,022 FIT applications with about 8,000 MW of potential electricity generation. The Ontario Power Authority is continuing to review and verify these applications and will give priority to “shovel-ready” projects.
- Of the 8,000 MW, 79% of capacity is wind and 16% is solar.
- CONFIDENTIAL: Applications totaled more than 10,000 MW. Some proponents bid the same project into multiple connection points and others did not complete the application process, this reduced the estimated potential capacity to about 8,000 MW. Breakdown of FIT applications received as of November 30, 2009:

Energy Source	Number of Applications	Capacity (kW)

Biogas	8	25,560
Ground Mounted Solar PV	183	1,440,012
Land Fill Gas	6	28,912
Offshore Wind	5	330,912
Onshore Wind	192	7,616,700
On-Farm Biogas	26	8,775
Renewable biomass	11	110,071
Rooftop Solar PV	504	114,639
Water	87	354,491
Total	1,022	10,029,181

- FIT applications require an extensive review by the Ontario Power Authority, local distribution companies, Hydro One and the Independent Electricity System Operator. FIT contracts will be offered after this review. The Ontario Power Authority expects the review to be complete in April 2009 given the unexpectedly high number of applications.

Prices:

- The Ontario Power Authority is responsible for establishing prices for most renewable energy supply categories under the new feed-in tariff program.

Feed-In Tariff Prices				
Renewable Fuel	Type	Size tranche	Contract Price ¢/kWh	Escalation Percentage**
Biomass*^		≤ 10 MW	13.8	20%
		> 10 MW	13.0	
Biogas*^	On-Farm	> 10 kW ≤ 100 kW	19.5	20%
		> 100 kW ≤ 250 kW	18.5	
	Any type	≤ 500 kW	16.0	
		> 500 kW ≤ 10 MW	14.7	
		> 10 MW	10.4	
Waterpower*^		≤ 10 MW	13.1	20%
		> 10 MW < 50 MW	12.2	
Landfill gas*^		≤ 10 MW	11.1	20%
		> 10 MW	10.3	
Solar PV	Any type	≤ 10 kW	80.2	0%
	Rooftop	> 10 ≤ 250 kW	71.3	
		> 250 ≤ 500 kW	63.5	
		> 500 kW	53.9	
	Ground Mounted^	> 10 kW ≤ 10 MW	44.3	
Wind^	Onshore	Any size	13.5	20%
	Offshore	Any size	19.0	

*Peak Performance Factor of x1.35 during On-Peak and x0.90 during Off-Peak applies for non-microFIT projects.

^Aboriginal Price Adder and Community Price Adder eligible as outlined below for non-microFIT projects.

**Escalation Percentage based on the Consumer Price Index will be applied to eligible Renewable Fuels as calculated in FIT Contract. The Base Date is September 30, 2009

The following table shows the maximum level of the Aboriginal and community price adders a project could receive in addition to the contract price:

	Wind	PV (Ground Mounted)	Water	Biogas	Biomass	Landfill Gas
Maximum Aboriginal Price Adder (¢/kWh)	1.5	1.5	0.9	0.6	0.6	0.6
Maximum Community Price Adder (¢/kWh)	1.0	1.0	0.6	0.4	0.4	0.4

- Aboriginal or community projects are eligible for a price adder in proportion to the percentage of equity ownership by the Aboriginal or community group, as set out below:

Percentage of Control	Percentage of corresponding price adder
50% to 100%	100%
10% to 50%	Double the percentage of control
0% to 10%	0%

- A project may receive both adders. The same economic interest may not count towards both the Aboriginal and Community Price Adders. The total adder may not exceed the greater of the maximums of the Aboriginal or Community Price Adders.
- On September 30, 2009, the OPA corrected the FIT contract to include a 10 MW cap on individual solar PV projects.

Domestic Content requirements:

- The Ministry of Energy and Infrastructure (MEI) and Ministry of Economic Development and Trade (MEDT) consulted with solar and wind manufacturers as well as developers and industry associations on domestic content. Several sessions were held during the month of May, 2009.
- Developers will be required to have a certain percentage of their project cost come from Ontario goods and labour at the time they reach commercial operation. This requirement will increase after time. For wind, the requirement will start at 25% and increase to 50% after December 31, 2011. For micro solar PV (10 kW or smaller), the requirement will start at 40% and increase to 60% after December 31, 2010. For larger solar PV, the requirement will start at 50% and increase to 60% after December 31, 2010.

- Developers are allocated the qualifying percentage for performing the corresponding designated activity. If the designated activity is partially done, the developer receives 0% for that activity.
- On September 30, 2009, in response to stakeholder feedback, the OPA amended the microFIT solar PV domestic content requirements, making the categories consistent with the larger-than-10 kW silicon PV requirements. This will make it easier for microFIT applicants to meet domestic content requirements and get their renewable energy projects on-line faster.

Program Process (projects larger than 10 kW):

- As part of the application process, large project applications go through a transmission availability test (TAT) and distribution availability test (DAT). If there is existing space on the grid, or there are confirmed developments that would enable connection scheduled to come online by the milestone date of the project's commercial operation, then the project passes and the contract offer is made.
- Only upon receipt of a contract is the developer permitted to apply for their connection impact assessment, customer impact assessment, and system impact assessment (as applicable). FIT program participants may not get these beforehand.
- Projects must get a Notice to Proceed (NTP) from the OPA before starting construction. To receive their NTP, developers must have:
 - completed their connection impact assessment, customer impact assessment and system impact assessment as applicable
 - Obtained their Renewable Energy Approval,
 - A domestic content plan (if applicable)
 - A financing plan
- In the event that a project does not pass the Transmission and Distribution Availability Test(s) (if applicable) the application will be subjected to the next Economic Connection Test (ECT), together with all other projects whose applications are awaiting the next scheduled ECT. The ECT is designed to ensure that the costs of connecting a project, parts of which may be ultimately borne by ratepayers, are reasonable. The Test will be run at least once every 6 months for each region of the Province.
- Based on the outcome of the ECT, the projects could then be placed in either the FIT Production Line, or the FIT Reserve. Alternatively, proponents would be given an option to withdraw their FIT applications.
 - **The FIT Production Line** is designed for the projects whose connection costs are determined to be economic through the ECT analysis. These projects will provide input for the future transmission and distribution planning processes.

Once in the Production Line, the projects will be subjected to the TAT/DAT before each subsequent Economic Connection Test is run, to see whether new grid capacity has become available as a result of new construction, approvals, or withdrawals of earlier FIT applications.

Each time a Production Line application is subjected to the ECT, an additional portion of its application security becomes at risk in the event that the project withdraws from the FIT program.

- **The FIT Reserve** will host the applications for projects where the connection costs were deemed to be uneconomic as a result of the ECT, but whose proponents chose to remain in the FIT program in anticipation of future transmission or distribution developments that would potentially justify the connection. As with the projects in the Production Line, the Reserve projects would be subjected to the regular Transmission/Distribution Availability and the Economic Connection Tests. .
- Applicants with projects in the Production Line and the Reserve are allowed to revise the technical details of their application with prior written notice to the OPA, if they believe that these revisions could affect their projects' ability to connect. The only application details that cannot be revised without losing the project timestamp are those regarding the Renewable Fuel Type, Project Location or Capacity.
- Applications can stay in the FIT Production Line, the Reserve or the combination of the two for up to 10 years.

Capacity allocation exempt projects:

- Capacity allocation exempt projects are small projects connected to the distribution system. A small generator is 250 kW or less when connected to a line less than 15 kV, or 500 kW or less when connected to a 15 kV or higher line.
- These projects are not required to submit application security; however, completion and performance security are required.
- These projects proceed directly to a FIT contract after the application has been reviewed and is found to be complete – they are therefore not subject to the transmission and distribution availability tests, the economic connection test, the FIT production line or the FIT reserve.
- Requirements for receiving Notice to Proceed are the same as large projects.

microFIT (10 kW or smaller)

- For microFIT, the following are not available or do not apply: the on-farm bio-gas price, the community or Aboriginal price adders, on/off peak pricing. Micro projects may apply to FIT, but would have to meet all the requirements of the FIT contract.
- Domestic content rules for solar PV apply.

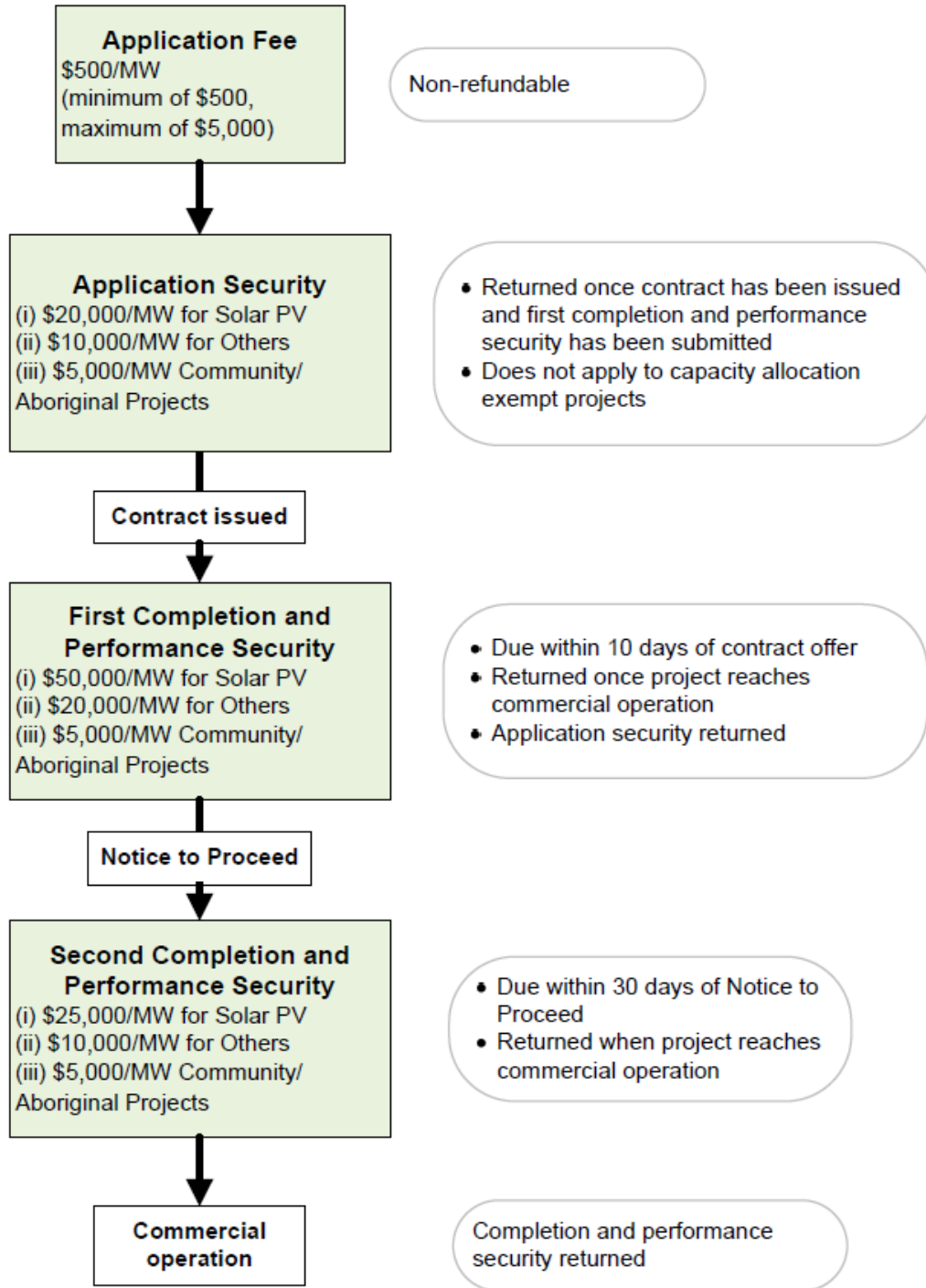
- microFIT projects proceed directly to a FIT contract after the application has been reviewed and is found to be complete – they are therefore not subject to the transmission and distribution availability tests, the economic connection test, the FIT production line or the FIT reserve.
- microFIT projects do not require Notice to Proceed from the OPA before construction.
- microFIT projects do not have to submit an application fee, nor application security nor completion and performance securities.
- Once the LDC connects the microFIT project, the OPA will start paying for generation.
- The OPA may check projects' domestic content levels and renewable energy approval status (as applicable) as part of the auditing process.

Transmission/Distribution

- For information on transmission or distribution issues, including the Ontario Energy Board's amendment to the Transmission System Code on the cost responsibility of enabler lines, please see House Note E02.

Program specific fees and securities (application fee, application security, completion and performance securities):

- MicroFIT projects (≤ 10 kW) are exempt from all program specific fees and securities.
- Capacity allocation exempt projects are exempt from the application security.
- Other FIT projects have to pay an application fee and put up security at different points of the project (see flow chart below).
 - The application security discourages projects which are unlikely to reach commercial operation from applying. It prevents transmission and distribution companies from being overwhelmed by the required number of assessments of the impacts of additional generation.
 - The completion and performance security payments provide a measure of certainty that FIT Program contract holders will complete their projects as intended. They help to prevent projects from taking up transmission and distribution wire capacity which do not intend to build.
- Aboriginal and community based projects with greater than 50% participation levels require less security.



FIT Program Launch:

- The FIT Program requires that commercial operation be reached within a certain time of contract signing depending on the technology:
 - three years for wind, solar and bioenergy
 - four years for off-shore wind
 - five years for waterpower.

- During program launch (the first 60 days of the program), developers will have the option on the application form to select commercial operation acceleration days that will shorten the commercial operation date (COD) deadline. Applications will be prioritized based on expected COD. This means that projects that are expected to be completed first will have priority access to existing connection capacity on the grid.
- All applicants will be allowed to submit up to 365 COD acceleration days. If a developer wishes to submit a higher number of acceleration days, it must submit evidence that it has met one or more of four criteria upon which its project will be assigned a score.
 - The criteria are:
 - do not require a renewable energy approval
 - major equipment component confirmed
 - successful experience with similar projects
 - financial backing.
 - For every criterion that the developer meets, it will be allowed to select an additional 90 COD acceleration days. In order to qualify, it must submit evidence to the OPA with its application that demonstrates the criteria have been met.
- If a developer is awarded a contract after submitting COD acceleration days, it will be subject to liquidated damages if it fails to achieve commercial operation within the time specified in its application. This is intended to ensure that projects reach commercial operation within the time committed in the application.
 - Liquidated damages are \$250/MW per day, for no more than the number of COD acceleration days submitted.

Transition into FIT

- Transition policies from RESOP to FIT will
 - help serious developers build their projects
 - give an indication to the OPA how much transmission space will be freed up by contract-holders who are not likely to build.
- First, RESOP contract holders that have not reached commercial operation have until November 30, 2009 (60 days from the official launch date) to rescind their contracts and apply to the FIT Program if they wish.
- Advanced RESOP FIT amendment option: There is a second option for non-solar RESOP projects that have not reached commercial operation but have received a certificate of approval, permit to take water or renewable energy approval. These projects must reach commercial operation by the end of 2010. These projects were given the option to receive a higher price and the right to retain 100%, instead of 50%, of any ecoENERGY incentive (1 c/kWh). In exchange, they had to post completion and performance security, and must pay liquidated damages if they fail to achieve operation by the end of 2010.
 - For more details, please see house note B(17) – Renewable Energy Standard Offer

- The third option is directed at large solar projects, but is open to all non-waterpower projects larger than 10kW. Barring force majeure, RESOP projects must reach commercial operation within three years of receiving their contract. The OPA offered a one-year extension in exchange for security and liquidated damage provisions. Developers must deposit \$20/kW, which is refundable upon achieving commercial operation. Liquidated damages of \$0.1/kW/day up to 200 days apply for failing to meet the milestone. This offer was available from August 24, 2009 through October 30, 2009.
- Grandfathering: RESOP, net-metered, merchant or not-yet-in-service projects that are 500 kW or less and have purchased equipment or have reached commercial operation by October 1, 2009 are eligible to be converted into the FIT or microFIT. The grandfathering option does not apply to waterpower projects covered by the May 7th 2009 direction to the OPA (re: Negotiating new contracts with Hydro-electric Generation facilities).
 - Most of the eligible projects may apply to the FIT or microFIT program; RESOP projects larger than 10kW and less than or equal to 500 kW may have their contract amended to the FIT price.
 - These projects are deemed to have met domestic content requirements.
 - They must be online by December 31, 2010, or for the micro non-RESOP projects, must be online within 12 months of the microFIT conditional contract offer. Projects larger than 10 kW will be liable to pay liquidated damages if they fail to meet this deadline. Micro projects revert to their old contract, if applicable.
 - The amendment application should be made to the OPA by November 30, 2009.

Solar PV on prime agricultural land:

- As part of the FIT directive issued on September 24th, 2009, restrictions were placed on the placement of ground-mounted solar PV projects larger than 100 kW. They may not go on Class 1 or 2 land or Specialty Crop Areas. Up to 500 MW may go on Class 3 land, allocated in proportion to the amount of class 3 land in the four Regional Administrative Boundary Alignments (North, West, East and Central).
- As part of the directive issued on September 30th, 2009, 100 MW of the 500 MW was reserved. 100 MW of the amount that would have been allocated to the West region is reserved for proponents who have signed a province-wide framework agreement with the province.
- The restrictions/caps outlined for CLI classes 1, 2 and 3 soils do **not** apply to lands zoned for non-agricultural purposes as of October 1, 2009.

Quick Facts:

- Since October 2003, more than 1,200 MW of new renewable energy projects have come online in Ontario.

- In October 2003, there were 15 MW of wind power from 10 utility-scale turbines in Ontario. Today, there are almost 1,200 MW online from over 670 turbines. By the end of 2012 there will be at least 900 turbines.

Legislative authorities over FIT:**SCHEDULE B ELECTRICITY ACT, 1998****7. Part II.2 of the Act is amended by adding the following section:****Feed-in tariff program**

25.35 (1) The Minister may direct the OPA to develop a feed-in tariff program that is designed to procure energy from renewable energy sources under such circumstances and conditions, in consideration of such factors and within such period as the Minister may require.

Minister's directives

(2) The Minister may issue, and the OPA shall follow in preparing its feed-in tariff program, directives that set out the goals to be achieved during the period to be covered by the program, including goals relating to,

- (a) the participation by aboriginal peoples in the development and establishment of renewable energy projects;
- (b) the involvement of members of the local community in the development and establishment of renewable energy projects; and
- (c) domestic content.

Definition

(3) In this section,

“feed-in tariff program” means a program for procurement, including a procurement process, providing standard program rules, standard contracts and standard pricing regarding classes of generation facilities differentiated by energy source or fuel type, generator capacity and the manner by which the generation facility is used, deployed, installed or located.

Ability to restrict OPA procurement on certain type of lands, e.g. agricultural lands:**SCHEDULE B ELECTRICITY ACT, 1998****14.****(5) Subsection 114 (1.3) of the Act is amended by adding the following clause:**

(g.1) prescribing locations or land or classes of locations or land where the OPA shall not provide for a procurement process or enter into a contract for energy from a prescribed renewable energy generation facility or a prescribed class of renewable energy generation facility;

With input from: Dmitry Balashov, Policy Analyst
Transmission and Distribution Policy
416-325-6728
September 25, 2009

Updated by Clarence Cheng, Policy Analyst
Renewables Energy Unit
416-325-5027
December 16, 2009

Approved by: Karen Slawner, Coordinator
Renewables Energy Unit
416-314-9472
December 16, 2009

Leo Tasca, Manager
Renewables Energy Unit
416-326-3775
December 21, 2009

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868
December 21, 2009

Sue Lo, ADM
Renewables and Energy Efficiency Division
416-327-8552
December , 2009

KEY FACTS

Electricity Generation and Consumption

- Ontario consumed about 141.5 terawatt-hours of electricity, or 141,500,000,000 kilowatt hours, in 2011.
- Ontario has 5.2 million electricity consumers, including:
 - 4.8 million residential customers;
 - 416,000 small business customers;
 - 57,000 mid-sized business customers; and
 - 145 large industrial customers.
- About 60 large industrial customers generally account for **one-tenth** of all electricity consumption in Ontario.
- More than **80 per cent** of the power generated in Ontario in 2011 came from **emission-free sources**, like wind, hydroelectric and nuclear.
- Since 2003, Ontario has added about **9,000 MW** of electricity generation capacity – that’s about **one-quarter** of our current supply.

Generation Type	Installed Capacity	2011 Generation*
Nuclear	33.6%	56.9 %
Gas/Oil	28.0%	14.7%
Water	23.3%	22.2%
Coal	10.3%	2.7%
Wind	4.4%	2.6%
Other (Solar, Bio)	0.4%	0.8%

*Only includes generation connected to the IESO Transmission Grid.

Nuclear

- Nuclear operates 24 hours a day, seven days a week, and produces over **50 per cent** of the electricity generated in Ontario.

s.13

- Ontario has three nuclear power plant sites – **Bruce, Darlington and Pickering** – with a total of **18 operational reactors**.
- Two of those are currently shutdown for refurbishment.

Hydro

- Ontario has more than **200 waterpower facilities** with a total installed capacity of more than **8,300 megawatts** - enough electricity to power **more than 3 million homes**.

Coal

- By the end of 2014, Ontario will be one of the first jurisdictions in the world to eliminate coal as a source of electricity production.
- Ontario has shut down ten of 19 coal units.
- Coal-fired generation made up about 3 percent of Ontario's total electricity generation last year.

Natural Gas

- Ontario has about 9,550 megawatts of natural gas-fired generation capacity.
- In 2011, Ontario's natural gas-fired generators produced enough electricity to power over **2 million homes**.

Solar

- More than **350 megawatts** of solar power are online - enough electricity each year to power more than **50,000 homes**.
- The capacity of **Enbridge's solar farm** (near Sarnia), the third largest operational solar photovoltaic (PV) farm in the world, is **80 megawatts**; that's enough electricity to power **12,500 homes**.

Wind

- Ontario has more than **1,850 megawatts** of wind online - enough electricity each year to power more than **500,000 homes**.
- **More than 1000 wind turbines** are operating in Ontario.
- Ontario has **more than 50 wind farms in service (57)**, including the five largest wind farms in Canada.
- The average audible sound from a wind turbine is **40 decibels**, which is the level of sound found in most living rooms. (<http://www.bwea.com/ref/noise.html>)

Nuclear Job Creation

- Approximately **71,000 workers** are employed in the **nuclear industry** in Canada, most of them here in Ontario. (*Canadian Nuclear Association: The Canadian Nuclear Factbook 2011*)
- Refurbishing and operating Ontario's existing nuclear capacity – will annually generate almost **25,000 direct and indirect jobs** (9,000 jobs for refurbishments and 15,600 jobs for operations) and result in over **\$5 billion** of annual economic activity during the refurbishment period. (*Canadian Manufacturers & Exporters, 2010*)

GEA Jobs

- To date, Ontario's green initiatives have helped create more than **20,000 jobs**.
- Ontario remains on track to create **50,000 jobs**.

Samsung

- Samsung and its partners are developing **2,000 MW** of wind projects and **500 MW** of solar projects.
- Currently 6 Power Purchase Agreements have been signed, totalling **1,068 MW - 200 MW** of solar and **868 MW** of wind.
- This Agreement has brought **4 green manufacturing partners** to Ontario, with an investment totalling **\$7 billion**.
- As part of the re-negotiated Samsung agreement signed in July 2011, the economic development adder payments to Samsung were reduced.
- Adder reduced to a maximum of **\$110 million** for Phase 1 and Phase 2 projects only (which are spread over 20 years)
- Down from a projected **\$437 million** when the deal was first signed.

Health Impacts of Clean Energy (*Cost Benefit Analysis: Replacing Ontario's Coal-Fired Electricity Generation*)

- **\$3.4 Billion** in avoided Health Care and Environmental Costs
- **668 fewer** premature deaths per year
- **928 fewer** hospital admissions per year
- **1,100 fewer** emergency room visits per year
- **333,660 fewer** minor illnesses such as headaches, coughing and other respiratory symptoms per year
- **Economic costs: lost productivity/ time; sick days; cost of treatment; pain and suffering** (Source: "Cost Benefit Analysis: Replacing Ontario's Coal-Fired Electricity Generation" was prepared for the Ontario Ministry of Energy by DSS Management Consultants and RWDI Air, and was publicly released in April 2005.

Electricity Pricing

- A typical residential consumer in Ontario uses **800 kilowatt-hours** of electricity per month.
- As of June 2011, approximately **4.7 million** smart meters are installed.
- More than **3.1 million** customers are on Time-of-Use pricing (TOU).

Regulated Price Plan (as of Nov 1 st , 2011)	
Tiered Prices	Time-of-Use (TOU) Prices
First 1,000 kWh: 7.1 ¢	Off-peak: 6.2 ¢ (7 PM to 7AM)
After 1,000 kWh: 8.3 ¢	Mid-peak: 9.2 ¢ (11 AM to 5PM)
	Peak: 10.8 ¢ (7AM to 11 AM) & (5 PM to 7PM)

Electricity Bills (after-tax, including the Ontario Clean Energy Benefit)

- Typical Ontario electricity bill for TOU customers, at current rates:
 - Residential: \$113.70 (800kWh)
 - General Service: \$273 (2,000kWh)
 - Small Business: \$1,260 (10,000kWh)
- Typical Ontario electricity bill for tiered customers, at current rates:
 - Residential: \$109.90 (800kWh)
 - General Service: \$279 (2,000kWh)
 - Small Business: \$1,325 (10,000kWh)

Programs/credits in place to assist with energy costs include:

The *Ontario Clean Energy Benefit* (OCEB) – 10% off bills.

Customer Type	Savings
Residential (families and seniors)	Up to \$150/ year
Farmers	Up to \$2,000/ year
Small Businesses	Up to \$1,700/ year

The *Energy and Property Tax Credit*

Customer Type	Property Tax Relief	Energy Sales Tax Relief	Total Relief
<i>Individuals & Families</i>	\$713	\$204	\$917
<i>Seniors (65+)</i>	\$840	\$204	\$1044

- The amount of the credit is based on adjusted net income and the amount of rent or property tax paid for 2011.

The *Northern Ontario Energy Credit* (NOEC) – provides tax relief

Customer Type	Tax Relief
<i>Families</i>	Up to \$204
<i>Single Individuals</i>	Up to \$132

- To be eligible for the NOEC, consumers must pay property taxes or rent for their principal residence. The amount of the credit is based on adjusted net income.

The *Northern Industrial Electricity Rate Program* (NIERP)

- Provides about a **25%** reduction in bills for eligible industrial customers.

Criteria
• must be located in Northern Ontario • consume a minimum of 50,000 megawatt hours of electricity per year • be classified as being in the Mining or Manufacturing sectors

The *Industrial Conservation Initiative* (ICI)

- Rewards companies that avoid consuming electricity during peak periods.
- In general, to be eligible for the program, consumers must have an average monthly peak demand of five megawatts or higher.

Feed-in-Tariff

Six technologies are eligible for the Feed-in Tariff (FIT) and microFIT programs:

- on-shore wind
- solar photovoltaic (PV),
- biogas,
- landfill gas,
- biomass
- hydro

Domestic content requirements:

- Wind: **50 %** as of Jan. 1, 2012.
- Solar: **60 %**.

Contracts:

- Total FIT contracts online, under construction or in approvals:
1,964 - 4,619 MW
 - Wind contracts online, under construction or in approvals:
76 - 3,133 MW capacity - enough electricity each year to power over **850,000 homes** (this includes 300 MW of offshore wind)
 - Solar contracts online, under construction or in approvals:
1,789 - 1,239 MW capacity - enough electricity each year to power over **150,000 homes**
- Current microFIT **conditional** offers : **25,366 - 231 MW** capacity - enough electricity each year to power over **28,000 homes**
- Total **connected** or ready to connect microFIT projects:
9,546 - 84 MW capacity - enough electricity each year to power over **10,000 homes**.

(Above FIT data current to December 23, 2011)

Hydro

- Almost **700 MW** of new and refurbished hydroelectric capacity is expected to be added **by 2018** - enough electricity to power over **450,000 homes**.
- The Niagara Tunnel project (Big Becky) is the largest project of its kind under construction in the world.
- It will produce **1.6 billion kilowatt-hours** of electricity per year - enough to power **160,000 homes** for the next 100 year.
- The Lower Mattagami hydroelectric project will add about **440 megawatts** – enough electricity to power **300,000 homes**.
- It is also providing **\$2.6 billion** of investment in the North.

Nuclear

- Nuclear is expected to continue to be the single largest source for Ontario's electricity generation over the next 20 years.
- Ontario is expected to refurbish approximately 10,000 MW of generation at Darlington and Bruce, and build two units at Darlington with a capacity of about 2,000 MW.
- Together, these 12,000 MW of generation will provide enough electricity to power around 50% of the Province's requirements.

Natural Gas

- **393 megawatts** of peaking natural gas-fired generation are currently under construction, which will help ensure the reliability of the electricity system during periods of peak demand.
- The need for an additional 450 MW of gas generation capacity has been identified in the Long Term Energy Plan.

Petroleum Products

- Crude oil-derived petroleum products – like gasoline, diesel, and fuel oil – account for **over 45%** of end-use **energy demand** in Ontario.
- Ontario **is reliant on imports** to meet provincial petroleum product demand.
 - About 25% of provincial petroleum product demand is supplied from outside Ontario.
 - Quebec is the primary supplier, with deliveries arriving primarily by pipeline. Rail, truck and barge shipments are also used.
- Ontario is home to four fuel refineries with an aggregate capacity of 390 thousand barrels per day. This accounts for about **one-fifth** of Canadian refining capacity.
- Refineries in Ontario rely predominantly on crude oil supplies from western Canada. In 2009 & 2010, **western Canada** supplied **over 75 per cent** of the crude oil requirements of Ontario refineries.
 - About 20% of crude oil processed in Ontario was from a variety of foreign sources, including the UK, Norway, USA, Mexico, Algeria, and Nigeria, and about 3% was offshore Atlantic Canadian supply.
- In recent years, **oil sands** derived crude oil has accounted for about **one-quarter** of the supply to Ontario refineries. About two-thirds of this oil sands derived supply is synthetic crude oil and the balance is oil sands bitumen.
- Crude oil is shipped into Ontario by pipeline. Western deliveries are via the Enbridge Mainline system and imported and eastern Canadian supplies are made via Enbridge Line 9. Both pipeline systems are regulated by the National Energy Board.
- Ontario's demand for petroleum products totalled 34 billion litres in 2010. Gasoline and diesel – the transportation fuels – account for 70% of total petroleum product demand.
 - Annual gasoline demand, per person over 15, has averaged about 1,500 litres in recent years.
 - This translates into annual spending of \$1,500 per adult Ontarian on gasoline.

Natural Gas

- Ontario consumes approximately **1 trillion cubic feet** of natural gas annually.
- Natural gas is Ontario's second largest source of primary energy, supplying **over one-third** of our energy requirements.
- There are approximately **3.3 million** residential, commercial and industrial natural gas customers within Ontario.
 - Natural gas supplies approximately **65 per cent** of total residential energy needs, mainly for space and domestic water heating.
 - The typical residential customer (space and domestic water heating) consumes approximately **3,000 cubic metres** per year.
- Ontario imports close to **99 per cent** of its natural gas, mostly from Western Canada.
 - TransCanada PipeLines Mainline is the primary pipeline which transports natural gas from the West to Ontario, and on to Quebec and the northeast U.S. It is regulated by the National Energy Board.
- Enbridge Gas Distribution and Union Gas are the two major gas distribution companies in Ontario. A small number of local utilities and Natural Resource Gas Ltd. complete Ontario's distribution network.
 - Enbridge Gas Distribution serves more than **1.9 million** homes and business across central Ontario, through a network of pipes measuring **35,000 km** in length.
 - Union Gas serves **1.4 million** customers primarily located in northern, southwestern and eastern Ontario, through a network of pipes measuring **63,000 km** in length.
- Ontario has a large concentration of **underground storage** pools located in southwestern Ontario. These storage pools provide an important buffer in the movement and utilization of natural gas within Ontario, Quebec and the northeast U.S.
 - Union Gas owns and operates **Canada's largest** underground natural gas storage facilities in southwestern Ontario with a working capacity of **155 billion cubic feet**.

- Enbridge Gas Distribution also operates underground gas storage facilities in southwestern Ontario, with a working capacity of **100 billion cubic feet**.

Electricity Transmission

- Hydro One’s system includes about **29,000 kilometres of transmission** lines and **123,000 kilometres of distribution lines** - **enough to circle the earth 3 times**.
- We’ve already invested nearly **\$9 billion** into Hydro One’s transmission and distribution system, including upgrades to more than **5,000 km of power lines** – distance from Toronto, Ontario to Whitehorse, Yukon.

Grid Investments (millions)	
Year	Investment
1996	\$308
1997	\$304
1998	\$359
1999	\$513
2000	\$432
2001	\$521
2002	\$546
2003	\$581
2004	\$720
2005	\$687
2006	\$819
2007	\$1,071
2008	\$1,274
2009	\$1,561
2010	\$1,565
2011	\$1,438

Local Distribution Companies

- 80 local electricity distribution companies** licensed by the Ontario Energy Board
 - Of Ontario’s **4.3 million** residential customers - **28%** are served by Hydro One’s distribution companies (**1.2 million**).
 - The remaining customers are served by other local distribution companies, such as Toronto Hydro, London Hydro and Hydro Ottawa.
 - Thirty-two remote communities in Ontario are not connected to the provincial transmission grid and rely on

diesel generation for their electricity. 25 of these are First Nation communities in Northwestern Ontario.

Conservation

- Ontario has saved over **1,700 megawatts** of peak demand since 2005 – that’s like taking over **500,000** homes off the grid.
- The Long-Term Energy Plan makes a commitment to reduce peak demand by **7,100 megawatts** by 2030 – that’s like taking **2.4 million homes** off the grid.
- Over its four-year span, Ontario’s Home Energy Savings Program helped nearly **430,000** homeowners complete home energy audits
- Helped more than **380,000** homeowners complete energy efficiency retrofits in their homes.
- Retrofits reduced energy consumption by over **20%** on average.
- This program reduced Ontario’s annual greenhouse gas emissions by over **600,000 tonnes** per year – that’s like taking 125,000 cars off the road.

ACCOMPLISHMENTS SINCE **2003**

What we have accomplished together since 2003:

1) New, cleaner energy generation:

- Invested in modernizing and rebuilding approximately **12,000 megawatts** of new, cleaner power for Ontario – that's about one third of our current supply.
- **\$21 billion invested in new and refurbished generation** since 2003 to tackle the shortfall in supply we inherited.
- Ontario's electricity sector will be completely **coal-free by the end of 2014** – like taking up to 7 million cars off Ontario's roads (*almost every car in Ontario today*).
 - This is the single biggest climate change initiative in North America – saving \$4.4 billion in avoided costs (including health and environmental costs).
 - Ontario has shut down **11 of 19 coal units**.
 - Coal generation in 2012 was only **3%**, down from **25%** in 2003.
 - By the end of 2013 we will have shut down **17 of 19 coal units**.

2) Ontario is now a global leader in renewable energy

- In 2003, Ontario had 15 megawatts of wind capacity – **we now have over 2,100 megawatts of clean wind power** – enough power to meet the annual needs of more than **570,000 homes**.
- Ontario has the most solar PV capacity of any jurisdiction in Canada with over 800 MW online – expected to produce enough electricity to power over 90,000 homes each year.
- The 35 largest ground-mount solar projects and 55 largest rooftop solar projects in Canada are all located in Ontario.
- Ontario is home to 5 of Canada's 6 largest wind farms.
- Expanding Ontario's hydro-electric supply
 - Lower Mattagami River (under construction) – **800 on-site jobs at peak, largest hydro project in Northern Ontario in 40 years & a partnership with Moose Cree First Nation**.
 - The Niagara Tunnel Hydroelectric Project – **Now in-service, was the largest construction project in Niagara Region in 55 years, over 400 direct jobs**. The project is expected to produce enough electricity to power **160,000 homes for the next 100 years**.

- The New Post Creek hydroelectric project (in development) – **100 new construction jobs** and 25 MW of clean, renewable hydropower.

3)Planning for the future:

- Reviewing our **Long-Term Energy Plan** to ensure we have the right strategies and targets in place for a clean, modern and reliable energy future.

4)Creating clean jobs and attracting investment:

The Green Energy Strategy

- Has attracted **private sector investment**
- Created over 31,000 jobs.

Feed-In-Tariff program

- Has attracted **billions in private sector investment**
- **Will create an estimated 20,000 direct and indirect jobs** in places like Guelph, Windsor, Cambridge, London, Newmarket, Mississauga, Sault Ste Marie and Oakville.
- Assists First Nation and Métis communities in participating in the energy sector, realizing economic development opportunities. Since the start of the FIT Program, **over 550 MW of Aboriginal led or partnered renewable energy projects have secured FIT contracts**, with participation from at least 34 Aboriginal communities.
- Refurbishing Ontario's nuclear capacity – will create **almost 25,000 jobs and generate annual economic activity of \$5 billion.**
(*according to Canadian Manufacturers & Exporters*)

5)Encouraging a culture of conservation:

- **1,900 megawatts** of electricity conserved from 2006 – 2011. That's like taking over 600,000 homes off the grid.
- **Investments in conservation** from 2006 to 2011 will result in **\$4.0 billion in avoided system costs.**
- Programs like **peaksaverPLUS** are helping families save money on their energy bills
- **Improved Ontario's conservation rating from a C- in 2004 to an A+ in 2009** (*according to the Canadian Energy Efficiency Alliance*)

Introduced the **Industrial Conservation Initiative (ICI)** – helping large industrial customers shift consumption away from peak periods.

- Launched the **Aboriginal Conservation Program** in 2013, with 12 communities selected to participate in the first round of year one of the Program – helping Aboriginal communities to save energy and manage their energy costs.

6)Protecting Ontario Families:

- **Energy Consumer Protection Act** – tough new rules to protect consumers from unfair practices in the retail energy sector.
- **Ontario Energy & Property Tax Credit** - up to **\$963 in tax relief** for individuals and families or up to **\$1,097 in tax relief** for seniors.
- **Ontario Clean Energy Benefit - 10 per cent off on 3,000 kWh of electricity use** for Ontario families (\$165 savings/ year for typical residential consumers).
- **Northern Ontario Energy Credit** - up to **\$139 in tax relief** for individuals or up to **\$214 in tax relief** for families in the North.
- Moved off-peak from 9 pm to 7 pm: **10 more hours / week at lowest cost electricity.**
- New rules and prices were introduced through the **FIT Two Year Review**, balancing the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy. **We reduced prices** - for solar projects by more than 20 per cent, on average, and wind projects by approximately 15 per cent.

7)Modernizing our grid for the 21st century:

- **Over \$10 billion invested since 2003 in improvements in Hydro One's systems, including upgrades to over 7,500 km of power lines** (including both transmission and distribution lines) – more than twice the distance from Sault Ste. Marie, Ontario to Vancouver, BC.
 - Nearly **\$1.5 billion** in investments by Hydro One in 2012 alone.
- The IESO estimates that significant transmission projects over the last ten years have increased Ontario's transmission capacity by about 10,000 MW.

- Among major accomplishments is the commissioning of the Bruce to Milton Reinforcement Project in 2012. It is **the largest transmission infrastructure investment in Ontario in the last 20 years.**
 - The 180 km transmission line will enable more than **3,000 megawatts of clean energy** from nuclear and renewable power resources.
- **Rollout of smart meters** to Ontario homes and small business consumers on time and on budget - **over 4.7 million installed.**
- Currently **4.4 million customers on time-of-use.**
- **Launched a \$50 million Smart Grid Fund** to help advance smart grid and economic development opportunities for Ontario's LDCs and businesses.
 - The Ministry is currently providing **\$14.2 million** in support to 10 projects, which together have leveraged more than \$102M in electricity sector investment and created more than 600 jobs. The Ministry is building on this success with the launch of a second round of funding in summer 2013.
- Through the **Ontario Green Button initiative**, a working group led by the province and the MaRS Discovery District is leveraging smart meter investments and smart grid technology to help families and businesses track their electricity use and conserve energy. Currently, over 50% of the province's electricity customers have access to their energy data in Green Button format.

RENEWABLE POWER

ISSUE:

What is the status of Ontario's renewable energy supply?

RESPONSE:

1. SUGGESTED RESPONSE ON RENEWABLE POWER:

- Ontario is committed to clean, reliable, affordable energy.
- Since October 2003, more than 3,200 MW of renewable (solar, wind, hydro, bioenergy) energy capacity has come online. This is expected to produce enough electricity each year to power more than 900,000 homes.
- The Green Energy Investment Agreement (Samsung) and FIT contracts announced to date represent approximately \$27B in investment, thousands of jobs, and are expected to produce enough electricity each year for more than 1.8 million homes.

2. SUGGESTED RESPONSE ON WIND ENERGY:

- Wind power is an important part of Ontario's drive toward a cleaner energy future. Ontario now has more than 2,000 megawatts of wind power online from more than 1,100 wind turbines – enough to power over 550,000 homes. In 2003, there were only 15 megawatts of wind power from ten turbines. The province has increased its wind power capacity by more than a 130 times since 2003.
- In 2012 – for the first time ever – more electricity was generated in Ontario using wind power than coal.

3. SUGGESTED RESPONSE ON SOLAR ENERGY:

- Ontario is a leader in solar PV development. Ontario also has the most solar PV capacity of any jurisdiction in Canada with over 700 MW online – enough to power 90,000 homes each year.
- The 25 largest solar projects in Canada are all located in Ontario.

4. SUGGESTED RESPONSE ON WATERPOWER:

- Ontario currently has nearly 8,200 MW of installed waterpower capacity. This includes about 7,800 MW of older projects such as the Sir Adam Beck facilities at Niagara Falls.
- By 2018, Ontario expects to have 9,000 MW of hydroelectric capacity in place, up from about 8,100 in 2010. The 9,000 MW target is the total target and includes all existing, new build and incremental waterpower projects regardless of the manner of procurement.

5. SUGGESTED RESPONSE ON BIOENERGY:

- There is about 250 MW of bioenergy generation capacity online in Ontario. Over 300 MW of additional bioenergy projects are under contract, but have yet to come online.

BACKGROUND:

1. BACKGROUND ON RENEWABLE ENERGY SUPPLY:

Renewables Contracted and Online										
Procurement Initiative	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Total Existing (pre-Oct 2003)	7,981	167	15	6	0	0	7,822	154	144	7
Other (OPG, HCl, CHP III, etc)	368	22	8	3	0	1	309	17	51	1
RES I, II + III	1,550	20	1,509	15	0	0	31	2	9	3
RESOP	763	113	251	29	455	55	24	12	33	17
microFIT 1.0	130	14,816	0	5	130	14,810	0	0	0	1
microFIT 2.0	9	1,021	0	0	9	1,021	0	0	0	0
Small FIT (CAE)	99	598	0	0	94	582	0	0	5	16
Large FIT (CAR)	380	28	280	9	81	10	6	1	14	8
Green Energy Investment Agreement (Samsung)	0	0	0	0	0	0	0	0	0	0
Total New (post-2003)	3,299	16,618	2,048	61	769	16,479	369	32	113	46
Total Renewables Online	11,279	16,785	2,063	67	769	16,479	8,192	186	256	53
Total Non-hydro Renewables Online	3,088	16,599								
Committed Renewables not Online										
Procurement Initiative	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Other (OPG, HCl, CHP III, etc)	702	12	0	0	0	0	453	9	249	3
RES I, II + III	20	1	0	0	0	0	20	1	0	0
RESOP	70	8	36	4	20	2	0	0	14	2
microFIT 1.0	30	3,075	0	1	30	3,074	0	0	0	0
microFIT 2.0	33	3,505	0	1	33	3,504	0	0	0	0
Small FIT (CAE)	169	878	2	8	161	847	1	5	5	18
Large FIT (CAR)	3,887	202	2,829	58	844	99	179	38	34	7
Green Energy Investment Agreement (Samsung)	2,500	16	2,000	10	500	6	0	0	0	0
Total Committed Renewables (not online)	7,411	7,697	4,868	82	1,589	7,532	653	53	302	30
Total Committed Non-hydro Renewables (not online)	6,759	7,644								
Total Renewables (Online and Committed)										
Total Renewables (Online and Committed)	18,691	24,482	6,930	149	2,357	24,011	8,844	239	559	83
Total Non-hydro Renewables (Online and Committed)	9,846	24,243								

Data as of April 15, 2013

- For further details on FIT, please see House Note B3c – FIT and Legal Challenges
- For further details on the GEIA, please see House Note B3d – Korean Consortium (Samsung)

Previous Renewable Energy Procurements

- Prior to the FIT Program, Ontario launched the following programs to procure renewable energy supply:
 - 2004 – Renewable Energy Supply I (RES)
 - 2005 – Renewable Energy Supply II
 - 2006 – Renewable Energy Standard Offer Program (RESOP)
 - 2008 – Renewable Energy Supply III
 - 2009 - Hydroelectric Contract Initiative (HCI)

Renewable Energy Supply (RES) I & II RFPs

- Two renewable Requests for Proposals (RFP) were administered by the Ministry of Energy in 2004 and 2005. 15 of the projects have now come online and one remaining project is in pre-construction.
- These projects represent a total capital investment in our province of over \$2.5 billion – and will provide enough power to supply over 300,000 homes.
- The average price of the selected projects was just under \$80 per megawatt-hour for the first RFP and just over \$86 per megawatt-hour for the second RFP.

Renewable Energy Standard Offer Program (RESOP)

- RESOP was launched in November 2006 by the Ontario Power Authority (OPA).

Under the program, the OPA entered into 20-year Power Purchase Agreements, at pre-established prices, for electricity from small renewable energy generators.

- The price for wind, biomass, biogas, or small hydroelectric generators was 11.16 cents per kilowatt-hour. The price for solar PV was set higher at 42 cents per kilowatt-hour.
- To be eligible, projects had to produce power from a renewable resource, have a capacity of up to 10 megawatts and connect directly to the distribution system.
- Since the Feed-in Tariff program was launched, the Ontario Power Authority has stopped offering RESOP contracts.

RES III RFP

- The OPA issued the final Renewable Energy Supply III Request for Proposals for 500 MW of renewable energy supply on August 22, 2008.
- The RES III RFP required that First Nations and Métis peoples be consulted early in the planning and development of new renewable energy projects, and that the OPA develop guidelines for this purpose.
- All five RES III projects are now online and total 425.8 MW of wind power capacity.
- The average price of the selected projects was \$121 per megawatt-hour. The contracts are for a 20-year term.

Hydroelectric Contract Initiative (HCI):

- On May 7, 2009, the Government directed the OPA to develop a program to negotiate new contracts for qualified existing hydroelectric generation facilities in Ontario. Nearly 1,100 MW are now under contract.
- Facilities range in size from very small (70 kW) to very large (239 MW).
- The HCI contract materials were released on November 20, 2009.
 - Facilities 10MW or larger are subject to individual negotiation with the OPA.
 - Facilities smaller than 10 MW receive a 20-year contract with exit options on the 8th and 15th years.
 - The base price in 2009 was \$69/MWh with 100% of the price escalated by the inflation rate.
 - To incent generation during times of peak demand, HCI facilities receive a peak performance factor of +35% of the base price during on-peak hours and -10% during off-peak hours.
- On January 21, 2013, the Minister of Energy directed the OPA not commence new negotiations regarding the upgrade, refurbishment or expansion of existing facilities currently holding HCI contracts.

2. BACKGROUND ON WIND ENERGY:

- Ontario now has over 2,000 MW of wind power online and has committed to an additional 4,900 MW of capacity.
- Ontario is now home to five of Canada's six largest wind farms:
 - Melancthon Wind Facility near Shelburne (199.5 megawatts)
 - Wolfe Island Wind Project on Wolfe Island near Kingston (197.8 megawatts)
 - Prince Wind Farm near Sault Ste. Marie (189 megawatts)
 - Enbridge Ontario Wind Farm near Kincardine (181.5 megawatts)
 - Comber Wind Project in Lakeshore (165.6 megawatts)

3. BACKGROUND ON SOLAR ENERGY:

- Enbridge's 80 MW Sarnia Solar is one of the largest operational solar PV farms in the world.
- Ontario has more than 700 MW of solar PV capacity online. The government has also committed to over 1,600 MW of additional solar PV capacity.

4. BACKGROUND ON WATERPOWER:

- Waterpower from clean hydroelectric facilities accounted for approximately 22% (33.8 TWh) of the electricity generated in Ontario in 2012. This represented the highest level of waterpower output since 2009.
- Ontario has contracted more than 1,000 MW of new waterpower since 2003. About 360 MW of this new waterpower capacity have already come online.
- On January 21, 2013, the Minister of Energy directed the OPA to procure up to 10 MW of municipal waterpower projects. The projects must be new builds, distribution-connected, and between 500 kW and 5 MW.
- For details on OPG hydro, please see House Note B4 – OPG Hydro

5. BACKGROUND ON BIOENERGY:

- There are three distinct types of bioenergy: biogas, biomass, and landfill gas.
- There is about 250 MW of bioenergy generation capacity online in Ontario. Over 300 MW of additional bioenergy projects are under contract, but have yet to come online.
- OMAFRA's Biogas Systems Financial Assistance Program ran from September 2008 to March 2010. A total of \$11.2 million helped farmers and agri-food businesses develop and build generating systems that produce clean energy, reduce electricity costs and contribute to local economies.
- There are two renewable combined heat and power procurement (CHP III) biomass projects under contract totalling 48 MW that are not yet online. For further details, please see House Note B6a - Combined Heat and Power.
- For information on the conversion of the Atikokan plant from coal to biomass, please see House Note B7b – Coal Conversion.

Prepared on: May 1, 2013

Prepared by: Jasjit Bawa, Renewables Energy Unit
416-314-9470

Approved by: Sam Lyon, (A) Manager, Renewables Energy Unit
416-212-2669

Leo Tasca, (A) Director, Renewables and Energy Facilitation Branch
416-212-7701

Kaili Sermat-Harding, (A) ADM, REED
416-327-5555

FIT AND LEGAL/TRADE CHALLENGES

ISSUE:

On May 6, 2013, the World Trade Organization's Appellate Body ruled that the domestic content requirements of the Feed-in Tariff Program violate international trade agreements.

On May 24, 2013 the WTO's Dispute Settlement Body adopted the Appellate Body's report.

The Ontario Feed-in Tariff Program has also been the subject of both domestic litigation and trade or investment disputes.

RESPONSE:

1. SUGGESTED RESPONSE ON LEGAL CHALLENGES:

World Trade Organization:

- Ontario intends to comply with the WTO decision. That means we will revisit our domestic content requirements for the FIT Program.
- Through the *Green Energy Act*, thousands of jobs have been created locally and more than 30 companies are currently operating, or plan to build, solar and wind manufacturing facilities in Ontario.
- Ontario's clean energy policies have already created 31,000 jobs through investments in renewable energy and conservation, as well as smart grid technology, transmission and distribution upgrades.
- Our commitment to clean, affordable energy will be front and center in this process.

If pressed:

Canada, the European Union and Japan have reached an agreement on an implementation period of 10 months. Accordingly, Ontario has until March 24, 2014, to bring the FIT program into compliance with the WTO decision

Other Trade Challenges:

- It would be inappropriate to comment about the specifics of any case before the courts.

June 27, 2013

B3D Korean Consortium (Samsung)

THE GREEN ENERGY INVESTMENT AGREEMENT (GEIA)

ISSUE:

On June 20, 2013, the Minister announced that negotiations with the Korean Consortium have resulted in an updated Green Energy Investment Agreement.

RESPONSE:

1. GENERAL MESSAGING ON THE GREEN ENERGY INVESTMENT AGREEMENT

- The Ministry of Energy worked collaboratively with the Korean Consortium, including Samsung, to update and revise the GEIA. The amended agreement is valued at \$6 billion in today's dollars, resulting in a \$3.7 billion reduction.
- The revised agreement includes:
 - Protecting the agreement's job commitments to 2016.
 - To date, Samsung has established three manufacturing plants in Ontario.
 - Samsung has partnered with Siemens Canada (wind blades), CS Wind (wind towers) and SMA solar (solar inverters).
 - Combined, Siemens and CS Wind are expected to create up to 600 jobs in the Province.
 - SMA solar is expected to create up to 100 jobs.
 - In addition, in partnership with Canadian Solar Inc., Samsung will build a fourth manufacturing facility in London by the end of this year. The plant is expected to create up to 200 additional local manufacturing and research and development jobs.
 - Reducing the agreement's total commitment for renewable energy projects from 2,500 megawatts (MW) to 1,369 MW. As part of Ontario's review of the Long-Term Energy Plan, the province will consider how to best use the 1,131 MW of energy capacity made available, with a focus on ratepayer savings, conservation and a continued commitment to renewable energy.
 - Increasing local engagement for all future renewable energy projects under the revised agreement. The Korean Consortium will be required to obtain municipal council support resolutions for new renewable energy projects before moving forward.
- The agreement has established three new manufacturing facilities in Ontario, and the 1,369 MW will produce enough renewable electricity each year to power more than 330,000 homes.
- Jobs will be created during the construction, installation and operation of the renewable energy projects as well as direct employment in manufacturing plants. In addition, the renewable energy development and manufacturing activities will support indirect job creation in areas such as finance, consulting and other manufacturing, service and development industries. In total, 9,000 direct and indirect jobs are expected to be created.
- The first two phases of the GEIA have Power Purchase Agreements and are expected to be operational in 2014. The first two phases will result in 1069 MW of new renewable energy.
- Construction recently started on the South Kent Wind Project (270 MW of wind), which is part of Phase 1.
- On April 23rd, 2013 Samsung and Pattern Energy announced the establishment of the \$11.5 million Wind Community Benefits program, benefitting the community of Chatham-Kent.
- On June 26th, Samsung announced its partnership with Canadian Solar to open the London solar plant by December 31, 2013. This London plant will manufacture solar parts to supply Samsung's solar projects.

2. SUGGESTED RESPONSE TO MANUFACTURING PLANT COMMITMENTS:

- The four manufacturing plants opened by the Korean Consortium and its partners are expected to create jobs across the province:
 - Siemens has built a wind blade manufacturing plant in Tillsonburg. Siemens expects the plant to create 300 jobs at peak capacity and 600 indirect jobs.
 - CS Wind has built a wind tower plant in Windsor. The plant is expected to employ up to 300 people when running at full capacity and 400 indirect jobs are also expected with this plant.
 - Celestica and SMA, are expanding the Celestica GTA facility to manufacture solar inverters. The plant is expected to create up to 100 direct jobs and 100 indirect.
 - Canadian Solar Inc. will build a fourth manufacturing facility in London by the end of this year, which is expected to create up to 200 additional local manufacturing and research and development jobs.
- As per the Amended GEIA, KC will be eligible for an economic development adder (EDA) contingent upon meeting jobs commitments at these four manufacturing facilities.
- Conversely, if KC does not meet job and manufacturing commitments, their eligibility for this adder would be limited.
- As of June 20, 2013, KC is understood to have approximately 630 jobs in three manufacturing plants.

3. SUGGESTED RESPONSE TO FIRST NATIONS INVOLVEMENT IN THE PROPOSED GRAND RENEWABLE ENERGY PARK IN HALDIMAND COUNTY:

- Samsung is building part of their Phase 1 wind and solar project, the Grand Renewable Energy Park, in Haldimand County.
- The Korean Consortium and their partners have the responsibility to meet the requirements under the Renewable Energy Approval process, including consultation with First Nations and Metis communities.
- We take the Crown's duty to consult First Nations and Métis very seriously.
- As part of the consultations required under the Renewable Energy Approval process, Samsung is consulting with both the Six Nations Elected Council and the Haudenosaunee Confederacy Chiefs Council.
- We understand that a business arrangement between Samsung and the Six Nations Elected Council has been negotiated and that Samsung continues to engage in discussions with the Haudenosaunee Development Institute on behalf of the Confederacy Chiefs.
- Six Nations Elected Council conducted a 30 day community consultation period to discuss Samsung's project and potential community involvement prior to voting to move forward with the Grand Renewable Energy Project in Haldimand County. We understand that Six Nations Elected Council and Samsung have negotiated final equity and capacity funding agreements.
- Mayor Hewitt of Haldimand County is a strong supporter of the Samsung project (he has appeared in Samsung TV commercials) and Samsung/Pattern/NextEra/Capital Power helped launch the Community Vibrancy Fund for the County (launched September 2011). This is an annual \$2M fund for the 20 year life of the project.

BACKGROUND:

1. BACKGROUND ON THE GREEN ENERGY INVESTMENT AGREEMENT:

- Ontario's Long Term Energy Plan (LTEP) targets 10,700MW of renewables sourced from wind, solar and bio-energy by 2018.

- The Korean Consortium Phase 1 and Phase 2 projects (wind and solar) currently underway total 1069 MW of that target. Phase 3 under the recently amended GEIA (2013) totals 300 MW of wind and solar projects.

PHASES*	PROJECTS	LOCATION	TOTAL CAPACITY (MW)**	COMMERCIAL OPERATION DATES (COD):
Phase 1	▪ GRAND RENEWABLE ENERGY PARK 149MW (Wind) ▪ GRAND RENEWABLE ENERGY PARK 100MW (Solar) ▪ SOUTH KENT WIND PARK 270MW (Wind)	Haldimand County Haldimand County Chatham-Kent	518.6 MW	March 2014
Phase 2	▪ K2 270MW (Wind) ▪ ARMOW 180 MW (Wind) ▪ KINGSTON NORTH 100 MW (Solar)	Huron County Kincardine Kingston	550MW	December 2014
Phase 3	▪ Dundalk ~100MW (wind) ▪ Beaverdale ~100MW (wind) ▪ TBD 100 MW (solar)	Grey County Grey County TBD	300 MW	December 2016

- On April 23rd, 2013 Samsung and Pattern Energy announced the establishment of the \$11.5 million Wind Community Benefits program, benefitting the community of Chatham-Kent. The Phase 1 South Kent Wind Park is located near Chatham-Kent.

POWER PURCHASE AGREEMENTS (PPAS)

- Contracts have been signed for Phase 1 and Phase 2 consisting of 6 separate PPAs (one for each project) with the OPA.

TRANSMISSION ALLOCATION

- ENERGY has directed the OPA to set-aside transmission capacity for Phases 1, 2 and 3.
- KC had previously submitted Phase 3 connection points, but these need to be confirmed.

REGULATORY APPROVAL:

- KC has received its regulatory approvals for the three Phase 1 projects.
- For Phase 2 projects, Renewable Energy Approval (REA) documents for all three projects were submitted to the Ministry of the Environment (MOE). MOE deemed all three applications complete and posted them on the Environmental Bill of Rights (EBR) website for a 45-day public comment period.
- The REA documents are currently undergoing technical review. A decision is expected by August.
- Once a decision is provided, members of the public can appeal the project through the Environmental Review Tribunal.
- The current Commercial Operation Date for these Phase 2 projects is December 31, 2014.

2. BACKGROUND ON MANUFACTURING PLANT COMMITMENTS:

- In addition to the rates for electricity generation set out in the PPAs, KC will be eligible for an economic development adder for job commitments 2013-2015 and an extension of the adder for solar jobs in 2016.
- These adders are contingent upon KC’s manufacturing partners operating four manufacturing plants according to the following schedule:
 - Towers (CS Wind, Windsor) – in full operation by December 31, 2011;
 - Solar Inverters (SMA, Toronto) – in full operation by December 31, 2011;
 - Blades (Siemens, Tillsonburg) – in full operation by December 31, 2011; and
 - Solar Module Assembly (Canadian Solar, London) –committed to be operational by December 31, 2013

Component part	Plants	Jobs (as of June 2013)	Targeted Jobs Target
Wind Turbine Blades	Siemens – Tillsonburg	200	300
Wind Towers	CS Wind – Windsor	400	300
Solar Inverters	SMA – Toronto	30	100
Solar Module Assembly	Canadian Solar- London	0	200
TOTAL		630	900

- EDA payments will be reduced on a pro rata basis if job levels fall below 85% of 900 jobs.
 - Average jobs between 2013-2015 must be maintained at 765 jobs. (E.g. if jobs fall below 765 by 15%, KC's EDA will be reduced by 15%.)
- The KC committed to providing documentation that the manufacturing plants were providing 900 jobs at peak capacity, in December of 2012. As of June 20, 2013, KC is understood to have approximately 630 jobs in 3 manufacturing plants.
- If KC's manufacturing and jobs commitments are met, Economic Development Adders (EDA) are payable through Phase 1 and 2 PPAs for 2013-2015 commitments and through Phase 3 PPAs for 2016 commitments.
 - Economic Development Adder for 2013-2015 jobs: KC is eligible for up to 1.43 cents/kWh for solar and 0.27 cents/kWh for wind, paid on the Phase 1 and Phase 2 PPAs over 20 years, to a maximum of \$110M net present value if they maintain an average of 765 jobs during 2013-2015. \$110 M represents the total manufacturing investment to build 4 manufacturing plants in Ontario. In addition, all four manufacturing facilities must not cease operations prior to the end of 2016 or the EDA will be reduced by 25 per cent. Payment begins upon the commercial operation of KC's Phase 1 and 2 wind and solar facilities (March and December 2014 respectively).
 - Economic Development Adder for 2016 jobs: KC would be eligible for a maximum of 1.43 cents/kWh on the 100 MW Phase 3 solar project over 20 years, if they maintain 255 jobs at their solar facilities through 2016. Payment begins upon the commercial operation of KC's Phase 3 solar project (December 2016).

3. BACKGROUND ON FIRST NATIONS INVOLVEMENT IN THE PROPOSED GRAND RENEWABLE ENERGY PARK IN HALDAMIAND COUNTY:

- KC has signed equity agreements as well as a capacity funding agreement with the Six Nations Elected Council.
- Samsung and the Six Nations Elected Council have finalized and ratified the following agreements for the GRAND Project:
 - 10% Equity Agreement (\$13.7M investment) for GRAND Wind Project (\$39M net profit over 20 year project)
 - 10% Equity Agreement (\$15.3M investment) for GRAND Solar Project (\$9.2M net profit over 20 year project)
 - Capacity Funding Agreement which includes:
 - Post-Secondary Scholarship Fund (\$400 000 over 20 year project);
 - Capacity Funding (\$240 000 for incurred and future project consultant costs as well as annual salary for Six Nations Elected Council Office);
 - Jobs and Training Agreement for GRAND construction and maintenance jobs to be made available to Six Nations members.
- The traditional Six Nations Government - Haudenosaunee Confederacy Chiefs Council (HCCC) and their development 'arm' Haudenosaunee Development Institute (HDI) are currently opposed to development of Samsung's GRAND project unless a separate Impact Benefit Agreement is signed with them.
- Samsung's has submitted a proposal to the HCCC and the HCCC are currently reviewing it.

4. BACKGROUND ON ENVIRONMENTAL REVIEW TRIBUNAL HEARINGS:

- Renewable Energy Approvals (REA) for the Grand Renewable Energy Project and the South Kent Wind Park Project were granted on June 15, 2012.
- The REA for the Grand Renewable Energy Project was appealed to the Environmental Review Tribunal by Haldimand Wind Concerns and by two local residents. Five local residents were granted status as participants and presenters. This appeal was dismissed on December 6th, 2012.
- The REA for the South Kent Wind Project has been appealed by Chatham-Kent Wind Action. Three local residents have been granted status as participants and presenters. This appeal was dismissed on December 24th, 2012.
- Both the Grand Renewable Energy Project and the South Kent Wind Project received their Renewable Energy Approvals and their Notices to proceed.

Date: June 27, 2013

Updated by: Kathy Hering
Senior Policy Advisor
Project Management Office
(416) 326-2508

Approved by: Doug MacCallum, A/Director,
Renewable Energy Project Management Branch
(416) 212-9267

Approved by: Kailli Sermat-Harding, A/ADM
Renewables & Energy Efficiency Division
416-327-5555

THE GREEN ENERGY INVESTMENT AGREEMENT (GEIA)

ISSUE:

On June 20, 2013, the Minister announced that negotiations with the Korean Consortium have resulted in an updated Green Energy Investment Agreement.

RESPONSE:

1. GENERAL MESSAGING ON THE GREEN ENERGY INVESTMENT AGREEMENT

- The Ministry of Energy worked collaboratively with the Korean Consortium, including Samsung, to update and revise the GEIA. The amended agreement is valued at \$6 billion in today's dollars, resulting in a \$3.7 billion reduction.
- The revised agreement includes:
 - Protecting the agreement's job commitments to 2016.
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 - Reducing the agreement's total commitment for renewable energy projects from 2,500 megawatts (MW) to 1,369 MW. As part of Ontario's review of the Long-Term Energy Plan, the province will consider how to best use the 1,131 MW of energy capacity made available, with a focus on ratepayer savings, conservation and a continued commitment to renewable energy.
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- The first two phases of the GEIA have Power Purchase Agreements and are expected to be operational in 2014. The first two phases will result in 1069 MW of new renewable energy.
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- On April 23rd, 2013 Samsung and Pattern Energy announced the establishment of the \$11.5 million Wind Community Benefits program, benefitting the community of Chatham-Kent.
- On June 26th, Samsung announced its partnership with Canadian Solar to open the London solar plant by December 31, 2013. This London plant will manufacture solar parts to supply Samsung's solar projects.

2. SUGGESTED RESPONSE TO MANUFACTURING PLANT COMMITMENTS:

- The four manufacturing plants opened by the Korean Consortium and its partners are expected to create jobs across the province:
 - Siemens has built a wind blade manufacturing plant in Tillsonburg. Siemens expects the plant to create 300 jobs at peak capacity and 600 indirect jobs.
 - CS Wind has built a wind tower plant in Windsor. The plant is expected to employ up to 300 people when running at full capacity and 400 indirect jobs are also expected with this plant.
 - Celestica and SMA, are expanding the Celestica GTA facility to manufacture solar inverters. The plant is expected to create up to 100 direct jobs and 100 indirect.
 - Canadian Solar Inc. will build a fourth manufacturing facility in London by the end of this year, which is expected to create up to 200 additional local manufacturing and research and development jobs.
- As per the Amended GEIA, KC will be eligible for an economic development adder (EDA) contingent upon meeting jobs commitments at these four manufacturing facilities.
- Conversely, if KC does not meet job and manufacturing commitments, their eligibility for this adder would be limited.
- As of June 20, 2013, KC is understood to have approximately 630 jobs in three manufacturing plants.

3. SUGGESTED RESPONSE TO FIRST NATIONS INVOLVEMENT IN THE PROPOSED GRAND RENEWABLE ENERGY PARK IN HALDIMAND COUNTY:

- Samsung is building part of their Phase 1 wind and solar project, the Grand Renewable Energy Park, in Haldimand County.
- The Korean Consortium and their partners have the responsibility to meet the requirements under the Renewable Energy Approval process, including consultation with First Nations and Metis communities.
- We take the Crown's duty to consult First Nations and Métis very seriously.
- As part of the consultations required under the Renewable Energy Approval process, Samsung is consulting with both the Six Nations Elected Council and the Haudenosaunee Confederacy Chiefs Council.
- We understand that a business arrangement between Samsung and the Six Nations Elected Council has been negotiated and that Samsung continues to engage in discussions with the Haudenosaunee Development Institute on behalf of the Confederacy Chiefs.

BACKGROUND:

1. BACKGROUND ON THE GREEN ENERGY INVESTMENT AGREEMENT:

- Ontario’s 2010 Long Term Energy Plan (LTEP) targets 10,700MW of renewables sourced from wind, solar and bio-energy by 2018.
- The Korean Consortium Phase 1 and Phase 2 projects (wind and solar) currently underway total 1069 MW of that target. Phase 3 under the recently amended GEIA (2013) totals 300 MW of wind and solar projects.

PHASES*	PROJECTS	LOCATION	TOTAL CAPACITY (MW)**
Phase 1	▪ GRAND RENEWABLE ENERGY PARK 149MW (Wind) ▪ GRAND RENEWABLE ENERGY PARK 100MW (Solar) ▪ SOUTH KENT WIND PARK 270MW (Wind)	Haldimand County Haldimand County Chatham-Kent	518.6 MW
Phase 2	▪ K2 270MW (Wind) ▪ ARMOW 180 MW (Wind) ▪ KINGSTON NORTH 100 MW (Solar)	Huron County Kincardine Kingston	550MW
Phase 3	▪ Dundalk ~100MW (wind) ▪ Beaverdale ~100MW (wind) ▪ TBD 100 MW (solar)	Grey County Grey County TBD	300 MW

- On April 23rd, 2013 Samsung and Pattern Energy announced the establishment of the \$11.5 million Wind Community Benefits program, benefitting the community of Chatham-Kent. The Phase 1 South Kent Wind Park is located near Chatham-Kent.

POWER PURCHASE AGREEMENTS (PPAS)

- Contracts have been signed for Phase 1 and Phase 2 consisting of 6 separate PPAs (one for each project) with the OPA.

TRANSMISSION ALLOCATION

- ENERGY has directed the OPA to set-aside transmission capacity for Phases 1, 2 and 3.
- KC had previously submitted Phase 3 connection points, but these need to be confirmed.

REGULATORY APPROVAL:

- KC has received its regulatory approvals for the three Phase 1 projects.
- For Phase 2 projects, Renewable Energy Approval (REA) documents for all three projects were submitted to the Ministry of the Environment (MOE). MOE deemed all three applications complete and posted them on the Environmental Bill of Rights (EBR) website for a 45-day public comment period.
 - The K2 270 MW wind project received its REA on July 23, 2013.
 - The Armow 180 MW wind project application is under technical review.
 - Samsung has requested that MOE suspend the technical review of the Kingston 100 MW solar project, while changes are made to accommodate Kingston and Loyalist Township.
- REA decisions are subject to appeal through the Environmental Review Tribunal.

Background on Environmental Review Tribunal Hearings:

- Renewable Energy Approvals (REA) for the Grand Renewable Energy Project and the South Kent Wind Park Project were granted on June 15, 2012.
- The REA for the Grand Renewable Energy Project was appealed to the Environmental Review Tribunal by Haldimand Wind Concerns and by two local residents. Five local residents were granted status as participants and presenters. This appeal was dismissed on December 6th,

2012.

- The REA for the South Kent Wind Project was appealed by Chatham-Kent Wind Action. Three local residents were granted status as participants and presenters. This appeal was dismissed on December 24th, 2012.

2. BACKGROUND ON MANUFACTURING PLANT COMMITMENTS:

- In addition to the rates for electricity generation set out in the PPAs, KC will be eligible for an economic development adder for job commitments 2013-2015 and an extension of the adder for solar jobs in 2016.
- These adders are contingent upon KC's manufacturing partners operating four manufacturing plants during the period 2013 to 2016:
 - Towers (CS Wind, Windsor) – in full operation by December 31, 2011;
 - Solar Inverters (SMA, Toronto) – in full operation by December 31, 2011;
 - Blades (Siemens, Tillsonburg) – in full operation by December 31, 2011; and
 - Solar Module Assembly (Canadian Solar, London) – committed to be operational by December 31, 2013

Component part	Plants	Jobs (as of June 2013)	Targeted Jobs Target
Wind Turbine Blades	Siemens – Tillsonburg	200	300
Wind Towers	CS Wind – Windsor	400	300
Solar Inverters	SMA – Toronto	30	100
Solar Module Assembly	Canadian Solar- London	0	200
TOTAL		630	900

- EDA payments will be reduced on a pro rata basis if job levels fall below 85% of 900 jobs.
 - Average jobs between 2013-2015 must be maintained at 765 jobs. (E.g. if jobs fall below 765 by 15%, KC's EDA will be reduced by 15%.)
- The KC committed to providing documentation that the manufacturing plants were providing 900 jobs at peak capacity, in December of 2012. As of June 20, 2013, KC is understood to have approximately 630 jobs in 3 manufacturing plants.
- If KC's manufacturing and jobs commitments are met, Economic Development Adders (EDA) are payable through Phase 1 and 2 PPAs for 2013-2015 commitments and through Phase 3 PPAs for 2016 commitments.
 - Economic Development Adder for 2013-2015 jobs: KC is eligible for up to 1.43 cents/kWh for solar and 0.27 cents/kWh for wind, paid on the Phase 1 and Phase 2 PPAs over 20 years, to a maximum of \$110 million net present value if they maintain an average of 765 jobs during 2013-2015. In addition, all four manufacturing facilities must not cease operations prior to the end of 2016 or the EDA will be reduced by 25 per cent. Payment begins upon the commercial operation of KC's Phase 1 and 2 wind and solar facilities.
 - Economic Development Adder for 2016 jobs: KC would be eligible for a maximum of 1.43 cents/kWh on the 100 MW Phase 3 solar project over 20 years, if they maintain 255 jobs at their solar facilities through 2016. Payment begins upon the commercial operation of KC's Phase 3 solar project.

3. BACKGROUND ON FIRST NATIONS INVOLVEMENT IN THE PROPOSED GRAND RENEWABLE ENERGY PARK IN HALDAMIAND COUNTY:

- KC has signed equity agreements as well as a capacity funding agreement with the Six Nations Elected Council.
- Samsung and the Six Nations Elected Council have finalized and ratified the following agreements for the GRAND Project:
 - 10% Equity Agreement (\$13.7M investment) for GRAND Wind Project (\$39M net profit over 20 year project)

- 10% Equity Agreement (\$15.3M investment) for GRAND Solar Project (\$9.2M net profit over 20 year project)
- Capacity Funding Agreement which includes:
 - Post-Secondary Scholarship Fund (\$400 000 over 20 year project);
 - Capacity Funding (\$240 000 for incurred and future project consultant costs as well as annual salary for Six Nations Elected Council Office);
 - Jobs and Training Agreement for GRAND construction and maintenance jobs to be made available to Six Nations members.
- The unelected Haudenosaunee Confederacy Chiefs Council (HCCC), who also claim to represent Six Nations, and their development arm Haudenosaunee Development Institute (HDI) are currently opposed to development of Samsung's GRAND project unless a separate Impact Benefit Agreement is signed with them.
- Samsung has submitted a proposal to the HCCC and the HCCC are currently reviewing it.
- Mayor Hewitt of Haldimand County is a strong supporter of the Samsung project (he has appeared in Samsung TV commercials) and Samsung/Pattern/NextEra/Capital Power helped launch the Community Vibrancy Fund for the County (launched September 2011). This is an annual \$2M fund for the 20 year life of the project.

Date: August 28, 2013

Prepared by: Kathy Hering
Senior Policy Advisor
Project Management Office
(416) 326-2508

Approved by: Doug MacCallum, A/Director,
Renewable Energy Project Management Branch
(416) 212-9267

Approved by: Kailli Sermat-Harding, A/ADM
Renewables & Energy Efficiency Division
416-327-5555

**LARGE RENEWABLE –
COMPETITIVE PROCUREMENT PROCESS DEVELOPMENT**

ISSUE:

Ontario is developing a new competitive procurement process for future renewable energy projects larger than 500 kilowatts (kW). The new process will replace the existing large project stream of the Feed-In Tariff (FIT) program.

SUGGESTED RESPONSE:

- Building clean, reliable and affordable energy in a way that respects communities is our top priority.
- The Minister of Energy has asked the Ontario Power Authority (OPA) to develop a new competitive procurement process for future renewable energy projects larger than 500 kW, which will take into account local needs and considerations before contracts are offered.
- This new competitive procurement process, tailored to meet the needs of communities, will replace the Large Feed-In Tariff (FIT) program.
- We will continue to honour existing contracts. The changes we're making will provide municipalities with a stronger role going forward.
- The OPA has engaged with stakeholders, municipalities and Aboriginal communities to help inform the identification of appropriate locations and siting requirements for future renewable energy projects.
- The OPA has reported back to Minister of Energy with interim recommendations and additional engagement activities will occur in fall 2013.
- We need to make sure our approach is balanced and considers the views of local communities while ensuring the long-term sustainability of Ontario's electricity system.
- We will be in a position to provide more details once we have completed this development work – we expect to have more information once the province has updated its Long-Term Energy Plan later in the fall.

BACKGROUND:

1. CURRENT STATUS OF COMPETITIVE PROCUREMENT PROCESS DEVELOPMENT:

Ontario Power Authority:

- On June 12th, 2013 the Minister of Energy directed the OPA to make changes to the FIT Program, including removing large (>500kW) renewable projects from the program and develop recommendations for a new competitive procurement process for large renewables that considers input from stakeholders, municipalities and Aboriginal communities to help identify appropriate locations and siting requirements for large renewable projects.
- In response to the Minister's June 12th directive, the OPA launched its consultation initiative on the competitive procurement process on August 1, 2013.
- Engagement activities include:
 1. **Webinars** – The OPA has hosted 3 webinars to discuss the development of the new procurement process.
 - Municipal Webinar held on Aug 7, 2013.
 - Public Webinar held on Aug 7, 2013.
 - First Nations and Métis Communities Webinar held on Aug 8, 2013.
 - Inter-Ministerial Webinar held on Aug 12, 2013 at 2pm.
 2. **Stakeholder meetings** – A series of meetings were held the weeks of August 12th and 19th, 2013 to further the discussion on the development of the procurement process.
 3. **Written submissions** –Written submissions on the development of the new procurement process were accepted until Wednesday, August 21, 2013. Stakeholders were asked to consider the following questions in their submission:
 1. Are Expression of Interest/Request For Proposal processes still appropriate selection methods for new competitive procurement processes?
 2. Are there aspects of the FIT Program that should be included in the new competitive process? Are there aspects that should not?
 3. One typical evaluation criteria is price/cost. Are there other measurable criteria that should be considered?
 4. Should the new procurement differentiate on criteria such as project size, technology, etc.? If so, why?
 5. What community engagement should be required prior to project evaluation? How should engagement be measured?
 6. What criteria or requirements could help identify appropriate project locations and siting requirements?
 7. Building on other recent engagements, is there any new input that the OPA should consider?
- Additional Question for First Nation and Métis Communities:
 - Are there any First Nation, Métis or other Aboriginal requirements that should be considered in a competitive procurement?
- Additional Question for municipalities:
 - What criteria or requirements, from a municipal perspective, could help identify appropriate project locations and siting requirements?
- The OPA has provided the Minister interim recommendations and it is expected that additional engagement activities will occur in fall 2013.
- Once Ontario's review of the Long-Term Energy Plan is complete later this year, the ministry will be in a position to announce details on a competitive procurement process for large renewable energy projects.

Ministry of Energy:

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- The Ministry of Energy is in the process of inter-ministerial consultation.

2. PAST COMPETITIVE PROCUREMENT PROCESSES FOR RENEWABLE ENERGY SUPPLY IN ONTARIO:

- Over the past 10 years, Ontario has brought more than 3,400 megawatts of renewable energy online — enough to power 900,000 homes each year.

Standard Offer Renewables Procurement:

- 2006 - Renewable Energy Standard Offer Program (RESOP)
- 2009 to 2013 - FIT and microFIT
- Standard Offer Program Requirements:
 - Set contract price.
 - Open to all applicants who meet eligibility, application completeness requirements and connection availability.
 - Recently, application ranking through capacity set asides and points system has been included.

Competitive Request for Proposals (RFP) Renewables Procurement:

- 2004 – Renewable Energy Supply I (RES I)
- 2005 – Renewable Energy Supply II (RES II)
- 2008 – Renewable Energy Supply III (RES III)
- On June 24, 2004 the Ministry of Energy issued a request for proposals RFP for 300 MW of renewable energy supply (RES I). This resulted in the execution of 10 contracts for wind, hydro and landfill gas projects.
- On June 17, 2005, the Ministry of Energy issued a RFP for up to 1,000 MW of renewable energy supply (RES II).
 - Nine proponents were selected.
- On November 16, 2005, the Minister of Energy directed the Ontario Power Authority to execute these contracts.
 - Two contracts from RES I and II have been terminated.
- In order to meet renewable energy targets in the June 13, 2006 Supply Mix Direction, on August 27, 2007, the Minister of Energy directed the OPA to procure up to 2,000 MW of renewable energy generation of projects greater than 10 MW in size. 500 MW were to be procured by the end of 2007 (RES III).
- The OPA issued the RES III RFP for 500 MW of renewable energy supply on August 22, 2008.
 - Six winning projects, all wind, were announced on January 23, 2009. Of these, 1 has been terminated.
- RFP Contract Requirements:
 - Evaluation criteria for all RFPs incorporated desired positive project attributes – quality of application and low price.
 - Proposals were evaluated against a set of required criteria as well as several rated/weighted criteria:
 - Status of environmental assessment
 - Status of zoning approvals
 - Equipment availability
 - Resource availability data
 - Proponent team experience

- Financial assessment
- Prices determined through electricity market bidding process.
 - Successful bids ranged from 8.2 cents/kWh to 11.9 cents/kWh.
- Proponents were required to post security deposits, undergo review of their finances, and commit to in-service dates.
- There were financial consequences for failing to reach in-service deadlines.
- Domestic content was not required
- The majority of projects were wind power (1,509 MW out of 1,566 MW).
- Only one RES projects has not yet come online: Yellow Falls (formerly Island Falls) Generating Station, a 20MW waterpower project located in Smooth Rock Falls. Expected to come on-line in Q3 2016.

Prepared on: August 26, 2013

Prepared by: Jason Collins
Renewable Energy Facilitation Office
416-212-7717

Approved by: Leo Tasca
Deputy Director (A)
Renewable Energy Facilitation Office
416-212-7701

Mirrun Zaveri
Director (A)
Renewables and Energy Facilitation Branch
416-327-3868

Kaili Sermat-Harding
ADM (A)
Renewables and Energy Efficiency Division
416- 327-5555

**Auditor General's 2013 Annual Report
Follow-Up To The 2011 Value-For-Money Audit On Renewable Energy Initiatives**

ISSUE:

The Auditor General's 2013 Annual Report includes a status of actions taken in response to the 2011 value-for money audit on renewable energy initiatives in the electricity sector. The Auditor acknowledged both the progress made to date and the ongoing efforts to address all the recommendations.

SUGGESTED RESPONSE:

- We thank the Auditor General for her work.
- The Ministry, together with our agency partners, have been working hard to address the Auditor's recommendations for improvement.
- We appreciate her recognition that we have made substantial progress on several recommendations and are continuing our efforts to address them all.
- Since the 2011 audit:
 - The Ministry of Energy and our agencies are working on improving energy literacy and helping consumers better understand their energy bills and the electricity sector. For example, the Ministry launched **emPOWERme** - a consumer-driven education web feature that meets the need for greater consumer awareness.
 - On average, we reduced solar FIT and microFIT prices by approximately 50%, and reduced prices for wind generation by 15% since the program launched in 2009.
 - The Independent Electricity System Operator (IESO) has been working to implement new market rules that are providing consistency across the electricity market by integrating wind and solar generators into the system alongside hydro, nuclear and natural gas – saving Ontario ratepayers as much as \$200 million every year.
 - The Green Energy Investment Agreement has been amended, reducing the contract cost by approximately \$3.7 billion.
 - Hydro One has been upgrading a number of transmission stations, enabling the connection of small-scale renewable energy projects.
 - The Bruce to Milton transmission project came online in Spring 2012, and will enable the connection of more than 3000 MW of clean and renewable energy. Other transmission projects such as Hydro One's re-wiring of a line west of London will ensure additional power from clean and renewable sources can be effectively integrated into our supply.
 - The review of the Long-Term Energy Plan has been completed. The plan reinforces Ontario's commitment to providing an affordable, clean and reliable electricity system.

BACKGROUND:

Value-for Money Audit – Renewable Energy Policy

- In December 2010, the Auditor General of Ontario notified the Ministry of Energy and the Ontario Power Authority that it would be conducting a value-for-money audit to assess whether the Ministry and the Ontario Power Authority have adequate systems and procedures in place to:
 - ensure that renewable energy resources are obtained in a cost-effective manner and within the context of applicable legislation and government policy; and
 - implement a balanced and responsible plan with respect to renewable energy that provides Ontarians with a clean, reliable, affordable, and sustainable electricity system.

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- In addition, the Ministry held several meetings with senior officials from the Auditor General's Office to provide further contextual information and suggested revisions to factual errors.
- The report was released as part of the Auditor General's annual report in December 2011.
- The report included the following key observations:
 - No independent, objective, expert investigation, nor comprehensive cost-benefit analysis to support the government's decisions (e.g., lack of due diligence before launching the FIT program and entering into an agreement with the Korean Consortium);
 - Many other jurisdictions set lower FIT prices than Ontario and have mechanisms to limit total costs arising from FIT programs;
 - Lack of communication to consumers on the cost of renewable energy and its impact on bills;
 - Inadequate consultation with ministry agencies and ambiguity with respect to the roles of the OPA and Ontario Energy Board (OEB) in renewable energy policy development and oversight;
 - 50,000 jobs calculation did not take into account associated jobs losses and did not clarify that many of the jobs were temporary; and
 - Increasing amount of renewable energy will lead to surplus generation
 - Ontario's Chief Medical Officer of Health review was not objective

Follow-Up to Value-for-Money 2011 Audit – Electricity Sector Renewable Energy Initiatives

The Auditor General has completed her follow-up to the Value-for-Money 2011 Renewables Audit and will be releasing the results of her review in her annual report, expected in late November/early December.

Working drafts shared with the Ministry by the Auditor's Office, indicate that the Auditor recognizes some progress has been made on all of the recommendations and substantial progress has been made on several of them.

Improving Consumer Communications

- The Ministry has:
 - provided consumers with information about Ontario's energy sector, including electricity costs, on its website

- made changes to the web-site to make it more user-friendly, such as improving search capabilities, using plain language, increasing accessibility and providing updated descriptions of Ontario's energy sources and provincial programs
- been collaborating with the OEB to launch other online tools that are intended to help consumers understand their electricity bills
- been using social media such as Twitter to educate consumers
- undertaken market research to further improve consumer awareness of the connect of Global Adjustment component of their bill and its impact on electricity costs
- planning to launch more online tools and to post more information online to help consumers better understand their electricity bills, including emPOWERme - a consumer-driven education web feature that meets the need for greater consumer awareness.
- The OPA has also incorporated the latest 2012 data related to electricity costs in a generation procurement cost disclosure, revamped its quarterly supply report and is working with the Ministry and other agencies to communicate to consumers initiatives related to electricity costs.

FIT Prices and Cost of Renewables

- The Ministry completed the mandated FIT 2-year review. The review involved working with our agencies to obtain advice and input, reviewing international best practices and engaging with community groups, municipalities, Aboriginal communities, energy industry stakeholders and consumer advocacy groups. The input was carefully considered as part of the review.
- As part of the FIT review, the Ministry and OPA reviewed and recommended reducing FIT prices that reflected new economic realities such as lowered technology costs of renewable generation. The recommendation was accepted by the government and FIT prices for new solar and wind power projects were reduced by about 20% and 15% respectively in 2012. FIT prices for new solar projects were further reduced on average by one-third in 2013.
 - The 2014 FIT prices were posted by the OPA on November 4, 2013 and reflect lower technology costs and the reduction of domestic content requirements. Note: 2014 FIT prices have not changed from 2013 FIT prices.
- In collaboration with the Korean Consortium, the Green Energy Investment Agreement has been revised. The amended agreement reduces contract costs by \$3.7 billion, assures continued clean energy investment by the Korean Consortium, protects existing job commitments and adds a commitment to job creation that extends to 2016.

Surplus Baseload

- The IESO worked with the OPA and industry stakeholders to implement new market rules that require renewable generators to turn down or off when available supply from baseload generation exceeds demand. This provides consistency across the electricity market with wind and solar participating as most other generators do.
- The IESO estimates that these changes to the market rules could save ratepayers up to \$200 million per year. Note: The Ministry has received confirmation that the \$200 million in savings only includes savings realized from the market rule changes and not contract amendments between OPA and wind generators as reported to the Auditor.

Delivery of Renewable Energy

- Hydro One has been upgrading a number of transmission stations, enabling connection of small-scale renewable projects.
- The Bruce to Milton transmission project came online in Spring 2012 which will enable more than 3000 MW of clean energy from nuclear and renewable power sources.
- Hydro One is rewiring an existing transmission line west of London. This project will enable additional connection of renewable capacity and is expected to be in service at the end of 2014.
- The review of the Long-Term Energy Plan has been finalized. The plan updates and reaffirms Ontario's commitment to renewable energy development:
 - Target for wind, solar, bioenergy remains at 10,700 MW; online by 2021
 - Target for hydroelectric generation is increased to 9,300; online by 2025
- The updated plan also highlights the ongoing efforts to integrate renewable energy into the system including improved forecasting of when wind power will be available to supply the power grid.

Renewable Policy Coordination

- Since the release of the report, the Ministry has been collaborating with other ministries, including the Ministry of Environment (MOE) and the Ministry of Natural Resources (MNR) to streamline the regulatory approval processes and to eliminate delays or duplication.
- Examples of this collaboration includes:
 - The MOE has implemented amendments to the Renewable Energy Approval regulation as a result of the FIT Two-Year Review. These amendments are meant to clarify requirements and improve turnaround time for applications while maintaining environmental protection. The Ministry expects these changes to improve timelines for project approvals by up to 25%.
 - In 2012, the MNR proposed policy changes for renewable energy project on Crown land to help align the release of Crown land with provincial energy supply needs and transmission availability. The MNR has also developed a new Crown Land Site Report document to align access to provincial Crown land with the updated FIT program.
 - The Ministry has created a Clean Energy Task Force to advise the Ministers of Energy and Economic Development and Innovation to help connect companies in the energy sector.
 - A new Renewable Energy Committee was created in 2012 to help monitor the progress of projects through the approvals process.
- The OPA has also been collaborating with other ministries and agencies to assess and manage the impacts of incorporating new generation resources on the electricity system. The OPA has been working with Ontario Power Generation (OPG), the IESO, Hydro One, the Ontario Energy Board and the Ministries of Energy, Environment and Natural Resources.

Examples of the work being done by the OPA include:

- The creation of technical working groups during the FIT program review to ensure affected stakeholders would be aware of proposed changes and associated solutions.

- Collaboration with Hydro One, the IESO and Local Distribution Companies on various regional planning and transmission initiatives.
- Working with the OEB on the Renewed Regulatory Framework for Electricity (RRFE), which is a new approach to rate-setting that is intended to support cost-effective modernization of the electricity network.

Jobs Calculation

- The Auditor General reports that the Ministry's calculation of 50,000 jobs expected to be created through the implementation of the renewable energy strategy was based on standard Ontario government methodology, including standard investment and job multipliers.
- The OPA has been supporting the Ministry's job creation statistics by providing available data to help assess the socio-economic impact of renewable energy. The OPA has also been conducting random audits of FIT contracts to ensure compliance with terms of the contract, including domestic content provisions for the purpose of creating jobs.

Environmental and Health Impact of Renewable Energy

- The government will continue to rely on the Chief Medical Officer of Health to provide objective advice on the potential health impacts of renewable energy generators.
- The Ministry of the Environment continues to monitor the latest findings on low frequency noise and infrasound from wind turbines.

Standing Committee on Public Accounts

- In winter 2012, the Standing Committee on Public Accounts selected section 3.03, Renewable Energy Initiatives of the 2011 Auditor General Report for a hearing.
- Hearing dates for the Renewable Energy Initiatives report have not yet been determined.

Prepared by: Communications Branch
Oct 31, 2013

Reviewed by: Renewables and Energy Efficiency Division
November 13, 2013

Energy Supply, Transmission and Distribution Policy Division
November 13, 2013

CLEAN POWER¹

ISSUE:

What is the status of Ontario's clean energy supply?

SUGGESTED RESPONSE

- Ontario is committed to reducing the environmental footprint of electricity generation across the province.
- Our government's Long-Term Energy Plan will clean up our air, create jobs and make Ontario a clean energy powerhouse.
- We forecast that by the end of 2018, we will have 10,700 megawatts of renewable power online from wind, solar and bio-energy – enough electricity each year to power more than 2 million homes. This will help create and support thousands of jobs for our skilled workers, and a revitalized manufacturing sector.
- Since October 2003, more than 2,000 MW of renewable energy capacity has come online from government procurements. This is expected to produce enough electricity each year to power about 600,000 homes.
- Since October 2003, the government has signed more than 24,000 renewable energy supply contracts from wind, water, solar and bio-energy sources, totalling more than 6,700 MW through a number of programs, including RESOP, RES, FIT and others.
- In addition, more than 1,000 MW of FIT projects have been announced.
- The Korean Consortium agreement and FIT contracts announced to date represent approximately \$26B in investment, thousands of jobs, and are expected to produce enough electricity each year for more than 1.8 million homes.
- New renewable energy supply that is online or under construction totals about 3,000 MW of large and small-scale projects across Ontario representing about \$12 billion of investment and more than 13,000 direct and indirect jobs.

¹ For the purposes of this note, "clean power" does not include natural gas.

BACKGROUND:

Ontario’s Clean Energy Procurements:

- The province has executed more than 200 contracts for large FIT projects – generally exceeding 500 kW. These projects have a combined capacity of more than 3,200 MW. In addition, more than 1,000 MW of these contracts have been announced.
- The province has executed more than 1,200 contracts for medium FIT projects (10 kW to 500 kW) with a capacity of more than 200 MW. In addition, about 100 MW of these contracts have been announced.
- The province has offered more than 22,000 microFIT (10 kW or smaller) conditional contracts totalling more than 200 MW.
- For details on the FIT, please see House Note C09 – Green Energy Act – Feed-in Tariff
- In addition to the FIT Program, since October 2003, the McGuinty government has signed contracts representing more than 3,000 MW of new renewable energy supply from wind, water, solar and bio-based sources through other procurements, as described in the tables below:

Renewables Online

Procurement Initiatives	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Existing (pre-Oct 2003)	7,889.88	123	2.40	2	0.00	-	7,752.98	115	134.50	6
Grandfathered RESOP (pre-Oct 2003)	20.96	9	12.21	4	0.00	-	4.12	4	4.63	1
New RESOP	496.24	126	221.58	28	216.42	69	24.09	12	34.14	17
New HCl	1.00	2	0.00	0	0.00	-	1.00	2	0.00	0
RES I, II + III	1,450.90	19	1,410.50	14	0.00	-	31.00	2	9.40	3
CHP III	0.00	-	0.00	0	0.00	-	0.00	0	0.00	0
OPG Hydro - runner upgrade program	244.00	6	0.00	0	0.00	-	244.00	6	0.00	0
OPG Hydro - contracted by OPA	62.90	6	0.00	0	0.00	-	62.90	6	0.00	0
microFIT	59.32	6,779	0.03	5	59.29	6,773	0.00	0	0.01	1
CAE FIT	8.59	49	0.00	0	7.74	46	0.00	0	0.85	3
CAR FIT	8.88	6	0.80	1	0.50	1	0.00	0	7.58	4
Other	59.37	5	8.20	3	0.17	1	0.00	0	51.00	1
Total	10,302.02	7,130	1,655.72	57	284.12	6,890	8,120.10	147	242.10	36
New Online	2,391.19	6,998	1,641.11	51	284.12	6,890	362.99	28	102.97	29
New Online (gov procurements)	2,087.82	6,987	1,632.91	48	283.95	6,889	118.99	22	51.97	28

Additional Renewables Contracted (not yet online)

Procurement Initiatives	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
New RESOP	375.70	99	85.02	11	260.08	82	0.00	0	30.60	6
New HCl	1.97	2	-	-	-	-	1.97	2	-	-
RES I, II + III	114.90	2	98.90	1	-	-	16.00	1	0.00	0
CHP III	85.00	3	-	0	-	-	0.00	0	85.00	3
OPG Hydro	438.00	2	-	0	-	-	438.00	2	0.00	0
microFIT	144.94	15664	0.33	55	144.49	15,595	0.01	3	0.10	11
CAE FIT	234.98	1200	1.89	8	224.16	1,159	0.96	5	7.98	28
CAR FIT	3,253.23	210	2,112.60	47	911.92	108	187.42	44	41.29	11
Total	4,648.72	17182	2,298.75	122	1,540.65	16,944	644.36	57	164.97	59

- For detailed project information, please see B05A – Clean Power Project Information.

Wind Energy Status

- Wind projects are an important part of Ontario’s drive toward a cleaner energy future. Ontario now has more than 1,600² megawatts of wind power online from more than 900 wind turbines. In 2003, there were only 15 megawatts of wind power from ten turbines. This is a 110-fold increase in wind power capacity.
- Almost 2,300 MW of additional wind power capacity are under contract. This includes 300 MW of offshore wind. In addition, more than 1,000 MW of FIT wind power contracts have been announced but are not yet executed.
- Ontario is currently in first place for installed wind energy in Canada; Canada’s four largest wind farms are located in Ontario.
- Prominent projects include the 199.5 MW Melancthon EcoPower Centre near Shelburne and the 197.8 MW Wolfe Island Wind Farm near Kingston - Canada’s two largest wind facilities.

Solar Energy Status

- Ontario has the most solar PV capacity online of any jurisdiction in Canada³: more than 200 MW of solar PV capacity are online in Ontario. The ten largest solar farms in Canada are all located in Ontario.
- Enbridge’s 80 MW Sarnia Solar is presently the largest operational solar PV farm in the world.
- More than 1,500 MW of additional solar PV capacity are under contract.

Water Power Status

- Ontario currently has more than 8,000 MW of installed water power capacity⁴. This includes about 7,800 MW of older projects such as the Sir Adam Beck facilities at Niagara Falls.
- Water power from clean hydroelectric facilities accounted for approximately 20% of the electricity generated in Ontario in 2010.

² A subset of this capacity is tracked by the IESO – the IESO only tracks market participants.
³ A subset of this capacity is tracked by the IESO – the IESO only tracks market participants.
⁴ A subset of this capacity is tracked by the IESO – the IESO only tracks market participants. Where information on capacity for projects are different, the following order is used: i) contracted capacity, ii)_generator’s stated maximum continuous rating, iii) IESO’s net installed capacity

- Ontario has more than 700 MW of new waterpower under contract. Of this, about 120 MW are online.
- As part of OPG's runner upgrade program, 244 MW of new waterpower has come online. This power is not under government contract nor is it a government initiative.
 - A "runner" refers to the rotating driven element of a water turbine, sometimes resembling a propeller.
- For detailed information on water power projects, please see the corresponding House Note:
 - B06: OPG's Niagara Tunnel Project
 - B09: OPG Hydroelectric Projects

Bio-Energy Status

- Ontario currently has more than 200 MW of bio-based generation capacity on-line⁵. Of this, more than 50 MW is new and from government procurements.
- About 160 MW of additional bio-energy projects are under contract.
- OMAFRA's Biogas Systems Financial Assistance Program ran from September 2008 to March 2010. A total of \$11.2 million helped farmers and agri-food businesses develop and build generating systems that produce clean energy, reduce electricity costs and contribute to local economies.
- The renewable combined heat and power procurement (CHP III), resulted in three biomass projects under contract totalling 85 MW. They are not yet online. Please see House Note B17 - Combined Heat and Power - Cogeneration.
- For policy considerations for landfill gas, please see House Note B16 – Generating Energy from Municipal Waste.
- For information on the conversion of the Atikokan plant from coal to biomass, please see House Note B08 – OPG Coal Conversion.

RENEWABLE GOVERNMENT INITIATIVES OTHER THAN FIT

Renewables RFP I and II

- There were 19 successful projects in the two renewables RFPs administered by the Ministry of Energy in 2004 and 2005. Of these projects, 16 are now up and running; 1 is in approvals; and 2 contracts have been terminated.
- These projects represent a total capital investment in our province of over \$2.5 billion – and will provide enough power to supply over 300,000 homes.
- The average price of the selected projects was just under \$80 per megawatt-hour for the first RFP and just over \$86 per megawatt-hour for the second RFP.

Renewable Energy Standard Offer Program (RESOP)

- RESOP was launched in November 2006 by the Ontario Power Authority (OPA). Under the plan, the OPA will enter into a 20-year Power Purchase Agreement, at a pre-established price, for electricity from small renewable energy generators.
- Electricity from wind, biomass, biogas, or small hydroelectric sources is currently purchased at a base price of 11.16 cents per kilowatt-hour. Solar power sold to the electricity grid under RESOP will receive a price of 42 cents per kilowatt-hour.
- To be eligible, projects had to produce power from a renewable resource, have a capacity of up to 10 megawatts and connect directly to the distribution system.
- Since the Feed-in Tariff program was launched, the Ontario Power Authority has stopped offering RESOP contracts.

⁵ A subset of this capacity is tracked by the IESO – the IESO only tracks market participants.

Renewables III RFP

- The OPA issued the final Renewable Energy Supply III Request for Proposals for 500 MW of renewable energy supply on August 22, 2008.
- The RES III RFP document includes specific language to address instructions in the 2,000 MW Ministerial Directive that First Nations and Métis peoples be consulted early in the planning and development of new renewable energy projects, and that the OPA develop guidelines and purposes for this purpose.
- 23 proposals were received by the OPA on October 28, 2008. Six winning projects, all wind, were announced on January 23, 2009. Of these, 1 was terminated. The five RES III projects total 427.6 MW of new renewable energy supply for the province. Of the five projects, four are online and one is under construction.
- The average price of the selected projects was \$121 per megawatt-hour. The contracts are for a 20-year term.

OPG hydro:

- The OPA and Ontario Power Generation have signed several contracts:
 - Lac Seul (12.5 MW) reached commercial operation in February 2009
 - Healey Falls (6.4 MW) reached commercial operation in April 2010
 - the stations constituting Upper Mattagami (34.5 MW) reached commercial operation in October and November of 2010
 - Hound Chute (9.5 MW) reached commercial operation in December 2010
 - Lower Mattagami (438 MW) is currently under construction.
- OPG is also building the Niagara Tunnel. This project will increase the amount of water available for power generation at the Sir Adam Beck Generating Station, producing an additional 1.6 billion kilowatt hours of electricity per year.

Hydroelectric contract initiative (HCI):

- On May 7, 2009, the Government directed the OPA to develop a program to negotiate new contracts for qualified existing hydroelectric generation facilities in Ontario. More than 1,000 MW are now under contract.
- Facilities range in size from 40 kW to 239 MW; the total estimated eligible capacity is between 1,200 and 1,300 MW. Some are still under older contracts.
- The HCI contract materials were released on November 20, 2009.
 - Facilities 10MW or larger would be subject to individual negotiation with the OPA.
 - Facilities smaller than 10 MW would receive a 20-year contract with exit options on the 8th and 15th years.
 - The base price would be \$69/MWh with 100% of the price subject to escalation in proportion to the consumer price index.
 - Peak performance factor of x1.35 during on-peak and x0.9 during off-peak would apply.

Updated on: August 12, 2011

Updated by: Vern Riediger, Senior Policy Analyst
Renewable Energy Unit
416-212-7706

Approved by: Karen Slawner, Team Lead
Renewable Energy Unit
416-314-9472

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

Sue Lo, ADM
Renewables and Energy Efficiency Division
(416) 327-8552

CLEAN POWER¹

ISSUE:

What is the status of Ontario's clean energy supply?

SUGGESTED RESPONSE:

- Under the Long-Term Energy Plan, the Ministry expects that by the end of 2018, Ontario will have 10,700 megawatts of renewable power online from wind, solar and bio-energy – enough electricity each year to power more than 2 million homes. This is expected to help create and support thousands of jobs for our skilled workers, and a revitalized manufacturing sector.
- Since October 2003, more than 3,02,500 MW of renewable (solar, wind, hydro, bioenergy) energy capacity has come online ~~from government procurements~~. -This is expected to produce enough electricity each year to power over 700850,000 homes.
- Since October 2003, the government has ~~signed~~committed to more thanabout 28,000 renewable energy supply contracts from wind, water, solar and bio-energy sources, totalling more than ~~710,500-700~~ MW. This has been accomplished through a number of procurement programs, including the Renewable Energy Standard Offer Program (RESOP), Renewable Energy Supply (RES) Program, Feed-In Tariff (FIT) Program and other programs.
- The Korean Consortium (Samsung) agreement and FIT contracts announced to date represent approximately \$27B in investment, thousands of jobs, and are expected to produce enough electricity each year for more than 1.8 million homes.

~~◆New renewable energy supply that is online or under construction totals more than 3,100 MW of large and small scale projects across Ontario representing more than \$12 billion of investment and more than 20,000 direct and indirect jobs.~~

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BACKGROUND

Ontario's Clean Energy Procurements:

- The province has executed more than 200 contracts for large FIT projects – generally exceeding 500 kW. These projects have a combined capacity of ~~more than~~almost 4,200 300 MW.
- The province has executed more than 1,700-500 contracts for ~~medium-small~~ FIT projects (10 kW to 500 kW) with a capacity of ~~more than~~almost 300 MW.
- The province has offered over 2526,000 microFIT (10 kW or smaller) conditional contracts totalling more than 200 MW.
- For details on the FIT, please see House Note C09 – Green Energy Act – Feed-in Tariff.
- In addition to the FIT Program, since October 2003, the McGuinty government has ~~signed committed to contracts-projects~~ representing about 35,000-900 MW of new renewable energy supply from wind, water, solar and bio-based sources through other procurements, as described in the tables below:

¹ For the purposes of this note, "clean power" does not include natural gas.

Renewables Online²

Procurement Initiatives	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Existing (pre-Oct 2003)	7,889.93	123	2.40	2	0.00	-	7,753.03	115	134.50	6
Grandfathered RESOP (pre-Oct 2003)	20.96	9	12.21	4	0.00	-	4.12	4	4.63	1
New RESOP	582.90	275	221.58	29	300.24	216	24.09	12	36.99	18
New HCl	1.00	2	0.00	0	0.00	-	1.00	2	0.00	0
RES I, II + III	1,549.50	20	1,509.40	15	0.00	-	31.00	2	9.10	3
CHP III	0.00	-	0.00	0	0.00	-	0.00	0	0.00	0
OPG Hydro - runner upgrade program	244.00	6	0.00	0	0.00	-	244.00	6	0.00	0
OPG Hydro - contracted by OPA	62.90	6	0.00	0	0.00	-	62.90	6	0.00	0
microFIT	89.65	10,094	0.03	5	89.62	10,089	0.00	0	0.00	0
Capacity Allocation Exempt (CAE) FIT	26.15	169	0.00	0	25.05	165	0.00	0	1.10	4
Capacity Allocation Required (CAR) FIT	223.45	9	215.00	3	0.50	1	0.00	0	7.95	5
Green Energy Investment Agreement (Samsung)	0.00	-	0.00	0	0.00	0	0.00	0	0.00	0
Other	59.37	5	8.20	3	0.17	1	0.00	0	51.00	1
Total	10,749.80	10,718	1,968.82	61	415.57	10,472	8,120.14	147	245.26	38
New Online	2,838.91	10,586	1,954.21	55	415.57	10,472	362.99	28	106.14	31
New Online (gov procurements)	2,535.55	10,575	1,946.01	52	415.41	10,471	118.99	22	55.14	30

Procurement Initiatives	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Total Existing (pre-Oct 2003)	7,981	167	15	6	0	0	7,822	154	144	7
Other (OPG, HCl, CHP III, etc)	368	22	8	3	0	1	309	17	51	1

² Based on OPA data current as of January 20, 2012, of March to July 2012.

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<u>RES I, II + III</u>	<u>1,550</u>	<u>20</u>	<u>1,509</u>	<u>15</u>	<u>0</u>	<u>0</u>	<u>31</u>	<u>2</u>	<u>9</u>	<u>3</u>
<u>RESOP</u>	<u>693</u>	<u>105</u>	<u>241</u>	<u>28</u>	<u>395</u>	<u>49</u>	<u>24</u>	<u>12</u>	<u>33</u>	<u>16</u>
<u>microFIT</u>	<u>104</u>	<u>11,966</u>	<u>0</u>	<u>5</u>	<u>104</u>	<u>11,961</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Small FIT (CAE)</u>	<u>49</u>	<u>312</u>	<u>0</u>	<u>0</u>	<u>46</u>	<u>304</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>8</u>
<u>Large FIT (CAR)</u>	<u>272</u>	<u>15</u>	<u>253</u>	<u>7</u>	<u>11</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>8</u>	<u>6</u>
<u>Green Energy Investment Agreement (Samsung)</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Total New (post-2003)</u>	<u>3,034</u>	<u>12,440</u>	<u>2,011</u>	<u>58</u>	<u>556</u>	<u>12,317</u>	<u>364</u>	<u>31</u>	<u>104</u>	<u>34</u>
<u>Total Renewables Online</u>	<u>11,015</u>	<u>12,607</u>	<u>2,026</u>	<u>64</u>	<u>556</u>	<u>12,317</u>	<u>8,186</u>	<u>185</u>	<u>247</u>	<u>41</u>

Additional Renewables Contracted (not yet online)³

<u>Procurement Initiatives</u>	<u>Total</u>		<u>Wind</u>		<u>Solar PV</u>		<u>Water</u>		<u>Bio-Energy</u>	
	<u>MW</u>	<u>projects</u>	<u>MW</u>	<u>projects</u>	<u>MW</u>	<u>projects</u>	<u>MW</u>	<u>projects</u>	<u>MW</u>	<u>projects</u>
<u>Other (OPG, HCl, CHP III, etc)</u>	<u>531</u>	<u>12</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>453</u>	<u>9</u>	<u>78</u>	<u>3</u>
<u>RES I, II + III</u>	<u>20</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>20</u>	<u>1</u>	<u>0</u>	<u>0</u>
<u>RESOP</u>	<u>151</u>	<u>17</u>	<u>46</u>	<u>5</u>	<u>80</u>	<u>8</u>	<u>0</u>	<u>0</u>	<u>25</u>	<u>4</u>
<u>microFIT</u>	<u>131</u>	<u>14,053</u>	<u>0</u>	<u>59</u>	<u>130</u>	<u>13,979</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>12</u>
<u>Small FIT (CAE)</u>	<u>229</u>	<u>1,215</u>	<u>2</u>	<u>9</u>	<u>218</u>	<u>1,175</u>	<u>1</u>	<u>5</u>	<u>8</u>	<u>26</u>
<u>Large FIT (CAR)</u>	<u>4,005</u>	<u>222</u>	<u>2,858</u>	<u>60</u>	<u>920</u>	<u>109</u>	<u>187</u>	<u>44</u>	<u>40</u>	<u>9</u>
<u>Green Energy Investment Agreement (Samsung)</u>	<u>2,570</u>	<u>16</u>	<u>2,070</u>	<u>10</u>	<u>500</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Total Contracted (not online)</u>	<u>7,637</u>	<u>15,536</u>	<u>4,977</u>	<u>143</u>	<u>1,849</u>	<u>15,277</u>	<u>661</u>	<u>62</u>	<u>151</u>	<u>54</u>

³ Based on OPA data current as of March to July 2012 ~~as of January 20, 2012~~.

Procurement Initiatives	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
New RESOP	270.14	99	65.02	11	177.72	83	0.00	0	27.40	5
New HCI	1.97	2	-	-	-	-	1.97	2	-	-
RES I, II + III	16.00	1	-	0	-	-	16.00	1	0.00	0
CHP III	85.00	3	-	0	-	-	0.00	0	85.00	3
~~OPC Hydro~~	~~438.00~~	~~2~~	~~-~~	~~0~~	~~-~~	~~-~~	~~438.00~~	~~2~~	~~0.00~~	~~0~~
microFIT	144.50	15543	0.35	57	144.04	15,472	0.01	3	0.10	11
Capacity Allocation Exempt (CAE) FIT	296.14	1556	2.39	9	283.72	1,511	0.96	5	9.07	31
Capacity Allocation Required (CAR) FIT	4,074.01	232	2,915.80	64	930.17	114	187.12	44	40.92	10
Green Energy Investment Agreement (Samsung)	1,068.60	6	868.60	4	200.00	2	0.00	0	0.00	0
Total	6,394.36	17444	3,852.16	145	1,735.65	17,182	644.05	57	162.50	60

- For detailed project information, please see B05A – Clean Power Project Information.

Wind Energy Status

- Wind projects are an important part of Ontario’s drive toward a cleaner energy future. Ontario now has more than ~~4,950~~2,000⁴ megawatts of wind power online from more than 1000 wind turbines. In 2003, there were only 15 megawatts of wind power from ten turbines. The province has increased its wind power capacity by more than a 100 times since 2003.
- ~~Ontario has committed to Aa~~about ~~3,850~~5,000 MW of additional wind power capacity ~~are under contract.~~ This includes 300 MW of offshore wind.
 - Ontario is currently in first place for installed wind energy in Canada; Ontario is now home to Canada’s five largest wind farms: Melancthon Wind Facility near Shelburne (199.5 megawatts)
 - Wolfe Island Wind Project on Wolfe Island near Kingston (197.8 megawatts)
 - Prince Wind Farm near Sault Ste. Marie (189 megawatts)
 - Enbridge Ontario Wind Farm near Kincardine (181.5 megawatts)
 - Comber Wind Project in Lakeshore (165.6 megawatts)

Solar Energy Status

- Ontario has the most solar PV capacity online of any jurisdiction in Canada⁵: more than ~~400-550~~ MW of solar PV capacity are online in Ontario. The ten largest solar farms in Canada are all located in Ontario.
- ~~When it was built in 2010,~~ Enbridge’s 80 MW Samia Solar ~~is presently the third largest was the largest~~ operational solar PV farm in the world, ~~and the largest in North America.~~
- ~~The government has committed to Oo~~ver 1, ~~700-800~~ MW of additional solar PV capacity ~~are under contract.~~

Water Power Status

- Ontario currently has more than ~~8,000~~100 MW of installed water power capacity⁶. This includes about 7,800 MW of older projects such as the Sir Adam Beck facilities at Niagara Falls.
- Water power from clean hydroelectric facilities accounted for approximately 22% of the electricity generated in Ontario in 2011.
- Ontario ~~has committed to has~~ more than ~~1,0700~~ MW of new waterpower ~~under contracts since 2003.~~ Of this, about ~~420-309~~ MW are online.
- ~~As part of OPG’s runner upgrade program, 244 MW of new waterpower has come online. This power is not under government contract nor is it a government initiative.~~
 - ~~A “runner” refers to the rotating driven element of a water turbine, sometimes resembling a propeller.~~
- For detailed information on water power projects, please see the corresponding House Note:
 - B06: OPG’s Niagara Tunnel Project
 - B09: OPG Hydroelectric Projects

Bio-Energy Status

- There are three distinct types of bio-energy: biogas, biomass, and landfill gas.
- Ontario currently has ~~more than about~~ 200-250 MW of bio-based generation capacity on-line⁷. Of this, more than ~~50-100~~ MW ~~is now~~ has come online since 2003 and from government procurements.

⁴ A subset of this capacity is tracked by the IESO – the IESO only tracks market participants.
⁵ ~~A subset~~No solar of this capacity is tracked by the IESO to date – the IESO only tracks market participants.
⁶ A subset of this capacity is tracked by the IESO – the IESO only tracks market participants. ~~Where information on capacity for projects are different, the following order is used: i) contracted capacity, ii) generator’s stated maximum continuous rating, iii) IESO’s net installed capacity~~
⁷ A subset of this capacity is tracked by the IESO – the IESO only tracks market participants.

- Over 1~~56~~0 MW of additional bio-energy projects are under contract.
- OMAFRA's Biogas Systems Financial Assistance Program ran from September 2008 to March 2010. A total of \$11.2 million helped farmers and agri-food businesses develop and build generating systems that produce clean energy, reduce electricity costs and contribute to local economies.
- The renewable combined heat and power procurement (CHP III) resulted in three biomass projects under contract totalling ~~85-78~~ MW. They are not yet online. Please see House Note B11 - Combined Heat and Power - Cogeneration.
- For policy considerations for landfill gas, please see House Note B16 – Generating Energy from Municipal Waste.
- For information on the conversion of the Atikokan plant from coal to biomass, please see House Note B08 – OPG Coal Conversion.

RENEWABLE GOVERNMENT PROCUREMENT INITIATIVES OTHER THAN FIT

- Prior to the FIT Program, Ontario launched the following programs to procure renewable energy supply:
 - 2004 – Renewable Energy Supply I (RES)
 - 2006 – Renewable Energy Supply II
 - 2006 – Renewable Energy Standard Offer Program (RESOP)
 - 2007 – Renewable Energy Supply III

Renewables RFP I and II

- There were 19 successful projects in the two renewables RFPs administered by the Ministry of Energy in 2004 and 2005. Of these projects, 16 are now up and running; 1 is in approvals; and 2 contracts have been terminated.
- These projects represent a total capital investment in our province of over \$2.5 billion – and will provide enough power to supply over 300,000 homes.
- The average price of the selected projects was just under \$80 per megawatt-hour for the first RFP and just over \$86 per megawatt-hour for the second RFP.

Renewable Energy Standard Offer Program (RESOP)

- RESOP was launched in November 2006 by the Ontario Power Authority (OPA). Under the plan, the OPA will enter into a 20-year Power Purchase Agreement, at a pre-established price, for electricity from small renewable energy generators.
- Electricity from wind, biomass, biogas, or small hydroelectric sources is currently purchased at a base price of 11.16 cents per kilowatt-hour. Solar power sold to the electricity grid under RESOP will receive a price of 42 cents per kilowatt-hour.
- To be eligible, projects had to produce power from a renewable resource, have a capacity of up to 10 megawatts and connect directly to the distribution system.
- Since the Feed-in Tariff program was launched, the Ontario Power Authority has stopped offering RESOP contracts.

Renewables III RFP

- The OPA issued the final Renewable Energy Supply III Request for Proposals for 500 MW of renewable energy supply on August 22, 2008.
- The RES III RFP document includes specific language to address instructions in the 2,000 MW Ministerial Directive that First Nations and Métis peoples be consulted early in the planning and development of new renewable energy projects, and that the OPA develop guidelines for this purpose.
- 23 proposals were received by the OPA on October 28, 2008. Six winning projects, all wind, were announced on January 23, 2009. Of these, 1 was terminated. The five RES III projects total 425.8 MW of new renewable energy supply for the province. All five projects are now online.

- The average price of the selected projects was \$121 per megawatt-hour. The contracts are for a 20-year term.

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 - The stations constituting Upper Mattagami (34.5 MW) reached commercial operation in October and November of 2010
 - Hound Chute (9.5 MW) reached commercial operation in December 2010
 - Lower Mattagami (438 MW) is currently under construction.
- OPG is also building the Niagara Tunnel. This project will increase the amount of water available for power generation at the Sir Adam Beck Generating Station, producing an additional 1.6 billion kilowatt hours of electricity per year.

Hydroelectric contract initiative (HCI):

- On May 7, 2009, the Government directed the OPA to develop a program to negotiate new contracts for qualified existing hydroelectric generation facilities in Ontario. More than 1,000-100 MW are now under contract.
- Facilities range in size from 40 kW to 239 MW; the total estimated eligible capacity is between 1,200 and 1,300 MW. Some are still under older contracts.
- The HCI contract materials were released on November 20, 2009.
 - Facilities 10MW or larger would be subject to individual negotiation with the OPA.
 - Facilities smaller than 10 MW would receive a 20-year contract with exit options on the 8th and 15th years.
 - The base price would be \$69/MWh with 100% of the price subject to escalation in proportion to the consumer price index.
 - Peak performance factor of x1.35 during on-peak and x0.9 during off-peak would apply.

Updated on: ~~February 3~~July 24, 2012

Updated by: ~~Vernon Riediger~~Keegan Tully, ~~Senior~~Policy Analyst
Renewable Energy Unit
416-~~242~~314-77069473

Approved by: Leo Tasca, Manager
Renewable Energy Unit
416-326-3775

~~Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868~~

Sue Lo, ADM
Renewables and Energy Efficiency Division
(416) 327-8552

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CLEAN POWER¹

ISSUE:

What is the status of Ontario's clean energy supply?

SUGGESTED RESPONSE:

- Under the Long-Term Energy Plan, the Ministry expects that by the end of 2018, Ontario will have 10,700 megawatts of renewable power online from wind, solar and bio-energy – enough electricity each year to power more than 2 million homes. This is expected to help create and support thousands of jobs for our skilled workers, and a revitalized manufacturing sector.
- Since October 2003, more than 2,000 MW of renewable (solar, wind, hydro, bioenergy) energy capacity has come online from government procurements. This is expected to produce enough electricity each year to power about 600,000 homes.
- Since October 2003, the government has signed more than 25,000 renewable energy supply contracts from wind, water, solar and bio-energy sources, totalling more than 7,000 MW. This has been accomplished through a number of procurement programs, including the Renewable Energy Standard Offer Program (RESOP), Renewable Energy Supply (RES) Program, Feed-In Tariff (FIT) Program and other programs.
- In addition, more than 1,000 MW of FIT projects were announced as part of the July 4th 2011 Bruce to Milton transmission announcement. Of these, 18 projects representing 477 MW are now in the approvals process, while the remaining 7 projects representing 568 MW have not yet signed back their contracts to the OPA.
- The Korean Consortium (Samsung) agreement and FIT contracts announced to date represent approximately \$26B in investment, thousands of jobs, and are expected to produce enough electricity each year for more than 1.8 million homes.
- New renewable energy supply that is online or under construction totals more than 3,000 MW of large and small-scale projects across Ontario representing about \$12 billion of investment and more than 13,000 direct and indirect jobs.

BACKGROUND

Ontario's Clean Energy Procurements:

- The province has executed more than 200 contracts for large FIT projects – generally exceeding 500 kW. These projects have a combined capacity of more than 3,700 MW. In addition, more than 500 MW of the contracts that were announced as part of the Bruce to Milton projects have not signed back their contracts yet.
- The province has executed more than 1,700 contracts for medium FIT projects (10 kW to 500 kW) with a capacity of more than 300 MW.
- The province has offered over 23,000 microFIT (10 kW or smaller) conditional contracts totalling more than 200 MW.
- For details on the FIT, please see House Note C09 – Green Energy Act – Feed-in Tariff.
- In addition to the FIT Program, since October 2003, the McGuinty government has signed contracts representing almost 3,000 MW of new renewable energy supply from wind, water, solar and bio-based sources through other procurements, as described in the tables below:

¹ For the purposes of this note, “clean power” does not include natural gas.

Renewables Online²

Procurement Initiatives	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Existing (pre-Oct 2003)	7,889.93	123	2.40	2	0.00	-	7,753.03	115	134.50	6
Grandfathered RESOP (pre-Oct 2003)	20.96	9	12.21	4	0.00	-	4.12	4	4.63	1
New RESOP	541.12	131	221.58	28	261.30	74	24.09	12	34.14	17
New HCI	1.00	2	0.00	0	0.00	-	1.00	2	0.00	0
RES I, II + III	1,450.60	19	1,410.50	14	0.00	-	31.00	2	9.10	3
CHP III	0.00	-	0.00	0	0.00	-	0.00	0	0.00	0
OPG Hydro - runner upgrade program	244.00	6	0.00	0	0.00	-	244.00	6	0.00	0
OPG Hydro - contracted by OPA	62.90	6	0.00	0	0.00	-	62.90	6	0.00	0
microFIT	68.86	7,814	0.03	5	68.83	7,809	0.00	0	0.00	0
Capacity Allocation Exempt (CAE) FIT	15.68	90	0.00	0	14.83	87	0.00	0	0.85	3
Capacity Allocation Required (CAR) FIT	8.88	6	0.80	1	0.50	1	0.00	0	7.58	4
Green Energy Investment Agreement (Samsung)	0.00	-	0.00	0	0.00	0	0.00	0	0.00	0
Other	59.37	5	8.20	3	0.17	1	0.00	0	51.00	1
Total	10,363.29	8,211	1,655.72	57	345.64	7,972	8,120.15	147	241.79	35
New Online	2,452.40	8,079	1,641.11	51	345.64	7,972	362.99	28	102.67	28
New Online (gov procurements)	2,149.04	8,068	1,632.91	48	345.47	7,971	118.99	22	51.67	27

Additional Renewables Contracted (not yet online)³

Procurement Initiatives	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
New RESOP	296.95	87	65.02	9	204.53	73	0.00	0	27.40	5
New HCI	1.97	2	-	-	-	-	1.97	2	-	-
RES I, II + III	114.90	2	98.90	1	-	-	16.00	1	0.00	0
CHP III	85.00	3	-	0	-	-	0.00	0	85.00	3
OPG Hydro	438.00	2	-	0	-	-	438.00	2	0.00	0
microFIT	146.14	15783	0.36	58	145.66	15,710	0.01	3	0.11	12
Capacity Allocation Exempt (CAE) FIT	306.90	1618	2.39	9	294.73	1,573	0.96	5	8.82	31
Capacity Allocation Required (CAR) FIT	3,730.63	228	2,572.50	60	929.42	113	187.42	44	41.29	11
Green Energy Investment Agreement (Samsung)	1,068.60	6	868.60	4	200.00	2	0.00	0	0.00	0
Total	6,189.09	17731	3,607.77	141	1,774.34	17,471	644.36	57	162.63	62

- For detailed project information, please see B05A – Clean Power Project Information.

Wind Energy Status

- Wind projects are an important part of Ontario’s drive toward a cleaner energy future. Ontario now has more than 1,600⁴ megawatts of wind power online from more than 900 wind turbines. In 2003, there were only 15 megawatts of wind power from ten turbines. This is a 110-fold increase in wind power capacity.
- Over 3,600 MW of additional wind power capacity are under contract. This includes 300 MW of offshore wind. In addition, more than 500 MW of the contracts that were announced as part of the Bruce to Milton projects have not signed back their contracts yet.

² Based on OPA data as of September 30, 2011.
³ Based on OPA data as of September 30, 2011.
⁴ A subset of this capacity is tracked by the IESO – the IESO only tracks market participants.

- Ontario is currently in first place for installed wind energy in Canada; Canada's four largest wind farms are located in Ontario.
- Prominent projects include the 199.5 MW Melancthon EcoPower Centre near Shelburne and the 197.8 MW Wolfe Island Wind Farm near Kingston - Canada's two largest wind facilities.

Solar Energy Status

- Ontario has the most solar PV capacity online of any jurisdiction in Canada⁵: more than 300 MW of solar PV capacity are online in Ontario. The ten largest solar farms in Canada are all located in Ontario.
- Enbridge's 80 MW Sarnia Solar is presently the largest operational solar PV farm in the world.
- Over 1,700 MW of additional solar PV capacity are under contract.

Water Power Status

- Ontario currently has more than 8,000 MW of installed water power capacity⁶. This includes about 7,800 MW of older projects such as the Sir Adam Beck facilities at Niagara Falls.
- Water power from clean hydroelectric facilities accounted for approximately 20% of the electricity generated in Ontario in 2010.
- Ontario has more than 700 MW of new waterpower under contract. Of this, about 120 MW are online.
- As part of OPG's runner upgrade program, 244 MW of new waterpower has come online. This power is not under government contract nor is it a government initiative.
 - A "runner" refers to the rotating driven element of a water turbine, sometimes resembling a propeller.
- For detailed information on water power projects, please see the corresponding House Note:
 - B06: OPG's Niagara Tunnel Project
 - B09: OPG Hydroelectric Projects

Bio-Energy Status

- There are three distinct types of bio-energy: biogas, biomass and landfill gas.
- Ontario currently has more than 200 MW of bio-based generation capacity on-line⁷. Of this, more than 50 MW is new and from government procurements.
- Over 160 MW of additional bio-energy projects are under contract.
- OMAFRA's Biogas Systems Financial Assistance Program ran from September 2008 to March 2010. A total of \$11.2 million helped farmers and agri-food businesses develop and build generating systems that produce clean energy, reduce electricity costs and contribute to local economies.
- The renewable combined heat and power procurement (CHP III), resulted in three biomass projects under contract totalling 85 MW. They are not yet online. Please see House Note B17 - Combined Heat and Power - Cogeneration.
- For policy considerations for landfill gas, please see House Note B16 – Generating Energy from Municipal Waste.
- For information on the conversion of the Atikokan plant from coal to biomass, please see House Note B08 – OPG Coal Conversion.

⁵ A subset of this capacity is tracked by the IESO – the IESO only tracks market participants.

⁶ A subset of this capacity is tracked by the IESO – the IESO only tracks market participants. Where information on capacity for projects are different, the following order is used: i) contracted capacity, ii) generator's stated maximum continuous rating, iii) IESO's net installed capacity

⁷ A subset of this capacity is tracked by the IESO – the IESO only tracks market participants.

RENEWABLE GOVERNMENT PROCUREMENT INITIATIVES OTHER THAN FIT

- Prior to the FIT Program, Ontario launched the following programs to procure renewable energy supply:
 - 2004 – Renewable Energy Supply I (RES)
 - 2006 – Renewable Energy Supply II
 - 2006 – Renewable Energy Standard Offer Program (RESOP)
 - 2007 – Renewable Energy Supply III

Renewables RFP I and II

- There were 19 successful projects in the two renewables RFPs administered by the Ministry of Energy in 2004 and 2005. Of these projects, 16 are now up and running; 1 is in approvals; and 2 contracts have been terminated.
- These projects represent a total capital investment in our province of over \$2.5 billion – and will provide enough power to supply over 300,000 homes.
- The average price of the selected projects was just under \$80 per megawatt-hour for the first RFP and just over \$86 per megawatt-hour for the second RFP.

Renewable Energy Standard Offer Program (RESOP)

- RESOP was launched in November 2006 by the Ontario Power Authority (OPA). Under the plan, the OPA will enter into a 20-year Power Purchase Agreement, at a pre-established price, for electricity from small renewable energy generators.
- Electricity from wind, biomass, biogas, or small hydroelectric sources is currently purchased at a base price of 11.16 cents per kilowatt-hour. Solar power sold to the electricity grid under RESOP will receive a price of 42 cents per kilowatt-hour.
- To be eligible, projects had to produce power from a renewable resource, have a capacity of up to 10 megawatts and connect directly to the distribution system.
- Since the Feed-in Tariff program was launched, the Ontario Power Authority has stopped offering RESOP contracts.

Renewables III RFP

- The OPA issued the final Renewable Energy Supply III Request for Proposals for 500 MW of renewable energy supply on August 22, 2008.
- The RES III RFP document includes specific language to address instructions in the 2,000 MW Ministerial Directive that First Nations and Métis peoples be consulted early in the planning and development of new renewable energy projects, and that the OPA develop guidelines and purposes for this purpose.
- 23 proposals were received by the OPA on October 28, 2008. Six winning projects, all wind, were announced on January 23, 2009. Of these, 1 was terminated. The five RES III projects total 425.8 MW of new renewable energy supply for the province. Of the five projects, four are online and one is under construction.
- The average price of the selected projects was \$121 per megawatt-hour. The contracts are for a 20-year term.

OPG hydro:

- The OPA and Ontario Power Generation have signed several contracts:
 - Lac Seul (12.5 MW) reached commercial operation in February 2009
 - Healey Falls (6.4 MW) reached commercial operation in April 2010
 - The stations constituting Upper Mattagami (34.5 MW) reached commercial operation in October and November of 2010
 - Hound Chute (9.5 MW) reached commercial operation in December 2010
 - Lower Mattagami (438 MW) is currently under construction.

- OPG is also building the Niagara Tunnel. This project will increase the amount of water available for power generation at the Sir Adam Beck Generating Station, producing an additional 1.6 billion kilowatt hours of electricity per year.

Hydroelectric contract initiative (HCI):

- On May 7, 2009, the Government directed the OPA to develop a program to negotiate new contracts for qualified existing hydroelectric generation facilities in Ontario. More than 1,000 MW are now under contract.
- Facilities range in size from 40 kW to 239 MW; the total estimated eligible capacity is between 1,200 and 1,300 MW. Some are still under older contracts.
- The HCI contract materials were released on November 20, 2009.
 - Facilities 10MW or larger would be subject to individual negotiation with the OPA.
 - Facilities smaller than 10 MW would receive a 20-year contract with exit options on the 8th and 15th years.
 - The base price would be \$69/MWh with 100% of the price subject to escalation in proportion to the consumer price index.
 - Peak performance factor of x1.35 during on-peak and x0.9 during off-peak would apply.

Updated on: November 7, 2011

Updated by: Vernon Riediger, Senior Policy Analyst
Renewable Energy Unit
416-212-7706

Approved by: Leo Tasca, Manager
Renewable Energy Unit
416-326-3775

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

Sue Lo, ADM
Renewables and Energy Efficiency Division
(416) 327-8552

Amended Green Energy Investment Agreement (GEIA)

ISSUE:

What does the Amended Green Energy Investment Agreement mean for Ontario?

SUGGESTED RESPONSE:

- *The original GEIA was signed in January 2010 when Ontario was just beginning to build the clean energy industry.*
- *Great progress has been made since then resulting in the province improving the deal to better deliver results and provide even greater value to Ontario families.*
- *Under the Amended Agreement, in exchange for the same one-year commercial operation date extension that was provided to all existing Feed-in-Tariff contract holders in February 2011, the economic development payments to Samsung are reduced to a maximum of \$110 million spread over 20 years – down from a projected \$437 million when the deal was first signed.*
- *The Amended Agreement will also see four clean-technology manufacturing plants open their doors one year earlier, solidifying Ontario's position as North America's leader in the manufacturing of wind turbines and solar panels.*
- *This deal means new clean energy manufacturing jobs in Ontario. The Korean Consortium is required to show a total of 900 jobs by the end of 2012.*
- *Ontario has improved the Green Energy Investment Agreement with the Korean Consortium by reducing the costs to ratepayers and creating clean energy jobs earlier than originally planned.*

If asked about manufacturing plants:

- **Samsung and Siemens will build the wind blade manufacturing plant in the Tillsonburg area. The plant is scheduled to be in production by December 2011, significantly fast-tracked from the scheduled date of December 2015, specified in the Green Energy Investment Agreement. The companies estimate that over the term of the agreement up to 300 direct jobs and up to 600 additional construction and indirect service jobs will be created. Siemens held a job fair on May 7th, 2011 and are in the process of hiring staff.**
- **CS Wind and Samsung will build a wind tower plant in Windsor. The plant expects to employ up to 300 people when running at full capacity and will be in production by December 2011. (Original timeline for the plant as part of the GEIA was March 31, 2013). 400 indirect jobs are also expected with this plant.**
- **Samsung and SMA recently announced their solar inverter plant at the Celestica Facilities in Toronto. The plant is expected to create up to 200 jobs (100 direct and 100 indirect).**
- **These are three out of the four expected manufacturing facility announcements from the Korean Consortium's manufacturing partners. As per the Amended Green Energy Investment Agreement, KC will be eligible for an economic price adder (EDA) contingent upon meeting manufacturing commitments within the specified operational timeframes.**
- **KC and its manufacturing partners are expected to make a public announcement for the Solar Module Assembly plant within the next few weeks.**

BACKGROUND:

If asked about the Aegent Energy Advisors estimate of added costs to Ontario from the GEIA:

- We believe these estimates are based on incorrect assumptions.
- Assumes all 2500MW are going to come on-line at once. This is not the case.
- Incorrectly assumes that the majority of the energy produced by these projects will be surplus and will be exported.
- The economic adder is not a distraction. It is an incentive payment to bring 1000's of clean energy jobs, distinct from the energy payments KC will get from its FIT contracts. By separating the payments the government is being transparent on the costs.
- The Korean Consortium's renewable energy projects will help Ontario replace coal-fired generation and provide much needed clean electricity as we refurbish our nuclear fleet.
- Ontario is committed to reducing the environmental footprint of electricity generation across the province.
- Our government's Long-Term Energy Plan will clean up our air, create jobs and make Ontario a clean energy powerhouse.

Key Facts

- Kick-starting our renewable manufacturing industry by bringing 4 green manufacturing partners to Ontario.
- Create approximately 16,000 direct and indirect jobs over 6 years.
- Generate approximately 110 million MW hours of emissions-free electricity over the lifespan of the FIT contracts – enough power to supply every home in Ontario for 3 years.
- Displace up to 40 megatonnes of CO₂ – equivalent to removing every single car off of Ontario roads for one year.
- Create even more economic development opportunities for Aboriginal communities, municipalities, manufacturers, etc.
- Over the longer term, the additional manufacturing will deliver a very real contribution to Ontario's GDP, estimated at a net \$1 billion over 10 years.
- The economic development payment is an incentive over and above the feed-in-tariff paid for green energy generation. In the case of the economic development payments paid to KC, the premium will be contingent upon the Consortium bringing new manufacturing facilities to Ontario.

CURRENT STATUS: GENERATION PROJECTS

- The GEIA provides for KC to receive priority access to the transmission system in return for meeting its manufacturing commitments.

Phase 1:

- On April 1st, 2010, the Minister directed the OPA to hold in reserve 500 MW of transmission capacity for KC phase 1 projects in Haldimand (240MW) and Chatham-Kent (260 MW). This is to be used by KC for its phase 1 projects.
- Total allocated generation capacity for phase 1 projects was subsequently increased to 518.6MW:
 - Grand Renewable Energy Park (GREP) in Haldimand was increased to 248.6MW (from 240MW) and South Kent Wind Project (SKWP) in Chatham-Kent was increased to 270 MW (from 260 MW).

- These increases were allowed in accordance with provisions in the GEIA and were accepted by the Ministry.

Phase 2:

- On September 17, 2010, the Minister directed the OPA to hold in reserve 500 MW of transmission capacity in the Bruce area, in anticipation of the completion of the Bruce-to-Milton line, for phase 2 projects. KC was informed by the Ministry that a Ministerial Directive for KC's phase 2 solar project in the East was unnecessary because the project is not located in an area where transmission capacity is scarce.
- Total allocated generation capacity for phase 2 projects is 550MW:
 - Wind projects include 270MW of capacity at the K2 (Alpha) Project (acquired by KC from Capital Power) and 180MW at the Armow (Beta) Project (acquired by KC from Acciona), both in Bruce County.
 - Solar project consists of 100MW of capacity at Kingston North.

Phase 3:

- KC was informed by the Ministry that Ministerial Directives for KC's phase 3 projects are unnecessary because these projects are not located in areas where transmission capacity is scarce.
- Total allocated generation capacity for phase 3 projects is 500MW:
 - Capacity at the Dundalk Wind Project in Dufferin County is 300MW and capacity at the Beaverdale Wind Project in Grey County is 100MW
 - Phase 3 solar was previously confirmed as 100 MW at Kingston North, but KC has requested to change this project to 100MW at Port Hope; change request currently being evaluated

Phases 4 and 5:

- KC has submitted connection point requests for its proposed phase 4 and 5 projects
 - Requested phase 4 and 5 generation totals 800 MW of wind and 200 MW of solar
 - Technical feasibility of requested connection points currently being evaluated by OPA
- Priority transmission projects to be developed as part of the Long Term Energy Plan will provide transmission options that work with KC's end-2015 and end-2016 'in service' dates for Phases 4 and 5 respectively.

GEIA Total Generation Capacity:

- The total target generation capacity of all phases remains at 2,500 MW; KC will adjust the target generation capacity of its projects accordingly to align with 2,500 MW target.

Abbreviated Chronology:

- Fall 2008 – KC approached Ontario.
- Summer/Fall 2009 – Intensive negotiations between Ontario and KC partners
- January 2010 – Signature
- July 2011 – GEIA was amended by Ontario and the KC.
- August 3rd, 2011 – Amended and original GEIA made public.

Additional Information:

Overview

Ontario has negotiated an agreement with the Korean Consortium (KC), comprised of Samsung C&T Corporation and the Korea Electric Power Corporation (KEPCO), which will lead to both energy generation and manufacturing facilities being constructed in Ontario. The agreement stems from opportunities created for developers and investors through Ontario's Green Energy Act, and is expected to be among the first of many major investments to result from the leadership position Ontario has taken in green energy.

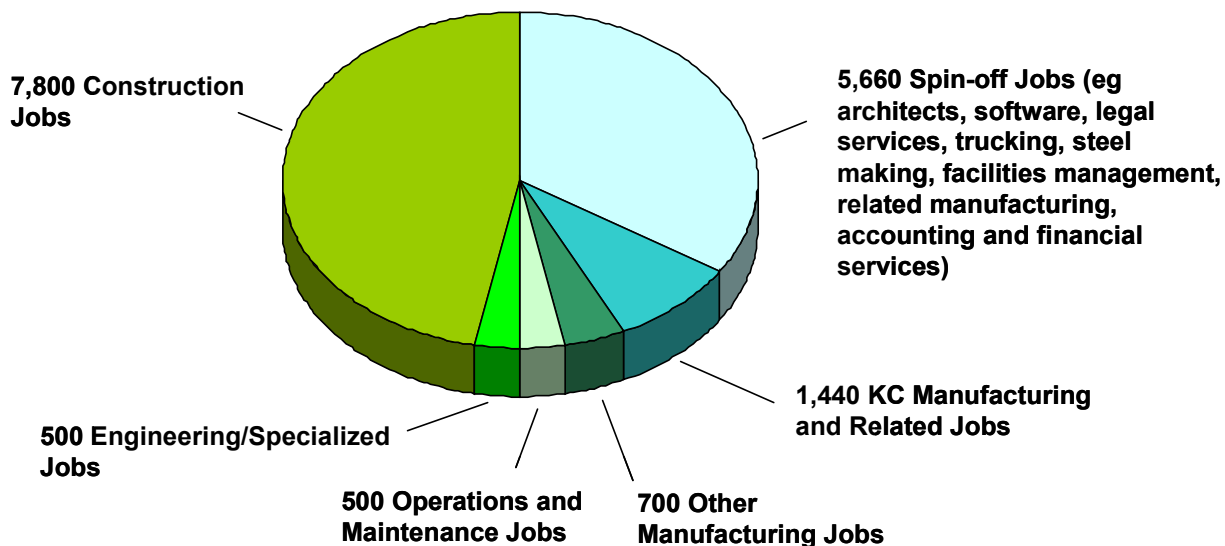
The Consortium will be an anchor tenant in growing a new, vibrant green economy in Ontario.

Creating Jobs

The agreement will lead to approximately 16,000 green energy jobs over 6 years and bring \$7 billion of renewable generation investment to Ontario.

Jobs will be created during the construction, installation and operation of renewable energy projects as well as direct employment in manufacturing plants. In addition, the increased renewable energy development and manufacturing activities will support indirect job creation in areas such as finance, consulting and other manufacturing, service and development industries.

Below is the breakdown of the projected 16,000 jobs:



Note: *Spin-off Jobs refers to indirect positions resulting from direct job creation.*

Stimulating Manufacturing

Renewable energy provided by KC would qualify for Feed-In Tariff (FIT) prices available to all eligible projects.

In addition to the standard rates for electricity generation, KC will be eligible for an economic development adder (EDA). This adder is contingent upon KC's manufacturing partners operating four manufacturing plants according to the following schedule:

- **Towers** – in full operation by December 31, 2011
- **Solar Inverters** – in full operation by December 31, 2011
- **Solar Module Assembly** – in full operation by July 31, 2012

- **Blades** – in full operation by December 31, 2011

These manufacturing facilities will produce wind turbine towers, wind blades, solar inverters and solar modules in Ontario, creating more than 1,440 manufacturing and related jobs in the renewable energy industry. The local availability of these manufactured components will also help other renewable energy developers meet the Feed-In Tariff domestic content requirements. An additional 700 manufacturing jobs are also anticipated to supply components that will not be manufactured by the KC's partners.

In addition, working with their manufacturing partners, the KC intends to use Ontario-made steel in their renewable energy projects, such as the steel needed for wind turbine towers.

Moreover, by supporting the local manufacturing operations of KC and its partners, domestic companies are also likely to benefit from the export potential that is part of KC's longer term plan.

To put the potential demand into perspective, in the U.S. there is expected to be between 80,000 and 120,000 MW of wind generation equipment required over the next 10 years. Establishing an effective, efficient supply chain at this time should stand Ontario in good stead as a manufacturing source to supply this market.

Ratepayer Impact

The total cost of the economic development payment, assuming the manufacturing facilities are built according to the schedule set out in the agreement, will be approximately \$110 million (net present value) over the lifetime of the contracts. This is a 75% reduction from the projected \$437 million when the deal was first signed.

If the maximum economic development payment is attained it means that the cost to the average ratepayer in Ontario over the next 20 years will be about 36 cents a year.

More Renewable Energy

The Consortium is committed to the construction of 2,500 megawatts (MW) of renewable energy generation, 2,000 MW of wind power and 500 MW of solar. Development of the generation facilities is expected to occur in five phases. The first phase will reach commercial operation at the end of 2011 and be built in the Chatham-Kent and Haldimand County regions of Southern Ontario.

Today, Ontario has nearly 1,300 MW of wind power capacity and about 140 MW of solar power.

Cleaner and Greener Environment

The Consortium's renewable energy projects will deliver an estimated 110 million megawatt-hours of emissions-free electricity over the 25-year lifetime of the project. That's enough power to supply the electricity needs of all Ontario homes for nearly three years. Over the lifetime of these contracts, the wind and solar projects will displace 40 megatonnes of carbon dioxide (CO₂, the leading greenhouse gas) compared to what would be emitted by equivalent gas-fired generation. That's equivalent to removing every single car off Ontario roads for one year.

Under a cap and trade system, at a forecast carbon price of \$26 per tonne, displacing 40 megatonnes of CO₂ could be valued at about \$1 billion.

By 2017, KC's wind turbine projects alone will deliver 3.75 times as much green power as all wind generators in the province did in 2008.

Leveraging Transmission Investments

Some of the renewable energy projects committed to under this agreement will take advantage of new transmission investments that are being planned for over the next 4-5 years as part of the Long Term Energy Plan.

Opportunities for all Ontarians

The Consortium is required to sign power purchase agreements (PPAs) with the OPA for energy generation (PPAs have been signed (6) for Phases 1 and 2) as well as obtain required licences and approvals.

The government and the Consortium will ensure that any Duty to Consult obligations are met, and that Ontario's Aboriginal communities are engaged and where possible provided with economic development opportunities flowing from projects under the agreement.

Memorandum of Understanding (MOU) between Samsung and the Six Nations

- On January 22, 2010, Samsung entered into a Memorandum of Understanding with the Six Nations. The MOU contemplated discussions regarding the co-development of a 10 MW solar farm on the Six Nations reserve (i.e. separate from the Samsung project itself). The MOU also raised discussion of possible equity participation by Six Nations in the wind farm in Haldimand.
- The Province was not privy to the MOU prior to it being signed and the MOU was subject to renewal or expiry in January 2011.
- On January 27, 2011, Six Nations put out a press release that the MOU will not be renewed.

SUGGESTED RESPONSE:

- We are disappointed with this setback and will continue to work with Six Nations.
- Samsung is making great progress in the first stage of its agreement with Ontario.
- We are confident Samsung will be able to meet its commitments to Ontario.

Examples of Investment partnerships

There are a number of examples of similar arrangements between the Government of Ontario and the private sector that are designed to attract investment and support the development of various industries.

Auto Industry in Ontario:

- a) Ford – In 2004 Ontario announced an investment of \$100 million in Ford's \$1-billion Oakville project to create its first Canadian flexible manufacturing facility and for a new research and development centre focusing on fuel cell technology.
- b) General Motors – In 2005 Ontario announced an investment of \$235 million to support GM's \$2.5 billion Beacon Project, a multi-faceted investment that supports GM's vehicle design and manufacturing capabilities at plants in Oshawa, St. Catharines and at CAMI in Ingersoll.
- c) Toyota – In 2005 Ontario announced \$70 million in provincial support for skills training and infrastructure to support Toyota's \$1.1-billion investment at Woodstock. The new Toyota plant will bring at least 2,000 new high-value, well-paying jobs to Woodstock.

- d) Chrysler – In 2005 Ontario announced an investment of \$76.8 million to help increase flexibility and put in place new technologies at the Windsor Assembly Plant, and invest in its Brampton facility through the company's \$768 million commitment. Ontario's investment secures the operations at the Windsor and Brampton plants for the next decade.
- e) In 2006, Honda announced that it would open a new engine manufacturing plant in Alliston, which would employ about 340 workers. The Ontario Government pledged ten per cent of the company's \$154 million investment to build the plant. The plant officially opened in September 2008. Prior to this announcement, Honda already ran two other manufacturing facilities in Alliston.

Other Industry in Ontario:

- f) Ubisoft – In 2009 Ontario announced it will invest \$260m to help Ubisoft develop a new games studio in Toronto, creating up to 800 jobs in the process, staggered over 10 years. The cost per job per year is comparable to the cost per job per year associated with Samsung.
- g) Starz Animation Toronto – In 2009 Ontario announced it will invest almost \$23m to help expand its Toronto studio and help create or maintain a total of 250 jobs.
- h) Terrace Bay Pulp – In 2007 the Ontario Government provided an \$11m grant and an \$11.5m loan guarantee to support for the installation of a \$45 million condensing steam turbine to generate about 30 megawatts of power for use at the facility, and help secure the ongoing employment of about 350 mill employees.

If asked what opportunities will remain for other manufacturing companies to participate in the renewable sector in Ontario:

- KC has proposed the construction of manufacturing plants to produce wind turbine and solar components in Ontario.

Wind Turbines

Note: Annual sales figures are to support 500 MW of turbine installations per year.

- KC proposes the construction of plants to produce blades and towers for wind turbines. Together these represent 29% of the installed cost. Installation adds a further 15%, with consulting services 5%.
- 51% of the remaining supply chain will be open to opportunities for further manufacturing including the following components:
 1. Nacelles (2%): These large shells house the main drive shaft, gearbox and generator for a wind turbine. Like the blades, nacelle covers are typically constructed of composite materials such as fibreglass. A nacelle plant would generate roughly \$30 million in annual sales and have a direct and indirect GDP impact to the province of roughly \$14 million per year.
 2. Generators (3%): The generator transfers the rotational energy of the shaft into electrical energy. Wind turbine generators are very similar to generators employed in nuclear and fossil plants. A generator plant would generate roughly \$40 million in annual sales and have a direct and indirect GDP impact of roughly \$30 million per year.
 3. Gearboxes (11%): The gearbox transfers the low speed shaft (attached the blades) to the high speed shaft (attached to the gearbox). A gearbox plant would generate roughly \$150 million in annual sales.

5. Yaw Systems (7%): The yaw system is a motor and drive system to keep the turbine pointed into the wind. A plant producing the complete yaw system would generate roughly \$100 million in annual sales.
6. Pitch Systems (3%): The pitch system angles the blades to regulate the rotor speed. A plant producing the complete pitch system would generate roughly \$40 million in annual sales.
7. Other Mechanical Components (6%): Many other mechanical components like shafts and frames are required to produce a wind turbine. The primary fabrication methods for these components are forging and machining.

Photovoltaic Panels

Note: Annual sales figures are to support 100 MW of PV installations per year.

- KC has proposed manufacturing modules and inverters in Ontario. Together these represent 23% of the total installed cost, with installation a further 18% and consulting services 4%.
- 55 percent of the photovoltaic supply chain will remain open for opportunities for further manufacturing including the following components:
 1. Silicon (11%): The raw silicon is produced from sand through a complex chemical process. A plant would produce roughly \$50 million in annual sales.
 2. Wafers (13%): The raw silicon is formed into ingots and then cut into wafers. A plant would produce roughly \$60 million in annual sales.
 3. Cells (11%): The wafer is processed to form a semiconductor suitable for use as a PV cell. A plant would produce roughly \$50 million in annual sales.
 4. Support Structures (11%): The support structures are typically steel or aluminium and differ depending on whether the system will be mounted on the ground or a roof. Structure manufacturing would produce roughly \$50 million in annual sales.
 5. Thin Film Panels: KC proposes to use crystalline panels. Thin film technology is quite different and could reduce costs. The capital cost of plant construction is double silicon cell plants, and the efficiency of the panels is lower, but the processing can be done at much lower cost. Thin film photovoltaic is an emerging technology and accounted for 17% of the total PV market in 2007.

August 29, 2011

Updated by: Jennifer Wismer
August 29, 2011

Input from: Shane Smyth
Senior Policy Advisor, Transmission and Distribution Policy Branch
August 29, 2011

Approved by: Garry McKeever (5-8627)
Director, Energy Supply & Competition

Pearl Ing (7-3868)
Director, Renewables and Energy Facilitation Branch

Jon Norman (6-1759)
Director, Transmission and Distribution Policy

ELECTRICITY PRICE PROJECTIONS ARTICLE

ISSUE:

An article in the peer-reviewed “Bulletin of Science, Technology & Society” provided a critical analysis of the costs of the Green Energy Act.

SUGGESTED RESPONSE:

- We welcome comments from all parties regarding the outlook for Ontario’s energy sector.
- We do have some concerns regarding key assumptions made by the authors.
- The study includes many investments as “additional costs” even though they have already been factored in to the government electricity price projections.
- Factors such as inflation, transmission investments, conservation programs, natural gas generation and the Korean Consortium projects have all been accounted for in the Long-Term Energy Plan.
- While the Long-Term Energy Plan includes the flexibility to deal with changing markets, the scenarios posited by the authors are extremely unlikely.
 - For example, the study makes many pessimistic assumptions about energy markets in 2030, and then applies them to current electricity prices.
- It is not appropriate to compare the Green Energy Act cost projections (referred to as Smitherman projections) with the Long-Term Energy Plan projections.
 - The Long-Term Energy Plan includes many more cost factors, such as nuclear refurbishments and new build, investments in transmission unrelated to renewable generation as well as other system costs, all of which are unrelated to the Green Energy Act.
- Overall, the authors have overstated the cost of bringing on more renewables.

BACKGROUND:

- On September 30th, 2011, an article entitled *Omitted Costs, Inflated Benefits: Renewable Energy Policy in Ontario* was published. The authors are Parker Gallant, a frequent critic of Ontario energy policy, and Glenn Fox, a professor of agricultural and natural resource economics at the University of Guelph.
- The article states that electricity costs will be 12% higher in 2015 and 20% higher in 2030 compared to the projections contained in the Long-Term Energy Plan (LTEP).

- In every case the figures were calculated as an additional cost in 2030, and were then added to the bill projections in earlier years. To achieve an accurate result, the authors would have to determine the appropriate costs in every year, as both costs and electricity consumption levels vary significantly from year to year.

- The extra costs were broken down into the following areas:

1. Wind

- The authors claim that inflation and sales tax were not included in the LTEP.
- Contrary to the report, the LTEP price projections properly account for FIT contract price increases tied to the Ontario CPI. In fact, it appears it is the authors who have misunderstood the method by which prices are escalated in the FIT contract.
- The calculation of the \$3.80/MWh in endnote #1, characterized by the authors as “inflation costs omitted in the forecast”, appears to be wrong. The \$135/MWh should be a lower number, in the \$27-30/MWh range.
- Moreover, the authors either are not aware or choose not to mention the FIT review, which will likely lead to lower FIT wind prices for a portion of the FIT wind capacity that will be online in 2020 and beyond.

2. Transmission

- The study cites a \$90 million OEB application for new equipment and extrapolates that out over the full renewable build-out, arriving at a \$500 million estimate of omitted costs..
- This type of extrapolation is inaccurate. Additional transmission costs are already factored into the LTEP price projections.
- The \$9B of transmission investments in the LTEP are expected to sufficiently accommodate the LTEP projection of 10,700 MW of renewables by 2018, as well as support other goals such as serve new load and enhance reliability. In addition, the five priority transmission projects are collectively costed in the LTEP at about \$2B.
- Contrary to the report’s claim that the Bruce to Milton “line will be underused”, the OPA’s use of transmission assessments in the FIT contracting process ensures that transmission assets are effectively utilized.

3. Backup

- The costs of backup generation comprise the largest area of omitted costs in this analysis.
- The authors claim that 9,600 MW of backup will be needed to support renewables, and that this figure is taken from the LTEP. The LTEP made no statement about that much backup being required.
- Most of the other costs stem from building and servicing 9,600 MW of natural gas fired plants. In actuality, Ontario already has most of the gas

fired generation that it needs. Only the Kitchener-Waterloo-Cambridge plant is mentioned in the LTEP.

- The authors assume that gas plants will be required to generate whenever the renewables are not producing (in effect bringing the renewable capacity factor to 100%). In fact, appropriate capacity factors for renewable plants are factored into the planning decisions. It is not expected that wind plants will produce 100% of the time, and any loss of output does not necessarily have to be met with gas-fired generation.

4. Exports

- The authors claim that 10% of all wind production will be exported at negative prices. In actuality, exports are rarely negatively priced, and any projections for 2030 export prices are difficult or impossible to make.
- The study also claims that the fixed contract price paid to exported wind power represents an additional cost to consumers, but this wind capacity was included in the LTEP and hence already factored into the price projections.

5. Revenue Displacement

- The study assumes that 30% of OPG's hydro production in 2030 will be spilled due to surplus wind generation. This claim is unrealistic. To date in 2011, OPG has spilled 1% of its total production, and surplus conditions are expected to subside in the coming years.
- The study also states that all hydro generation receives the HOEP. A large portion of OPG's hydro generation receives regulated prices, which are often below HOEP.

6. Dividend Reductions

- The authors state that because Hydro One is borrowing to enable capital expenditures to connect renewables, dividends to the province will decrease.
- Dividends from Crown corporations fluctuate with electricity market conditions. While Hydro One's 2010 dividends may have been lower than average, it is unreasonable to extrapolate these lowered dividends out to future years.
- Much of the capital investment is to replace aging equipment, which would have been required regardless of renewable investments.
- It is incorrect to allocate a lowered dividend to an increase in electricity costs. Dividends flow to the province, and are completely distinct from electricity rates.

7. Conservation

- The authors state that Ontario invest \$1 billion yearly in conservation. In fact, Ontario invested \$1.7 billion in conservation during the five year period 2006-2010, resulting in a benefit for electricity ratepayers of \$3.8 billion.

- The study notes that conservation costs were included in the “electricity” line of power bills. However, this is only true for the residential sector. For larger commercial and industrial customers, conservation costs are included in other sections of the bills.
 - The authors note that LTEP does not lead us to believe that the concept of cost avoidance is valid. In fact, LTEP indicates that \$3.8 billion of cost avoidance were saved related to conservation in 2006-2010 and that a further \$27 billion will be saved related to conservation in the 2011-2030 period. The Plan does not meet all electricity demand through increases in installed capacity. It also relies partially on renewables and conservation.
 - The study states that LDCs will apply for a rate increase to cover their losses due to conservation. As part of its mandate, the OEB must ensure the protection of ratepayer interests in its decision-making process. Therefore, the recognition of revenue loss related to conservation depends on the Board’s decision. The magnitude of these allowances is likely to be much smaller than the savings resulting from conservation activities.
 - The authors include the \$600 million figure from the LTEP as an additional cost, but it is already included in the LTEP price projections, so the total “additional costs” in this section are overstated by several million dollars.
- The study brought up other issues that were not included in the analysis of additional costs:
 1. Korean Consortium Adder
 - The authors claim the Economic Development Adder to the Korean Consortium is an additional cost, but it is factored into the LTEP price projections.
 - The adder was also recently reduced through the renegotiation process to a cap of \$110M over 20 years to Phase 1 and Phase 2 of KC’s projects
 2. Employment and Social Benefit
 - The authors claim that the jobs figures have not been explained, including whether the figure refers to net or gross jobs.
 - The figure of 50,000 direct and indirect jobs is a conservative estimate that includes both long-term and temporary positions. This estimate is based on economic modeling and analysis conducted by the Ministry of Finance and the Ministry of Energy.
 - Analysis is based on the historic number of jobs that have typically been created by the type of work that is required to bring projects attributable to the Green Energy Act online. This approach is commonly used by other jurisdictions both within Canada and abroad.
 - The 50,000 estimate is a gross figure that approximates the level of employment generated by projects and investment attributable to the Green Energy Act.

Prepared by: Tim Christie (5-6708)
Senior Advisor, Energy Economics

Input from: Mark Bergman (7-8298)
A/Team Leader, Energy Economics

Michael England (5-5027)
Policy Analyst, Energy Economics

Ceiran Bishop (7-7204)
Manager, Transmission Policy

Sunita Chander (2-8593)
Team Lead, Project Management Office

Audrey Guillot (2-7006)
Manager, Conservation Policy Unit

Approved by: Tom Chapman (5-6898)
Manager, Energy Economics

Garry McKeever (5-8627)
Director, Energy Supply and Competition

Rick Jennings (4-6190)
ADM, Energy Supply, Transmission, and Distribution Policy

AMENDED GREEN ENERGY INVESTMENT AGREEMENT (GEIA)

ISSUE:

What does the Amended Green Energy Investment Agreement (GEIA) mean for Ontario?

SUGGESTED RESPONSE:

- The Province signed an Agreement with the Korean Consortium (Samsung and Korea Electric Power Corporation) originally in January 2010 and amended in the Summer of 2011.
- The Agreement allows for the creation of jobs and investments into Ontario's economy
- Great progress has been made since the agreement has been signed and the province improved the deal to better deliver results and provide even greater value to Ontario families.

What were the changes to the Agreement in the Summer 2011?

- Under the Amended Agreement, in exchange for the same one-year commercial operation date extension that was provided to all existing Feed-in-Tariff contract holders in February 2011, the economic development adder payments to Samsung were reduced.
- The adder has been reduced to a maximum of \$110 million for Phase 1 and Phase 2 projects only (which are spread over 20 years), down from a projected \$437 million when the deal was first signed.
- If the maximum economic development adder is attained it means that the cost to the average ratepayer in Ontario over the next 20 years will be about 36 cents a year.
- The Amended Agreement will also see four clean-technology manufacturing plants open their doors earlier, three plants in December 2011, and one in **August 2012**.
- The Korean Consortium is required to show a total of 900 jobs by the end of 2012
- If a partner manufacturing plant closes prior to 2016, the economic development adder is reduced by 25%.

If asked about manufacturing plants:

- Samsung and their three manufacturing partners (Siemens, CS Wind and SMA) have had their facilities in commercial operation since December 2011.
 - Siemens has built a wind blade manufacturing plant in Tillsonburg. Siemens expects the plant to create 300 jobs at peak capacity and 600 indirect jobs.
 - CS Wind has built a wind tower plant in Windsor. The plant is expected to employ up to 300 people when running at full capacity and 400 indirect jobs are also expected with this plant.

- Celestica and SMA, are expanding the Celestica GTA facility to manufacture solar inverters. The plant is expected to create up to 100 direct jobs and 100 indirect.
- On September 8, 2011, KC announced they have selected London, Ontario for the site of a new solar module manufacturing facility. The manufacturing partner is still to be determined and per the GEIA is expected to be operational by **August 31, 2012**. This plant is anticipated to create 200 direct manufacturing jobs and 120 indirect jobs.
- As per the Amended GEIA, KC will be eligible for an economic development adder (EDA) contingent upon meeting jobs commitments at these four manufacturing facilities.

If asked about **community or First Nations involvement or opposition to the proposed Grand Renewable Energy Park in Haldimand County:**

- The Ministry of Energy is committed to the success of the Green Energy Investment Agreement. We will work with the Korean Consortium and their developer partners wherever possible to help facilitate green energy projects.
- Samsung is building their wind and solar project, the Grand Renewable Energy Park, in Haldimand County.
- The Korean Consortium and their partners have the responsibility to meet the requirements under the Renewable Energy Approval process, including consultation with First Nations and Metis communities.
- We take the Crown's duty to consult First Nations and Métis very seriously.
- As part of the consultations required under the Renewable Energy Approval process, Samsung is consulting with the Six Nations Elected Council. We understand a business arrangement between Samsung and the Six Nations Elected Council is currently being negotiated.
- **Six Nations launched a 30 day consultation period to discuss Samsung's project and potential community involvement. Six Nations Elected Council voted to move forward with the Grand Renewable Energy Project in Haldimand County. Six Nations Elected Council and Samsung are negotiating final equity and capacity funding agreements.**
- **Mayor Hewitt of Haldimand County is a strong supporter of the Samsung project (he has appeared in Samsung TV commercials) and Samsung/Pattern/NextEra/Capital Power helped launch the Community Vibrancy Fund for the County (launched September 2011). This is an annual \$2M fund for the 20 year life of the project.**

BACKGROUND:

Overview

Ontario has negotiated an agreement with the Korean Consortium (KC), comprised of Samsung C&T Corporation and the Korea Electric Power Corporation (KEPCO), which will lead to both energy generation and manufacturing facilities being constructed in Ontario. The agreement stems from opportunities created for developers and investors through Ontario's Green Energy Act, and is expected to be among the first of many major investments to result from the leadership position Ontario has taken in green energy.

The Consortium will be an anchor tenant in growing a new, vibrant green economy in Ontario.

Abbreviated Chronology:

- Fall 2008 – KC approached Ontario.
- Summer/Fall 2009 – Intensive negotiations between Ontario and KC partners.
- January 2010 – Signature.
- July 2011 – GEIA was amended by Ontario and the KC.
- August 3, 2011 – Amended and original GEIA made public.

Key Facts

- Kick-starting our renewable manufacturing industry by bringing four green manufacturing partners to Ontario, with an investment totalling \$7 billion.
- Creating approximately 16,000 direct and indirect jobs over six years.
- Generating approximately 110 million MW hours of emissions-free electricity over the lifespan of the FIT contracts – enough power to supply every home in Ontario for 3 years.
- Displacing up to 40 megatonnes of C02 – equivalent to removing every single car off of Ontario roads for one year.
- Creating even more economic development opportunities for Aboriginal communities, municipalities, manufacturers, etc.
- Over the longer term, the additional manufacturing will deliver a very real contribution to Ontario’s GDP, estimated at a net \$1 billion over 10 years.
- The economic development adder is an incentive over and above the feed-in-tariff paid for green energy generation.
- EDA payments will be reduced on a pro rata basis if job levels fall below 85% of 900 jobs.
- Average jobs between 2013-2015 to be maintained at 765 jobs. If jobs fall below 765 by 15%, KC’s EDA will be reduced by 15%.
- If a manufacturing partner ceases operation before December 2016, the EDA will be reduced by 25%.

CURRENT STATUS: GENERATION PROJECTS

- The GEIA provides for the Korean Consortium to receive priority access to Ontario’s transmission system in return for meeting its manufacturing commitments.
- The Renewable Energy Approval (REA) application for the Grand Renewable Energy Project was deemed complete and posted on the Environmental Registry for 30 days (posting closed April 12, 2012).
- The Renewable Energy Approval application for the South Kent Wind Park Project was deemed complete on February 7, 2012 and posted on the Environmental Registry for 30 days (posting closed March 7, 2012).
-
- MOE has 6 months, from the date of deeming complete, to make a decision on the Phase 1 REA applications (Grand Renewable Energy Park - October 2012 and South Kent Wind Park – September 2012)..
- Environmental and regulatory work is currently underway for Phase 2 projects.

PHASES*	PROJECTS	LOCATION	TOTAL CAPACITY (MW)**	COMMERCIAL OPERATION DATES (COD):

Phase 1	▪ GRAND RENEWABLE ENERGY PARK 149MW (Wind) ▪ GRAND RENEWABLE ENERGY PARK 100MW (Solar) ▪ SOUTH KENT WIND PARK 270MW (Wind)	Haldimand County Haldimand County Chatham-Kent	518.6 MW	March 2014
Phase 2*	▪ K2 270MW (Wind) ▪ ARMOW 180 MW (Wind) ▪ KINGSTON NORTH 100 MW (Solar)	Huron County Kinkardine Kingston	550MW	December 2014
Phase 3**	▪ DUNDALK 300MW (Wind) ▪ BEAVERDALE 100MW (Wind) ▪ PORT HOPE 100MW (Solar)	Grey County Grey County Port Hope	500MW	December 2014
Phase 4	▪ Requested phase 4 and 5 generation totals 800 MW of wind and 200 MW of solar ▪ Technical feasibility of requested connection points currently being evaluated by OPA ▪ Priority transmission projects to be developed as part of the Long-Term Energy Plan will provide transmission options that work with KC's end-2015 and end-2016 'in service' dates for Phases 4 and 5 respectively.			December 2015
Phase 5				December 2016

* On September 17, 2010, the Minister directed the OPA to hold in reserve 500 MW of transmission capacity in the Bruce area, in anticipation of the completion of the Bruce-to-Milton line, for phase 2 projects. A Ministerial Directive for the solar project in the East was unnecessary because the project at the time was not located in an area with significant competition. The allocation of transmission was carried out through the Implementation Task Force (formed of OPA and Ministry representatives via Directive April 2010).

**Capacity for this project was allocated via the Implementation Task Force.

GEIA Total Generation Capacity:

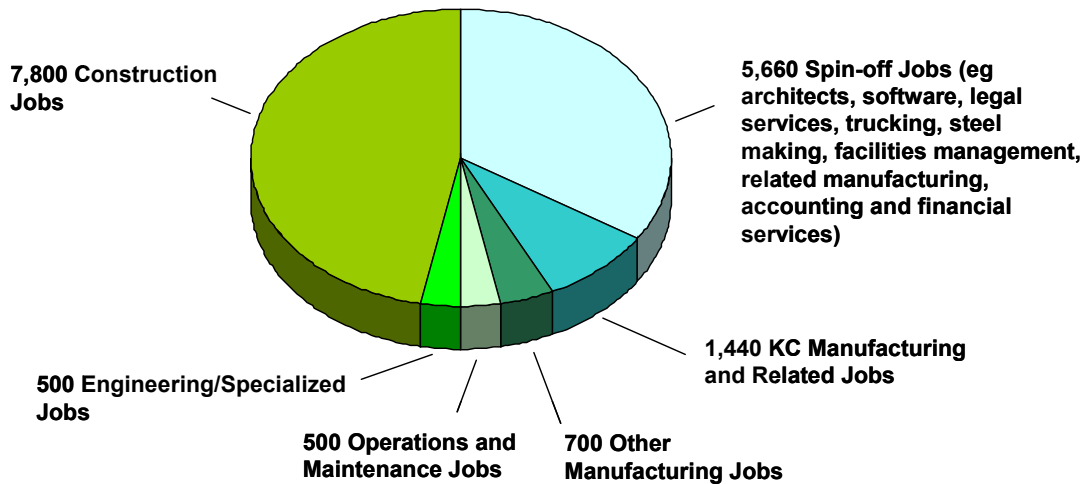
- The total target generation capacity of all phases remains at 2,500 MW; KC will adjust the target generation capacity of its projects accordingly to align with 2,500 MW target.

Creating Jobs

The agreement will lead to approximately 16,000 green energy jobs over 6 years and bring \$7 billion of renewable generation investment to Ontario.

Jobs will be created during the construction, installation and operation of renewable energy projects as well as direct employment in manufacturing plants. In addition, the increased renewable energy development and manufacturing activities will support indirect job creation in areas such as finance, consulting and other manufacturing, service and development industries.

Below is the breakdown of the projected 16,000 jobs:



Note: Spin-off Jobs refers to indirect positions resulting from direct job creation.

Stimulating Manufacturing

Renewable energy provided by KC would qualify for published Feed-In Tariff (FIT) prices available to all eligible projects.

In addition to the standard rates for electricity generation, KC will be eligible for an economic development adder (EDA). This adder is contingent upon KC's manufacturing partners operating four manufacturing plants according to the following schedule:

- **Towers** – in full operation by December 31, 2011;
- **Solar Inverters** – in full operation by December 31, 2011;
- **Blades** – in full operation by December 31, 2011; and
- **Solar Module Assembly** – in full operation by **August** 31, 2012

Samsung has submitted documentation indicating that the manufacturing plants for wind towers, wind blades and solar inverters have been in commercial operation as of December 2011 (per the GEIA). ENERGY has provided memos to Samsung verifying that these commitments under the GEIA have been met.

Ratepayer Impact

KC has currently signed six power purchase agreements (PPAs) with the Ontario Power Authority. The PPAs are structured similar to feed in tariff contracts. KC will be paid feed in tariff prices of 13.5cents/KWh for Wind projects and 44.3cents/KWh for solar projects. Future PPAs will be subject to the published FIT price at that time (prices may be degressed for wind and solar).

The total cost of the economic development adder, assuming the manufacturing facilities are built according to the schedule set out in the agreement, will be approximately \$110 million (net present value) over the lifetime of the contracts. This is a 75% reduction from the projected \$437 million when the deal was first signed.

EDA paid is 0.27 cents/kWh for wind generation and 1.43 cents/kWh for solar generation over 20 years.

The electricity ratepayer impact of the Green Energy Investment Agreement will be \$5.53/month (at current FIT prices).

This \$5.53/month is made up of \$0.03 for the EDA and \$5.50 for FIT prices, over the life of the 20-year Agreement.

The government and the Consortium will ensure that any Duty to Consult obligations are

met, and that Ontario's Aboriginal communities are engaged and where possible provided with economic development opportunities flowing from projects under the agreement.

Memorandum of Understanding (MOU) between Samsung and the Six Nations

- On January 22, 2010, Samsung entered into a Memorandum of Understanding with the Six Nations. The MOU contemplated discussions regarding the co-development of a 10 MW solar farm on the Six Nations reserve (i.e. separate from the Samsung project itself). The MOU also raised discussion of possible equity participation by Six Nations in the wind farm in Haldimand.
- On January 27, 2011, Six Nations put out a press release that the MOU will not be renewed.

Positive negotiations between Samsung and Six Nations resulted in the Six Nations Elected Council engaging in a 30 day community outreach strategy to "sell the Samsung Deal" to the Six Nations community. This outreach strategy ended April 12, 2012. The elected council is working with Samsung and their partners to negotiate equity partnership and capacity funding agreements for the Grand Renewable Energy Project.

Date: April 30, 2012

Updated by: Sunita Chander
Team Lead
Project Management Office
(416) 212-8593

Approved by: Jennifer Wismer, Director,
Project Management Office
(416) 212-9267

Approved by: Sue Lo, ADM
Renewables & Energy Efficiency Division
416-327-8552

AMENDED GREEN ENERGY INVESTMENT AGREEMENT (GEIA)

ISSUE:

What does the amended Green Energy Investment Agreement (GEIA) mean for Ontario?

SUGGESTED RESPONSE:

- The original GEIA was signed in January 2010.
- Great progress has been made since then resulting in the province improving the deal to better deliver results and provide even greater value to Ontario families.
- Under the Amended Agreement, in exchange for the same one-year commercial operation date extension that was provided to all existing Feed-in-Tariff contract holders in February 2011, the economic development adder payments to Samsung were reduced.
- The adder has been reduced to a maximum of \$110 million for Phase 1 and Phase 2 projects only (which are spread over 20 years), down from a projected \$437 million when the deal was first signed.
- If the maximum economic development adder is attained it means that the cost to the average ratepayer in Ontario over the next 20 years will be about 36 cents a year.
- The Amended Agreement will also see four clean-technology manufacturing plants open their doors earlier, three plants in December 2011, and one in July 2012.
- The Korean Consortium is required to show a total of 900 jobs by the end of 2012, in order to qualify for the economic development adder payments.
- If a partner manufacturing plant closes prior to 2016, the economic development adder is reduced by 25%.

If asked about manufacturing plants:

- Siemens, in partnership with Samsung, will build the wind blade manufacturing plant in the Tillsonburg area. The plant is scheduled to be in production by December 2011, significantly fast-tracked from the scheduled date of December 2015, specified in the original GEIA.
- The companies estimate that over the term of the agreement up to 300 direct jobs and up to 600 additional construction and indirect service jobs will be created. Siemens held a job fair on May 7, 2011 and is in the process of hiring staff.
- CS Wind, in partnership with Samsung, will build a wind tower plant in Windsor. The plant is expected to employ up to 300 people when running at full capacity and per the GEIA commitment is expected to be in commercial operation by December 2011. (Original timeline for the plant as part of the original GEIA was March 31, 2013). 400 indirect jobs are also expected with this plant.
- Celestica and SMA, in partnership with Samsung, recently announced their solar inverter plant at the Celestica facilities in Toronto. The plant is expected to create up to 200 jobs (100 direct and 100 indirect).

- **On September 8, 2011, KC announced they have selected London, Ontario for the site of a new solar module manufacturing facility. The manufacturing partner is still to be determined.**
- **The London plant is expected to be operational by July 31, 2012, and is anticipated to create 200 direct manufacturing jobs and 120 indirect jobs**
- **As per the Amended GEIA, KC will be eligible for an economic development adder (EDA) contingent upon meeting jobs commitments at these four manufacturing facilities.**

BACKGROUND:

Overview

Ontario has negotiated an agreement with the Korean Consortium (KC), comprised of Samsung C&T Corporation and the Korea Electric Power Corporation (KEPCO), which will lead to both energy generation and manufacturing facilities being constructed in Ontario. The agreement stems from opportunities created for developers and investors through Ontario's Green Energy Act, and is expected to be among the first of many major investments to result from the leadership position Ontario has taken in green energy.

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- Creating even more economic development opportunities for Aboriginal communities, municipalities, manufacturers, etc.
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- The economic development adder is an incentive over and above the feed-in-tariff paid for green energy generation.
- EDA payments will be reduced on a pro rata basis if job levels fall below 85% of 900 jobs.
- Average jobs between 2013-2015 to be maintained at 765 jobs. If jobs fall below 765 by 15%, KC's EDA will be reduced by 15%.
- If a manufacturing partner ceases operation before December 2016, the EDA will be reduced by 25%.

CURRENT STATUS: GENERATION PROJECTS

- The GEIA provides for the Korean Consortium to receive priority access to Ontario’s transmission system in return for meeting its manufacturing commitments.
- KC has submitted their Renewable Energy Approval (REA) application to the Ministry of Environment (MOE) in early October for their Phase 1 projects. MOE is currently assessing KC’s application.

PHASES*	PROJECTS	LOCATION	TOTAL CAPACITY (MW)**	COMMERCIAL OPERATION DATES (COD):
Phase 1	▪ GRAND RENEWABLE ENERGY PARK 149MW (Wind) ▪ GRAND RENEWABLE ENERGY PARK 100MW (Solar) ▪ SOUTH KENT WIND PARK 270MW (Wind)	Haldimand County Haldimand County Chatham-Kent	518.6 MW	March 2014
Phase 2*	▪ K2 270MW (Wind) ▪ ARMOW 180 MW (Wind) ▪ KINGSTON NORTH 100 MW (Solar)	Huron County Kinkardine Kingston	550MW	December 2014
Phase 3**	▪ DUNDALK 300MW (Wind) ▪ BEAVERDALE 100MW (Wind) ▪ PORT HOPE 100MW (Solar)	Grey County Grey County Port Hope	500MW	December 2014
Phase 4	▪ Requested phase 4 and 5 generation totals 800 MW of wind and 200 MW of solar ▪ Technical feasibility of requested connection points currently being evaluated by OPA ▪ Priority transmission projects to be developed as part of the Long-Term Energy Plan will provide transmission options that work with KC’s end-2015 and end-2016 ‘in service’ dates for Phases 4 and 5 respectively.			December 2015
Phase 5				December 2016

* On September 17, 2010, the Minister directed the OPA to hold in reserve 500 MW of transmission capacity in the Bruce area, in anticipation of the completion of the Bruce-to-Milton line, for phase 2 projects. A Ministerial Directive for the solar project in the East was unnecessary because the project at the time was not located in an area with significant competition. The allocation of transmission was carried out through the Implementation Task Force (formed of OPA and Ministry representatives via Directive April 2010).

**Capacity for this project was allocated via the Implementation Task Force.

GEIA Total Generation Capacity:

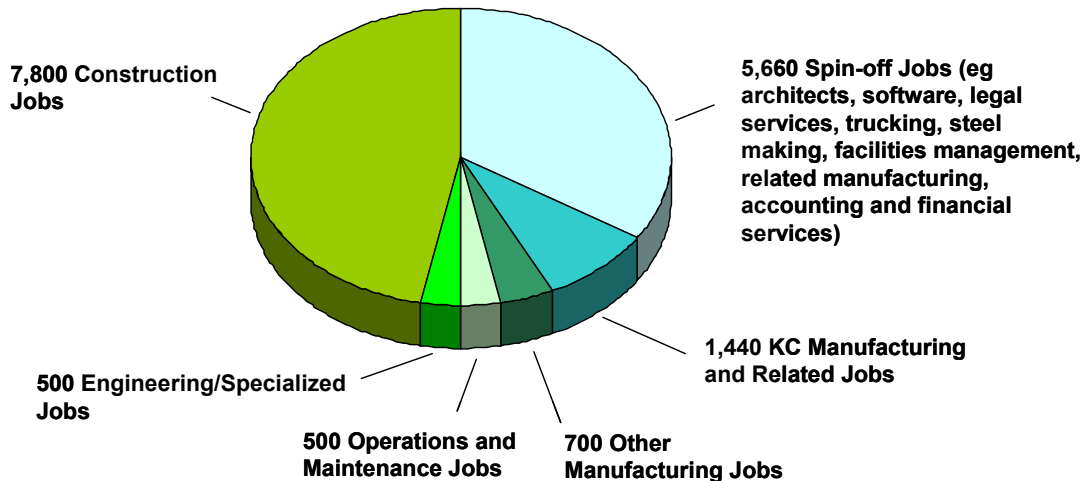
- The total target generation capacity of all phases remains at 2,500 MW; KC will adjust the target generation capacity of its projects accordingly to align with 2,500 MW target.

Creating Jobs

The agreement will lead to approximately 16,000 green energy jobs over 6 years and bring \$7 billion of renewable generation investment to Ontario.

Jobs will be created during the construction, installation and operation of renewable energy projects as well as direct employment in manufacturing plants. In addition, the increased renewable energy development and manufacturing activities will support indirect job creation in areas such as finance, consulting and other manufacturing, service and development industries.

Below is the breakdown of the projected 16,000 jobs:



Note: Spin-off Jobs refers to indirect positions resulting from direct job creation.

Stimulating Manufacturing

Renewable energy provided by KC would qualify for published Feed-In Tariff (FIT) prices available to all eligible projects.

In addition to the standard rates for electricity generation, KC will be eligible for an economic development adder (EDA). This adder is contingent upon KC's manufacturing partners operating four manufacturing plants according to the following schedule:

- **Towers** – in full operation by December 31, 2011;
- **Solar Inverters** – in full operation by December 31, 2011;
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- **Solar Module Assembly** – in full operation by July 31, 2012

Ratepayer Impact

KC has currently signed six power purchase agreements (PPAs) with the Ontario Power Authority. The PPAs are structured similar to feed in tariff contracts. KC will be paid feed in tariff prices of 13.5cents/KWh for Wind projects and 44.3cents/KWh for solar projects. Future PPAs will be subject to the published FIT price at that time (prices may be degressed for wind and solar).

The total cost of the economic development adder, assuming the manufacturing facilities are built according to the schedule set out in the agreement, will be approximately \$110 million (net present value) over the lifetime of the contracts. This is a 75% reduction from the projected \$437 million when the deal was first signed.

EDA paid is 0.27 cents/kWh for wind generation and 1.43 cents/kWh for solar generation over 20 years.

The electricity ratepayer impact of the Green Energy Investment Agreement will be \$5.53/month (at current FIT prices).

This \$5.53/month is made up of \$0.03 for the EDA and \$5.50 for FIT prices, over the life of the 20-year Agreement.

Opportunities for all Ontarians

The Consortium is required to sign power purchase agreements (PPAs) with the OPA for

energy generation (PPAs have been signed (6) for Phases 1 and 2) as well as obtain required licences and approvals.

The government and the Consortium will ensure that any Duty to Consult obligations are met, and that Ontario's Aboriginal communities are engaged and where possible provided with economic development opportunities flowing from projects under the agreement.

Memorandum of Understanding (MOU) between Samsung and the Six Nations

- On January 22, 2010, Samsung entered into a Memorandum of Understanding with the Six Nations. The MOU contemplated discussions regarding the co-development of a 10 MW solar farm on the Six Nations reserve (i.e. separate from the Samsung project itself). The MOU also raised discussion of possible equity participation by Six Nations in the wind farm in Haldimand.
- The Province was not privy to the MOU prior to it being signed and the MOU was subject to renewal or expiry in January 2011.
- On January 27, 2011, Six Nations put out a press release that the MOU will not be renewed.
- Negotiations continue between Samsung and Six Nations as it relates to the duty to consult as well as an economic benefit agreement in Haldimand County.

Date: October 31, 2011

Updated by: Kathy Hering, Senior Advisor
416-212-6955
September 17, 2011

Approved by: Jennifer Wismer, Director,
Project Management Office
(416) 212-9267

Approved by: Sue Lo, ADM
Renewables & Energy Efficiency Division
416-327-8552

AMENDED GREEN ENERGY INVESTMENT AGREEMENT (GEIA)

ISSUE:

What does the Amended Green Energy Investment Agreement (GEIA) mean for Ontario?

SUGGESTED RESPONSE:

- The Province signed an Agreement with the Korean Consortium (Samsung and Korea Electric Power Corporation) originally in January 2010 and amended in the summer of 2011.
- The Agreement allows for the creation of jobs and investments into Ontario's economy
- Great progress has been made since the agreement has been signed and the province improved the deal to better deliver results and provide even greater value to Ontario families.

What were the changes to the Agreement in the Summer 2011?

- Under the Amended Agreement, in exchange for the same one-year commercial operation date extension that was provided to all existing Feed-in-Tariff contract holders in February 2011, the economic development adder payments to Samsung were reduced.
- The adder has been reduced to a maximum of \$110 million for Phase 1 and Phase 2 projects only (which are spread over 20 years), down from a projected \$437 million when the deal was first signed.
- If the maximum economic development adder is attained it means that the cost to the average ratepayer in Ontario over the next 20 years will be about 36 cents a year.
- The Amended Agreement will also see four clean-technology manufacturing plants open their doors earlier, three plants in December 2011, and the fourth committed to be commercially operational by Samsung and partner by August 31, 2012.
- The Korean Consortium is required to show a total of 900 jobs by the end of 2012
- If a partner manufacturing plant closes prior to 2016, the economic development adder is reduced by 25%.

If asked about manufacturing plants:

- Samsung and their three manufacturing partners (Siemens, CS Wind and SMA) have had their facilities in commercial operation since December 2011.
 - Siemens has built a wind blade manufacturing plant in Tillsonburg. Siemens expects the plant to create 300 jobs at peak capacity and 600 indirect jobs.
 - CS Wind has built a wind tower plant in Windsor. The plant is expected to employ up to 300 people when running at full capacity and 400 indirect jobs are also expected with this plant.

- Celestica and SMA, are expanding the Celestica GTA facility to manufacture solar inverters. The plant is expected to create up to 100 direct jobs and 100 indirect.
- On September 8, 2011, KC announced they have selected London, Ontario for the site of a new solar module manufacturing facility. This **fourth** plant is anticipated to create 200 direct manufacturing jobs.

If asked about the August 31st, 2012 deadline for commercial operation date (COD) on the London solar plant:

- **The KC's manufacturing partner for that plant is still under negotiation and it is anticipated that the partnership announcement will be made during fall 2012.**
- As per the Amended GEIA, KC will be eligible for an economic development adder (EDA) contingent upon meeting jobs commitments at these four manufacturing facilities.
- **Conversely, if the KC does not meet job and manufacturing commitments, their eligibility for this adder may be revoked.**

If asked about First Nations involvement or opposition to the proposed Grand Renewable Energy Park in Haldimand County:

- The Ministry of Energy is committed to the success of the Green Energy Investment Agreement. We will work with the Korean Consortium and their developer partners wherever possible to help facilitate green energy projects.
- Samsung is building their wind and solar project, the Grand Renewable Energy Park, in Haldimand County.
- The Korean Consortium and their partners have the responsibility to meet the requirements under the Renewable Energy Approval process, including consultation with First Nations and Metis communities.
- We take the Crown's duty to consult First Nations and Métis very seriously.
- As part of the consultations required under the Renewable Energy Approval process, Samsung is consulting with both the Six Nations Elected Council and the Haudenosaunee Confederacy Chiefs Council. We understand that a business arrangement between Samsung and the Six Nations Elected Council has been negotiated and that Samsung continues to engage in discussions with the Haudenosaunee Development Institute on behalf of the Confederacy Chiefs.
- Six Nations Elected Council conducted a 30 day community consultation period to discuss Samsung's project and potential community involvement prior to voting to move forward with the Grand Renewable Energy Project in Haldimand County. We understand that Six Nations Elected Council and Samsung have negotiated final equity and capacity funding agreements.
- Mayor Hewitt of Haldimand County is a strong supporter of the Samsung project (he has appeared in Samsung TV commercials) and Samsung/Pattern/NextEra/Capital Power helped launch the Community Vibrancy Fund for the County (launched September 2011). This is an annual \$2M fund for the 20 year life of the project.

If Asked About Public Opposition to Wind Farms:

- The government is committed to protecting the health of residents in communities that are home to renewable energy projects, including Haldimand and South Kent.

- We have taken a cautious approach when setting standards for wind setbacks and noise limits to protect Ontarians.
- Ontario has stringent noise regulations and setback requirements that wind facilities must meet in order to proceed to construction. These regulations are in line with those of other jurisdictions.
- Commercial wind turbine generators in Ontario are required to obtain a Renewable Energy Approval under the Environmental Protection Act (EPA), ensuring wind farms meet the Province's noise limits.
- Developers must demonstrate that projects will meet the government's 40 decibel noise guideline – the sound in a library – to protect the surrounding community. The World Health Organization says this level is protective of human health.
- Our approach is progressive – Ontario is a leader in establishing clear setbacks for renewable energy projects that are protective of human health and the environment.
- The Ministry of Environment monitors and responds to new scientific, technical and other developments related to noise abatement in the wind sector.
- Should new information come to light from the health and/or noise studies, we will review and amend wind energy requirements, as necessary, as we do for all other environmental standards today.

If asked about the Environmental Review Tribunal's ongoing hearings (GRAND and South Kent)

- The Environmental Review Tribunal is currently hearing appeals to the KC's Phase 1 projects in Haldimand (GRAND Renewable Energy Park) and South Kent.
- The ERT is committed to conducting timely, fair, efficient and impartial hearings that protect the environment and are consistent with the governing legislation. Since these hearings are ongoing, I cannot comment offer any further comment at this time.
- Shifting to cleaner energy sources will protect and improve our environment and our health. We won't allow any project to proceed unless it can be built and operated in a way that is fully protective of local communities.

Any further questions should be directed to the Ministry of Environment.

BACKGROUND:

Overview

Ontario has negotiated an agreement with the Korean Consortium (KC), comprised of Samsung C&T Corporation and the Korea Electric Power Corporation (KEPCO), which will lead to both energy generation and manufacturing facilities being constructed in Ontario. The agreement stems from opportunities created for developers and investors through Ontario's Green Energy Act, and is expected to be among the first of many major investments to result from the leadership position Ontario has taken in green energy.

The Consortium will be an anchor tenant in growing a new, vibrant green economy in Ontario.

Abbreviated Chronology:

- Fall 2008 – KC approached Ontario.

- Summer/Fall 2009 – Intensive negotiations between Ontario and KC partners.
- January 2010 – Signature.
- July 2011 – GEIA was amended by Ontario and the KC.
- August 3, 2011 – Amended and original GEIA made public.

Key Facts

- Kick-starting our renewable manufacturing industry by bringing four green manufacturing partners to Ontario, with an investment totalling \$7 billion.
- Creating approximately 16,000 direct and indirect jobs over six years.
- Generating approximately 110 million MW hours of emissions-free electricity over the lifespan of the FIT contracts – enough power to supply every home in Ontario for 3 years.
- Displacing up to 40 megatonnes of CO₂ – equivalent to removing every single car off of Ontario roads for one year.
- Creating even more economic development opportunities for Aboriginal communities, municipalities, manufacturers, etc.
- Over the longer term, the additional manufacturing will deliver a very real contribution to Ontario's GDP, estimated at a net \$1 billion over 10 years.
- The economic development adder is an incentive over and above the feed-in-tariff paid for green energy generation.
- EDA payments will be reduced on a pro rata basis if job levels fall below 85% of 900 jobs.
- Average jobs between 2013-2015 to be maintained at 765 jobs. If jobs fall below 765 by 15%, KC's EDA will be reduced by 15%.
- If a manufacturing partner ceases operation before December 2016, the EDA will be reduced by 25%.

CURRENT STATUS: GENERATION PROJECTS

- Renewable Energy Approvals (REA) for the Grand Renewable Energy Project and the South Kent Wind Park Project were granted on June 15, 2012.
- The REA for the Grand Renewable Energy Project has since been appealed to the Environmental Review Tribunal by Haldimand Wind Concerns and by two local residents. Five local residents have been granted status as participants and presenters.
- The REA for the South Kent Wind Project has been appealed by Chatham-Kent Wind Action. Three local residents have been granted status as participants and presenters.
- This Tribunal must release a decision within 6 months of receiving the appeal notice, therefore it is anticipated that these proceedings will be complete by the beginning of January 2013.

PHASES*	PROJECTS	LOCATION	TOTAL CAPACITY (MW)**	COMMERCIAL OPERATION DATES (COD):
Phase 1	- GRAND RENEWABLE ENERGY PARK 149MW (Wind) - GRAND RENEWABLE ENERGY PARK 100MW (Solar) - SOUTH KENT WIND PARK 270MW (Wind)	Haldimand County Haldimand County Chatham-Kent	518.6 MW	March 2014
Phase 2*	- K2 270MW (Wind) - ARMOW 180 MW (Wind) - KINGSTON NORTH 100 MW (Solar)	Huron County Kinkardine Kingston	550MW	December 2014
Phase 3**	- DUNDALK 300MW (Wind) - BEAVERDALE 100MW (Wind) - PORT HOPE 100MW (Solar)	Grey County Grey County Port Hope	500MW	December 2014
Phase 4	- Requested phase 4 and 5 generation totals 800 MW of wind and 200 MW of solar - Technical feasibility of requested connection points currently being evaluated by OPA - Priority transmission projects to be developed as part of the Long-Term Energy Plan will provide transmission options that work with KC's end-2015 and end-2016 'in service' dates for Phases 4 and 5 respectively.			December 2015
Phase 5				December 2016

- Environmental and regulatory work is currently underway for Phase 2 projects.

* On September 17, 2010, the Minister directed the OPA to hold in reserve 500 MW of transmission capacity in the Bruce area, in anticipation of the completion of the Bruce-to-Milton line, for phase 2 projects. A Ministerial Directive for the solar project in the East was unnecessary because the project at the time was not located in an area with significant competition. The allocation of transmission was carried out through the Implementation Task Force (formed of OPA and Ministry representatives via Directive April 2010).

**Capacity for this project was allocated via the Implementation Task Force.

GEIA Total Generation Capacity:

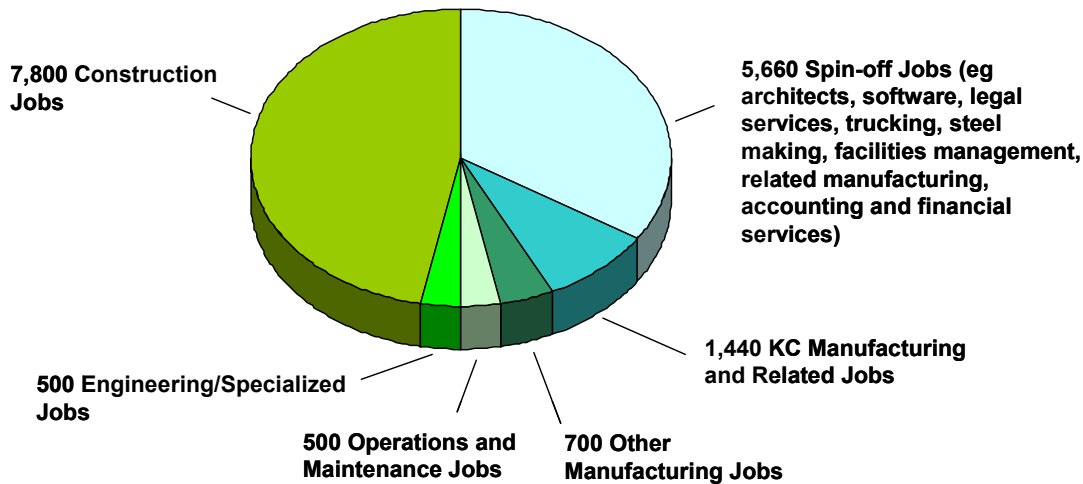
- The total target generation capacity of all phases remains at 2,500 MW; KC will adjust the target generation capacity of its projects accordingly to align with 2,500 MW target.

Creating Jobs

The agreement will lead to approximately 16,000 green energy jobs over 6 years and bring \$7 billion of renewable generation investment to Ontario.

Jobs will be created during the construction, installation and operation of renewable energy projects as well as direct employment in manufacturing plants. In addition, the increased renewable energy development and manufacturing activities will support indirect job creation in areas such as finance, consulting and other manufacturing, service and development industries.

Below is the breakdown of the projected 16,000 jobs:



Note: Spin-off Jobs refers to indirect positions resulting from direct job creation.

Stimulating Manufacturing

Renewable energy provided by KC would qualify for published Feed-In Tariff (FIT) prices available to all eligible projects.

In addition to the standard rates for electricity generation, KC will be eligible for an economic development adder (EDA). This adder is contingent upon KC's manufacturing partners operating four manufacturing plants according to the following schedule:

- **Towers** – in full operation by December 31, 2011;
- **Solar Inverters** – in full operation by December 31, 2011;
- **Blades** – in full operation by December 31, 2011; and
- **Solar Module Assembly** – committed to be operational by August 31, 2012

Samsung has submitted documentation indicating that the manufacturing plants for wind towers, wind blades and solar inverters have been in commercial operation as of December 2011 (per the GEIA). ENERGY has provided memos to Samsung verifying that these commitments under the GEIA have been met.

Ratepayer Impact

KC has currently signed six power purchase agreements (PPAs) with the Ontario Power Authority. The PPAs are structured similar to feed in tariff contracts. KC will be paid feed in tariff prices of 13.5cents/KWh for Wind projects and 44.3cents/KWh for solar projects. Future PPAs will be subject to the published FIT price at that time (prices may be decreased for wind and solar).

The total cost of the economic development adder, assuming the manufacturing facilities are built according to the schedule set out in the agreement, will be approximately \$110 million (net present value) over the lifetime of the contracts. This is a 75% reduction from the projected \$437 million when the deal was first signed.

EDA paid is 0.27 cents/kWh for wind generation and 1.43 cents/kWh for solar generation over 20 years.

The electricity ratepayer impact of the Green Energy Investment Agreement will be \$5.53/month (at current FIT prices).

This \$5.53/month is made up of \$0.03 for the EDA and \$5.50 for FIT prices, over the life of the 20-year Agreement.

The government and the Consortium will ensure that any Duty to Consult obligations are met, and that Ontario's Aboriginal communities are engaged and where possible provided with economic development opportunities flowing from projects under the agreement.

Date: September 4, 2012

Updated by: Robert Patrick
Senior Policy Advisor
Project Management Office
(416) 212-6955

Approved by: Jennifer Wismer, Director,
Project Management Office
(416) 212-9267

Approved by: Sue Lo, ADM
Renewables & Energy Efficiency Division
416-327-8552

BRIEFING NOTE – GREEN ENERGY JOB TRACKING

ISSUE:

Ministry staff has updated green energy job creation projections.

SUMMARY:

- As of Q3 2012, Green Energy Act (GEA) job creation is estimated at 28,400 direct and indirect jobs.
- GEA job creation is on track to exceed 30,000 by year end 2012 and 50,000 by year end 2013.
- GEA job creation projections are down slightly (5%) from Q2 based primarily on two key factors:
 1. Conservation estimates have been corrected to separate GEA and non-GEA related conservation job creation.
 2. Forecasts for GEA-related renewable energy capacity have decreased by approximately 100 MW.
- Other changes include:
 - A small decrease to transmission and distribution related job creation based on decreased levels of forecasted investment.
 - A moderate increase to smart grid related job creation due to the availability of job estimates for specific smart grid fund projects.
- Public statements from the Ministry regarding green energy job creation indicate that “over 20,000” jobs have been created to date. This number is based on GEA job creation through the end of 2011. The higher number cited in this note (28,000) can largely be attributed to the development of new FIT and microFIT projects.

GEA Job Creation		
	Year End 2011	Year to Date 2012
Transmission and Distribution	2,200	2,200
Smart Grid	3,300	3,400
Conservation	11,200	10,100
Renewables	5,400	12,700
TOTAL	22,100	28,400

Notes: 1) The lower conservation value reflects the removal of non-GEA related conservation jobs from the total

2) Increased renewables jobs are primarily due to the increased development of large-scale wind and solar FIT projects

Background:

- Forecasted job estimates are based on economic modeling and analysis conducted by staff. The analysis is based on the historic number of direct and indirect jobs that have typically been created by the type of work that will be required.

- Renewables job creation (wind and solar) corresponds to the capacity of the projects being built. Transmission and distribution jobs are based on the size of the investment (see Table 1).
- Direct and indirect jobs are defined as follows:
 - A 'direct job' is a person newly hired or an employee in a new position for work on the project for as long as required. Examples of direct jobs include construction work on renewable energy projects and assembly work at wind and solar manufacturing plants.
 - An 'indirect job' is a person newly hired or an employee in a new position for work on intermediate inputs or other support services for work on the project. Examples of indirect jobs include the labour required to extract and process steel for wind turbines and work at consultancy firms and research organizations.

Table 1: Sample of Multipliers Used in Analysis

	Direct	Indirect	Total
Wind (Jobs/MW)	3.0	2.1	5.1
Solar Groundmount (Jobs/MW)	10.0	7.0	17.0
Solar Rooftop (Jobs/MW)	15.0	10.6	25.6
Transmission and Distribution – Development (Jobs/\$1 Million Invested)	8.2	3.0	11.2
Transmission and Distribution – Capital/Construction (Jobs/\$1 Million Invested)	5.7	2.8	8.5

- This approach is commonly used by other jurisdictions in Canada and internationally. Where approaches differ, some studies include a broader definition of jobs.
- For example, the job estimates used for the U.S. Recovery Act of 2009 include induced jobs in addition to direct and indirect jobs. Induced jobs are jobs that may be created by the resulting increase in economic activity from incremental investments (i.e., buying a new car or spending more at a local supermarket). Based on external studies it is reasonable to assume that including induced jobs would increase job creation by 20-25%
- The jobs projected in this analysis are wide ranging and include construction, installation, energy auditing, operations and maintenance, engineering, consulting, manufacturing, finance, IT, and software. Most direct jobs will be construction/installation related while remaining jobs are expected to be in operations and maintenance, equipment manufacturing and engineering design.
- The 50,000 energy jobs forecast includes permanent and temporary positions. Due to the nature of energy projects, many positions - particularly those in the construction sector - will be contracted for the duration of the project only.

October 15, 2012

Prepared by: Brennan Louw (5-3606)
Energy Economics

Approved by: Mark Bergman (6-1759)
Acting Manager, Energy Economics

Garry McKeever (5-8627)
Director, Energy Supply and Competition Branch

Rick Jennings (4-6190)
ADM, Energy Supply, Transmission and Distribution Policy

CONNECTION CONSTRAINTS – microFIT and Small FIT

ISSUE:

What is being done to connect constrained microFIT and Small FIT projects to the grid?

RESPONSE:

1. SUGGESTED RESPONSE ON CURRENT STATUS:

- Ontario's FIT and microFIT programs are helping us bring significant renewable energy online in Ontario.
- As of July 2013, more than 16,500 microFIT projects have been connected to the electricity grid – representing enough energy to power more than 20,000 homes.
- The high volume of applications for these renewable energy projects has exceeded the capability in some areas of the grid for these projects to be safely connected.
- Applicants with microFIT conditional offers who are still facing connection constraints have been offered the opportunity to re-locate an individual project to another property that does not have connection constraints. Aggregators can move multiple microFIT projects to a single location, subject to certain limits and requirements.

If asked about constrained microFIT relocations:

- The Ministry directed the Ontario Power Authority (OPA) to provide constrained microFIT applicants with four options to relocate constrained projects. Applicants were required to make an option selection and submit their evidence. The final deadline for submissions to the OPA was January 25, 2013.
- The OPA will be contacting applicants directly with information on next steps.
- As a result of recommendations made as part of the FIT 2-Year Review, the microFIT application process has been further streamlined and adjusted so that microFIT projects can be developed more efficiently, while ensuring that system safety and reliability are protected.

If asked about the OEB's review of the micro generation connection process and amendments to the Distribution System Code (DSC) finalized June 13, 2013:

- In December 2012, the OEB started a review of micro generation connection issues raised by stakeholders.
- The review covered a range of issues such as the offer to connect process, connection costs and standard agreements, among others.
- After receiving and considering stakeholder comments, the Board made amendments to the DSC and published them on June 13, 2013.
- The amendments respond to distributor concerns, for example, by providing more flexible timelines and providing greater clarity on connection costs charged to proponents of micro-sized projects.

2. SUGGESTED RESPONSE ON TRANSMISSION STATION UPGRADES:

- Over the past year, Hydro One has been making progress on upgrading several transmission stations.
- In addition to the priority station upgrades, Hydro One recently initiated upgrades to key supply stations across southern Ontario that will remove limitations to connecting more renewable generation in some regions of the Province.

BACKGROUND:

1. BACKGROUND ON CURRENT STATUS:

- The popularity of the microFIT and Small FIT programs has meant that some applicants have not been able to connect their projects to the grid because of system limitations, at both the transmission and distribution levels.
- The problem arose in part due to the sequencing of contract offer and assessment of connection capacity. Prior to December 8, 2010, microFIT applications were not screened for capacity at their connection point prior to conditional offers being issued by the OPA. This meant that some applicants received conditional offers, but they were not able to connect their projects because of grid constraints. Similarly, prior to December 8, 2010, Small FIT applications were also not screened for capacity prior to contract offers being provided by OPA
- The Ministry took a number of steps to address this problem and prevent its recurrence:
 - i. **Rule changes:** On February 9, 2011, following consultations, the OPA finalized a change to the rules for microFIT and Small FIT applications. Under the new rules, microFIT applications which were not capable of connecting at their proposed connection point would be rejected and not reviewed. This rule change was applied to all applications submitted on or after December 8, 2010 and continues in microFIT 2.

In FIT 2, all Small FIT projects are subject to transmission and distribution availability screening prior to contract offer.
 - ii. **Offer of relocation:** To address constrained projects, the OPA was directed to offer eligible applicants options to relocate their projects to less constrained connection points.
 - iii. **Review of distribution connection thresholds:** Hydro One is reviewing distribution system limits to better understand how much small generation can be safely connected.
 - iv. **Set asides for small projects:** At the transmission station level, the OPA has set aside a margin of connection capacity for small generation. This helps to ensure that smaller projects aren't crowded out by larger ones.
 - v. **Transmission upgrades:** Hydro One is also in the process of upgrading a number of transformer stations to enable connection of additional renewables.

Constrained microFIT Relocations

Constrained applicants fall into one of two categories:

- 1) Applicant holds a microFIT conditional offer and the applicant has not purchased solar photovoltaic (PV) equipment.
 - a. Applicants in this category had to make their relocation option selection known to the OPA by November 26, 2012. Options are detailed below.
 - 2) Applicant holds a microFIT conditional offer and the applicant has purchased solar PV equipment and in some cases had it installed.
 - a. Applicants in this category had to make their relocation option selection known to the OPA by January 25, 2013. Options are detailed below.
- The OPA will be contacting participants directly with information on next steps.
 - Multiple directions have been issued to the OPA to allow constrained microFIT projects to be re-located to another property that does not have connection constraints (August 19, 2011, April 5, 2012, November 23, 2012, December 11, 2012, June 12, 2013).
 - Constrained microFIT applicants were offered the following options:
 - 1) Individual Relocation -- Applicants who have a conditional offer but cannot currently connect can relocate their project to another property without connection constraints – such as a cottage or second property.

- 2) Assignment -- Any applicant (whether holding one or multiple conditional offers) can assign their constrained projects to another applicant who also holds one or more constrained conditional offers, provided that applicant is either an “Eligible Participant” or a co-operative corporation.
 - 3) Combined Project Option -- Any applicant with multiple conditional offers and multiple projects that cannot connect can combine up to 50 projects, with a total capacity of up to 500 kW, and relocate them to a new property. The new project would be subject to all the permitting and regulatory requirements associated with developing projects of up to 500 kW on the new site.
 - 4) Built Project Option -- If the constrained project is built, the conditional offer holder will also have the option to participate in a remediation option exclusively for built projects
- Eligible individual relocations are relocating to new properties and that process should be complete in summer 2013.
 - On June 12, 2013, the Minister issued a direction to the OPA to enable the following:
 - Clarification that combined projects are subject to the same agricultural land protections and land use restrictions as Small FIT projects. This issue was preventing combined projects from moving forward.
 - Specific timeframes for when Power Purchase Agreements (PPA) combined projects must be signed, which are as follows:
 - The OPA provided draft PPAs to the combined project applicants within 15 days of the date of the June 12, 2013 direction.
 - The OPA must run connection availability testing when combined project applicants provide the OPA with connection point details.
 - The OPA must sign PPAs with combined project applicants within 30 days after successful connection availability testing.
 - The OPA has been meeting frequently with the combined project applicants to negotiate a final PPA since the beginning of July 2013. The OPA expects to send the final PPA to the combined project applicants by the end of August 2013.

7% Rule

- Constraints on the system have appeared at the transmission level and at the distribution level of the electricity system. Transformer station upgrades will help to address limits at the transmission level, but distribution limits remain. The ability for small projects such as microFIT to fit safely onto Hydro One’s distribution system is assessed through screening processes employing rules such as the 7% rule.
- The 7% rule is a metric that Hydro One employs to assess how much small generation can be safely connected to its distribution system. According to the rule, for every megawatt of peak demand on a distribution line, a safe level of penetration on that line is about 70 kW on a smaller rural line (F-class), and about 100 kW on a medium rural line (M-class). These levels of penetration align with levels at which safety features associated with solar equipment can function effectively.
- In response to industry concerns about the basis for this rule, Hydro One commissioned a third-party study with Kinectrics to review the technical basis of the 7% rule and to better understand its distribution system.
- On March 22, 2012, Hydro One publicly released the results of the Kinectrics study on the 7% rule. The report concludes that the rule is reasonable based on a review of industry standards and preliminary field results.
- The report recommends maintaining the 7% rule until further studies are conducted to refine understanding of Hydro One’s system. Hydro One continues to make progress on other technical studies along the lines of what was recommended in the Kinectrics report.
- Maintaining the 7% rule, pending the outcome of further studies that are underway by Hydro One, is a recommendation that is reflected in the FIT 2-Year Review Report.

OEB's Review of the Micro-Generation Connection Process:

- The OEB initiated a consultation process on micro-generation connection issues. On December 20, 2012, the OEB released a discussion paper to solicit feedback from stakeholders.
- The OEB review addressed the following topics:
 - Offer to connect process
 - Appropriateness of connection timelines for micro-embedded generators in the DSC
 - Use of the standard form connection agreement in the DSC
 - Monthly service charge
 - Variability of connection charges
 - Cost responsibility in relation to upstream infrastructure upgrades to a transmitter or host distributor
 - Consumption charges
- Thresholds used to assess safe levels of microFIT penetration, such as the 7% Rule, were mentioned briefly in the discussion paper and then defined as out of scope.
- OEB staff has reviewed submissions from the review process and recommended a number of amendments to the Distribution System Code (DSC). The proposed amendments were made public on March 28, 2013.
- After receiving and considering comments to the proposed amendments, the OEB published the final notice of amendment to the DSC on June 13, 2013. But for one minor change, amendments were adopted as proposed.
- Although the finalized amendments were informed by comments from distributor organizations and the Power Workers Union, publication of the code amendments is unlikely to garner significant public attention.

HYDRO ONE's 6-month Exemption from the Distribution System Code (DSC):

- Hydro One has been unable to meet performance requirements in processing and connecting microFIT projects. These requirements are set out in the DSC.
- In 2011, it sought and received a six month exemption from these requirements. Its exemption expired April 11, 2012.
- On August 3, 2012, Hydro One requested an extension of its existing microFIT Code exemptions given its inability to meet prescribed timelines 100% of the time and its anticipation of a large volume of microFIT 2.0 applications that are expected to come forward. Hydro One sought an extension:
 - Retroactive to April 11, 2012
 - To end six months after conclusion of OEB's microFIT consultation process
- Notice of Hydro One's application to the OEB for extension of DSC exemptions was issued on September 17, 2012.
- The OEB granted an extension of the exemption until the earlier of August 3, 2013 or six months after the conclusion of the OEB's microFIT connection process review. This extension has expired and Hydro One has not sought a further extension, since the recent DSC amendments directly address Hydro One's ability to meet microFIT connection performance requirements.

2. BACKGROUND ON TRANSMISSION STATION UPGRADES:

- On February 28, 2011, the Ontario Energy Board amended Hydro One's license consistent with Minister's directive issued on February 17th, 2011. The amendment allows Hydro One to increase transmission-level capacity at up to 15 transmission stations. Projects affected by distribution-level constraints will not be helped by these

station upgrades alone.

- On April 7, 2011, the OPA recommended upgrades at up to 10 priority transmission stations to enable small-scale renewable generation.
- According to Hydro One, seven upgrades stations are now in-service. Three are no longer needed. Costs will be borne by Hydro One and will not be recovered through rates charged to customers.

Prepared on: August 23, 2013

Prepared by: Nathan Fahey, Senior Project Advisor
Renewable Energy Facilitation Office, 416-212-2674

Geoff Leung, Policy Analyst
Transmission Policy, 416-325-6596

Approved by: Ceiran Bishop, Manager
Transmission Policy, 416-327-7204

Leo Tasca, Deputy Director (A)
Renewables and Energy Facilitation Branch,
416-212-7701

Tom Chapman, Director
Transmission and Distribution Policy Branch,
416-325-6898

Mirrun Zaveri, Director (A)
Renewables and Energy Facilitation Branch,
416-327-3868

Kaili Sermat-Harding, ADM (A)
Renewables and Energy Efficiency Division
(416) 327-5555

CONNECTION CONSTRAINTS – microFIT and Small FIT

ISSUE:

What is being done to connect constrained microFIT and Small FIT projects to the grid?

RESPONSE:

1. SUGGESTED RESPONSE ON CURRENT STATUS:

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- As of June 2013, more than 16,000 microFIT projects have been connected to the electricity grid – representing enough energy to power more than 20,000 homes.
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- Applicants with microFIT conditional offers who are still facing connection constraints have been offered the opportunity to re-locate an individual project to another property that does not have connection constraints. Aggregators can move multiple microFIT projects to a single location, subject to certain limits and requirements.

If asked about constrained microFIT relocations:

- The Ministry directed the Ontario Power Authority (OPA) to provide constrained microFIT applicants with four options to relocate constrained projects. Applicants were required to make an option selection and submit their evidence. The final deadline for submissions to the OPA was January 25, 2013.
- The OPA will be contacting applicants directly with information on next steps.
- As a result of recommendations made as part of the FIT 2-Year Review, the microFIT application process has been further streamlined and adjusted so that microFIT projects can be developed more efficiently, while ensuring that system safety and reliability are protected.

If asked about higher costs for proponents and potential delays:

- In December 2012, the OEB started a review of micro generation connection issues raised by stakeholders.
- The review covered a range of issues such as the offer to connect process, connection costs and standard agreements, among others.
- After receiving and considering stakeholder comments, the Board made amendments to the Distribution System Code (DSC) and published them on June 13, 2013.
- The amendments respond to distributor concerns by providing a more consistent framework.
- Proponents of micro-sized projects will still be required to bring projects online in a timely manner.

2. SUGGESTED RESPONSE ON TRANSMISSION STATION UPGRADES:

- Over the past year, Hydro One has been making progress on upgrading several transmission stations.

- In addition to the priority station upgrades, Hydro One recently initiated upgrades to key supply stations across southern Ontario that will remove limitations to connecting more renewable generation in some regions of the Province.

BACKGROUND:

1. BACKGROUND ON CURRENT STATUS:

- The popularity of the microFIT and Small FIT programs has meant that some applicants have not been able to connect their projects to the grid because of system limitations, at both the transmission and distribution levels.
- The problem arose in part due to the sequencing of contract offer and assessment of connection capacity. Prior to December 8, 2010, microFIT applications were not screened for capacity at their connection point prior to conditional offers being issued by the OPA. This meant that some applicants received conditional offers, but they were not able to connect their projects because of grid constraints. Similarly, prior to December 8, 2010, Small FIT applications were also not screened for capacity prior to contract offers being provided by OPA
- The Ministry took a number of steps to address this problem and prevent its recurrence:
 - Rule changes:** On February 9, 2011, following consultations, the OPA finalized a change to the rules for microFIT and Small FIT applications. Under the new rules, microFIT applications which were not capable of connecting at their proposed connection point would be rejected and not reviewed. This rule change was applied to all applications submitted on or after December 8, 2010 and continues in microFIT 2.

In FIT 2, all Small FIT projects are subject to transmission and distribution availability screening prior to contract offer.
 - Offer of relocation:** To address constrained projects, the OPA was directed to offer eligible applicants options to relocate their projects to less constrained connection points.
 - Review of distribution connection thresholds:** Hydro One is reviewing distribution system limits to better understand how much small generation can be safely connected.
 - Set asides for small projects:** At the transmission station level, the OPA has set aside a margin of connection capacity for small generation. This helps to ensure that smaller projects aren't crowded out by larger ones.
 - Transmission upgrades:** Hydro One is also in the process of upgrading a number of transformer stations to enable connection of additional renewables.

Constrained microFIT Relocations

Constrained applicants fall into one of two categories:

- 1) Applicant holds a microFIT conditional offer and the applicant has not purchased solar photovoltaic (PV) equipment.
 - a. Applicants in this category had to make their relocation option selection known to the OPA by November 26, 2012. Options are detailed below.
 - 2) Applicant holds a microFIT conditional offer and the applicant has purchased solar PV equipment and in some cases had it installed.
 - a. Applicants in this category had to make their relocation option selection known to the OPA by January 25, 2013. Options are detailed below.
- The OPA **will be** contacting participants directly with information on next steps.
 - Several directives (August 19, 2011, April 5, 2012, November 23, 2012, and December 11, 2012) have been issued to the OPA to allow constrained microFIT projects to be re-located to another property that does not have connection constraints.
 - Constrained microFIT applicants were offered the following options:

- 1) Individual Relocation -- Applicants who have a conditional offer but cannot currently connect can relocate their project to another property without connection constraints – such as a cottage or second property.
 - 2) Assignment -- Any applicant (whether holding one or multiple conditional offers) can assign their constrained projects to another applicant who also holds one or more constrained conditional offers, provided that applicant is either an “Eligible Participant” or a co-operative corporation.
 - 3) Combined Project Option -- Any applicant with multiple conditional offers and multiple projects that cannot connect can combine up to 50 projects, with a total capacity of up to 500 kW, and relocate them to a new property. The new project would be subject to all the permitting and regulatory requirements associated with developing projects of up to 500 kW on the new site.
 - 4) Built Project Option -- If the constrained project is built, the conditional offer holder will also have the option to participate in a remediation option exclusively for built projects
- Eligible individual relocations are relocating to new properties and that process should be complete in summer 2013.
 - On June 12, 2013, the Minister issued a direction to the OPA on the following matters:
 - Clarification that combined projects are subject to the same agricultural land protections and land use restrictions as Small FIT projects. This issue was preventing combined projects from moving forward.
 - Specific timeframes for when Power Purchase Agreements (PPA) combined projects must be signed, which are as follows:
 - It is expected that the OPA will provide draft PPAs to the combined project applicants by July 4, 2013.
 - The OPA must run connection availability testing when combined project applicants provide the OPA with connection point details.
 - The OPA must sign PPAs with combined project applicants within 30 days after successful connection availability testing.

7% Rule

- Constraints on the system have appeared at the transmission level and at the distribution level of the electricity system. Transformer station upgrades will help to address limits at the transmission level, but distribution limits remain. The ability for small projects such as microFIT to fit safely onto Hydro One’s distribution system is assessed through screening processes employing rules such as the 7% rule.
- The 7% rule is a metric that Hydro One employs to assess how much small generation can be safely connected to its distribution system. According to the rule, for every megawatt of peak demand on a distribution line, a safe level of penetration on that line is about 70 kW on a smaller rural line (F-class), and about 100 kW on a medium rural line (M-class). These levels of penetration align with levels at which safety features associated with solar equipment can function effectively.
- In response to industry concerns about the basis for this rule, Hydro One commissioned a third-party study with Kinectrics to review the technical basis of the 7% rule and to better understand its distribution system.
- On March 22, 2012, Hydro One publicly released the results of the Kinectrics study on the 7% rule. The report concludes that the rule is reasonable based on a review of industry standards and preliminary field results.
- The report recommends maintaining the 7% rule until further studies are conducted to refine understanding of Hydro One’s system. Hydro One continues to make progress on other technical studies along the lines of what was recommended in the Kinectrics report.
- Maintaining the 7% rule, pending the outcome of further studies that are underway by Hydro One, is a recommendation that is reflected in the FIT 2-Year Review Report.

OEB's Review of the Micro-Generation Connection Process:

- The OEB initiated a consultation process on micro-generation connection issues. On December 20, 2012, the OEB released a discussion paper to solicit feedback from stakeholders.
- The OEB review addressed the following topics:
 - Offer to connect process
 - Appropriateness of connection timelines for micro-embedded generators in the DSC
 - Use of the standard form connection agreement in the DSC
 - Monthly service charge
 - Variability of connection charges
 - Cost responsibility in relation to upstream infrastructure upgrades to a transmitter or host distributor
 - Consumption charges
- Thresholds used to assess safe levels of microFIT penetration, such as the 7% Rule, were mentioned briefly in the discussion paper and then defined as out of scope.
- OEB staff has reviewed submissions from the review process and recommended a number of amendments to the Distribution System Code (DSC). The proposed amendments were made public on March 28, 2013.
- After receiving and considering comments to the proposed amendments, the OEB published the final notice of amendment to the DSC on June 13, 2013. But for one minor change, amendments were adopted as proposed.
- Although the finalized amendments were informed by comments from distributor organizations and the Power Workers Union, publication of the code amendments is unlikely to garner significant public attention.

HYDRO ONE's 6-month Exemption from the Distribution System Code (DSC):

- Hydro One has been unable to meet performance requirements in processing and connecting microFIT projects. These requirements are set out in the DSC.
- In 2011, it sought and received a six month exemption from these requirements. Its exemption expired April 11, 2012.
- On August 3, 2012, Hydro One requested an extension of its existing microFIT Code exemptions given its inability to meet prescribed timelines 100% of the time and its anticipation of a large volume of microFIT 2.0 applications that are expected to come forward. Hydro One sought an extension:
 - Retroactive to April 11, 2012
 - To end six months after conclusion of OEB's microFIT consultation process
- Notice of Hydro One's application to the OEB for extension of DSC exemptions was issued on September 17, 2012.
- The OEB granted an extension of the exemption until the earlier of August 3, 2013 or six months after the conclusion of the OEB's microFIT connection process review.

Transmission Station Upgrades:

- On February 28, 2011, the Ontario Energy Board amended Hydro One's license consistent with Minister's directive issued on February 17th, 2011. The amendment allows Hydro One to increase transmission-level capacity at up to 15 transmission stations. Projects affected by distribution-level constraints will not be helped by these station upgrades.

- On April 7, 2011, the OPA recommended upgrades at up to 10 priority transmission stations to enable small-scale renewable generation.
- According to Hydro One, six upgrades stations are now in-service, two are pending upgrade, and two are no longer needed. Costs will be borne by Hydro One and will not be recovered through rates charged to customers.

Prepared on: **June 17, 2013**

Prepared by: Nathan Fahey, Senior Project Advisor
Renewable Energy Facilitation Office, 416-212-2674

Geoff Leung, Policy Analyst
Transmission Policy, 416-325-6596

Approved by: Ceiran Bishop, Manager
Transmission Policy, 416-327-7204

Leo Tasca, Deputy Director (A)
Renewables and Energy Facilitation Branch,
416-212-7701

Tom Chapman, Director
Transmission and Distribution Policy Branch,
416-325-6898

Mirrun Zaveri, Director (A)
Renewables and Energy Facilitation Branch,
416-327-3868

Kaili Sermat-Harding, ADM (A)
Renewables and Energy Efficiency Division
(416) 327-5555

GREEN ENERGY ACT

ISSUE:

The *Green Energy Act, 2009* (GEA) received Royal Assent on May 14, 2009. Implementation of many key initiatives is well underway

MESSAGING:

- The GEA is helping to ensure Ontario's economic future by attracting new investment in the renewable energy sector, creating well-paying clean energy jobs and better protecting our environment.
- The GEA is also helping Ontario to create a culture of conservation and propel us forward as North America's clean energy leader.
- Motivated by our commitment to protect the climate and our desire to grow jobs, the GEA operates on two important thrusts:
 - Making it easier to bring renewable energy projects to life.
 - Helping homeowners, government, hospitals, schools and industrial employers transition to lower energy use.

GEA's Key Initiatives

- The GEA is transforming Ontario into a renewable energy leader through its:
 - Best in class renewable energy Feed-in Tariff (FIT) Program;
 - Streamlined approvals processes; and
 - Service guarantee for investors.
- The GEA is creating incentives to increase energy efficiency and is encouraging a culture of conservation by:
 - Setting mandatory conservation targets for Local Distribution Companies (LDCs);
 - Aligning agencies and programs on energy conservation;
 - Updating the Ontario Building Code and appliance standards;
 - Increasing the participation of government and broader public sector in conservation; and
 - Assisting low income and industrial consumers.
- The GEA is expanding and supporting the growth of a clean economy in Ontario through:
 - Capacity building and community ownership opportunities for First Nations and Métis; and
 - Requiring domestic content for renewable energy projects.

Job Creation

- In the first three years of implementation, the Green Energy Act is projected to support over 50,000 direct and indirect jobs in smart grid and transmission and distribution upgrades, renewable energy and conservation.
- So far, the Green Energy Act has helped create over 20,000 jobs
- Job creation is focused on the following sectors:
 - Domestic manufacturing and assembly;
 - Construction, trucking, servicing and installation;
 - Financing, engineering, electricians, inspectors; and
 - Computer software and hardware.

- **Local distribution companies and Hydro One will create construction jobs as they upgrade their network infrastructure to enable the additional renewable generation to be fully integrated with the grid.**
- **Construction jobs will also be created as new renewable energy projects are launched in response to the FIT Program.**
- **Manufacturing jobs are being created as firms respond to the demand for equipment associated with grid investments and renewable energy projects.**

BACKGROUND:

The *Green Energy Act, 2009* (GEA) received Royal Assent on May 14, 2009.

Implementation of many key initiatives is well underway, including:

- The Feed-in Tariff (FIT) Program and associated support programs
- New Renewable Energy Approval (REA) process
- Regulation to remove barriers to small-scale renewables
- Regulation on service guarantees for completion of wires assessments to connect renewables
- Regulation to provide opportunities for municipalities to partner with third parties on renewable generation projects
- Directive to establish mandatory conservation targets for Local Distribution Companies (LDCs)
- Promotion of Smart Grid

The implementation of other initiatives, including conservation measures for the Ontario government and Broader Public Sector (BPS) buildings is still to come.

HIGHLIGHTS OF THE GREEN ENERGY ACT:

- 50,000 direct and indirect clean jobs in the first three years of implementation
- A competitive investment environment with guarantees for price and service
- A clean electricity system well-positioned for a carbon constrained future
- A modern and efficient approvals process for renewable energy projects
- Leading-edge conservation in the public sector
- Greener and more efficient homes and buildings
- A responsive, reliable smart grid that maximizes renewables and conservation
- New opportunities for community participation
- Greater participation by First Nations and Métis communities
- Clear and easy ways for all Ontarians to participate in conservation
- Better allocation of costs for clean energy programs

**See HN C05 for more information on Ontario's climate change policy and initiatives*

KEY COMPONENTS OF THE GREEN ENERGY ACT:

The GEA is divided into three key components:

1. Expanding Renewable Energy

- Feed-in Tariff (FIT) – A standard price to promote the development of community-based and large commercial renewable energy projects. This mechanism provides proponents with a market-viable price for their projects.
 - The OPA began accepting applications for the FIT Program on October 1, 2009.
 - The OPA has received microFIT applications from across the province, from Windsor to Thunder Bay. There are some areas where a significant number of applications have been submitted, including Chatham-Kent, Toronto and Ottawa.

- On October 31, 2011, the mandated two-year review of the FIT program was launched.

**See HN B05 for more information on clean energy supply*

- **Service Guarantees** – Service guarantees from Hydro One, LDCs and the Independent Electricity System Operator (IESO) for completion of wires assessments, in order to facilitate timely connection of new renewable generation to the grid. Processes coordinated by the Ministries of Environment and Natural Resources for reviewing applications and issuing decisions require adherence to service standards.
- **Streamline approvals for renewable energy projects and associated transmission projects (MOE lead)** - The legislation includes important improvements, including:
 - Province-wide standards for the siting of renewable energy projects.
 - Changes to environmental approvals requirements and the removal of *Planning Act* requirements for renewable energy projects and associated connections
- **Renewable Energy Facilitation Office** – The Ministry offers one-window assistance and support to project developers in order to assist them in navigating the approvals process.
- **Remove local barriers to designated renewable energy projects (i.e. small-scale)** – The GEA establishes regulation-making authority to ensure municipal bylaws and other local barriers do not create barriers to small scale renewable energy projects, such as rooftop solar and ground source heat pumps. (Approach is similar to lifting restrictions on outdoor clotheslines.)
- **Smart grid implementation** – The GEA supports the establishment and implementation of a smart grid for Ontario, which will bring on additional new renewable energy projects. (e.g., set the stage for the electric car, solar panels on roofs, distributed generation).

** See HN C07 for more information on smart grid implementation*

2. Promoting Conservation

- **Updating Ontario's Building Code** – An amendment to the *Building Code Act* establishes energy conservation as a primary focus. A required five-year fixed review period is intended to help identify further opportunities to increase energy conservation. The next edition of the Building Code is expected at the end of 2011.
- **Green Ontario government and broader public sector buildings/facilities** – The Act establishes authority for (a) regular public reporting on energy use and GHG emissions for all major government facilities; (b) construction of energy and resource efficient government and Broader Public Sector facilities through application of minimum standards (e.g., LEED Silver).
- **Mandatory electricity conservation targets for LDCs** are supported by financial incentives and disincentives.
- **Protect low-income Ontarians** – The Act enables targeted conservation programs help Ontarians with low incomes better manage their energy costs.
- **Energy conservation and demand response for industrial consumers** – The GEA encourages the implementation of energy conservation and demand management plans for large electricity consumers.
- **Conservation plans and targets for the Broader Public Sector** – Municipalities, universities, colleges, schools and hospitals are required by regulation to develop conservation plans including information on energy use, conservation measures and

quantifiable results of their implementation. A phased-in approach, starting in early 2012, will provide smaller organizations with time to develop and implement plans.

- **Establish Energy Star as the enhanced energy efficiency standard** for household appliances (e.g. refrigerators, freezers, dishwashers, clothes washers), including efficient use of water.

**See HN C01 for more information on conservation programs and targets*

3. Expanding and Supporting a Green Economy

- **Domestic Content**

- For wind, the domestic content requirement started at 25% and will increase to 50% on January 1, 2012.
- For micro solar PV (10 kW or smaller), the requirement started at 40% and increased to 60% on January 1, 2011.
- For larger solar PV, the requirement started at 50% and increased to 60% on January 1, 2011.
- Ontario's domestic content requirements are the subject of 3 trade challenges (WTO, NAFTA and the Agreement on International Trade).

**See HN C09 for more information about domestic content.*

- **Aboriginal Engagement** – Aboriginal partnerships and capacity building are important to the development of new renewable energy projects. The Province has established measures to facilitate the participation of aboriginal peoples in the development and implementation of renewable energy facilities, through the Aboriginal Energy Partnerships Program, the Aboriginal Loan Guarantee Program, and through eligibility, under certain conditions, for price incentives within FIT.

**See HN H06 for more information on Aboriginal energy affairs and projects*

- **Community Energy Partnerships Program**– The province will provide one-time support to community groups (including farmers, co-ops and non-profit organizations) to assist with the "soft" or development costs associated with new renewable energy projects. In addition, community based projects are eligible to receive a graduated incentive, based on the percentage of local ownership, of up to 1 cent/kilowatt-hour in addition to standard FIT rates.
- **Support Community Power** – Enable community ownership of renewable energy projects by citizen led energy cooperative and clarify that LDCs and municipalities are able to invest in community (under 10MW) renewable energy projects.
- **Resources for Municipalities** – The Municipal Renewable Energy Program (MREP) is intended to reimburse municipalities for the direct costs associated with facilitating the development of renewable energy generation facilities (not yet launched).

OTHER RELEVANT INFORMATION:

MOE Renewable Energy Approvals (REA)

- The Ministry of the Environment's (MOE's) REA regulation integrates environmental approvals, providing clear provincial rules and requirements, transparent decision-making and certainty for stakeholders and proponents.

**Detailed questions on REA should be directed towards MOE*

MNR Approvals

- The Ministry of Natural Resources (MNR) is working to streamline their requirements with the GEA.

**Detailed questions on MNR Approvals should be directed towards MNR*

Updated by: Hartley Springman, Senior Policy Advisor
Strategic Policy and Research Branch
416-327-7276

With input from: Renewables and Energy Efficiency Division
Energy Supply, Distribution and Distribution Policy Division
First Nation and Métis Policy and Partnerships Office

Reviewed by: Annamaria Cross, Manager
Strategic Policy and Research Branch

Approved by: Kaili Sermat-Harding, Director
Strategic Policy and Research Branch

Approved by: John Whitehead, ADM
Regulatory Affairs & Strategic Policy Division

Date: October 31, 2011

GREEN ENERGY ACT

ISSUE:

The *Green Energy Act, 2009* (GEA) received Royal Assent on May 14, 2009. Since that time, Ontario has implemented key initiatives enabled by the legislation.

MESSAGING:

- The GEA is helping to ensure Ontario's economic future by attracting new investment in the renewable energy sector, creating well-paying clean energy jobs and better protecting our environment.
- The GEA is also helping Ontario to create a culture of conservation and propel us forward as North America's clean energy leader.
- Motivated by our commitment to protect the climate and our desire to grow jobs, the GEA operates on two important thrusts:
 - Making it easier to bring renewable energy projects to life.
 - Helping homeowners, government, hospitals, schools and industrial employers transition to lower energy use.

GEA's Key Initiatives

- The GEA is transforming Ontario into a renewable energy leader through its:
 - Best in class renewable energy Feed-in Tariff (FIT) Program;
 - Streamlined approvals processes; and
 - Service guarantee for investors.
- The GEA is creating incentives to increase energy efficiency and is encouraging a culture of conservation by:
 - Setting mandatory conservation targets for Local Distribution Companies (LDCs);
 - Aligning agencies and programs on energy conservation;
 - Updating the Ontario Building Code and appliance standards;
 - Increasing the participation of government and broader public sector in conservation; and
 - Assisting low income and industrial consumers.
- The GEA is expanding and supporting the growth of a clean economy in Ontario through:
 - Capacity building and community ownership opportunities for First Nations and Métis; and
 - Requiring domestic content for renewable energy projects.

Job Creation

- Ontario's clean energy policies have already created more than 20,000 jobs and are well on the way to creating 50,000 jobs through investments in renewable energy and conservation, as well as smart grid technology, transmission and distribution upgrades.
- Job creation is occurring in the following sectors:
 - Domestic manufacturing and assembly;
 - Construction, trucking, servicing and installation;
 - Financing, engineering, electricians, inspectors; and
 - Computer software and hardware.

- **Local distribution companies and Hydro One create construction jobs as they upgrade their network infrastructure to enable the additional renewable generation to be fully integrated with the grid.**
- **Construction jobs are also created as new renewable energy projects are launched in response to the FIT Program.**
- **Manufacturing jobs are being created as firms respond to the demand for equipment associated with grid investments and renewable energy projects.**

BACKGROUND:

The *Green Energy Act, 2009* (GEA) received Royal Assent on May 14, 2009. Key GEA initiatives include:

- The Feed-in Tariff (FIT) Program and associated support programs
- New Renewable Energy Approval (REA) process
- Regulation to remove barriers to small-scale renewables
- Regulation on service guarantees for completion of wires assessments to connect renewables
- Regulation to provide opportunities for municipalities to partner with third parties on renewable generation projects
- Directive to establish mandatory conservation targets for Local Distribution Companies (LDCs)
- Promotion of Smart Grid

HIGHLIGHTS OF THE GREEN ENERGY ACT:

- The creation of over 50,000 new direct and indirect clean energy jobs
- A competitive investment environment with guarantees for price and service
- A clean electricity system well-positioned for a carbon constrained future
- A modern and efficient approvals process for renewable energy projects
- Leading-edge conservation in the public sector
- Greener and more efficient homes and buildings
- A responsive, reliable smart grid that maximizes renewables and conservation
- New opportunities for community participation
- Greater participation by First Nations and Métis communities
- Clear and easy ways for all Ontarians to participate in conservation
- Better allocation of costs for clean energy programs

**See HN C05 for more information on Ontario's climate change policy and initiatives*

KEY COMPONENTS OF THE GREEN ENERGY ACT:

The GEA is divided into three key components:

1. Expanding Renewable Energy

- Feed-in Tariff (FIT) – A standard price to promote the development of community-based and large commercial renewable energy projects. This mechanism provides proponents with a market-viable price for their projects.
 - The OPA began accepting applications for the FIT Program on October 1, 2009.
 - The OPA has received microFIT applications from across the province, from Windsor to Thunder Bay. There are some areas where a significant number of applications have been submitted, including Chatham-Kent, Toronto and Ottawa.
- On October 31, 2011, the mandated two-year review of the FIT program was launched and the Report was released on March 22, 2012.

- Following the first review of Ontario's signature Feed-in-Tariff (FIT) Program, the government is acting quickly to implement all the recommendations, which include:
 - Creating more jobs sooner by streamlining the regulatory approvals process for projects while maintaining the highest environmental protection standards.
 - Reducing prices - for solar projects by more than 20 per cent, on average, and wind projects by approximately 15 per cent.
 - Encouraging greater community and Aboriginal participation through a new priority point system, which will also prioritize projects with municipal support.
 - Reserving 10 per cent of remaining capacity for projects with significant participation from local or Aboriginal communities.
 - Developing a Clean Energy Economic Development Strategy to leverage Ontario's significant expertise and strengths to become a global leader in the sector.
- These changes will ensure the long-term sustainability of renewable energy while creating even more jobs, lowering prices and giving communities a greater say.
- The Ontario Power Authority (OPA) is now implementing changes to the microFIT program, which is for renewable energy projects of 10 kilowatts or less.
- On July 12, 2012, the OPA posted final microFIT Program 2.0 Rules, Contract and other program documents on [the microFIT website and began](#) accepting applications from both existing and new applicants. As part of this microFIT application window, the OPA will begin by awarding 50MW of projects.
- Key changes to the microFIT Program coming out of the two-year review include:
 - Solar prices for new microFIT contracts have been reduced by about 30 percent to reflect lower operating and capital costs;
 - Individuals and farmers are now limited to one microFIT contract;
 - Changes in land ownership rules for municipalities, universities, schools and colleges, hospitals and long-term care homes, social and affordable housing, Aboriginal communities and co-operatives;
 - New restrictions on where ground-mount solar projects or wind projects of 3 kW or less can be located;
 - The OPA will now issue Application Approval Notices instead of conditional offers;
 - New time limits for applicants to seek an Offer to Connect from their LDC, and for the LDC to provide an Offer to Connect to the applicant; there are also new time limits for applicants to construct projects and obtain ESA connection authorization after the OPA issues an Application Approval Notice; and
 - microFIT prices will be reviewed annually.
- The Ontario Power Authority (OPA) has now implemented changes to the FIT program based on the recommendations of the two-year review. The small FIT program has been re-launched and the final FIT 2.0 Rules and Contract have been posted on the OPA's website. The application window for small FIT projects is anticipated to open on October 1st and to close on November 30th, 2012. The large FIT program will be re-launched at a later date

- **Key changes to the FIT program include:**

- Solar and wind prices have been reduced to reflect decreased equipment costs. FIT prices will be reviewed annually, with prices published in November that will take effect January 1 of the following year.
- FIT applications will now be accepted during specific application windows, rather than on an ongoing basis and the OPA, as a first step, will award 200 MW of small FIT contracts.
- Applications will be prioritized with points awarded based on project type (community participation, Aboriginal participation, etc.), municipal support, Aboriginal support, project readiness and electricity system benefit.
- Applications with greater than 50 percent equity participation from Aboriginal or community (co-ops) participants will be prioritized above all other applications in an application window.
- Solar rooftop projects must reach commercial operation within 18 months of receiving a contract (with some exceptions), compared with three years previously.
- Ground-mounted solar projects may not be located on residential property or on property abutting residential property with some exceptions.
- A ground-mounted solar project is permitted on commercial or industrial property as long as the project is not the main, primary or only use of the property.
- In addition to the restrictions of locating ground-mounted solar projects on Canada Land Inventory (CLI) Class 1 and 2 soils, these projects will also not be allowed on CLI Class 3 and CLI organic soil.
- There are now restrictions on changes in participation level for projects that receive priority points based on the participation of certain types of entities (i.e., community or Aboriginal community, etc)

**See HN B05 for more information on clean energy supply and C09 for more information on the Feed-in Tariff Program*

2. **Promoting Conservation**

**See HN C01 for more information on conservation activities*

- **Updating Ontario's Building Code** – An amendment to the *Building Code Act* establishes energy conservation as a primary focus. A required five-year fixed review period is intended to help identify further opportunities to increase energy conservation. The Ontario Building Code was updated effective January 1, 2012 requiring new homes and buildings to meet greater energy efficiency requirements.

** See HN C03 for more information on energy efficiency standards and codes*

- **Green Ontario government and broader public sector buildings/facilities** – The Act establishes authority for (a) regular public reporting on energy use and GHG emissions for all major government facilities; (b) construction of energy and resource efficient government and Broader Public Sector facilities through application of minimum standards (e.g., LEED Silver).
- **Mandatory electricity conservation targets for LDCs** are supported by financial incentives and disincentives.

** See HN C04 for more information on OPA-LDC Conservation Activity*

- **Protect low-income Ontarians** – The Act enables targeted conservation programs help Ontarians with low incomes better manage their energy costs.

** See HN D01 for more information on low income consumers*

- **Energy conservation and demand response for industrial consumers** – The GEA encourages the implementation of energy conservation and demand management plans for large electricity consumers.
- **Conservation plans for the Broader Public Sector** – Municipalities, universities, colleges, schools and hospitals are required by regulation to develop conservation plans including information on energy use, conservation measures and quantifiable results of their implementation. The regulation became effective early 2012 and will follow a phased-in approach, thereby allowing time for smaller organizations to develop and implement plans.
- **Establish Energy Star as the enhanced energy efficiency standard for household appliances (e.g. refrigerators, freezers, dishwashers, clothes washers), including efficient use of water.**

3. Expanding and Supporting a Green Economy

- **Domestic Content**
 - For wind, the domestic content requirement started at 25% and will increase to 50% on January 1, 2012.
 - For micro solar PV (10 kW or smaller), the requirement started at 40% and increased to 60% on January 1, 2011.
 - For larger solar PV, the requirement started at 50% and increased to 60% on January 1, 2011.
 - Ontario's domestic content requirements are the subject of 3 trade challenges (WTO, NAFTA and the Agreement on International Trade).

**See HN C09 for more information about domestic content and C10 for more information on trade challenges.*

- **Aboriginal Engagement** – Aboriginal partnerships and capacity building are important to the development of new renewable energy projects. The Province has established measures to facilitate the participation of aboriginal peoples in the development and implementation of renewable energy facilities, through the Aboriginal Energy Partnerships Program, the Aboriginal Loan Guarantee Program, and through eligibility, under certain conditions, for price incentives within FIT.

**See HN H06 for more information on Aboriginal energy affairs and projects*

- **Community Energy Partnerships Program**– The province will provide one-time support to community groups (including farmers, co-ops and non-profit organizations) to assist with the "soft" or development costs associated with new renewable energy projects. In addition, community based projects are eligible to receive a graduated incentive, based on the percentage of local ownership, of up to 1 cent/kilowatt-hour in addition to standard FIT rates.
- **Support Community Power** – Enable community ownership of renewable energy projects by citizen led energy cooperative and clarify that LDCs and municipalities are able to invest in community (under 10MW) renewable energy projects.

OTHER RELEVANT INFORMATION:

MOE Renewable Energy Approvals (REA)

- The Ministry of the Environment's (MOE's) REA regulation integrates environmental approvals, providing clear provincial rules and requirements, transparent decision-making and certainty for stakeholders and proponents.

**Detailed questions on REA should be directed towards MOE*

MNR Approvals

- The Ministry of Natural Resources (MNR) is working to streamline their requirements with the GEA.

**Detailed questions on MNR Approvals should be directed towards MNR*

Updated by: Hartley Springman, Senior Policy Advisor
Strategic Policy and Research Branch

With input from: Renewables and Energy Efficiency Division

Reviewed by: Annamaria Cross, Manager
Strategic Policy and Research Branch

Approved by: Kaili Sermat-Harding, Director
Strategic Policy and Research Branch

Approved by: Michael Reid, A/ADM
Regulatory Affairs and Strategic Policy

GREEN ENERGY ACT

ISSUE:

The *Green Energy Act, 2009* (GEA) received Royal Assent on May 14, 2009. Implementation of many key initiatives is well underway

MESSAGING:

- The GEA is helping to ensure Ontario's economic future by attracting new investment in the renewable energy sector, creating well-paying clean energy jobs and better protecting our environment.
- The GEA is also helping Ontario to create a culture of conservation and propel us forward as North America's clean energy leader.
- Motivated by our commitment to protect the climate and our desire to grow jobs, the GEA operates on two important thrusts:
 - Making it easier to bring renewable energy projects to life.
 - Helping homeowners, government, hospitals, schools and industrial employers transition to lower energy use.

GEA's Key Initiatives

- The GEA is transforming Ontario into a renewable energy leader through its:
 - Best in class renewable energy Feed-in Tariff (FIT) Program;
 - Streamlined approvals processes; and
 - Service guarantee for investors.
- The GEA is creating incentives to increase energy efficiency and is encouraging a culture of conservation by:
 - Setting mandatory conservation targets for Local Distribution Companies (LDCs);
 - Aligning agencies and programs on energy conservation;
 - Updating the Ontario Building Code and appliance standards;
 - Increasing the participation of government and broader public sector in conservation; and
 - Assisting low income and industrial consumers.
- The GEA is expanding and supporting the growth of a clean economy in Ontario through:
 - Capacity building and community ownership opportunities for First Nations and Métis; and
 - Requiring domestic content for renewable energy projects.

Job Creation

- In the first three years of implementation, the Green Energy Act is projected to support over 50,000 direct and indirect jobs in smart grid and transmission and distribution upgrades, renewable energy and conservation.
- So far, the Green Energy Act has helped create over 20,000 jobs
- Job creation is focused on the following sectors:
 - Domestic manufacturing and assembly;
 - Construction, trucking, servicing and installation;
 - Financing, engineering, electricians, inspectors; and
 - Computer software and hardware.

- **Local distribution companies and Hydro One will create construction jobs as they upgrade their network infrastructure to enable the additional renewable generation to be fully integrated with the grid.**
- **Construction jobs will also be created as new renewable energy projects are launched in response to the FIT Program.**
- **Manufacturing jobs are being created as firms respond to the demand for equipment associated with grid investments and renewable energy projects.**

BACKGROUND:

The *Green Energy Act, 2009* (GEA) received Royal Assent on May 14, 2009.

Implementation of many key initiatives is well underway, including:

- The Feed-in Tariff (FIT) Program and associated support programs
- New Renewable Energy Approval (REA) process
- Regulation to remove barriers to small-scale renewables
- Regulation on service guarantees for completion of wires assessments to connect renewables
- Regulation to provide opportunities for municipalities to partner with third parties on renewable generation projects
- Directive to establish mandatory conservation targets for Local Distribution Companies (LDCs)
- Promotion of Smart Grid

The implementation of other initiatives, including conservation measures for the Ontario government and Broader Public Sector (BPS) buildings is still to come.

HIGHLIGHTS OF THE GREEN ENERGY ACT:

- 50,000 direct and indirect clean jobs in the first three years of implementation
- A competitive investment environment with guarantees for price and service
- A clean electricity system well-positioned for a carbon constrained future
- A modern and efficient approvals process for renewable energy projects
- Leading-edge conservation in the public sector
- Greener and more efficient homes and buildings
- A responsive, reliable smart grid that maximizes renewables and conservation
- New opportunities for community participation
- Greater participation by First Nations and Métis communities
- Clear and easy ways for all Ontarians to participate in conservation
- Better allocation of costs for clean energy programs

**See HN C05 for more information on Ontario's climate change policy and initiatives*

KEY COMPONENTS OF THE GREEN ENERGY ACT:

The GEA is divided into three key components:

1. Expanding Renewable Energy

- Feed-in Tariff (FIT) – A standard price to promote the development of community-based and large commercial renewable energy projects. This mechanism provides proponents with a market-viable price for their projects.
 - The OPA began accepting applications for the FIT Program on October 1, 2009.
 - The OPA has received microFIT applications from across the province, from Windsor to Thunder Bay. There are some areas where a significant number of applications have been submitted, including Chatham-Kent, Toronto and Ottawa.

- On October 31, 2011, the mandated two-year review of the FIT program was launched.

**See HN B05 for more information on clean energy supply*

- **Service Guarantees** – Service guarantees from Hydro One, LDCs and the Independent Electricity System Operator (IESO) for completion of wires assessments, in order to facilitate timely connection of new renewable generation to the grid. Processes coordinated by the Ministries of Environment and Natural Resources for reviewing applications and issuing decisions require adherence to service standards.
- **Streamline approvals for renewable energy projects and associated transmission projects (MOE lead)** - The legislation includes important improvements, including:
 - Province-wide standards for the siting of renewable energy projects.
 - Changes to environmental approvals requirements and the removal of *Planning Act* requirements for renewable energy projects and associated connections
- **Renewable Energy Facilitation Office** – The Ministry offers one-window assistance and support to project developers in order to assist them in navigating the approvals process.
- **Remove local barriers to designated renewable energy projects (i.e. small-scale)** – The GEA establishes regulation-making authority to ensure municipal bylaws and other local barriers do not create barriers to small scale renewable energy projects, such as rooftop solar and ground source heat pumps. (Approach is similar to lifting restrictions on outdoor clotheslines.)
- **Smart grid implementation** – The GEA supports the establishment and implementation of a smart grid for Ontario, which will bring on additional new renewable energy projects. (e.g., set the stage for the electric car, solar panels on roofs, distributed generation).

** See HN C07 for more information on smart grid implementation*

2. Promoting Conservation

**See HN C01 for more information on conservation activities*

- **Updating Ontario's Building Code** – An amendment to the *Building Code Act* establishes energy conservation as a primary focus. A required five-year fixed review period is intended to help identify further opportunities to increase energy conservation. The next edition of the Building Code is expected at the end of 2011.
- * See HN C03 for more information on energy efficiency standards and codes*
- **Green Ontario government and broader public sector buildings/facilities** – The Act establishes authority for (a) regular public reporting on energy use and GHG emissions for all major government facilities; (b) construction of energy and resource efficient government and Broader Public Sector facilities through application of minimum standards (e.g., LEED Silver).
 - **Mandatory electricity conservation targets for LDCs** are supported by financial incentives and disincentives.
- * See HN C04 for more information on OPA-LDC Conservation Activity*
- **Protect low-income Ontarians** – The Act enables targeted conservation programs help Ontarians with low incomes better manage their energy costs.

** See HN D01 for more information on low income consumers*

- **Energy conservation and demand response for industrial consumers** – The GEA encourages the implementation of energy conservation and demand management plans for large electricity consumers.
- **Conservation plans and targets for the Broader Public Sector** – Municipalities, universities, colleges, schools and hospitals are required by regulation to develop conservation plans including information on energy use, conservation measures and quantifiable results of their implementation. The regulation became effective early 2012 and will follow a phased-in approach, thereby allowing time for smaller organizations to develop and implement plans.
- **Establish Energy Star as the enhanced energy efficiency standard** for household appliances (e.g. refrigerators, freezers, dishwashers, clothes washers), including efficient use of water.

3. Expanding and Supporting a Green Economy

- **Domestic Content**
 - For wind, the domestic content requirement started at 25% and will increase to 50% on January 1, 2012.
 - For micro solar PV (10 kW or smaller), the requirement started at 40% and increased to 60% on January 1, 2011.
 - For larger solar PV, the requirement started at 50% and increased to 60% on January 1, 2011.
 - Ontario's domestic content requirements are the subject of 3 trade challenges (WTO, NAFTA and the Agreement on International Trade).

**See HN C09 for more information about domestic content.*

- **Aboriginal Engagement** – Aboriginal partnerships and capacity building are important to the development of new renewable energy projects. The Province has established measures to facilitate the participation of aboriginal peoples in the development and implementation of renewable energy facilities, through the Aboriginal Energy Partnerships Program, the Aboriginal Loan Guarantee Program, and through eligibility, under certain conditions, for price incentives within FIT.

**See HN H06 for more information on Aboriginal energy affairs and projects*

- **Community Energy Partnerships Program**– The province will provide one-time support to community groups (including farmers, co-ops and non-profit organizations) to assist with the "soft" or development costs associated with new renewable energy projects. In addition, community based projects are eligible to receive a graduated incentive, based on the percentage of local ownership, of up to 1 cent/kilowatt-hour in addition to standard FIT rates.
- **Support Community Power** – Enable community ownership of renewable energy projects by citizen led energy cooperative and clarify that LDCs and municipalities are able to invest in community (under 10MW) renewable energy projects.
- **Resources for Municipalities** – The Municipal Renewable Energy Program (MREP) is intended to reimburse municipalities for the direct costs associated with facilitating the development of renewable energy generation facilities (not yet launched).

OTHER RELEVANT INFORMATION:

MOE Renewable Energy Approvals (REA)

- The Ministry of the Environment's (MOE's) REA regulation integrates environmental approvals, providing clear provincial rules and requirements, transparent decision-making and certainty for stakeholders and proponents.

**Detailed questions on REA should be directed towards MOE*

MNR Approvals

- The Ministry of Natural Resources (MNR) is working to streamline their requirements with the GEA.

**Detailed questions on MNR Approvals should be directed towards MNR*

Updated by:	Hartley Springman, Senior Policy Advisor Strategic Policy and Research Branch 416-327-7276
With input from:	Renewables and Energy Efficiency Division Energy Supply, Distribution and Distribution Policy Division First Nation and Métis Policy and Partnerships Office
Reviewed by:	Annamaria Cross, Manager Strategic Policy and Research Branch
Approved by:	Kaili Sermat-Harding, Director Strategic Policy and Research Branch
Approved by:	John Whitehead, ADM Regulatory Affairs & Strategic Policy Division
Date:	October 31, 2011

GREEN ENERGY ACT

ISSUE:

What does the Green Energy Act (GEA) mean for Ontario's clean energy future?

SUGGESTED RESPONSE:

General

- The GEA is helping to ensure Ontario's economic future by attracting new investment in the renewable energy sector, creating well-paying clean energy jobs and better protecting our environment.
- The GEA is also helping Ontario to create a culture of conservation and propel us forward as North America's clean energy leader.
- Motivated by our commitment to protect the climate and our desire to grow jobs, the GEA operates on two important thrusts:
 - Making it easier to bring renewable energy projects to life.
 - Helping homeowners, government, hospitals, schools and industrial employers transition to lower energy use.

GEA's Key Initiatives

- The GEA is transforming Ontario into a renewable energy leader through its:
 - Best in class renewable energy Feed-in Tariff (FIT) Program;
 - Streamlined approvals processes; and
 - Service guarantee for investors.
- The GEA is creating incentives to increase energy efficiency and is encouraging a culture of conservation by:
 - Setting mandatory conservation targets for Local Distribution Companies (LDCs);
 - Aligning agencies and programs on energy conservation;
 - Updating the Ontario Building Code and appliance standards;
 - Increasing the participation of government and broader public sector in conservation; and
 - Assisting low income and industrial consumers.
- The GEA is expanding and supporting the growth of a clean economy in Ontario through:
 - Capacity building and community ownership opportunities for First Nations and Métis; and
 - Requiring domestic content for renewable energy projects.

Support for Community Groups in Developing Renewable Energy Projects

- On May 10, 2010, the Ontario Power Authority (OPA) announced the launch of the Community Energy Partnership Program, which will cover up to 90% of eligible development costs to a maximum of \$200,000 for community power projects greater than 10 kilowatts (kW) and no larger than 10 megawatts (MW).
 - As of April 2011, a total of 85 CEPP grants have been awarded to projects in development by Ontario citizens, groups, non-profits, co-operatives and charities from regions across the province. Totalling \$3.2 million of investments in community projects.
- Charities, not-for-profits and co-ops will be eligible for the fund as well as projects developed by individual Ontario residents, such as farmers.

Support for Aboriginal Renewable Energy Projects

- Ontario is committed to supporting the participation of First Nation and Métis communities in renewable energy and transmission opportunities.
- The \$250 million Aboriginal Loan Guarantee Program supports Aboriginal communities by providing loan guarantees to facilitate Aboriginal ownership in renewable generation and transmission project.
- The FIT Program includes a price-adder where Aboriginal communities have a minimum of 10 per cent equity stake in the project.
- The Aboriginal Energy Partnerships Program supports Aboriginal communities considering and/or developing renewable generation projects. The program supports community energy plans; funds project feasibility studies, technical research and business cases; and includes an Aboriginal Renewable Energy Network.
- As of July 2011, 44 applications have been approved under the AEPP's Aboriginal Renewable Energy Fund for a total of approximately \$4.4 million in funding.
- These applications represent 36 different renewable energy projects, (of which 10 projects have secured FIT contracts), with participation from 29 different First Nation communities.
- The Aboriginal Community Energy Plans component of the AEPP was launched on March 31, 2011, completing the suite of initiatives under AEPP to foster Aboriginal participation in the renewable energy sector. Community energy plans will assist Aboriginal communities in identifying and evaluating opportunities for renewable micro-generation, as well as conservation.
- These measures will also provide sustainable economic development opportunities for First Nation and Métis communities interested in developing renewable energy facilities, such as wind, solar and hydroelectric.
- We also remain committed to our constitutional duty to consult First Nation and Métis communities when energy initiatives have the potential to impact Aboriginal or treaty rights.

Support for Municipalities with Costs Associated with Renewable Energy Projects

- Ontario is making it easier for municipalities to bring green energy projects to their communities.
- We are continuing to investigate ways to address concerns of municipalities relating to the costs of hosting renewable energy projects.
- The Municipal Renewable Energy Program remains one option and the Ontario Power Authority has undertaken developmental work on the program.
- However, it is vital that any program or initiative brought forward is not only effective in addressing the needs of municipalities but also protective of rate payers.

Job Creation

- In the first three years of implementation, the Green Energy Act is projected to support over 50,000 direct and indirect jobs in smart grid and transmission and distribution upgrades, renewable energy and conservation.
 - By the end of 2010, an estimated 13,000 direct and indirect jobs have been created or supported by the Green Energy Act.

- Job creation will be focused on the following sectors:
 - Domestic manufacturing and assembly;
 - Construction, trucking, servicing and installation;
 - Financing, engineering, electricians, inspectors; and
 - Computer software and hardware.
- Local distribution companies and Hydro One will create construction jobs as they upgrade their network infrastructure to enable the additional renewable generation to be fully integrated with the grid.
- Construction jobs will also be created as new renewable energy projects are launched in response to the FIT Program.
- Manufacturing jobs will be created as firms respond to the demand for equipment associated with grid investments and renewable energy projects.

BACKGROUND:

The *Green Energy Act* (GEA) received Royal Assent on May 14, 2009. Implementation of many key initiatives is well underway, including:

- FIT and associated support programs.
- New Renewable Energy Approval.
- Regulation to remove barriers to small-scale renewables.
- Regulation on service guarantees for completion of wires assessments to connect renewables.
- Regulation to provide opportunities for municipalities to partner with third parties on renewable generation projects.
- Directive to establish mandatory conservation targets for LDCs
- Promotion of Smart Grid

Implementation of other initiatives, including greening Ontario government and broader public sector buildings is still to come.

Highlights of the Green Energy Act:

- 50,000 direct and indirect clean jobs in the first three years of implementation
- A competitive investment environment with guarantees for price and service
- A clean electricity system well-positioned for a carbon constrained future
- A modern and efficient approvals process for renewable energy projects
- Leading-edge conservation in the public sector
- Greener and more efficient homes and buildings
- A responsive, reliable smart grid that maximizes renewables and conservation
- New opportunities for community participation
- Greater participation by First Nations and Métis communities
- Clear and easy ways for all Ontarians to participate in conservation
- Better allocation of costs for clean energy programs

**See HN C05 for more information on Ontario's climate change policy and initiatives*

Key Components of the Green Energy Act:

The GEA is divided into three key components:

1. Expanding Renewable Energy

- Feed-in Tariff (FIT) – A standard price according to technology to promote the development of community-based and large commercial renewable energy projects. This mechanism provides proponents with a market-viable price for their projects.
 - On September 24, 2009, ENERGY directed the OPA to launch the FIT Program. The OPA began accepting applications on October 1, 2009.

- The OPA has received microFIT applications from across the province, from Windsor to Thunder Bay. There are some areas where a significant number of applications have been submitted, including Chatham-Kent, Toronto and Ottawa.
- As of April 1, 2011, the OPA has received more than 25,000 applications. The OPA has made more than 20,000 conditional offers, and more than 4,200 projects are online.
- Capacity Allocation Exempt FIT projects (10 to 500 kW) are more likely to have grid space available than larger projects. As of April 15, 2011, more than 1,000 of these medium-sized projects were contracted totalling more than 200 MW.
- As of April 15, 2011, more than 180 large-scale (over 500 kW) FIT projects have been contracted. In addition, 37 contracts have been awarded totalling over 700 MW.
- On July 4, 2011, the OPA announced it will offer contracts to 25 new large-scale renewable energy projects that will be enabled by the Bruce-Milton reinforcement project. The Bruce to Milton project is Ontario's largest transmission project in the last 20 years.

**See HN B05 for more information on clean energy supply*

- **Service Guarantees** – Service guarantees from Hydro One, LDCs and the Independent Electricity System Operator (IESO) for completion of wires assessments, in order to facilitate timely connection of new renewable generation to the grid. Coordinated processes by the Ministries of Environment and Natural Resources for reviewing applications and issuing decisions, including adherence to service standards.
- **Streamline approvals for renewable energy projects and associated transmission projects (MOE lead)** - The legislation includes important improvements in order to rationalize requirements and focus on matters related to the natural environment, including:
 - Change environmental approvals requirements and remove Planning Act requirements for renewable energy projects and associated connections.
 - Province-wide standards for the siting of renewable energy projects.
- **Renewable Energy Facilitation Office** – Offer one-window assistance and support to project developers in order to assist them in navigating the approvals process.
- **Remove local barriers to designated renewable energy projects (i.e. small-scale)** – Establish regulation-making authority to ensure municipal bylaws and other local barriers do not create barriers to small scale renewable energy projects, such as rooftop solar and ground source heat pumps. (Approach is similar to lifting restrictions on outdoor clotheslines.)
- **Smart grid implementation** – Support the establishment and implementation of a smart grid for Ontario, which will bring on additional new renewable energy projects. (e.g., set the stage for the electric car, solar panels on roofs, distributed generation).
 - ENERGY has issued principles and objectives for the smart grid through a directive to the Ontario Energy Board.
 - The 2009 budget allocated “\$50 million over five years to enable the research, capital and demonstration projects necessary for the development of a smart grid in Ontario.”
 - On April 27, 2011, the Ministry launched a grant program based on this announcement that will provide financial resources to help companies and organizations design, test and produce the next generation of smart grid solutions, further solidifying Ontario's reputation as a global hub for smart grid technology.

- The Smart Grid Fund aims to: develop and advance the smart grid in Ontario in the near term; create economic development opportunities, including jobs, for Ontario; and reduce risk and uncertainty of electricity sector investments.
- Program guidelines were made available on the Ministry's website describing eligibility requirements and details about the Fund objectives. The Fund follows a two-stage application process (1) Project Overview Submissions, and (2) Business Case Applications. The first stage was completed as of June 24, 2011. The second stage is now underway with submissions due by July 29th, 2011. Expert review and decisions on successful applicants are expected to be made in the fall timeframe.

** See HN C07 for more information on smart grid implementation*

2. Creating a Conservation Culture

- **Updating Ontario's Building Code** – Amend the Building Code Act to establish energy conservation as a purpose of the code, establish a fixed review period of every five years to identify further opportunities to increase energy conservation, and establish an advisory council to provide the Minister of Municipal Affairs and Housing with advice on enhancing energy conservation through the Code.
 - The next edition of the Building Code is expected at the end of 2011.
- **Green Ontario government and broader public sector buildings/facilities** – Establish authority for (a) regular public reporting on energy use and GHG emissions for all major government facilities; (b) construction of energy and resource efficient government and Broader Public Sector facilities through application of minimum standards (e.g., LEED Silver).
- **Align Conservation Agencies and Programs Information** – Maintain a central conservation incentives information centre to direct consumers to appropriate conservation incentives and programs. Information centre content to be coordinated with OPA initiatives.
- **Establish mandatory electricity conservation targets** for local distribution companies, financial incentives and disincentives will be introduced to ensure participation.
- **Protect low-income Ontarians** – Targeted conservation programs to help Ontarians with low incomes better manage their energy costs.
- **Energy conservation and demand response for industrial consumers** – Establish initiatives to encourage energy conservation and demand management plans for large electricity consumers.
- **Enable mandatory home energy audits** – Establish regulation-making authority to make home energy audits at the time of sale mandatory unless the purchaser waives his or her right to the audit.
- **Conservation plans and targets for the Broader Public Sector** – Municipalities, universities, colleges, schools and hospitals to develop conservation plans including information on energy use, conservation measures and quantifiable results of their implementation. Adopt a phased-in approach to provide smaller organizations with time to develop and implement plans.
- **Establish Energy Star as the enhanced energy efficiency standard** for household appliances (e.g. refrigerators, freezers, dishwashers, clothes washers), including efficient use of water.

**See HN C01 for more information on conservation programs and targets*

3. Expanding and Supporting a Green Economy

- **Domestic Content** – Set domestic content requirements for procurement of renewables.
 - For wind, the requirement started at 25% and will increase to 50% on January 1, 2012.
 - For micro solar PV (10 kW or smaller), the requirement started at 40% and increased to 60% on January 1, 2011.
 - For larger solar PV, the requirement started at 50% and increased to 60% on January 1, 2011.
 - The government can expect to receive ongoing challenges to Ontario's domestic content requirements.
 - Our domestic content rules help us build a green economy in Ontario while welcoming investment from outside the province.

**See HN C09 for more information about domestic content.*

- **Aboriginal Engagement** – Aboriginal partnerships and capacity building are important to the development of new renewable energy projects. The government has established measures to facilitate the participation of aboriginal peoples in the development and implementation of renewable energy facilities, through the Aboriginal Energy Partnerships Program, the Aboriginal Loan Guarantee Program, and through eligibility, under certain conditions, for price incentives within FIT.

**See HN H06 for more information on Aboriginal energy affairs and projects*

- **Community Energy Partnerships Program**– The province will provide one-time support to community groups (including farmers, co-ops and non-profit organizations) to assist with the "soft" or development costs associated with new renewable energy projects. In addition, community based projects are eligible to receive a graduated incentive, based on the percentage of local ownership, of up to 1 cent/kilowatt-hour in addition to standard FIT rates.
- **Support Community Power** – Enable community ownership of renewable energy projects by citizen led energy cooperative and clarify that LDCs and municipalities are able to invest in community (under 10MW) renewable energy projects.
- **Resources for Municipalities** – The Municipal Renewable Energy Program (MREP) is intended to reimburse municipalities for the direct costs associated with facilitating the development of renewable energy generation facilities.

Other relevant information:

Renewable Energy Facilitation Office (REFO)

- The REFO has been established at ENERGY to serve as a one-window point of access to information and guidance about developing renewable energy projects in Ontario. REFO works closely with partner regulatory ministries and energy agencies in assisting developers.
- REFO staff provide direct guidance to developers along three broad themes: regulatory approval process such as the Renewable Energy Approval (REA), FIT Program requirements, and Connecting to Ontario's power grid.
- REFO meets with domestic and international developers and potential manufacturers to explain key GEA initiatives and provide guidance about project requirements in Ontario.
- The Office tracks and reports the status of projects in the regulatory, FIT and connecting to the grid process and shares information/data with partners in ENERGY, regulatory ministries and key energy agencies such as the OPA.

- The Office is able to identify and monitor emerging issues from a developer's perspective and alert key policy areas across government to inconsistencies between renewable energy related policy or process objectives and actual outcomes.

MOE Renewable Energy Approvals (REA)

- The Ministry of the Environment's (MOE's) new REA regulation integrates environmental approvals, providing clear provincial rules and requirements, transparent decision-making and certainty for stakeholders and proponents.

**Detailed questions on REA should be directed towards MOE*

MNR Approvals

- The Ministry of Natural Resources (MNR) is working to streamline their requirements with the GEA.

**Detailed questions on MNR Approvals should be directed towards MNR*

Investment and Rate Impacts

- The FIT projects announced to date will result in about \$13 billion in private sector investment.
- Ontario is upgrading the grid and investing in clean generation to support and help grow our economy. These much needed investments in our electricity infrastructure will be paid for through predictable increases in prices spread over a long period of time.
- The FIT projects are projected to add about \$5/month to a typical residential consumer bill once they have all become operational. Depending on when the FIT projects come online, the increase in the bill in any one year would likely be in the \$1 to \$2/month range.
- Over the next 20 years, prices for Ontario families and small businesses will be relatively predictable. The consumer rate is expected to rise by about 3.5 per cent annually over the next 20 years. However, over the next five years residential electricity prices are expected to rise by 7.9 per cent annually.
- This increase will help pay for critical improvements to the electricity capacity in nuclear and gas, transmission and distribution and investment in new, clean renewable energy generation.

Companies that have announced plans to set up or expand solar and wind turbine manufacturing facilities in Ontario

- Since the launch of the Green Energy Act, more than 30 companies have publicly announced plans to participate in Ontario's clean energy economy.
 - These companies are currently operating or plan to set up solar and wind manufacturing facilities in Ontario in the following categories: Solar PV modules, mounting systems, inverters, wind turbine blades, and wind turbine towers.
 - Some recent examples include:
 - Heliene Inc., producing modules in Sault Ste. Marie;
 - Canadian Solar, manufacturing modules in Guelph;
 - ATS Photowatt, producing modules in Cambridge;
 - Samco, an auto parts manufacturer now also producing solar mounting systems in Scarborough;
 - Schletter, producing solar mounting systems in Windsor;
 - Sustainable Energy Technologies partnering with Melitron to produce inverters in Guelph;
 - Satcon, producing inverters in Burlington;
 - Siemens will be producing wind turbine blades; and,
 - DMI Industries is producing wind turbine towers in Fort Erie.

Updated job estimates due to the high amount of FIT applications

- The high amount of FIT applications indicates that we will be well on our way in meeting our projection of 50,000 jobs in the first three years of GEA implementation.
- The FIT contracts that have been executed are projected to result in the creation of more than 20,000 direct and indirect new green economy jobs.
- The FIT program has also attracted approximately \$20 billion in private sector investment, as well as investment in manufacturing.

Job impact of the framework agreement with the Korean Consortium

- A Korean consortium led by Samsung C&T Corporation and the Korea Electric Power Corporation (KEPCO) will invest \$7 billion to generate 2,500 MW of wind and solar power. The investment will also lead to more than 16,000 new green energy jobs to build, install and operate the renewable generation projects.
 - The consortium fully intends to use Ontario-made steel in its renewable energy projects, such as constructing its wind turbine towers.
 - This is the single-largest investment in renewable energy in provincial history. The consortium chose Ontario because our GEA guarantees stable rates for renewable energy.
- To date, three of the Korean Consortium's manufacturing partners have announced their plans to set up in Ontario.
 - On December 1, 2010, CS Wind announced that it will set up a wind tower manufacturing plant in Windsor, which will bring 300 new full-time jobs and up to 400 construction and indirect service jobs to Windsor.
 - On December 2, 2010, Siemens announced that it will set up Ontario's first-ever wind blade manufacturing plant in Tillsonburg, bringing as many as 300 permanent clean energy jobs, and up to 600 additional construction and indirect service jobs to the region.
 - On April 20, 2011, Samsung C&T Corp. and SMA Solar Technology AG partnered to build industrial-size solar inverters -- electric devices that convert energy produced in solar panels into power that can be used by the electricity grid -- at Celestica's facilities in Toronto. This partnership is expected to attract up to 200 direct and indirect jobs to Toronto.

**See HN B10 for more information on the Korean Consortium*

How the job numbers were calculated

- As with any type of economic projection, we looked at historic data. We based our GEA job estimate on the number of jobs that have typically been created by the type of work that will be required.
- For example, we consulted with Hydro One to estimate how many jobs would typically be associated with the installation of transmission lines. We also relied on studies to back up these estimates in order to assure a reasonable level of consistency with levels of jobs created from similar projects in other jurisdictions.

Job creation tracking

- ENERGY will be tracking and assessing job creation levels based on the uptake of GEA-related initiatives and the progression of projects. Specifically we will continue to monitor the progress of our transmission, distribution, conservation and renewable energy initiatives and assess their impacts on job creation and the development of manufacturing facilities.
- A number of companies have already responded positively to our GEA announcements. ENERGY will be tracking these types of announcements and following up on actual investments as and when they are made.

Updated by: Hartley Springman, Senior Policy Advisor
Strategic Policy and Research Branch
416-327-7276

With input from: Renewables and Energy Efficiency Division
Energy Supply, Distribution and Distribution Policy Division
First Nation and Métis Policy and Partnerships Office

Reviewed by: Audrey Guillot, Manager
Strategic Policy and Research Branch

Approved by: Kaili Sermat-Harding, Director
Strategic Policy and Research Branch

Approved by: John Whitehead, ADM
Regulatory Affairs & Strategic Policy Division

Date: July 21, 2011

Green Energy Act – Feed-In Tariff

ISSUE:

On September 24th, 2009, Minister Smitherman directed the Ontario Power Authority to launch the Feed-in Tariff program. The Ontario Power Authority began accepting applications October 1st, 2009. How has the FIT program been progressing since then?

For details on the trade obligations associated with domestic content provisions, please see C10. For details on connection constraints, please see E06.

SUGGESTED RESPONSE:

General

- Through the Green Energy Act, Ontario has moved to stimulate a new, clean economy and create a new generation of clean jobs, while protecting our environment.
- At the heart of the Green Energy Act is North America's most comprehensive Feed-in Tariff (FIT), which will spark the development of renewable energy projects by offering guaranteed incentives to developers of wind, water, solar, and bio-sourced power.
- The FIT prices differ based on project size and type of renewable energy technology and were developed based on experience here in Ontario and in other jurisdictions.
- They cover capital, operating and maintenance costs and allow for a reasonable return on investment over a 20-year (40-year for waterpower) contract term.
- The Feed-in Tariff Program will be reviewed at least every two years.
- Since the Feed-in Tariff Program was launched, the Government and the Ontario Power Authority have responded quickly to maintain the integrity of the Program, protect ratepayers, promote Ontario manufacturing and preserve agricultural lands.
- The Korean Consortium agreement and FIT contracts announced to date represent approximately \$26B in investment and thousands of jobs, and are expected to produce enough electricity each year for more than 1.8 million homes.
- Most recently, to maintain momentum and ensure we remain competitive in North America's emerging clean energy economy we have simplified the process for clean energy producers who are investing in Ontario.

CURRENT ISSUES:

If asked about the OPA's offer to waive termination rights:

- On August 2, 2011, the Ministry announced new rules to make it easier for manufacturers and project developers to do business in the province:
 - Limiting conditions under which the Ontario Power Authority can terminate FIT contracts in the pre-construction phase.
 - Enhancing the Renewable Energy Approvals (REA) process, so that developers can:
 - more quickly get the information they need

- proceed with more certainty
- have a greater level of support, as projects navigate Ontario's stringent environmental approvals process.
- Proposing new rules to provide greater clarity and stability to the property tax assessment of renewable energy projects.
- These changes will simplify the process for businesses and further advance Ontario as the leading destination for clean energy investment.

If asked about new FIT contracts awarded on July 4, 2011

- On July 4, 2011, the Ontario Power Authority (OPA) approved 25 new large FIT projects. The projects represent about \$3 billion in investment and will create an estimated 4,800 jobs.
- These large projects total more than 1,000 MW of clean, renewable power and are expected to provide enough electricity each year to power more than 280,000 homes or a community the size of Windsor each year.
- The projects are mostly located in the Bruce and London areas. These projects will be brought online through the Bruce-to-Milton reinforcement project, Ontario's largest transmission project in 20 years.
- Including this announcement, Feed-in Tariff contracts and announcements represent more than 4,800 MW of renewable power. This is estimated to represent approximately \$19 billion in investment and enough electricity each year to power more than 1.2 million homes.

If asked about new CAE contracts awarded on May 26, 2011

- On May 26, 2011, the Ontario Power Authority (OPA) approved 839 new Capacity Allocation Exempt (CAE) renewable energy projects, including solar, biomass, biogas, water and wind projects. This will create 2,000 direct and indirect jobs in construction, operation and maintenance. These projects will help attract more than \$900 million in private-sector investment to the province.
- These mid-scale FIT projects total more than 140 MW of clean, renewable power – enough electricity each year to power more than 16,000 homes, or a community the size of Niagara-on-the-Lake.
- The projects are located across the province:
 - Bruce – 50 projects/6.7 MW
 - Central – 58/9.3 MW
 - East – 183/28.3 MW
 - GTA – 220/37.4 MW
 - Niagara – 175/30.6 MW
 - Northeast – 18/3 MW
 - Northwest – 16/2.4 MW
 - West of London – 119/24 MW
- These projects will allow farmers, small businesses, retailers, schools and churches to help transform our electricity system - replacing coal with more clean energy.

If asked about Commercial FIT Program:

- We are committed to a sustainable build-out of projects under the Long Term Energy Plan and to the target of 10,700MW of renewable energy from wind, water and bio-energy by the end of 2018.

- We are building a clean energy economy and want commercial aggregators to continue to be a part of it.
- The CFIT program has not yet been launched.
- We are determined to find the correct program for aggregated commercial participation and will take the time needed to get it right.
- The CFIT program will be considered as part of the Two-Year Review.

If asked about extension to commercial operation dates

- The OPA is offering to amend the contracts of all FIT counterparties who have not yet reached commercial operation so that these developers can elect to extend their Commercial Operation Date (COD) by up to one year.
- The OPA is also offering to extend the expiry date for interested applicants with a microFIT conditional contract offer for up to one year. The extension is available for any project with a microFIT application submitted before December 8, 2010.
- People who currently have FIT contracts and microFIT conditional offers now have more time to complete their projects, giving them more flexibility in planning and developing their projects.
- The demand for renewable equipment and services is still there even with the contract extensions. The number of projects does not change; they will just come on-line over a longer period of time.
- As described in the Long-Term Energy Plan, Ontario will continue to invest in upgrades to the transmission and distribution systems to accommodate renewable energy supply in an efficient and cost-effective way.

If asked about Domestic Content:

- We are looking to increase interest in the Ontario market and in Ontario as a home base for renewable energy investment and manufacturing. Ontario wants clean energy business.
- The Ministry of Energy and the Ministry of Economic Development and Trade consulted stakeholders to determine a challenging but workable path to increase domestic content in renewable energy projects.
- Developers are required to have a certain percentage of their project cost come from Ontario goods and labour at the time they reach commercial operation.
 - For wind, the requirement starts at 25% and increases to 50% on January 1, 2012.
 - For micro solar PV (10 kW or smaller), the requirement started at 40% and increased to 60% on January 1, 2011.
 - For larger solar PV, the requirement started at 50% and increased to 60% on January 1, 2011.
- Our domestic content rules help us to build a green economy in Ontario while welcoming investment from outside the province.

BACKGROUND:

Waiver on OPA Termination Rights

- To support manufacturing supply chain development, on August 2, 2011, the Ministry of Energy directed the OPA to offer FIT contract holders the opportunity to have the OPA's termination rights under section 2.4(a) of the FIT Contract waived.
- Section 2.4(a) of the FIT contract says that either the OPA or the developer may terminate the FIT contract until the OPA issues a notice to proceed (NTP) and the developer has paid the Incremental NTP security.
- The Minister's Directive established a December 31st, 2011 deadline for approved Domestic Content Plans and equipment purchase agreements. These plans need to be reviewed by the OPA. To ensure that there is enough time to thoroughly review plans, the OPA has established the following timeline:
 - Large FIT projects (generally larger than 500 kW) must submit the waiver, a Domestic Content Plan and evidence of agreement(s) for the purchase of generating equipment as follows:
 - [the waiver](#) by October 14, 2011;
 - a Domestic Content Plan, in the prescribed form titled [FIT contract form of Domestic Content Plan \(waiver\)](#), by October 14, 2011; and
 - evidence of agreement(s) for the purchase of generating equipment, in the form of a [Statutory Declaration](#), by November 30, 2011.
- The Domestic Content Plan will be reviewed for completeness and substantiation.
 - Medium-sized FIT projects must submit the [Waiver](#) and a [Domestic Content Plan](#) by 5 p.m. December 30, 2011.
- If those requirements are not met by the specified deadline, the waived termination rights will be reinstated.
- All developers still need to submit an NTP Request to the OPA and provide evidence of regulatory approvals (Renewable Energy Approval, or environmental assessment or screening in the case of a hydroelectric project), a completed Financing Plan, a Domestic Content Plan, if applicable, and documentation related to required impact assessments, as well as pay the required security.
- Further to the [August 2, 2011 program update](#) regarding the waiver on OPA termination rights, the following option on the waiver of OPA termination rights was announced on August 5, 2011:
 - If a developer submits an [accurate](#) and [complete](#) waiver on or before August 15, 2011, the OPA will use commercially reasonable efforts to review and execute the waiver by September 30, 2011.

New FIT Contracts

- The 25 new clean energy projects announced on July 4, 2011 include: 6 solar projects totalling 28 MW and 19 wind projects totalling 1,018 MW.
- These projects will be brought online through the [Bruce to Milton reinforcement project](#), Ontario's largest transmission project in 20 years.
- The projects represent about \$3 billion in investment, will create an estimated 4,800 jobs, and will provide enough electricity each year to power more than 280,000 homes or a community the size of Windsor.

Commercial FIT Program

- The OPA is planning a new stream in the Feed-in Tariff Program for commercial aggregators, called the CFIT Program, to accommodate the unique nature of commercial micro-generation projects.
- This program stream is intended for commercial entities with one or more micro-generation projects, those who are not eligible participants for the microFIT Program, and those who wish to take advantage of secured lender provisions not found in the microFIT contract.
- The OPA committed in August 2010 to introducing a program for commercial aggregators, businesses that lease land or rooftops from individuals for multiple renewable energy projects. A microFIT advisory panel was established; it reviewed proposals and provided advice regarding the CFIT Program.
- The OPA posted draft CFIT rules for comment from February 1st, 2011 to February 18th, 2011. Only price and financing provisions were proposed during the posting. At the time, the OPA web posting indicated the OPA expected the program would begin receiving applications in mid-March.
- Submissions received during the February posting are under review by the OPA.
- Changes to streamline the application and contract management processes will require additional time and will be considered during the two-year program review in 2011.

Extension to commercial operation dates:

- On February 9, 2011, the OPA offered to extend the expiry date for interested applicants with a microFIT conditional contract offer for up to one year. The extension is available for any project with a microFIT application submitted before December 8, 2010.
 - Approximately 19,000 microFIT conditional offers could be affected, representing approximately 173 MW of generating capacity.
 - In order to qualify for a microFIT conditional offer extension, proponents will have to contact the OPA.
- On February 9, 2011, the OPA offered to amend the contracts of all FIT counterparties who have not yet reached commercial operation so that these developers can elect to extend their Milestone Dates for Commercial Operation (MCOd) by up to one year. This extension is available for projects which were offered contracts by February 9, 2011. This includes more than 1,200 contracts, representing approximately 2,700 MW of generating capacity. Subsequent FIT applications that are awarded contracts will be expected to meet their contractual commercial operation date.
- When the FIT Program was launched, Ontario also introduced a new environmental approvals process that provides a consistent set of rules and approvals across the province. The new approvals process has meant adjustments for several ministries, as well as a learning curve for developers. We have received feedback from renewable energy project developers that they need more time to prepare the material for a complete submission, which can include specialized scientific and environmental studies for sites, community outreach, open houses and aboriginal consultations. As such, the OPA is offering extensions to developers to help them successfully bring their projects into operation.
 - The six-month approval timeline for the Renewable Energy Approval (REA) is based on the government's receipt of a complete REA submission. Offering this extension recognizes the upfront work involved in this process and gives

developers more time to prepare their complete REA submission, should they need it.

- The up to one-year COD extension will not affect a developer's current Domestic Content Level requirements. If a wind power project had a COD of March 1, 2011, it would have had a Domestic Content Level requirement of 25 percent. Under the extension, the project could now have a new COD of March 1, 2012, but would still have a Domestic Content Level of 25 percent, not 50 percent.
- In order to be eligible for the MCOD extensions, developers will have to enter into an amending agreement with the OPA. The OPA will be requesting that certain types of force majeure (FM) claims be surrendered entirely in exchange for the extension. These provisions are to ensure that the time granted in this extension, which already grants time due to certain unforeseeable delays, is not double-counted via separate FM claims to the OPA.

Domestic Content:

- The OPA has a transparent process to clarify the Feed-in Tariff's domestic content requirements.
 - Industry questions that require further clarification of the domestic content requirements will be referred to an inter-ministerial domestic content working group (IDCWG) comprising ENERGY, MEDT and OPA staff and others as necessary. The IDCWG will review and prioritize questions, and develop draft interpretations. Draft interpretations will be posted for industry comment. All comments will be considered before a final interpretation is posted.
- OPA, ENERGY and MEDT are aware of developers' and manufacturers' need to quickly clarify whether the products they plan on using or making qualify for domestic content. OPA, ENERGY and MEDT are working together to quickly resolve domestic content interpretation issues in priority sequence.
- The OPA has also agreed to provide a binding commitment letter to renewable energy developers who have submitted a domestic content plan that the OPA has determined meets the domestic content requirements.

Solar farms on prime agricultural land:

- The OPA has been directed that there is to be no ground-mounted solar procurement above 100 kilowatts on class 1 and 2 or Specialty Crop Areas to provide continued protection of such lands.
- We believe that it is possible to strike a balance and do both – encourage solar development and protect our prime agricultural lands. While agricultural lands are attractive for solar development for a variety of reasons, it is important to note that there is plenty of land in the province of Ontario suitable for solar development that is not prime agricultural land.
- Some ground-mounted solar procurement, up to 500 megawatts, will be allowed on Class 3 lands, allocated on a regional basis.

- Using the Regional Administrative Boundary Allocations (RABA) system, the province has been divided by county into 4 regions (North, East, Central and West). The 500 MW cap has been allocated proportionally, based on the amount of Class 3 soil land within each region.
- By establishing regional allocations of the cap, we can help protect against significant clustering of projects and provide for a more balanced distribution across the province.
- The RABA boundaries are used by various ministries and government agencies such as the Ontario Realty Corporation to divide the province into administrative regions. We feel these boundaries are realistic and reflect the norm when it comes to identifying different regions of the province.

SUMMARY OF SOLAR PV APPLICATIONS (in MWs) FOR PROJECTS THAT UTILIZE CLASS 3 LAND

RABA Region	Allocation	Phase 1 Applications	Phase 1 Contracts	Available (as of December 1, 2009)	Phase 2 Applications	Phase 2 Contracts	Available (as of February 24, 2011)
North	148	24	5	143	1	0	143
East	134	106	13	121	70	13	108
Central	39	37	35	4	36	3	1
West	79	76	13	66	23	0	66
Total Available for FIT Program	400	243	66	334	130	16	318

Note: 100 MW are reserved in the RABA western region in accordance with the ministerial directive dated September 30, 2009.

Current Status of FIT and microFIT Applications:

microFIT Applications

- The OPA has received microFIT applications from across the province, from Windsor to Thunder Bay. There are some areas where a significant number of applications have been submitted, including Chatham-Kent, Toronto and Ottawa.
- As of August 5, 2011, the OPA has received more than 30,000 applications. The OPA has made more than 22,000 conditional offers, and more than 6,700 projects are online.

microFIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Applications	280.57	30,574	0.56	84	279.72	30457	0.04	6	0.24	27
Conditional contracts offered	204.26	22,443	0.36	60	203.78	22368	0.01	3	0.11	12
Online	59.32	6,779	0.03	5	59.29	6773	0.00	0	0.01	1

Numbers are net of terminations

FIT Applications

- Capacity Allocation Exempt (CAE) FIT projects (10 to 500 kW) are more likely to have grid space available than larger projects. As of July 22, 2011, more than 1,200 of these medium-sized projects were contracted totalling more than 200 MW. About 100 MW of CAE projects have been announced.

CAE FIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Contracted	243.57	1,249	1.89	8	231.90	1,205	0.96	5	8.83	31
Online	8.59	49	0.00	0	7.74	46	0.00	0	0.85	3

- As of July 22, 2011, more than 200 large-scale (generally over 500 kW) (CAR) FIT projects have been contracted. In addition, over 1,000 MW of CAR contracts have been announced.

CAR	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Contracted	3,262.10	216	2,113.40	48	912.42	109	187.42	44	48.87	15
Online	8.88	6	0.80	1	0.50	1	0.00	0	7.58	4

The Insititute for Local Self-Reliance's Policy Brief on Ontario's Domestic Content Requirements

- In January 2011, the Institute for Local Self-Reliance's New Rules Project published a favourable policy brief on Ontario's domestic content requirements, entitled, "Maximizing Jobs from Clean Energy: Ontario's "Buy Local" Energy Policy.
- The Institute's mission is to provide innovative strategies, working models and timely information to support environmentally sound and equitable community development. To this end, ILSR works with citizens, activists, policymakers and entrepreneurs to design systems, policies and enterprises that meet local or regional needs; to maximize human, material, natural and financial resources; and to ensure that the benefits of these systems and resources accrue to all local citizens.
- The author stated that "Ontario's renewable energy driven economic development strategy, although still in its infancy, offers significant lessons to American states. With as much as 70 percent of U.S. renewable energy systems manufactured overseas, state policymakers could learn from Ontario's success."
- The FIT Program is preferred to tax incentives because payments are based on performance rather than costs.
- The study also estimated that cost per job under the FIT Program is considerably less than the subsidies provided by U.S. tax credits and other supports.
- The author refers to Japan's complaint under the WTO and suggests that the FIT Program may be exempt as a government procurement.

Updated on: August 17, 2011

Updated by: Vernon Riediger, Senior Policy Analyst
Renewable Energy Unit
416-212-7706

Approved by: Leo Tasca, Manager
Renewable Energy Unit
416-326-3776

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

Sue Lo, ADM
Renewables and Energy Efficiency Division
416-327-8552

APPENDICES

APPENDIX 1 – FIT PRICES

Feed-In Tariff Prices				
Renewable Fuel	Type	Size tranche	Contract Price ¢/kWh	Escalation Percentage**
Biomass*^		≤ 10 MW	13.8	20%
		> 10 MW	13.0	
Biogas*^	On-Farm	> 10 kW ≤ 100 kW	19.5	20%
		> 100 kW ≤ 250 kW	18.5	
	Any type	≤ 500 kW	16.0	
		>500 kW ≤ 10 MW	14.7	
		> 10 MW	10.4	
Waterpower*^		≤ 10 MW	13.1	20%
		> 10 MW <50 MW	12.2	
Landfill gas*^		≤ 10MW	11.1	20%
		> 10 MW	10.3	
Solar PV	Rooftop	≤10 kW	80.2	0%
		> 10 ≤ 250 kW	71.3	
		> 250 ≤ 500 kW	63.5	
		> 500 kW	53.9	
	Ground Mounted	≤10 kW	64.2	
	Ground Mounted^	> 10 kW ≤ 10 MW	44.3	
Wind^	Onshore	Any size	13.5	20%
	Offshore	Any size	19.0	

*Peak Performance Factor of x1.35 during On-Peak and x0.90 during Off-Peak applies for non-microFIT projects.

^Aboriginal Price Adder and Community Price Adder eligible as outlined below for non-microFIT projects.

**Escalation Percentage based on the Consumer Price Index will be applied to eligible Renewable Fuels as calculated in FIT Contract. The Base Date is September 30, 2009

The following table shows the maximum level of the Aboriginal and community price adders a project could receive in addition to the contract price:

	Wind	PV (Ground Mounted)	Water	Biogas	Biomass	Landfill Gas
Maximum Aboriginal Price Adder (¢/kWh)	1.5	1.5	0.9	0.6	0.6	0.6
Maximum Community Price Adder (¢/kWh)	1.0	1.0	0.6	0.4	0.4	0.4

Percentage of Control	Percentage of corresponding price adder
50% to 100%	100%
10% to 50%	Double the percentage of control
0% to 10%	0%

Green Energy Act – Feed-In-Tariff

ISSUE:

What is the status of the Feed-In-Tariff (FIT) program?

For details on the trade disputes associated with domestic content provisions, please see C10. For details on connection constraints, please see E06.

MESSAGING:

- Ontario's clean energy policies have already created more than 20,000 jobs and are well on their way to creating 50,000 jobs through investments in renewable energy, conservation, and transmission and distribution upgrades.
- At the heart of the Green Energy Act is North America's most comprehensive Feed-in Tariff (FIT), which is sparking the development of renewable energy projects by offering guaranteed prices to developers of wind, water, solar, and bio-sourced power.
- Ontario's Feed-In Tariff (FIT) program has been tremendously successful.
- The Korean Consortium agreement and FIT contracts announced to date represent approximately \$27B in investment and thousands of jobs, and are expected to produce enough electricity each year for more than 1.8 million homes.
- Through the FIT program, thousands of jobs have been created and more than 30 companies are currently operating, or plan to build, solar and wind manufacturing facilities in Ontario.
- Since launching FIT in 2009, the Ontario Power Authority has contracted about 1,800 small and large FIT projects and offered about 25,000 microFIT contracts totalling almost 4,800 MW – enough energy to power almost 1.2 million homes.

FIT TWO-YEAR REVIEW MESSAGING:

- Ontario is moving ahead with its clean energy program, taking immediate steps to ensure the long-term sustainability of renewable energy while creating more jobs, lowering prices and giving communities a greater say.
- Following the first review of Ontario's signature Feed-in-Tariff (FIT) Program, the government is acting quickly to implement all the recommendations, which include:
 - Creating more jobs sooner by streamlining the regulatory approvals process for projects while maintaining the highest environmental protection standards.
 - Reducing prices - for solar projects by more than 20 per cent, on average, and wind projects by approximately 15 per cent.
 - Encouraging greater community and Aboriginal participation through a new priority point system, which will also prioritize projects with municipal support.
 - Reserving 10 per cent of remaining capacity for projects with significant participation from local or Aboriginal communities.
 - Developing a Clean Energy Economic Development Strategy to leverage Ontario's significant expertise and strengths to become a global leader in the sector.

- Regular program reviews are a feature of FIT programs around the world.
- Ontarians were encouraged to participate in the review by answering an online survey or making a written submission by December 14, 2011. The review received more than 2,900 responses to our online survey and more than 200 written submissions. The review also met with more than 80 stakeholders.

If asked about the effect on ratepayers:

- New rules and prices balance the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy.
- In order to support the sustainability of the program, prices will be examined annually to ensure they reflect current costs.

microFIT RELAUNCH MESSAGING:

- The Ontario Government launched Ontario's Feed-in Tariff (FIT and microFIT) Program in 2009 to create new clean energy industries and jobs, develop renewable energy technology, and clean the air by phasing out coal-fired generation by the end of 2014.
- To build on this commitment, in March of this year the government released the FIT Two-Year Review Report and announced forthcoming changes to the FIT program. These changes will ensure the long-term sustainability of renewable energy while creating even more jobs, lowering prices and giving communities a greater say.
- The Ontario Power Authority (OPA) is now implementing changes to the microFIT program, which is for renewable energy projects of 10 kilowatts or less. This program is of interest to homeowners, farmers and small business owners, as well as institutions, such as schools and places of worship.
- On July 12, 2012, the OPA posted final microFIT Program 2.0 Rules, Contract and other program documents on [the microFIT website and began](#) accepting applications from both existing and new applicants. As part of this microFIT application window, the OPA will begin by awarding 50MW of projects.
- Key changes to the microFIT Program coming out of the two-year review include:
 - Solar prices for new microFIT contracts have been reduced by about 30 percent to reflect lower operating and capital costs;
 - Individuals and farmers are now limited to one microFIT contract;
 - Changes in land ownership rules for municipalities, universities, schools and colleges, hospitals and long-term care homes, social and affordable housing, Aboriginal communities and co-operatives;
 - New restrictions on where ground-mount solar projects or wind projects of 3 kW or less can be located;
 - The OPA will now issue Application Approval Notices instead of conditional offers;
 - New time limits for applicants to seek an Offer to Connect from their LDC, and for the LDC to provide an Offer to Connect to the applicant; there are also new time limits for applicants to construct projects and obtain ESA connection authorization after the OPA issues an Application Approval Notice; and
 - microFIT prices will be reviewed annually.

SMALL FIT RE-LAUNCH MESSAGING

- The Ontario Government launched Ontario's Feed-in Tariff (FIT and microFIT) Program in 2009 to create new clean energy industries and jobs, develop renewable energy technology, and clean the air by phasing out coal-fired generation by the end of 2014.
- To build on this commitment, in March of this year the government released the FIT Two-Year Review Report and announced forthcoming changes to the FIT program. These changes will ensure the long-term sustainability of renewable energy while creating even more jobs, lowering prices and giving communities a greater say.
- The Ontario Power Authority (OPA) has now implemented changes to the FIT program based on the recommendations of the two-year review. The small FIT program has been re-launched and the final FIT 2.0 Rules and Contract have been posted on the OPA's website. The application window for small FIT projects is anticipated to open on October 1st and to close on November 30th, 2012. The large FIT program will be re-launched at a later date
- Key changes to the FIT program include:
 - Solar and wind prices have been reduced to reflect decreased equipment costs. FIT prices will be reviewed annually, with prices published in November that will take effect January 1 of the following year.
 - FIT applications will now be accepted during specific application windows, rather than on an ongoing basis and the OPA, as a first step, will award 200 MW of small FIT contracts.
 - Applications will be prioritized with points awarded based on project type (community participation, Aboriginal participation, etc.), municipal support, Aboriginal support, project readiness and electricity system benefit.
 - Applications with greater than 50 percent equity participation from Aboriginal or community (co-ops) participants will be prioritized above all other applications in an application window.
 - Solar rooftop projects must reach commercial operation within 18 months of receiving a contract (with some exceptions), compared with three years previously.
 - Ground-mounted solar projects may not be located on residential property or on property abutting residential property with some exceptions.
 - A ground-mounted solar project is permitted on commercial or industrial property as long as the project is not the main, primary or only use of the property.
 - In addition to the restrictions of locating ground-mounted solar projects on Canada Land Inventory (CLI) Class 1 and 2 soils, these projects will also not be allowed on CLI Class 3 and CLI organic soil (with exemptions on CLI Class 1-3 for certain non-agricultural purposes such as an airport or aerodrome, a closed landfill or a federal military installation).
 - There are now restrictions on changes in participation level for projects that receive priority points based on the participation of certain types of entities (i.e., community or Aboriginal community, etc)
- The Ministry of Energy has established a multi-faceted FIT 2.0 Land Use Working Group comprised of industry associations and participants, municipal stakeholders including municipalities, provincial ministries and the OPA to investigate, develop options and make recommendations to the Minister of Energy and Ministry with respect to the siting of ground-mounted solar projects.
- More specifically, the working group is charged with providing recommendations on the siting of ground-mounted solar projects on rural zoned lands with multiple primary uses and rural/agricultural zoned lands with

abutting residential uses. Recommendations made by the working group will be carefully considered by the Minister and Ministry, and if accepted, would be the subject of future revisions to the FIT Rules.

- The Working Group will make recommendations by the end of September 2012.

BACKGROUND:

General

- The FIT Program was enabled by the *Green Energy and Green Economy Act*, 2009 which received Royal Assent on May 14, 2009.
- The legislation was enacted to create and sustain jobs by making Ontario a 'hub' for green manufacturing and development. It is also intended to help combat climate change and support Ontario's phase out of coal-fired power.
- The Ontario Power Authority is responsible for implementing the Feed-In Tariff program (FIT). It began accepting applications on October 1, 2009.
- The FIT Program was designed to spark the development of renewable energy projects by offering guaranteed, long-term contracts to developers and incentives for Aboriginal and community projects
- It was North America's first comprehensive FIT program, offering guaranteed prices for projects of all sizes from renewable sources including biomass, biogas, landfill gas, wind, solar photovoltaic (PV) and waterpower.
- FIT prices differ by project size and type of renewable energy technology and were designed to allow for a reasonable return on investment over a 20-year contract term for most projects (40 years for water power).
- The review of the FIT Program was launched on October 31, 2011 and the results of the review were announced on March 22, 2012.
- New rules and prices balance the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy.
- The review builds on the success of the program – continuing to ensure long-term sustainability, and transparency and predictability for industry and investors.

microFIT Relaunch

- The Ontario Power Authority (OPA) has now implemented changes to the microFIT program. The program is for renewable energy projects of 10 kilowatts or less. This program is of interest to homeowners, farmers and small business owners, as well as institutions, such as schools and places of worship.
- On July 12 2012, the OPA posted final microFIT Program Rules, Contract and other program documents on [the microFIT website](#). The microFIT Program is also now accepting applications from both existing and new applicants. As part of this microFIT application window, the OPA will begin by awarding 50MW of projects.
- Existing applicants (those who applied between September 1, 2011 and April 5, 2012) will be subject to the new microFIT Program Rules and pricing and need to resubmit their applications between July 12 and August 10, 2012, the transition window deadline. If they do so, they will maintain their original timestamp, and their application will be processed in the order in which they were originally received. Should they fail to resubmit applications by the required date, the applications will be terminated.
- New microFIT applications are also now being accepted and will be processed after resubmitted existing applications. New applicants will need to register before completing an application.
- Key changes to the microFIT Program coming out of the two-year review include:

- Solar prices for new microFIT contracts have been reduced to reflect lower operating and capital costs (54.9 cents per kilowatt-hour for rooftop microFIT projects and 44.5 cents per kilowatt-hour for ground-mounted microFIT projects).
- Individuals and farmers are now limited to one microFIT contract.
- Municipalities, universities, schools and colleges, hospitals and long-term care homes, social and affordable housing and Aboriginal communities can lease the land on which their project is located (in the case of publicly funded schools, a license would be required). Individuals and farmers still need to own the land where their project is located.
- Renewable energy co-ops must locate their projects on property owned by the co-operative. Farm co-ops must locate their projects on land that is owned by a member of the co-operative.
- There are new restrictions on where ground-mounted solar projects, or wind projects of 3 kW or less, can be located.
 - Ground-mounted microFIT solar projects are **not permitted** on or adjacent to property on which residential use is a lawfully permitted use.
 - Ground-mounted microFIT solar projects are permitted where the project land and adjacent lands are zoned for agriculture, provided that any residential use on the project land and adjacent land is a secondary use to agricultural.
 - On property where commercial or industrial use is lawfully permitted, these projects may not be the main, primary or only use of the property.
- The OPA will no longer be issuing conditional offers. Rather, the OPA will issue an Application Approval Notice following applicants receiving an Offer to Connect for their proposed project from their local distribution company.
- Applicants will be required to seek an Offer to Connect from their local distribution company (LDC) within 30 days of the OPA confirming that their application has passed the initial completeness and eligibility reviews. This will be followed by a 90-day period during which the applicant must receive an Offer to Connect. After the OPA issues an Application Approval Notice, the applicant must construct the project and obtain the [Electrical Safety Authority \(ESA\)](#) Connection Authorization within 180 days.
- microFIT prices will be reviewed annually, with prices published in November that will take effect on January 1 on the following year.

Small FIT Relaunch

- The final FIT 2.0 Rules and Contract were posted on August 10, 2012.
- OPA anticipates that the application window for small FIT projects (those 500 kW or smaller) will open on October 1, 2012, and close on November 30, 2012.
- Information on the large FIT application windows will be provided when details have been finalized.
- Key changes to the FIT program include:
 - Solar and wind prices have been reduced to reflect decreased equipment costs.
 - FIT applications will now be accepted during specific application windows, rather than on an ongoing basis and the OPA, as a first step, will award 200 MW of small FIT contracts.
 - Applicants who do not receive a contract during the window will need to re-apply when the next window opens.
 - All project applicants, including those with small FIT projects, will now need to submit application security if they wish to apply or reapply under the new program Rules.
 - Applications will be prioritized with points awarded based on project type (community participation, Aboriginal participation, or public university, publicly

funded school, public college, hospital or publicly owned long-term care home participation or where they are a host), municipal support, Aboriginal support, project readiness and electricity system benefit.

- Applications with greater than 50 percent equity participation from Aboriginal or community (co-ops) participants (contract capacity set-aside projects) will be prioritized above all other applications in an application window.
- Solar rooftop projects must reach commercial operation within 18 months of receiving a contract, compared with three years previously. The exception is for proponents who have a portfolio of more than 15 MW of projects contracted from the same application window, in which case they can choose to have 36 months to reach commercial operation.
- Ground-mounted solar projects may not be located on residential property or on property abutting residential property. However, for property where the project land and abutting lands are zoned for agriculture, ground-mounted solar projects are permitted, provided that any residential use on the project land and adjacent land is ancillary to the agricultural use.
- A ground-mounted solar project is permitted on commercial or industrial property as long as the project is not the main, primary or only use of the property.
- In addition to the restrictions of locating ground-mounted solar projects on Canada Land Inventory (CLI) Class 1 and 2 soils, these projects will also not be allowed on CLI Class 3 and CLI organic soil.
 - Soil studies, using an expanded methodology and peer review process, will continue to be required when proposing a project on the non-CLI 1, 2, 3 or organic soil portions of a property with a mix of soils.
 - The earlier zoning exemption is no longer in place. However, there are limited exemptions to the CLI 1, 2 and 3 soil restrictions, for example, on airport or aerodrome lands, closed landfills or federal military installation property. For the complete list and evidence requirements, please refer to the [FIT Rules](#).
- There are now restrictions on assignments and changes in participation level for projects that receive priority points based on the participation of certain types of entities (i.e., community, Aboriginal community, public university, publicly funded school, public college, hospital or publicly owned long-term care home participation or where they are a host).
- FIT prices will be reviewed annually, with prices published in November that will take effect January 1 of the following year.

Key Statistics

- The Korean Consortium agreement and FIT contracts announced to date represent approximately \$27B in investment and thousands of jobs, and are expected to produce enough electricity each year to power more than 1.8 million homes.
- More than 30 companies are currently operating, or plan to build, solar and wind manufacturing facilities in Ontario.
- As of **July 9**, 2012, about **1,800** small and large FIT contracts totalling **almost** 4,600 MWs have been signed. **312** small FIT projects totalling more than **49** MW and **15** large FIT projects totalling about **272** MW are online.
- As of **August 7**, 2012, **almost 14,000** microFIT projects have been connected to the electricity grid.
- Updated FIT prices range from 10.3¢ per kilowatt-hour (kWh) to 54.9¢ per kWh.

CURRENT ISSUES

Feed-in Tariff Program Review

- The results of the Feed-in-Tariff Review were announced on March 22, 2012.
- The review was launched on October 31st, 2011 and built on the success of the program. New rules and prices balance the interests of ratepayers with the need to

continue to invest in Ontario's clean energy economy.

Status of the Program

- Ontario has become a leader in clean energy production and manufacturing and the FIT program continues to be one of the best ways to attract investment, encourage participation and efficiently build clean energy projects.
- To date, the FIT Program has led to almost 1,800 small and large FIT contracts totalling approximately 4,600 MW – enough electricity to power 1.2 million homes.
- Beginning in 2012, the province will conduct an annual review of FIT prices - setting and publishing prices each November, effective Jan. 1st the following year.
- As the program moves forward, Ontario expects to procure its target of 10,700 MW of non-hydro renewable energy generation by 2015.
- At the end of 2013, the government will review Ontario's electricity supply and demand forecast to explore whether a higher renewables capacity target is warranted.

Approval Process

- There are currently 2,600 megawatts (MW) of FIT projects moving through the Renewable Energy Approval (REA) process.
- To see these projects produce jobs and investment in local communities, Ontario has worked to improve the regulatory approvals process, while maintaining the highest environmental protection standards.
- The province is creating a new Renewable Energy Committee to help regulatory ministries reduce duplication, improve service standards and streamline the process - shortening the application process by up to 25 per cent.
- The Ministry of Natural Resources is reviewing and updating its approach to renewable energy development on Crown land to align the release of Crown land with provincial energy supply needs and transmission availability.

Community and Aboriginal Participation

- To ensure that projects are rooted in the community and investment remains in the community, the province is reserving a minimum of 10 per cent of the remaining FIT contract capacity for projects with significant community and Aboriginal participation.
- The new FIT program will also prioritize large and small FIT applications using a point-system that will award additional points to projects that have significant local and/or Aboriginal involvement.

Municipal Engagement

- Almost 20 municipalities are currently building FIT projects, including Brockville, Kitchener, Lambton Shores, Markham, Waterloo, and Welland.
- There is an opportunity for municipalities to play a greater role in the development of renewable energy across the province.
- Under the new rules, large FIT projects will require a contract launch meeting with the municipality, proponent, project developer, government, utility, and agency to facilitate early discussion, share information and define expectations.
- Projects with municipal support will be prioritized through the new point system during the application review process.
- The province is clarifying project-siting rules and strengthening the protection of prime agricultural lands.
- In consultation with the Association of Municipalities of Ontario (AMO), the Province has revised the Municipal Consultation Form in the REA process.

Pricing

- When Ontario launched the FIT Program in 2009, prices were set to reflect capital costs, provide investors stability and cultivate a domestic clean energy industry.
- Over the course of two-years Ontario has created a domestic renewable energy sector to drive economies of scale and lower prices.
- To balance the interests of all Ontarians, while continuing to encourage investment, FIT prices will be reduced by more than 20 per cent for solar and approximately 15 per cent for wind.

- Prices for water, biogas, biomass and landfill gas will remain the same.

Ontario's Clean Energy Economy

- More than 30 companies are currently operating, or plan to build solar and wind manufacturing facilities in Ontario.
- Many post-secondary institutions have launched Clean Energy programs that will strengthen the clean energy economy and build the intellectual capital in Ontario.
- The Ministry of Energy and the Ministry of Economic Development and Innovation have developed a Clean Energy Economic Development Strategy that will build on Ontario's strengths and leverage its experience as a leader in the sector.
- Future international expansion by the most innovative and competitive companies in Ontario will be the key to long-term industry growth.

Pilot Program for Rooftop Solar Projects on Un-constructed Buildings

- On July 11th, 2012 the Ministry directed the OPA to develop a pilot program that would allow proponents to apply for small rooftop FIT contracts on buildings that have not been constructed. The pilot will reserve 15 MW of small FIT capacity and must be implemented by the end of 2012.
- Currently, contracts can only be awarded to rooftop solar projects that will be built on existing buildings.
- Rooftop solar can include any project that is "integrated into or forms part of the wall facing, roof, cover or other architectural element that forms part of a permanent" building.

Trade Policy Challenges

- Canada is the subject of three international trade agreement challenges and one internal Canadian trade challenge over policies and practices implemented by Ontario.
- For details on the trade disputes associated with domestic content provisions, please see C10.

Connection Constraints

- The popularity of the microFIT and FIT programs has meant that applications have outpaced the available transmission and distribution system capacity.
- For details on connection constraints, please see E06.

REA Approval Process

- When Ontario launched the FIT program, it also introduced a new environmental approvals process that provides a consistent set of rules and approvals across the province.
- We received feedback from renewable energy project developers indicating they needed more time to prepare the material for a complete submission, which can include specialized scientific and environmental studies for sites, community outreach, open houses and aboriginal consultations.
- In February 2011 the ministry asked the OPA to offer FIT contract extensions of up to one year – acknowledging that the new REA process has involved a learning curve for both developers and the ministries.
- Ministry of the Environment has also proposed amendments to the REA to help streamline the process, as part of the response to the FIT program review. The first set of amendments came into force on July 1, 2012 and a second set of amendments has been proposed – posted for stakeholder comment July 20 – September 3, 2012.
- Ministry of the Environment is also proposing a self-registry approach for certain small-scale renewable energy projects - self-registry solar draft regulation posted for comment July 25 - September 8, 2012.

Municipal Concerns Regarding Renewable Projects

- Under the Green Energy Act, renewable energy projects are generally exempt from municipal planning.
- Municipalities have expressed concern about protection of agricultural lands and designated employment lands.

- Ontario Wind Resistance (formerly known as Wind Concerns Ontario) reports that more than 70 municipalities and First Nations have passed a resolution, motion or bylaw asking the province for some degree of action regarding wind development, from health and property value studies to outright moratoriums.
- Ontario is a leader in establishing clear setbacks for renewable energy projects that are protective of human health and the environment.
- The government is committed to protecting the health of residents in communities that are home to renewable energy projects.

Surplus Baseload Conditions

- Surplus baseload generation (SBG) occurs when electricity from baseload generation (such as hydroelectric and nuclear) is projected to be greater than Ontario demand.
- Bringing more renewable energy contracts online in the next few years will add to the challenge of dealing with surplus baseload generation.
- The energy sector is actively engaged in finding ways to manage and reduce instances of surplus power.

Offshore Wind

- On February 11, 2011, the Ministry of the Environment announced that Ontario will not proceed with proposed offshore wind projects while further scientific research is conducted regarding potential environmental effects on the Great Lakes.
- To comply with this policy direction, the OPA stopped accepting FIT applications for offshore wind projects.
- On May 19, 2011, Trillium Power Corporation filed a Statement of Claim against the province, stating that the Ontario Power Authority's decision to stop accepting applications for off-shore wind projects resulted in the confiscation of the company's property. The company is claiming damages of \$2.25 billion.
- As this matter is under litigation, it would be inappropriate to comment.

DEVELOPMENT OF THE FIT PROGRAM (2009 TO PRESENT)

FIT Renewable Energy Contracted by Phase*

The following table identifies which FIT renewable energy projects are still active (either on-line or in development) effective January 20, 2012. The table below reflects contract attrition and therefore excludes contracts or contract offers that have either expired or been terminated. Details following this table include all contract offers that were made and when they were announced.

Phase	Wind		Solar PV		Hydro		Bio-energy		Total	
	MWs	Projects	MWs	Projects	MWs	Projects	MWs	Projects	MWs	Projects
CAE 1	1.0	3	52.4	264	0.8	4	5.1	16	59.3	287
CAE 2	0.6	4	102.1	549	0.0	0	3.0	12	105.8	565
CAE 3	0.7	2	110.1	666	0.2	1	2.0	6	113.0	675
CAR 1	1,477.4	44	644.9	74	186.6	43	48.5	15	2,357.4	176
CAR 2	615.0	4	256.8	33	0.5	1	0.0	0	872.3	38
Bruce to Milton	1,018.4	19	29.0	4	0.0	0	0.0	0	1,047.4	23
Total	3,113.2	76	1,195.3	1,590	188.1	49	58.5	49	4,555.1	1,764
Phase	Wind		Solar PV		Hydro		Bio-energy		Total	
	MWs	Projects	MWs	Projects	MWs	Projects	MWs	Projects	MWs	Projects
CAE 1	1.0	3	52.4	264	0.8	4	5.1	16	59.3	287
CAE 2	0.6	4	102.1	549	0.0	0	3.0	12	105.8	565
CAE 3	0.7	2	110.1	666	0.2	1	2.0	6	113.0	675
CAR 1	1,477.4	44	644.9	74	186.6	43	48.5	15	2,357.4	176
CAR 2	615.0	4	256.8	33	0.5	1	0.0	0	872.3	38
Bruce to Milton	1,018.4	19	29.0	4	0.0	0	0.0	0	1,047.4	23
Total	3,113.2	76	1,195.3	1,590	188.1	49	58.5	49	4,555.1	1,764

* Excludes contracts that have expired or were terminated. As of July, 9, 2012.

Capacity Allocation Exempt (CAE) Phase 1

On March 10, 2010, 510 new green energy projects, most of which were solar power installations, were offered contracts under the FIT Program. With their total generating capacity of 112 megawatts, they are expected to produce enough electricity each year to power more than 13,000 homes.

Capacity Allocation Required (CAR) Phase 1

On April 8, 2010, the OPA announced that 184 projects were offered contracts. They are expected to produce almost 2,500 megawatts of electricity each year, enough to power 600,000 homes.

CAE Phase 2

Between June 2010 and February 2011, 836 new green energy projects were offered contracts under the FIT Program. With their total generating capacity of almost 160 megawatts, they were expected to produce enough electricity each year to power more than 20,000 homes.

CAR Phase 2

On February 24th, 2011, the OPA announced that 40 new large scale renewable energy projects totalling 872 megawatts were offered contracts under the FIT program. These solar, wind and water projects are expected to attract \$3 billion in private sector investment, and produce enough electricity each year to power more than 200,000 homes.

CAE Phase 3

On May 26, 2011, the Ontario Power Authority offered contracts to 839 CAE FIT projects, representing more than 140 megawatts of capacity. These projects are expected to create 2,000 direct and indirect jobs and attract more than \$900 million in private sector investment. They are expected to produce enough electricity each year to power more than 16,000 homes.

Bruce to Milton Extension

On July 4, 2011, the Ontario Power Authority announced that 25 new large-scale renewable energy projects were offered contracts under the FIT program, representing 1,046 MW of capacity. These contract offers represent projects that are enabled by the new Bruce to Milton transmission reinforcement project. They include 19 wind (1,018 MW) and 6 solar projects (28 MW). These projects represent about \$3 billion in investment and are expected to create an estimated 4,800 jobs. They are expected to produce enough electricity each year to power more than 280,000 homes.

North-South Distribution of FIT Projects

Based on the Ministry of Northern Development, Mining and Forests (MNDMF) definition of Northern Ontario, the breakdown of FIT contract offers between Northern and Southern Ontario as of January 20, 2012 is as follows:

	MW of CAR Projects	MW of CAE Projects	MW of microFIT
Northern Ontario	707	14	29
Rest of Ontario	3,633	411	209

Note: These totals do not exclude either expired or terminated contracts.

In summary, of total MW located in Northern Ontario, about 19.5% are CAR FIT projects; 3.4% are CAE FIT and 13.9% are microFIT.

microFIT

The OPA has made almost 25,000 conditional offers (excluding terminations) to microFIT projects as of August 7, 2012. More than half of these projects are now online.

microFIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Total Conditional Offers	223.7	24,926	0.39	63	223.25	24,852	0.00	0	0.10	11
Online	120.3	13,781	0.04	7	120.21	13,773	0.00	0	0.00	1

FIT CONTRACTS ONLINE

Small FIT or Capacity Allocation Exempt (CAE) FIT projects (10 to 500 kW) have come online more quickly than larger projects. As of July 9, 2012, more than 1,500 of these small-sized projects were contracted totalling more than 270 MW with 312 projects totalling more than 48 MW online.

Small FIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Contracted	278.1	1,527	2.4	9	264.7	1,479	1.0	5	10.1	34
Online	48.7	312	0.0	0	46.3	304	0.0	0	2.3	8

As of July 9, 2012, almost 240 large FIT (generally over 500 kW) (or CAR) FIT projects had been contracted totalling almost 4,300 MWs. Fifteen projects totalling 272 MW were online.

Large FIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Contracted	4,277.1	237	3,110.8	67	930.7	111	187.1	44	48.5	15
Online	271.6	15	252.8	7	10.5	2	0.0	0	8.3	6

Note: Wind totals includes 300 MWs of offshore wind (1 project in approvals).

DOMESTIC CONTENT

- Developers are required to have a certain percentage of their project cost come from Ontario goods and labour at the time they reach commercial operation:
 - For wind, the requirement started at 25 per cent and increased to 50 per cent on January 1, 2012.
 - For micro solar PV (10 kW or smaller), the requirement started at 40 per cent and increased to 60 per cent on January 1, 2011.
 - For larger solar PV, the requirement started at 50 per cent and increased to 60 per cent on January 1, 2011.
- The OPA has a transparent process to clarify the Feed-in Tariff's domestic content requirements.

FIT SUPPORT PROGRAMS

Aboriginal Energy Partnership Program (AEPP)

- The FIT Review announced new changes to the AEPP.
 - Extension of support funding to Aboriginal communities partnering with GEIA projects.
 - AEPP will be aligned with new participation requirements in the FIT Program.
 - Support funding will be dedicated to projects that are already in the design/development and regulatory approvals phases.
- On April 27, 2010, the Aboriginal Energy Partnerships Program (AEPP) was launched to provide knowledge and support to help communities interested in building new renewable energy generation projects in Ontario. It is administered by the Ontario Power Authority (OPA).
- The AEPP has three interrelated components as follows:
 - The Aboriginal Renewable Energy Fund
 - To fund some of the initial up-front costs associated with developing a new renewable energy project. Qualified Aboriginal community projects are eligible for a maximum of \$500,000 under this fund.
 - The Aboriginal Renewable Energy Network
 - This is an evolving web-based tool that provides information about Ontario's electricity system, types of renewable energy resources and technology, the FIT and microFIT programs, environmental requirements, business planning, project development and project management.
 - Aboriginal Community Energy Plans

- This component is still under development. When complete, First Nation and Métis communities will have the opportunity to identify energy savings, identify new resources and plan their future energy needs.
- The Aboriginal Advisory Committee, comprised of eight members nominated by First Nation Political Territorial Organizations, the Métis Nation of Ontario and the OPA, provides advice and guidance for the AEPP.
- A total of 19 Aboriginal-led or -partnered projects have been awarded FIT contracts for a total of about 479 MW.

Community Energy Partnerships Program (CEPP)

- The Two-year Review reaffirmed commitment to the CEPP and recommended that the CEPP fund manager and program administrator be asked to make recommendations on how CEPP should be improved to help community groups participate in renewable energy projects.
- The Community Energy Partnerships Program (CEPP) was first launched on May 10, 2010.
- The program is designed to help eligible projects (including those from charities, not-for-profits, coops and farmers) cover upfront costs to get more community projects online.
- It covers up to 90 per cent of eligible development costs to a maximum of \$200,000 for community power projects greater than 10 kilowatts and no larger than 10 megawatts.
- By the end of February 2012, funds totalling \$8.22 million were committed, covering 156 executed contracts for a range of solar photovoltaic, wind, hydro and bio-energy projects, and representing over 93 MW of new, community-owned renewable energy projects.
- On July 19, 2011, the CEPP awarded its first Education Grants, designed to help recipient organizations educate, build awareness and encourage local community engagement, participation and investment in renewable energy projects.
- Six charity or not-for-profit proponents were awarded education grants totalling \$483,004.

Municipal Renewable Energy Program (MREP)

- The Municipal Renewable Energy Program (MREP) was intended to reimburse municipalities for unforeseen direct costs associated with facilitating the development of renewable energy projects.
- In light of recommendations from the FIT review to enhance municipal input, the MREP will not be launched.

Updated on: August 21, 2012

Updated by Keegan Tully, Policy Analyst
Renewable Energy Unit
416-314-9473

Karen Slawner
Renewable Energy Unit
416-314-9472

Approved by: Leo Tasca, Manager
Renewable Energy Unit
416-326-3776

Sue Lo, ADM
Renewables and Energy Efficiency Division
416-327-8552

APPENDICES

APPENDIX 1 – FIT PRICES

Fuel	Project Size Tranche	FIT1.0 Price (¢/kWh)	FIT 2.0 Price (¢/kWh)	% Change
Solar Rooftop	≤10 kW	80.2	54.9	-31.5%
	> 10 ≤ 100 kW*	71.3	54.8	-23.1%
		≤250kW		
	> 100 ≤ 500 kW*	63.5	53.9	-15.1%
		>250 ≤500kW		
	>500 kW	53.9	48.7	-9.6%
Solar Groundmount	≤ 10 kW	64.2	44.5	-30.7%
	> 10 kW ≤ 500kW*	44.3	38.8	-12.4%
	> 500 kW ≤ 5 MW*	44.3	35.0	-21.0%
	> 5 MW		34.7	-21.7%
Wind	All sizes	13.5	11.5	-14.8%
Water	≤ 10 MW	13.1	13.1	0.0%
	> 10 MW ≤ 50 MW	12.2	12.2	0.0%
Biomass	≤10 MW	13.8	13.8	0.0%
	> 10 MW	13.0	13.0	0.0%
Biogas On Farm	≤100 kW	19.5	19.5	0.0%
	100 kW ≤250 kW	18.5	18.5	0.0%
Biogas	≤500 kW	16.0	16.0	0.0%
	> 500 kW ≤10MW	14.7	14.7	0.0%
	> 10 MW	10.4	10.4	0.0%
Landfill Gas	≤10MW	11.1	11.1	0.0%
	> 10 MW	10.3	10.3	0.0%

APPENDIX 2 – PRICE ADDERS

	Aboriginal Projects		Community Projects	
Participation Level (Equity)	>50%	>15% ≤50%	>50%	>15% ≤50%
Price Adder (¢/kWh)	1.5	0.75	1.0	0.5

Note: The above table applies to all FIT project sizes and all technologies except rooftop solar.

Prioritization Table

Applicant Type		Points
A project in which a local community has a minimum 15% equity interest held by a co-op with, in the case of large FIT projects, 50 or more property owners who live in the municipality where the project is located. In the case of small FIT projects, a project in which a local community has a minimum 15% equity interest held by a co-op with 35 or more property owners who live in the municipality where the project is located.		3
A project in which an Aboriginal community has a minimum 15% equity interest		3
A project in which publicly-funded schools, public colleges, public universities, hospitals and publicly-owned long-term care homes have a minimum 15% equity interest or that are a project host		2
Other Applicants		0
Additional Points		
Local Municipal Council Support Resolution		2
Aboriginal Community Support Resolution		2
Project Readiness (Maximum of 2 points)		2
- Applicants for wind, solar ground-mount, bioenergy and waterpower projects on Aboriginal Reserve, Federal land or private land have sufficient space for the project and a firm lease, firm option to lease/purchase, or ownership of the land - Solar rooftop applicants either own the host building or if they do not own the host building have proof of firm site control in the form of a firm lease or option to lease	1	
Projects that applied on or before July 4, 2011.	1	
Projects that applied on or after July 5, 2011.	0.5	
System Benefit (water and bioenergy)		1

Green Energy Act – Feed-In-Tariff

ISSUE:

What is the status of the Feed-In-Tariff (FIT) program?

For details on the trade disputes associated with domestic content provisions, please see C10. For details on connection constraints, please see E06.

MESSAGING:

- Ontario's Green Energy Act has helped create over 20,000 jobs and is on track to create 50,000 jobs by the end of 2012.
- At the heart of the Green Energy Act is North America's most comprehensive Feed-in Tariff (FIT), which is sparking the development of renewable energy projects by offering guaranteed incentives to developers of wind, water, solar, and bio-sourced power.
- Ontario's Feed-In Tariff (FIT) program has been tremendously successful.
- The Korean Consortium agreement and FIT contracts announced to date represent approximately \$26B in investment and thousands of jobs, and are expected to produce enough electricity each year for more than 1.8 million homes.
- Through the FIT program, thousands of jobs have been created and 30 companies have publicly announced plans to manufacture here in the province.
- Since launching FIT in 2009, the Ontario Power Authority has awarded over 2,000 large and medium renewable energy contracts and offered more than 24,000 microFIT contracts totalling over 4,800 MW – enough energy to power almost 1.2 million homes.

FIT TWO-YEAR REVIEW MESSAGING:

- On October 31, 2011, we launched our scheduled review of the program.
- Current FIT prices differ based on project size and type of renewable energy technology and were developed based on experience here in Ontario and in other jurisdictions.
- They cover capital, operating and maintenance costs and allow for a reasonable return on investment over a 20-year (40-year for waterpower) contract term.
- New rules and prices will balance the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy.
- The review will build on the success of the program – continuing to ensure long-term sustainability, and transparency and predictability for industry and investors.
- Regular program reviews are a feature of some 88 FIT programs around the world.
- We encourage Ontarians to participate in the review by answering an online survey or making a written submission until December 14, 2011.

BACKGROUND:

General

- The FIT Program was enabled by the *Green Energy and Green Economy Act*, 2009 which received Royal Assent on May 14, 2009.
- The legislation was enacted to create and sustain jobs by making Ontario a 'hub' for green manufacturing and development. It is also intended to help combat climate change and support Ontario's phase out of coal-fired power.
- The Ontario Power Authority is responsible for implementing the Feed-In Tariff program (FIT). It began accepting applications on October 1, 2009.
- The FIT Program was designed to spark the development of renewable energy projects by offering guaranteed, long-term contracts to developers, a streamlined approval process and incentives for Aboriginal and community projects
- It was North America's first comprehensive FIT program, offering guaranteed prices for projects of all sizes from renewable sources including biomass, biogas, landfill gas, wind, solar photovoltaic (PV) and water power.
- FIT prices differ by project size and type of renewable energy technology and were designed to allow for a reasonable return on investment over a 20-year contract term for most projects (40 years for water power).
- The review of the FIT Program was launched on October 31, 2011.
- New rules and prices will balance the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy.
- The review will build on the success of the program – continuing to ensure long-term sustainability, and transparency and predictability for industry and investors.

Key Statistics

- The Korean Consortium agreement and FIT contracts announced to date represent approximately \$26B in investment and thousands of jobs, and are expected to produce enough electricity each year to power more than 1.8 million homes.
- More than 30 companies have publicly announced plans to manufacture in Ontario to help supply current and future FIT and microFIT projects.
- As of November 14, 2011, more than 2,000 medium and large FIT contracts totalling about 4,600 MWs have been awarded. Eighty-nine (89) medium projects totalling more than 15 MW and six large FIT projects totalling about 9 MW are online.
- As of November 14, 2011, nearly 13,000 microFIT projects have either been connected to the electricity grid or are ready to connect (out of more than 44,000 total applications).
- FIT prices range from 10.3¢ per kilowatt-hour (kWh) to 80.2¢ per kWh.

CURRENT ISSUES

Feed-in Tariff Program Review

- The review was launched on October 31st, 2011 and will build on the success of the program. New rules and prices will balance the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy.

The review will consider a range of issues, including, but not limited to:

- FIT price reduction
- Ensuring the long-term sustainability of clean energy procurement
- Continuing to build on the success of Ontario-based manufacturing and clean energy job creation
- Consideration of new technologies and fuel sources
- Local consultations and the renewable approval process (REA)

- As a result of this review, new prices for FIT contracts will be carefully developed to balance the interests of ratepayers with the need to encourage investments in new clean energy in Ontario. Going forward, all future clean energy contracts will be subject to the new price schedule.
- Ontario has appointed Deputy Minister Fareed Amin to lead the review – he will work together with the Ontario Power Authority and consult with the sector throughout the review.
- The Two-Year Review consultations will run until December 14th, 2011.

Projected Electricity Bill Increases

- The Long-Term Energy plan forecasts that the industrial rate will increase by 2.7% annually over the next 20 years and residential rates will increase by about 3.5% annually over the next 20 years.
- However, residential electricity prices are expected to rise by 7.9% per year – or a total of 46% – over the next five years. Only half of that amount can be attributed to the FIT Program
- To dampen electricity price increases, the government created the Clean Energy Benefit to give families, farms and small businesses a 10% reduction on electricity bills for five years starting January 1, 2011.
- Successful and sustainable FIT programs in a number of international jurisdictions (such as Germany, France and Denmark) have decreased price incentives.
- A new FIT price schedule will be carefully developed to achieve a balance between the interests of ratepayers and the encouragement of investment in new clean energy in Ontario.

Trade Policy Challenges

- Canada is the subject of three international trade agreement challenges and one internal Canadian trade challenge over policies and practices implemented by Ontario.
- For details on the trade disputes associated with domestic content provisions, please see C10.

Connection constraints

- The popularity of the microFIT and FIT program has meant that applications have outpaced the available transmission and distribution space.
- For details on connection constraints, please see E06.

REA Approval Process

- When Ontario launched the FIT program, it also introduced a new environmental approvals process that provides a consistent set of rules and approvals across the province.
- We received feedback from renewable energy project developers that they needed more time to prepare the material for a complete submission, which can include specialized scientific and environmental studies for sites, community outreach, open houses and aboriginal consultations.
- In February 2011 the ministry asked the OPA to offer FIT contract extensions of up to one year – acknowledging that the new REA process has involved a learning curve for both developers and the ministries.

Municipal Concerns Regarding Renewable Projects

- Municipalities have lost power to carry out local planning authorities such as protecting agricultural lands or designated employment lands.
- 78 municipalities have passed resolutions asking the province for some degree of action regarding wind development, from health and property value studies to outright moratoriums.
- Ontario is a leader in establishing clear setbacks for renewable energy projects that are protective of human health and the environment.

- The government is committed to protecting the health of residents in communities that are home to renewable energy projects.

Surplus Baseload Conditions

- Surplus baseload generation (SBG) occurs when electricity from baseload generation (such as hydroelectric and nuclear) is projected to be greater than Ontario demand.
- Bringing more renewable energy contracts online in the next few years will add to the challenge of dealing with surplus baseload generation.
- The energy sector is actively engaged in finding ways to manage and reduce instances of surplus power.

Commercial Feed-in Tariff Program (CFIT)

- On February 1, 2011, the OPA announced that it is planning a new stream in the Feed-in Tariff Program for commercial aggregators, called the CFIT Program, to accommodate the unique nature of commercial micro-generation projects.
- The program has not been launched and is not included in the Integrated Power System Plan.

Offshore Wind

- On February 11, 2011, the Ministry of the Environment announced that Ontario will not proceed with proposed offshore wind projects while further scientific research is conducted regarding potential environmental effects on the Great Lakes.
- To comply with this policy direction, the OPA stopped accepting FIT applications for offshore wind projects.
- On May 19, 2011, Trillium Power Corporation filed a Statement of Claim against the province, stating that the Ontario Power Authority's decision to stop accepting applications for off-shore wind projects resulted in the confiscation of the company's property. The company is claiming damages of \$2.25 billion.
- As this matter is under litigation, it would be inappropriate to comment.

DEVELOPMENT OF THE FIT PROGRAM (2009 TO PRESENT)

The Ontario Power Authority began taking applications on October 1, 2009.

In the FIT program there are **three** categories of renewable energy projects depending on size:

- Small projects (10 kW and below) – **microFIT** projects follow microFIT contract rules.
- Mid-size projects (10 kW to 500 kW) – Capacity Allocation Exempt (**CAE**), follow FIT rules.
- Large-scale projects (over 500 kW) – Capacity Allocation Required (**CAR**) follow FIT contract rules.

FIT Renewable Energy Contracted by Phase*

The following table identifies which FIT renewable energy projects are still active (either on-line or in development) effective November 14, 2011. The table below reflects contract attrition and therefore excludes contracts or contract offers that have either expired or been terminated. Details following this table include all contract offers that were made and when they were announced.

Phase	Wind		SolarPV		Hydro		Bio-energy		Total	
	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW
CAE 1	3	1.0	363	80.3	4	0.8	16	5.1	386	87.2
CAE 2	4	0.6	637	119.5	0	0.0	11	2.5	652	122.7
CAE 3	2	0.7	745	124.1	1	0.2	8	2.6	756	127.6
CAR 1	45	1508.4	76	646.4	43	186.9	15	48.9	179	2390.6
CAR 2	4	615.0	33	253.8	1	0.5	0	0.0	38	869.3
Bruce to Milton	19	1018.4	6	27.5	0	0.0	0	0.0	25	1045.9
Total	77	3144.2	1860	1251.6	49	188.4	50.0	59.0	2036	4643.2

* Excludes contracts that have expired or were terminated as of November 14, 2011.

Capacity Allocation Exempt (CAE) Phase 1

On March 10, 2010, 510 new green energy projects, most of which were solar power installations, were offered contracts under the FIT Program. With their total generating capacity of 112 megawatts, they are expected to produce enough electricity each year to power more than 13,000 homes.

Capacity Allocation Required (CAR) Phase 1

On April 8, 2010, the OPA announced that 184 projects announced were offered contracts. They are expected to produce almost 2,500 megawatts of electricity each year, enough to power 600,000 homes.

CAE Phase 2

Between June 2010 and February 2011, 836 new green energy projects were offered contracts under the FIT Program. With their total generating capacity of almost 160 megawatts, they were expected to produce enough electricity each year to power more than 20,000 homes.

CAR Phase 2

On February 24th, 2011, 40 new large scale renewable energy projects totalling 872 megawatts were approved. These solar, wind and water projects are expected to attract \$3 billion in private sector investment, and produce enough electricity each year to power more than 200,000 homes.

CAE Phase 3

On May 26, 2011, the Ontario Power Authority offered contracts to 839 CAE FIT projects, representing more than 140 megawatts of capacity. These projects are expected to create 2,000 direct and indirect jobs and attract more than \$900 million in private sector investment. They are expected to produce enough electricity each year to power more than 16,000 homes.

Bruce to Milton Extension

On July 4, 2011, the Ontario Power Authority approved 25 new large-scale renewable energy projects, representing 1,046 MW of capacity. These contract offers represent projects that are enabled by the new Bruce to Milton transmission reinforcement project. They include 19 wind (1,018 MWs) and 6 solar projects (28 MWs). These projects represent about \$3 billion in investment and are expected to create an estimated 4,800 jobs. They are expected to produce enough electricity each year to power more than 280,000 homes.

North-South Distribution of FIT Projects

Based on the Ministry of Northern Development, Mining and Forests (MNDMF) definition of Northern Ontario, the breakdown of FIT contract offers between Northern and Southern Ontario as of August 5, 2011 is as follows:

	MWs of CAR Projects	MWs of CAE Projects	MWs of microFIT
Northern Ontario	707	14	26
Rest of Ontario	3,633	561	182

Note: These totals do not exclude either expired or terminated contracts.

In summary, about 16.3% of CAR FIT projects, 2.4% of CAE FIT projects and 12.5% of microFIT projects are located in Northern Ontario.

CURRENT STATUS OF FIT AND MICROFIT APPLICATIONS

Success of the FIT Program

- Since the FIT program launch in October 2009, Ontario has garnered world-wide attention and been very successful in attracting industry and investment.
- More than 2,000 medium and large FIT contracts totalling about 4,600 MWs have been awarded.
 - About 19,000 MWs of large FIT projects await transmission availability and/or next rounds of contract awards.
 - 5,400 applications totalling about 960 MW for medium size FIT contracts (predominantly rooftop solar) await next round of contract awards
- microFIT applications total approximately 44,500. 99 per cent of these are solar PV.
 - More than 13,000 microFIT projects have either been connected to the electricity grid or are ready to connect.
- Moderate success in attracting First Nation and community projects:
 - First Nations – 19 contracts for 480 MW
 - Community – 92 contracts for 330 MW
- More than 30 companies have publicly announced plans to manufacture in Ontario to help supply current and future FIT and microFIT projects.
 - These companies are currently operating and/or plan to set up solar and wind manufacturing facilities in Ontario in the following categories: wind turbine blades, wind towers, solar PV modules, mounting systems and solar inverters.

microFIT Applications

- The OPA has received microFIT applications from across the province.
- As of November 14, 2011, the OPA has received more than 44,000 applications. The OPA has made over 24,000 conditional offers (excluding withdrawn and terminated), and more than 8,600 projects are online.

microFIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Applications	362.05	39,190	0.67	95	361.04	39,054	0.05	7	0.29	34
Conditional contracts offered	223.56	24,521	0.38	63	223.06	24,444	0.01	3	0.10	11
Online	76.55	8,670	0.03	5	76.52	8,665	0.00	0	0.00	0

Numbers are net of terminations

FIT CONTRACTS ONLINE

- Capacity Allocation Exempt (CAE) FIT projects (10 to 500 kW) have come online more quickly than larger projects. As of November 14, 2011, more than 1,700 of these medium-sized projects were contracted totalling more than 320 MW with 89 projects totalling more than 15 MW online.

CAE FIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Contracted	325.01	1,723	2.39	9	311.49	1,674	0.96	5	10.17	35
Online	15.61	89	0.00	0	14.76	86	0.00	0	0.85	3

- As of November 14, 2011, more than 240 large-scale (generally over 500 kW) (CAR) FIT projects have been contracted totalling more than 4,300 MWs. As of November 14, 2011 six projects totalling about 9 MW online were online.

CAR	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Contracted	4,305.75	242	3,141.80	68	927.67	115	187.42	44	48.87	15
Online	8.88	6	0.80	1	0.50	1	0.00	0	7.58	4

Notes:
1. Comber is counted as one project; the OPA has it as two contracts.
2. Wind totals include 300 MWs of offshore wind (1 project in approvals).

DOMESTIC CONTENT

- Developers are required to have a certain percentage of their project cost come from Ontario goods and labour at the time they reach commercial operation:
 - For wind, the requirement starts at 25 per cent and increases to 50 per cent on January 1, 2012.

- For micro solar PV (10 kW or smaller), the requirement started at 40 per cent and increased to 60 per cent on January 1, 2011.
- For larger solar PV, the requirement started at 50 per cent and increased to 60 per cent on January 1, 2011.
- The OPA has a transparent process to clarify the Feed-in Tariff's domestic content requirements.

FIT SUPPORT PROGRAMS

Aboriginal Energy Partnership Program (AEPP)

- On April 27, 2010, the Aboriginal Energy Partnerships Program (AEPP) was launched to provide knowledge and support to help communities interested in building new renewable energy generation projects in Ontario. It is administered by the Ontario Power Authority (OPA).
- The AEPP has three interrelated components as follows:
 - The Aboriginal Renewable Energy Fund
 - To fund some of the initial up-front costs associated with developing a new renewable energy project. Qualified Aboriginal community projects are eligible for a maximum of \$500,000 under this fund.
 - The Aboriginal Renewable Energy Network
 - This is an evolving web-based tool that provides information about Ontario's electricity system, types of renewable energy resources and technology, the FIT and microFIT programs, environmental requirements, business planning, project development and project management.
 - Aboriginal Community Energy Plans
 - This component is still under development. When complete, First Nation and Métis communities will have the opportunity to identify energy savings, identify new resources and plan their future energy needs.
- The Aboriginal Advisory Committee, comprised of eight members nominated by First Nation Political Territorial Organizations, the Métis Nation of Ontario and the OPA, provides advice and guidance for the AEPP.
- A total of 19 Aboriginal-led or -partnered projects have been awarded FIT contracts for a total of about 480 MW.

Community Energy Partnerships Program (CEPP)

- On May 10, 2010, the Community Energy Partnerships Program (CEPP) was launched.
- The program is designed to help eligible projects (including those from charities, not-for-profits, coops and farmers) cover upfront costs to get more community projects online.
- It covers up to 90 per cent of eligible development costs to a maximum of \$200,000 for community power projects greater than 10 kilowatts and no larger than 10 megawatts.
- By the end of October 2011, funds totalling \$7.18 million were committed, covering 113 executed contracts for a range of solar photovoltaic, wind, hydro and bio-energy projects, and representing over 78 MW of new, community-owned renewable energy projects.
- On July 19, 2011, the CEPP awarded its first Education Grants, designed to help recipient organizations educate, build awareness and encourage local community engagement, participation and investment in renewable energy projects.
- Six charity or not-for-profit proponents were awarded education grants totalling \$483,004.

Municipal Renewable Energy Program (MREP)

- The Municipal Renewable Energy Program (MREP) is intended to reimburse municipalities for unforeseen direct costs associated with facilitating the development of renewable energy projects.
- MREP has not been launched.
- We are continuing to investigate way to address concerns of municipalities relating to the cost of hosting renewable energy projects.

Updated on: December 2, 2011

Updated by Vern Riediger, Senior Policy Analyst
Renewable Energy Unit
416-212-7706

Approved by: Leo Tasca, Manager
Renewable Energy Unit
416-326-3776

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

Sue Lo, ADM
Renewables and Energy Efficiency Division
416-327-8552

APPENDICES

APPENDIX 1 – FIT PRICES

Feed-In Tariff Prices				
Renewable Fuel	Type	Size tranche	Contract Price ¢/kWh	Escalation Percentage**
Biomass*^		≤ 10 MW	13.8	20%
		> 10 MW	13.0	
Biogas*^	On-Farm	> 10 kW ≤ 100 kW	19.5	20%
		> 100 kW ≤ 250 kW	18.5	
	Any type	≤ 500 kW	16.0	
		>500 kW ≤ 10 MW	14.7	
		> 10 MW	10.4	
Waterpower*^		≤ 10 MW	13.1	20%
		> 10 MW <50 MW	12.2	
Landfill gas*^		≤ 10MW	11.1	20%
		> 10 MW	10.3	
Solar PV	Rooftop	≤10 kW	80.2	0%
		> 10 ≤ 250 kW	71.3	
		> 250 ≤ 500 kW	63.5	
		> 500 kW	53.9	
	Ground Mounted	≤10 kW	64.2	
	Ground Mounted^	> 10 kW ≤ 10 MW	44.3	
Wind^	Onshore	Any size	13.5	20%
	Offshore	Any size	19.0	

*Peak Performance Factor of x1.35 during On-Peak and x0.90 during Off-Peak applies for non-microFIT projects.

^Aboriginal Price Adder and Community Price Adder eligible as outlined below for non-microFIT projects.

**Escalation Percentage based on the Consumer Price Index will be applied to eligible Renewable Fuels as calculated in FIT Contract. The Base Date is September 30, 2009

The following table shows the maximum level of the Aboriginal and community price adders a project could receive in addition to the contract price:

	Wind	PV (Ground Mounted)	Water	Biogas	Biomass	Landfill Gas
Maximum Aboriginal Price Adder (¢/kWh)	1.5	1.5	0.9	0.6	0.6	0.6
Maximum Community Price Adder (¢/kWh)	1.0	1.0	0.6	0.4	0.4	0.4

Percentage of Control	Percentage of corresponding price adder
50% to 100%	100%
10% to 50%	Double the percentage of control
0% to 10%	0%

March 29, 2012 - C09

Green Energy Act – Feed-In-Tariff

ISSUE:

What is the status of the Feed-In-Tariff (FIT) program?

For details on the trade disputes associated with domestic content provisions, please see C10. For details on connection constraints, please see E06.

MESSAGING:

- Ontario's clean energy policies have already created more than 20,000 jobs and are well on their way to creating 50,000 jobs through investments in renewable energy, conservation, and transmission and distribution upgrades.
- At the heart of the Green Energy Act is North America's most comprehensive Feed-in Tariff (FIT), which is sparking the development of renewable energy projects by offering guaranteed prices to developers of wind, water, solar, and bio-sourced power.
- Ontario's Feed-In Tariff (FIT) program has been tremendously successful.
- The Korean Consortium agreement and FIT contracts announced to date represent approximately \$27B in investment and thousands of jobs, and are expected to produce enough electricity each year for more than 1.8 million homes.
- Through the FIT program, thousands of jobs have been created and more than 30 companies are currently operating, or plan to build, solar and wind manufacturing facilities in Ontario.
- Since launching FIT in 2009, the Ontario Power Authority has contracted about 2,000 small and large FIT projects and offered more than 25,000 microFIT contracts totalling over 4,800 MW – enough energy to power almost 1.2 million homes.

FIT TWO-YEAR REVIEW MESSAGING:

- Ontario is moving ahead with its clean energy program, taking immediate steps to ensure the long-term sustainability of renewable energy while creating more jobs, lowering prices and giving communities a greater say.
- Following the first review of Ontario's signature Feed-in-Tariff (FIT) Program, the government will act quickly to implement all the recommendations, which include:
 - Creating more jobs sooner by streamlining the regulatory approvals process for projects while maintaining the highest environmental protection standards.
 - Reducing prices - for solar projects by more than 20 per cent, on average, and wind projects by approximately 15 per cent.
 - Encouraging greater community and Aboriginal participation through a new priority point system, which will also prioritize projects with municipal support.
 - Reserving 10 per cent of remaining capacity for projects with significant participation from local or Aboriginal communities.
 - Developing a Clean Energy Economic Development Strategy to leverage Ontario's significant expertise and strengths to become a global leader in the sector.

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- Regular program reviews are a feature of FIT programs around the world.
- Ontarians were encouraged to participate in the review by answering an online survey or making a written submission by December 14, 2011. The review received more than 2,900 responses to our online survey and more than 200 written submissions. The review also met with more than 80 stakeholders.

If asked about the effect on ratepayers:

- New rules and prices balance the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy.
- In order to support the sustainability of the program, prices will be examined annually to ensure they reflect current costs.

BACKGROUND:

General

- The FIT Program was enabled by the *Green Energy and Green Economy Act*, 2009 which received Royal Assent on May 14, 2009.
- The legislation was enacted to create and sustain jobs by making Ontario a 'hub' for green manufacturing and development. It is also intended to help combat climate change and support Ontario's phase out of coal-fired power.
- The Ontario Power Authority is responsible for implementing the Feed-In Tariff program (FIT). It began accepting applications on October 1, 2009.
- The FIT Program was designed to spark the development of renewable energy projects by offering guaranteed, long-term contracts to developers and incentives for Aboriginal and community projects
- It was North America's first comprehensive FIT program, offering guaranteed prices for projects of all sizes from renewable sources including biomass, biogas, landfill gas, wind, solar photovoltaic (PV) and waterpower.
- FIT prices differ by project size and type of renewable energy technology and were designed to allow for a reasonable return on investment over a 20-year contract term for most projects (40 years for water power).
- The review of the FIT Program was launched on October 31, 2011 and the results of the review were announced on March 22, 2012.
- New rules and prices balance the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy.
- The review builds on the success of the program – continuing to ensure long-term sustainability, and transparency and predictability for industry and investors.

Key Statistics

- The Korean Consortium agreement and FIT contracts announced to date represent approximately \$27B in investment and thousands of jobs, and are expected to produce enough electricity each year to power more than 1.8 million homes.
- More than 30 companies are currently operating, or plan to build, solar and wind manufacturing facilities in Ontario.
- As of February 21, 2012, about 2,000 small and large FIT contracts totalling over 4,600 MWs have been signed. 183 small FIT projects totalling more than 28 MW and 11 large FIT projects totalling about 232 MW are online.
- As of March 19, 2012, over 15,000 microFIT projects have either been connected to the electricity grid or are ready to connect (out of more than 49,000 total applications).
- Updated FIT prices range from 10.3¢ per kilowatt-hour (kWh) to 54.9¢ per kWh.

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CURRENT ISSUES

Feed-in Tariff Program Review

- The results of the Feed-in-Tariff Review were announced on March 22, 2012.
- The review was launched on October 31st, 2011 and built on the success of the program. New rules and prices balance the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy.

Status of the Program

- Ontario has become a leader in clean energy production and manufacturing and the FIT program continues to be one of the best ways to attract investment, encourage participation and efficiently build clean energy projects.
- To date, the FIT Program has led to almost 2,000 small and large FIT contracts totalling approximately 4,600 MW – enough electricity to power 1.2 million homes.
- Beginning this year, the province will conduct an annual review of FIT prices - setting and publishing prices each November, effective Jan. 1st the following year.
- As the program moves forward, Ontario expects to procure its target of 10,700 MW of non-hydro renewable energy generation by 2015.
- At the end of 2013, the government will review Ontario's electricity supply and demand forecast to explore whether a higher renewables capacity target is warranted.

Approval Process

- There are currently 2,900 megawatts (MW) of FIT projects moving through the Renewable Energy Approval (REA) process.
- To see these projects produce jobs and investment in local communities, Ontario will improve the regulatory approvals process, while maintaining the highest environmental protection standards.
- The province will create a new Renewable Energy Committee to help regulatory ministries reduce duplication, improve service standards and streamline the process - shortening the application process by up to 25 per cent.
- The Ministry of Natural Resources will review and update its approach to renewable energy development on Crown land to align the release of Crown land with provincial energy supply needs and transmission availability.

Community and Aboriginal Participation

- To ensure that projects are rooted in the community and investment remains in the community, the province will reserve a minimum of 10 per cent of the remaining FIT contract capacity for projects with significant community and Aboriginal participation.
- The new program will also prioritize large and small FIT applications using a point-system that will award additional points to projects that have significant local and/or Aboriginal involvement.

Municipal Engagement

- Almost 20 municipalities are currently building FIT projects, including Brockville, Kitchener, Lambton Shores, Markham, Waterloo, and Welland.
- There is an opportunity for municipalities to play a greater role in the development of renewable energy across the province.
- Under the new rules, large FIT projects will require a contract launch meeting with the municipality, proponent, project developer, government, utility, and agency to facilitate early discussion, share information and define expectations.
- Projects with municipal support will be prioritized through the new point system during the application review process.
- The province will clarify project-siting rules by removing all exemptions and strengthening the protection of prime agricultural lands.
- The Association of Municipalities of Ontario (AMO) will work with the Ministry of Energy to revise the municipal consultation form in the REA process.

Pricing

- When Ontario launched the FIT Program in 2009, prices were set to reflect capital costs, provide investors stability and cultivate a domestic clean energy industry.
- Over the course of two-years Ontario has created a domestic renewable energy sector to drive economies of scale and lower prices.
- To balance the interests of all Ontarians, while continuing to encourage investment, FIT prices will be reduced by more than 20 per cent for solar and approximately 15 per cent for wind.
- Prices for water, biogas, biomass and landfill gas will remain at current levels

Ontario's Clean Energy Economy

- More than 30 companies are currently operating, or plan to build solar and wind manufacturing facilities in Ontario.
- Many post-secondary institutions have launched Clean Energy programs that will strengthen the clean energy economy and build the intellectual capital in Ontario.
- The Ministry of Energy and the Ministry of Economic Development and Innovation will develop a Clean Energy Economic Development Strategy that will build on Ontario's strengths and leverage its experience as a leader in the sector.
- Future international expansion by the most innovative and competitive companies in Ontario will be the key to long-term industry growth.

Projected Electricity Bill Increases

- The Long-Term Energy plan forecasted that the industrial rate would increase by 2.7% annually between 2010 and 2030 and residential rates would increase by about 3.5% annually over the same 20 year period.
- However, residential electricity prices were expected to rise by 7.9% per year – or a total of 46% – over the period 2010 to 2015. Only half of that amount can be attributed to the FIT Program.
- To dampen electricity price increases, the government created the Clean Energy Benefit to give families, farms and small businesses a 10% reduction on electricity bills for five years starting January 1, 2011.
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- For details on the trade disputes associated with domestic content provisions, please see C10.

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- The popularity of the microFIT and FIT programs has meant that applications have outpaced the available transmission and distribution system capacity.
- For details on connection constraints, please see E06.

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- In February 2011 the ministry asked the OPA to offer FIT contract extensions of up to one year – acknowledging that the new REA process has involved a learning curve for both developers and the ministries.

Municipal Concerns Regarding Renewable Projects

- Under the Green Energy Act, renewable energy projects are generally exempt from municipal planning.
- Municipalities have expressed concern about protection of agricultural lands and designated employment lands.
- Ontario Wind Resistance (formerly known as Wind Concerns Ontario) reports that more than 70 municipalities and First Nations have passed a resolution, motion or bylaw asking the province for some degree of action regarding wind development, from health and property value studies to outright moratoriums.
- Ontario is a leader in establishing clear setbacks for renewable energy projects that are protective of human health and the environment.
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Surplus Baseload Conditions

- Surplus baseload generation (SBG) occurs when electricity from baseload generation (such as hydroelectric and nuclear) is projected to be greater than Ontario demand.
- Bringing more renewable energy contracts online in the next few years will add to the challenge of dealing with surplus baseload generation.
- The energy sector is actively engaged in finding ways to manage and reduce instances of surplus power.

Commercial Feed-in Tariff Program (CFIT)

- Consistent with the goal of keeping the microFIT Program focused on homeowners, farmers, schools and other community applicants, the Commercial FIT (CFIT) Program will not be launched.

Offshore Wind

- On February 11, 2011, the Ministry of the Environment announced that Ontario will not proceed with proposed offshore wind projects while further scientific research is conducted regarding potential environmental effects on the Great Lakes.
- To comply with this policy direction, the OPA stopped accepting FIT applications for offshore wind projects.
- On May 19, 2011, Trillium Power Corporation filed a Statement of Claim against the province, stating that the Ontario Power Authority’s decision to stop accepting applications for off-shore wind projects resulted in the confiscation of the company’s property. The company is claiming damages of \$2.25 billion.
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The Ontario Power Authority began taking applications on October 1, 2009.

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In the FIT program there are **two** categories of renewable energy projects depending on size:

- Small FITprojects (10 kW to 500 kW) – also known as Capacity Allocation Exempt (**CAE**)
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CAE 3	2	0.7	696	114.8	1	0.2	8	2.6	707	118.3
CAR 1	45	1,497.4	76	646.4	43	186.6	15	48.9	179	2,379.3
CAR 2	4	615.0	33	256.8	1	0.5	0	0.0	38	872.3
Bruce to Milton	19	1,018.4	6	27.5	0	0.0	0	0.0	25	1,045.9
Total	77	3,133.2	1,815	1,243.4	49	188.1	50	59.0	1,991	4,623.7

* Excludes contracts that have expired or were terminated. As of February, 21, 2012.

Capacity Allocation Exempt (CAE) Phase 1

On March 10, 2010, 510 new green energy projects, most of which were solar power installations, were offered contracts under the FIT Program. With their total generating capacity of 112 megawatts, they are expected to produce enough electricity each year to power more than 13,000 homes.

Capacity Allocation Required (CAR) Phase 1

On April 8, 2010, the OPA announced that 184 projects were offered contracts. They are expected to produce almost 2,500 megawatts of electricity each year, enough to power 600,000 homes.

CAE Phase 2

Between June 2010 and February 2011, 836 new green energy projects were offered contracts under the FIT Program. With their total generating capacity of almost 160 megawatts, they were expected to produce enough electricity each year to power more than 20,000 homes.

CAR Phase 2

On February 24th, 2011, the OPA announced that 40 new large scale renewable energy projects totalling 872 megawatts were offered contracts under the FIT program. These solar, wind and water projects are expected to attract \$3 billion in private sector investment, and produce enough electricity each year to power more than 200,000 homes.

CAE Phase 3

On May 26, 2011, the Ontario Power Authority offered contracts to 839 CAE FIT projects, representing more than 140 megawatts of capacity. These projects are expected to create 2,000 direct and indirect jobs and attract more than \$900 million in private sector investment. They are expected to produce enough electricity each year to power more than 16,000 homes.

Bruce to Milton Extension

On July 4, 2011, the Ontario Power Authority announced that 25 new large-scale renewable energy projects were offered contracts under the FIT program, representing 1,046 MW of capacity. These contract offers represent projects that are enabled by the new Bruce to Milton transmission reinforcement project. They include 19 wind (1,018 MW) and 6 solar projects (28 MW). These projects represent about \$3 billion in investment and are expected to create an estimated 4,800 jobs. They are expected to produce enough electricity each year to power more than 280,000 homes.

North-South Distribution of FIT Projects

Based on the Ministry of Northern Development, Mining and Forests (MNDMF) definition of Northern Ontario, the breakdown of FIT contract offers between Northern and Southern Ontario as of January 20, 2012 is as follows:

	MW of CAR Projects	MW of CAE Projects	MW of microFIT
Northern Ontario	707	14	29
Rest of Ontario	3,633	411	209

Note: These totals do not exclude either expired or terminated contracts.

In summary, of total MW located in Northern Ontario, about 19.5% are CAR FIT projects; 3.4% are CAE FIT and 13.9% are microFIT.

CURRENT STATUS OF FIT AND MICROFIT APPLICATIONS

Success of the FIT Program

- Since the FIT program launch in October 2009, Ontario has garnered world-wide attention and been very successful in attracting industry and investment.
- About 2,000 small and large FIT contracts totalling over 4,600 MWs have been signed.
 - Over 11,400 MWs of large FIT project applications await transmission availability and/or next rounds of contract awards.
 - Over 5,500 applications totalling just over 1,000 MW for medium size FIT contracts (predominantly rooftop solar) await next rounds of contract awards.
- microFIT applications total approximately 49,000. 99 per cent of these are solar PV.
 - More than 15,000 microFIT projects have either been connected to the electricity grid or are ready to connect.
- Moderate success in attracting First Nation and community projects:
 - First Nations – 19 contracts for 479 MW
 - Community – 92 contracts for 330 MW
- More than 30 companies are currently operating, or plan to build, solar and wind manufacturing facilities in Ontario.

microFIT Applications

- The OPA has received microFIT applications from across the province.
- As of March 19, 2012, the OPA has received nearly 43,000 applications (net of terminations). The OPA has made over 26,000 conditional offers (excluding withdrawn and terminated), and nearly 12,000 projects are online.

microFIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Applications	391.35	42,990	0.72	101	390.26	42,847	0.05	7	0.32	35
Conditional contracts offered	234.17	26,019	0.01	64	234.04	25,940	0.01	3	0.11	12
Online	103.83	11,966	0.03	5	103.80	11,961	0.00	0	0.00	0
Numbers are net of terminations										

FIT CONTRACTS ONLINE

- Small FIT or Capacity Allocation Exempt (CAE) FIT projects (10 to 500 kW) have come online more quickly than larger projects. As of February 21, 2012, more than 1,700 of these small-sized projects were contracted totalling more than 320 MW with 183 projects totalling more than 28 MW online.

CAE FIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Contracted	326.23	1,749	2.39	9	312.71	1,700	0.96	5	10.17	35
Online	28.01	183	0.00	0	26.81	178	0.00	0	1.20	5

- As of February 21, 2012, more than 240 large FIT (generally over 500 kW) (or CAR) FIT projects have been contracted totalling almost 4,300 MWs. Eleven projects totalling 233 MW were online.

CAR	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Contracted	4,297.45	242	3,130.80	68	930.67	115	187.12	44	48.87	15
Online	232.45	11	224.00	5	0.50	1	0.00	0	7.95	5

Note: Wind totals includes 300 MWs of offshore wind (1 project in approvals).

DOMESTIC CONTENT

- Developers are required to have a certain percentage of their project cost come from Ontario goods and labour at the time they reach commercial operation:
 - For wind, the requirement started at 25 per cent and increased to 50 per cent on January 1, 2012.
 - For micro solar PV (10 kW or smaller), the requirement started at 40 per cent and increased to 60 per cent on January 1, 2011.
 - For larger solar PV, the requirement started at 50 per cent and increased to 60 per cent on January 1, 2011.
- The OPA has a transparent process to clarify the Feed-in Tariff's domestic content requirements.

FIT SUPPORT PROGRAMS

Commented [CQ1]: Not sure if you want to refer to upcoming changes to these programs.

Aboriginal Energy Partnership Program (AEPP)

- The FIT Review announced new changes to the AEPP.
 - Extension of support funding to Aboriginal communities partnering with GEIA projects.
 - AEPP will be aligned with new participation requirements in the FIT Program.
 - Support funding will be dedicated to projects that are already in the design/development and regulatory approvals phases.
- On April 27, 2010, the Aboriginal Energy Partnerships Program (AEPP) was launched to provide knowledge and support to help communities interested in building new renewable energy generation projects in Ontario. It is administered by the Ontario Power Authority (OPA).
- The AEPP has three interrelated components as follows:
 - The Aboriginal Renewable Energy Fund
 - To fund some of the initial up-front costs associated with developing a new renewable energy project. Qualified Aboriginal community projects are eligible for a maximum of \$500,000 under this fund.
 - The Aboriginal Renewable Energy Network
 - This is an evolving web-based tool that provides information about Ontario's electricity system, types of renewable energy resources and technology, the FIT and microFIT programs, environmental requirements, business planning, project development and project management.
 - Aboriginal Community Energy Plans
 - This component is still under development. When complete, First Nation and Métis communities will have the opportunity to identify energy savings, identify new resources and plan their future energy needs.
- The Aboriginal Advisory Committee, comprised of eight members nominated by First Nation Political Territorial Organizations, the Métis Nation of Ontario and the OPA, provides advice and guidance for the AEPP.
- A total of 19 Aboriginal-led or -partnered projects have been awarded FIT contracts for a total of about 479 MW.

Community Energy Partnerships Program (CEPP)

- As a result of the FIT Review, the CEPP fund manager and program administrator (Community Power Fund) will make recommendations on how CEPP could be improved to help community groups actively participate in renewable energy projects. CEPP should be re-launched by July 1, 2012.
- On May 10, 2010, the Community Energy Partnerships Program (CEPP) was launched.
- The program is designed to help eligible projects (including those from charities, not-for-profits, coops and farmers) cover upfront costs to get more community projects online.
- It covers up to 90 per cent of eligible development costs to a maximum of \$200,000 for community power projects greater than 10 kilowatts and no larger than 10 megawatts.

- By the end of February 2012, funds totalling \$8.22 million were committed, covering 156 executed contracts for a range of solar photovoltaic, wind, hydro and bio-energy projects, and representing over 93 MW of new, community-owned renewable energy projects.
- On July 19, 2011, the CEPP awarded its first Education Grants, designed to help recipient organizations educate, build awareness and encourage local community engagement, participation and investment in renewable energy projects.
- Six charity or not-for-profit proponents were awarded education grants totalling \$483,004.

Municipal Renewable Energy Program (MREP)

- The Municipal Renewable Energy Program (MREP) was intended to reimburse municipalities for unforeseen direct costs associated with facilitating the development of renewable energy projects.
- In light of existing initiations and recommendations from the FIT review to enhance municipal input, the MREP will not be launched.

Updated on: March 29, 2012

Updated by Keegan Tully, Policy Analyst
Renewable Energy Unit
416-314-9473

Approved by: Leo Tasca, Manager
Renewable Energy Unit
416-326-3776

 Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

 Sue Lo, ADM
Renewables and Energy Efficiency Division
416-327-8552

APPENDICES

APPENDIX 1 – FIT PRICES

Fuel	Project Size Tranche	FIT1.0 Price (¢/kWh)	FIT 2.0 Price (¢/kWh)	% Change
Solar Rooftop	≤10 kW	80.2	54.9	-31.5%
	> 10 ≤ 100 kW*	71.3	54.8	-23.1%
		≤250kW		
	> 100 ≤ 500 kW*	63.5	53.9	-15.1%
		>250 ≤500kW		
	>500 kW	53.9	48.7	-9.6%
Solar Groundmount	≤ 10 kW	64.2	44.5	-30.7%
	> 10 kW ≤ 500kW*	44.3	38.8	-12.4%
	> 500 kW ≤ 5 MW*	44.3	35.0	-21.0%
	> 5 MW		34.7	-21.7%
Wind	All sizes	13.5	11.5	-14.8%
Water	≤ 10 MW	13.1	13.1	0.0%
	> 10 MW ≤ 50 MW	12.2	12.2	0.0%
Biomass	≤10 MW	13.8	13.8	0.0%
	> 10 MW	13.0	13.0	0.0%
Biogas On Farm	≤100 kW	19.5	19.5	0.0%
	100 kW ≤250 kW	18.5	18.5	0.0%
Biogas	≤500 kW	16.0	16.0	0.0%
	> 500 kW ≤10MW	14.7	14.7	0.0%
	> 10 MW	10.4	10.4	0.0%
Landfill Gas	≤10MW	11.1	11.1	0.0%
	> 10 MW	10.3	10.3	0.0%

APPENDIX 2 – PRICE ADDERS

	Aboriginal Projects		Community Projects	
Participation Level (Equity)	>50%	>15% ≤50%	>50%	>15% ≤50%
Price Adder (¢/kWh)	1.5	0.75	1.0	0.5

Note: The above table applies to all FIT project sizes and all technologies except rooftop solar.

Feed-In Tariff Trade Legal Challenges

ISSUE:

Canada is the subject of four trade agreement challenges over policies and practices implemented by Ontario:

- 1. The Government of Japan launched a World Trade Organization (WTO) dispute over Ontario's domestic content requirements in its Feed-in-Tariff (FIT) program.**
- 2. The European Union has also launched a World Trade Organization (WTO) dispute over Ontario's domestic content requirements in its FIT program.**
- 3. Mesa Power Group LLC (Mesa Power) filed a Notice of Intent to Submit a Claim to Arbitration (Notice of Intent) under the North American Free Trade Agreement (NAFTA), and prematurely filed a Notice of Arbitration under NAFTA. Mesa Power's dispute is primarily with respect to the awarding of FIT contracts on the Bruce-to-Milton transmission line, as well as domestic content requirements in Ontario's FIT program.**
- 4. Alberta launched a complaint under the Agreement on Internal Trade (AIT) against the domestic content requirements of Ontario's FIT program and the awarding of FIT contracts on the Bruce-to-Milton transmission line.**

It is our view that the Ontario Feed-in-Tariff program is in compliance with Ontario's obligations under the WTO, NAFTA and AIT.

1. SUGGESTED RESPONSE ON COMMENCEMENT OF DISPUTE RESOLUTION PANEL PROCEEDINGS FOR JAPAN

- The Government of Canada, with the full engagement of the Government of Ontario, was in consultations with Japan for some time. The establishment of a WTO panel, and the commencement of panel proceedings, is the next phase in the process.
- The WTO is the normal and appropriate forum for the resolution of disputes of this nature.

2. SUGGESTED RESPONSE TO MESA POWER'S FILING OF NOTICE OF INTENT:

- The province is working with the Government of Canada to assess the information provided in the Notice of Intent.
- As a Notice of Intent has been filed, it would be inappropriate to comment further about the specifics of the case.
- NAFTA has a formal process that a claimant must follow.
- The Notice of Intent is the first step in this process. It gives the parties involved the opportunity to achieve a resolution through dialogue.

3. SUGGESTED RESPONSE ON THE EUROPEAN UNION'S REQUEST FOR THE ESTABLISHMENT OF A DISPUTE RESOLUTION PANEL

- The WTO is a normal and appropriate forum to resolve disputes between trading partners.

4. SUGGESTED RESPONSE ON ALBERTA'S CHALLENGE THROUGH AIT:

- Ontario held consultations with Alberta, British Columbia and Saskatchewan under the Agreement on Internal Trade (AIT).
- These consultations relate to the domestic content requirements of Ontario's Feed-in-Tariff (FIT) program, and the allocation of FIT contracts on the Bruce-to-Milton transmission line.

Prepared on: January 11, 2012

Prepared by: Karen Slawner
Team Lead, Renewable Energy and Facilitation Branch
416-686-6744

Jennifer Kacaba
Legal Services Branch
416-212-4867

Dan Shear
Legal Services Branch
416-325-6685

Approved by: Leo Tasca
Manager, Renewables and Energy Facilitation Branch
416-326-3775

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

Sue Lo
ADM, Renewables and Energy Efficiency Division
416-327-8552

Rick Jennings
ADM, Energy Supply, Transmission & Distributed Policy Division
416-314-6190

Halyna Perun
Director, Legal Services Branch
416-325-6681

Feed-In Tariff Trade Legal Challenges

ISSUE:

Canada is the subject of three trade agreement challenges over policies and practices implemented by Ontario:

1. The Government of Japan launched a World Trade Organization (WTO) dispute over Ontario's domestic content requirements in its Feed-in-Tariff (FIT) program. The European Union has also launched a World Trade Organization (WTO) dispute over Ontario's domestic content requirements in its FIT program.
2. Mesa Power Group LLC (Mesa Power) filed a Notice of Intent to Submit a Claim to Arbitration (Notice of Intent) under the North American Free Trade Agreement (NAFTA), and prematurely filed a Notice of Arbitration under NAFTA. Mesa Power's dispute is primarily with respect to the awarding of FIT contracts on the Bruce-to-Milton transmission line, as well as domestic content requirements in Ontario's FIT program.
3. Alberta launched a complaint under the Agreement on Internal Trade (AIT) against the domestic content requirements of Ontario's FIT program and the awarding of FIT contracts on the Bruce-to-Milton transmission line.

It is our view that the Ontario Feed-in-Tariff program is in compliance with Canada/Ontario's obligations under the WTO, NAFTA and AIT.

1. SUGGESTED RESPONSE ON DISPUTE RESOLUTION PANEL PROCEEDINGS WITH JAPAN AND THE EUROPEAN UNION

- The Government of Canada, with the full engagement of the Government of Ontario, consulted with Japan and the European Union. The establishment of a WTO panel, and the conducting of panel proceedings, was the next phase in the process.
- The WTO is the normal and appropriate forum for the resolution of disputes of this nature.
- It is Ontario's view that the Ontario Feed-in Tariff program is consistent with Canada's WTO obligations.
- We are ready to pursue all options with the federal government, including an appeal of the decision.
- The FIT Program is an important step in building a cleaner energy system for Ontario. It has achieved, and continues to achieve, that purpose.
- Through the FIT program, thousands of jobs have been created and more than 30 companies are currently operating, or plan to build, solar and wind manufacturing facilities in Ontario.

2. SUGGESTED RESPONSE TO MESA POWER'S FILING OF NOTICE OF INTENT:

- The province is working with the Government of Canada to assess the information provided in the Notice of Intent.
- As a Notice of Intent has been filed, it would be inappropriate to comment further about the specifics of the case.
- NAFTA has a formal process that a claimant must follow.
- The Notice of Intent is the first step in this process. It gives the parties involved the opportunity to achieve a resolution through dialogue.

3. SUGGESTED RESPONSE ON ALBERTA'S CHALLENGE THROUGH AIT:

**FIT Domestic Content Provisions vs.
Obligations under World Trade Organization (WTO) Free Trade Agreements**

ISSUE:

On August 11, 2011, the European Union formally requested consultations with Canada under the WTO dispute settlement procedures on Ontario's Feed-in Tariff Program .

On July 20, 2011, Japan made a second request to establish a dispute settlement panel to examine the consistency of Ontario's Feed-in-Tariff program with Canada's WTO obligations. The WTO Dispute Settlement Body established the panel and the composition of the panel will now be determined.

Thirteen WTO members have indicated their interest in joining as third parties to the dispute.

SUGGESTED RESPONSE ON THE EUROPEAN UNION'S REQUEST FOR CONSULTATIONS

- The Ontario Feed-in-Tariff program was established in 2009 by our government to increase the supply of renewable energy in the province of Ontario.
- It is Ontario's view that the Ontario Feed-in-Tariff program is in compliance with Canada's obligations under the World Trade Organization.
- The WTO is a normal and appropriate forum to resolve disputes between trading partners

SUGGESTED RESPONSE ON WTO HAVING ESTABLISHED A DISPUTE RESOLUTION PANEL FOR JAPAN

- The Government of Canada, with the full engagement of the Government of Ontario, was in consultations with Japan for some time. The establishment of a WTO panel is the next phase in the process.
- While it is regrettable that we have been unable to resolve this matter through consultations, the WTO is the ordinary forum for the resolution of disputes of this nature.
- However, Ontario and Japan continue to enjoy an excellent bilateral relationship.
- We believe we have struck the right balance. While respecting Canada's WTO commitments, we are also fighting to ensure farmers and municipalities, schools and businesses all have the opportunity to help build our clean energy economy.
- Ontario is standing up for jobs in the new clean energy economy. The Government of Canada has said it would vigorously defend Canada's interests before the WTO dispute settlement panel.
- Our *Green Energy and Green Economy Act* was designed to ensure that Ontario workers benefit. We will continue to fight for good jobs as our economy is turning the corner.
- Over 30 companies, including Japanese companies, have made significant investments here to manufacture parts for the solar and wind industries.
- Our government is standing up for Ontario workers, for billions of dollars of investment in Ontario's economy and for a cleaner, healthier future for our kids, all in accordance with Canada's international obligations.

If pressed on what it means for Japan to request a panel:

- The WTO has a formal process to follow when a member requests a panel, including the

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establishment of terms of reference and the formal composition of the panel before the Parties must make submissions.

- Panel reports themselves are confidential until they are adopted by the WTO Dispute Settlement Body.

If pressed on what it means for WTO members to request 3rd-party status in the dispute settlement panel:

- These ‘third parties’ have an opportunity to be heard by the panel and receive initial submissions. The panel’s findings do not include conclusions and recommendations with respect of third parties. However, a third party can always initiate a dispute settlement proceeding in its own right at a later stage.
- As of August 16, 2011, Australia, China, the European Union, Honduras, Korea, Norway, Chinese Taipei, United States, Brazil, Saudi Arabia, Malaysia, El Salvador and India have reserved their third-party status.

If pressed about Ontario’s domestic content requirements:

- To be eligible for a FIT contract for a solar or wind project, developers must have a certain percentage of domestic content at the time of commercial operation.
 - For wind greater than 10kW, the requirement starts at 25% and increases to 50% on January 1, 2012.
 - For micro solar PV (10 kW or smaller), the requirement started at 40% and increased to 60% on January 1, 2011.
 - Those who submitted their microFIT applications on or before October 8, 2010 can choose to meet either the 40% or 60% domestic content requirement. This way they can choose the level that best meets their expectations given the delays they have experienced.
 - For larger solar PV, the requirement started at 50% and increased to 60% on January 1, 2011.

BACKGROUND: Please note the Background section contains confidential information

Prepared on: August 12, 2011

Prepared by: Karen Slawner
Team Lead, Renewable Energy and Facilitation Branch
416-686-6744

Jennifer Kacaba
Legal Services Branch
416-212-4867

Approved by: Leo Tasca
Manager, Renewables and Energy Facilitation Branch
416-326-3775

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

Sue Lo
ADM, Renewables and Energy Efficiency Division
416-327-8552

Rick Jennings
ADM, Energy Supply, Transmission & Distributed Policy Division
416-314-6190

Halyna Perun
Director (A) Legal Services Branch
416-325-6681

Auditor General's Report 2011

ISSUE:

The Auditor General's Annual Report includes a value-for money audit on renewable energy initiatives and a value-for-money audit on the Ontario Energy Board's regulatory processes.

SUGGESTED RESPONSE:

- I would like to thank the Auditor General for his work and look forward to reviewing his recommendations.
- A modern, clean, reliable electricity system is a foundation for a strong economy.
- Our clean energy plan represents an important shift in Ontario's electricity strategy - we're cleaning up our air and eliminating coal, while building a new clean energy industry that's on track to create 50,000 new jobs.
- We recognize families and businesses are doing a lot. We will continue to keep affordability for ratepayers at the forefront as we rebuild our energy system.
- We were relying on dirty coal for too long – it was costing Ontarians \$4.4 billion annually, including health and environmental costs.
- Our air is cleaner today- eliminating coal is one of the single largest climate change initiatives in North America and it will greatly improve the lives of the 2.4 million Ontarians who are living with serious lung disease, such as asthma or lung cancer.
- Ontario is now a global leader in clean energy production and manufacturing through its Green Energy Act.
- In just over two years we have added 20,000 new clean jobs to Ontario and are on track to create 50,000 clean energy jobs.
- Ontario has attracted over \$26 billion in investment in the new clean energy industry, at a time when our economy needs it most.
- Our clean energy Feed-in Tariff program gives investors stability, certainty. The FIT review will help ensure that new rules and prices for renewables balance with the interests of ratepayers and the need to continue investing in the clean energy economy.

If asked about Renewable Energy Standard Offer Program (RESOP) versus FIT

- It's not accurate to compare past renewable procurement models, like RESOP, to the FIT program. Those programs were smaller in size and scope and not designed to create the new investments and job creation we have today.
- RESOP encouraged small renewables- under 10 MW- on a smaller scale. It was a hugely successful starting point. It told us that the public's interest in participation in renewable energy generation was very high.
- The FIT program allowed us to expand on that successful starting point and create jobs in the clean energy sector.
- The FIT review will help ensure that new rules and prices for renewables balance with the interests of ratepayers with the need to continue investing in the clean energy economy.

If asked about excess supply

- We're building a reliable, modern energy system. We've added 9,000 new megawatts of cleaner power over the last eight years. We need to ensure the lights stay on and electricity is there for our families and businesses.
- That means we need to have more than enough generating capacity to meet peak demand. This is the standard across North America to ensure reliability.
- To account for generation maintenance, extreme weather or significant changes in the amount of electricity the province needs, it's important to have electricity capacity in reserve.
- By 2016 we expect energy supply and demand to match closely as nuclear units are taken off-line for refurbishment. Without that capacity in reserve Ontario could experience brownouts or blackouts. The IESO was issuing regular warning to Ontarians to reduce their power consumption or face risk of outages as recently as 2007.

If asked about GEA job calculations

- The 50,000 job figure was calculated using standard methodology, including standard investment and job multipliers.
- We have always said that 50,000 jobs will be a mix of long-term and short-term jobs.
- We know that for every 10,000 construction jobs created by the clean energy sector, almost \$500 million in economic activity flows back into our communities.
- Rebuilding and modernizing our energy system is also about strengthening our economy. Businesses and industry need to have confidence in our energy system in

order to have confidence to invest in Ontario.

If asked about the OEB Audit

- I appreciate the Auditor General's recommendations to the Ontario Energy Board. We are pleased that the Auditor has recognized the OEB's processes as transparent.
- The Ministry of Energy has full confidence in the Ontario Energy Board's commitment to protect the interests of Ontario's energy consumers.
- The OEB is working hard to ensure that its rate-setting and regulatory processes are efficient and streamlined. They are helping the industry become more consumer-focused.
- They are currently consulting with stakeholders as part of their commitment to renew their regulatory framework by improving its rate-setting processes, reviewing performance standards for utilities and encouraging more cost-effective development of electricity infrastructure.
- We expect the OEB will carefully consider the Auditor's recommendations and will continue to carry out their mandate in a cost-effective and responsive manner.
- As Minister of Energy, I'm looking forward to hearing from our agencies and other important stakeholders about ways to continually improve.

If asked about the potential for "gaming"

- I recently wrote to the IESO to express my concern about the size and nature of constraint payments. I made it very clear that we should leave no stone unturned in seeking opportunities to minimize or eliminate payments wherever possible.
- The Market Surveillance Panel with the support of the IESO, monitors and investigates activities within IESO-administered markets and the conduct of energy producers for:
 - inappropriate market conduct, including possible abuses of market power and gaming
 - design flaws and inefficiencies in the market rules and other rules and procedures of the IESO
 - design flaws in the overall structure of the IESO-administered markets
- We work closely with all parties to ensure issues and concerns are appropriately addressed and ratepayers are protected.

If asked about lack of consumer education with respect to prices

- We launched an extensive public pricing education and awareness campaign to ensure ratepayers have the information they need about energy costs.
- Our Long-Term Energy Plan, released in November 2010, projects the cost of our plan over the next 20 years. These figures are cited in our news releases, speeches and on-line information.
- This year, we sent a pamphlet explaining pricing changes to all Ontario households. We also included a bill insert about Ontario's Clean Energy Benefit because we believe it's important for electricity ratepayers to have access to important information about their energy bills.

BACKGROUND:

Value-for Money Audit – Renewable Energy Policy

- In December 2010, the Auditor General of Ontario notified the Ministry of Energy and the Ontario Power Authority that it would be conducting a value-for-money audit to assess whether the Ministry and the Ontario Power Authority have adequate systems and procedures in place to:
 - ensure that renewable energy resources are obtained in a cost-effective manner and within the context of applicable legislation and government policy; and
 - implement a balanced and responsible plan with respect to renewable energy that provides Ontarians with a clean, reliable, affordable, and sustainable electricity system.

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- In addition, the Ministry held several meetings with senior officials from the Auditor General's Office to provide further contextual information and suggested revisions to factual errors.
- The report was released as part of the Auditor General's annual report in December 2011.
- The report includes the following key observations:
 - No independent, objective, expert investigation, nor comprehensive cost-benefit analysis to support the government's decisions (e.g. lack of due diligence before launching the FIT program and entering into an agreement with the Korean Consortium);

- Many other jurisdictions set lower FIT prices than Ontario and have mechanisms to limit total costs arising from FIT programs;
 - Lack of communication to consumers on the cost of renewable energy and its impact on bills;
 - Inadequate consultation with ministry agencies and ambiguity with respect to the roles of the OPA and OEB in renewable energy policy development and oversight;
 - 50,000 jobs calculation did not take into account associated jobs losses and did not clarify that many of the jobs were temporary; and
 - Increasing amount of renewable energy will lead to surplus generation
- The report also includes speculative savings projections if other policy decisions had been undertaken by the government:
 - \$4.4b if FIT had not replaced Renewable Energy Standard Offer Program (RESOP)
 - \$2.6b if FIT prices were set lower in line with jurisdictions
 - \$950m if ground-mount solar prices were initially set lower than roof-top solar prices

Value-for Money Audit – Ontario Energy Board

- The report includes the following findings:
 - Rate-setting process imposes financial and administrative burden on regulated entities (e.g. local distribution companies) which vary in size and expertise often relying on external support. Costs of intervenors (lawyers) is rising.
 - Lack of OEB oversight on procurement outside of Integrated Power System Plan process.
 - Lack of consumer education with respect to electricity bills.
 - Half of charges on bill based on government policy decisions over which the OEB has no say (e.g. DRC).
 - Compensation payment to generators where there are transmission system constraints - \$420M paid in 06-10 – potential “gaming” of system under investigation.
 - Retail contracts do not offer price protection, although many consumers enter into retail contracts in order to be protected from price increases.

Media Coverage

The Auditor General’s Report received a significant amount of coverage immediately following its release. Most major print and broadcast media outlets reported on the AG’s criticisms and recommendations for the government’s renewable energy program.

Below are summaries of a few of the key print articles that appeared:

- The **Toronto Star** reported that Progressive Conservative Leader Tim Hudak was vindicated by the Auditor General’s report. According to the article, the Auditor General’s report confirmed Hudak’s election claims that the government’s green energy strategy was too costly, lacked oversight and would not be as effective a job-creator as promised. Meanwhile, NDP Leader Andrea Horwath was quoted in the

article as saying that the Auditor General has exposed the Liberals for "not looking after the interests of everyday families."

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Prepared by: Sylvia Kovesfalvi, Manager, Media Relations and Issues Management
416-327-4334
Oct 18, 2011

Reviewed by: Annamaria Cross, Manager, Strategic Policy Office
416-326-8995
Oct 20, 2011

Approved by: Rick Jennings, ADM, Energy Supply Transmission & Distribution Policy
(416) 314-6190
Oct 20, 2011

John Whitehead, ADM, Regulatory Affairs and Strategic Policy
(416) 325-6544
Oct 21, 2011

Sue Lo, ADM, Renewables & Energy Efficiency
416-327-8552
Oct 24, 2011

Auditor General's Report 2011

ISSUE:

The Auditor General's Annual Report includes a value-for money audit on renewable energy initiatives and a value-for-money audit on the Ontario Energy Board's regulatory processes.

SUGGESTED RESPONSE:

- I would like to thank the Auditor General for his work and look forward to reviewing his recommendations.
- A modern, clean, reliable electricity system is a foundation for a strong economy.
- Our clean energy plan represents an important shift in Ontario's electricity strategy - we're cleaning up our air and eliminating coal, while building a new clean energy industry that's on track to create 50,000 new jobs.
- We recognize families and businesses are doing a lot. We will continue to keep affordability for ratepayers at the forefront as we rebuild our energy system.
- We were relying on dirty coal for too long – it was costing Ontarians \$4.4 billion annually, including health and environmental costs.
- Our air is cleaner today- eliminating coal is one of the single largest climate change initiatives in North America and it will greatly improve the lives of the 2.4 million Ontarians who are living with serious lung disease, such as asthma or lung cancer.
- Ontario is now a global leader in clean energy production and manufacturing through its Green Energy Act.
- In just over two years we have added 20,000 new clean jobs to Ontario and are on track to create 50,000 clean energy jobs.
- Ontario has attracted over \$26 billion in investment in the new clean energy industry, at a time when our economy needs it most.
- Our clean energy Feed-in Tariff program gives investors stability, certainty. The FIT review will help ensure that new rules and prices for renewables balance with the interests of ratepayers and the need to continue investing in the clean energy economy.

If asked about Renewable Energy Standard Offer Program (RESOP) versus FIT

- It's not accurate to compare past renewable procurement models, like RESOP, to the FIT program. Those programs were smaller in size and scope and not designed to create the new investments and job creation we have today.
- RESOP encouraged small renewables- under 10 MW- on a smaller scale. It was a hugely successful starting point. It told us that the public's interest in participation in renewable energy generation was very high.
- The FIT program allowed us to expand on that successful starting point and create jobs in the clean energy sector.
- The FIT review will help ensure that new rules and prices for renewables balance with the interests of ratepayers with the need to continue investing in the clean energy economy.

If asked about excess supply

- We're building a reliable, modern energy system. We've added 9,000 new megawatts of cleaner power over the last eight years. We need to ensure the lights stay on and electricity is there for our families and businesses.
- That means we need to have more than enough generating capacity to meet peak demand. This is the standard across North America to ensure reliability.
- To account for generation maintenance, extreme weather or significant changes in the amount of electricity the province needs, it's important to have electricity capacity in reserve.
- By 2016 we expect energy supply and demand to match closely as nuclear units are taken off-line for refurbishment. Without that capacity in reserve Ontario could experience brownouts or blackouts. The IESO was issuing regular warning to Ontarians to reduce their power consumption or face risk of outages as recently as 2007.

If asked about GEA job calculations

- The 50,000 job figure was calculated using standard methodology, including standard investment and job multipliers.
- We have always said that 50,000 jobs will be a mix of long-term and short-term jobs.
- We know that for every 10,000 construction jobs created by the clean energy sector, almost \$500 million in economic activity flows back into our communities.
- Rebuilding and modernizing our energy system is also about strengthening our economy. Businesses and industry need to have confidence in our energy system in order to have confidence to invest in Ontario.

If asked about the OEB Audit

- I appreciate the Auditor General's recommendations to the Ontario Energy Board. We are pleased that the Auditor has recognized the OEB's processes as transparent.
- The Ministry of Energy has full confidence in the Ontario Energy Board's commitment to protect the interests of Ontario's energy consumers.
- The OEB is working hard to ensure that its rate-setting and regulatory processes are efficient and streamlined. They are helping the industry become more consumer-focused.

- They are currently consulting with stakeholders as part of their commitment to renew their regulatory framework by improving its rate-setting processes, reviewing performance standards for utilities and encouraging more cost-effective development of electricity infrastructure.
- We expect the OEB will carefully consider the Auditor's recommendations and will continue to carry out their mandate in a cost-effective and responsive manner.
- As Minister of Energy, I'm looking forward to hearing from our agencies and other important stakeholders about ways to continually improve.

If asked about the potential for “gaming”

- I recently wrote to the IESO to express my concern about the size and nature of constraint payments. I made it very clear that we should leave no stone unturned in seeking opportunities to minimize or eliminate payments wherever possible.
- The Market Surveillance Panel with the support of the IESO, monitors and investigates activities within IESO-administered markets and the conduct of energy producers for:
 - inappropriate market conduct, including possible abuses of market power and gaming
 - design flaws and inefficiencies in the market rules and other rules and procedures of the IESO
 - design flaws in the overall structure of the IESO-administered markets
- We work closely with all parties to ensure issues and concerns are appropriately addressed and ratepayers are protected.

If asked about lack of consumer education with respect to prices

- We launched an extensive public pricing education and awareness campaign to ensure ratepayers have the information they need about energy costs.
- Our Long-Term Energy Plan, released in November 2010, projects the cost of our plan over the next 20 years. These figures are cited in our news releases, speeches and on-line information.
- This year, we sent a pamphlet explaining pricing changes to all Ontario households. We also included a bill insert about Ontario's Clean Energy Benefit because we believe it's important for electricity ratepayers to have access to important information about their energy bills.

BACKGROUND:

Value-for Money Audit – Renewable Energy Policy

- In December 2010, the Auditor General of Ontario notified the Ministry of Energy and the Ontario Power Authority that it would be conducting a value-for-money audit to assess whether the Ministry and the Ontario Power Authority have adequate systems and procedures in place to:
 - ensure that renewable energy resources are obtained in a cost-effective manner and within the context of applicable legislation and government policy; and
 - implement a balanced and responsible plan with respect to renewable energy that provides Ontarians with a clean, reliable, affordable, and sustainable electricity system.

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- In addition, the Ministry held several meetings with senior officials from the Auditor General's Office to provide further contextual information and suggested revisions to factual errors.
- The report was released as part of the Auditor General's annual report in December 2011.
- The report includes the following key observations:
 - No independent, objective, expert investigation, nor comprehensive cost-benefit analysis to support the government's decisions (e.g. lack of due diligence before launching the FIT program and entering into an agreement with the Korean Consortium);
 - Many other jurisdictions set lower FIT prices than Ontario and have mechanisms to limit total costs arising from FIT programs;
 - Lack of communication to consumers on the cost of renewable energy and its impact on bills;
 - Inadequate consultation with ministry agencies and ambiguity with respect to the roles of the OPA and OEB in renewable energy policy development and oversight;
 - 50,000 jobs calculation did not take into account associated jobs losses and did not clarify that many of the jobs were temporary; and
 - Increasing amount of renewable energy will lead to surplus generation
- The report also includes speculative savings projections if other policy decisions had been undertaken by the government:
 - \$4.4b if FIT had not replaced Renewable Energy Standard Offer Program (RESOP)
 - \$2.6b if FIT prices were set lower in line with jurisdictions

- \$950m if ground-mount solar prices were initially set lower than roof-top solar prices

Value-for Money Audit – Ontario Energy Board

- The report includes the following findings:
 - Rate-setting process imposes financial and administrative burden on regulated entities (e.g. local distribution companies) which vary in size and expertise often relying on external support. Costs of intervenors (lawyers) is rising.
 - Lack of OEB oversight on procurement outside of Integrated Power System Plan process.
 - Lack of consumer education with respect to electricity bills.
 - Half of charges on bill based on government policy decisions over which the OEB has no say (e.g. DRC).
 - Compensation payment to generators where there are transmission system constraints - \$420M paid in 06-10 – potential “gaming” of system under investigation.
 - Retail contracts do not offer price protection, although many consumers enter into retail contracts in order to be protected from price increases.

Media Coverage

The Auditor General's Report received a significant amount of coverage immediately following its release. Most major print and broadcast media outlets reported on the AG's criticisms and recommendations for the government's renewable energy program.

Below are summaries of a few of the key print articles that appeared:

- The **Toronto Star** reported that Progressive Conservative Leader Tim Hudak was vindicated by the Auditor General's report. According to the article, the Auditor General's report confirmed Hudak's election claims that the government's green energy strategy was too costly, lacked oversight and would not be as effective a job-creator as promised. Meanwhile, NDP Leader Andrea Horwath was quoted in the article as saying that the Auditor General has exposed the Liberals for "not looking after the interests of everyday families."
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Oct 21, 2011

Sue Lo, ADM, Renewables & Energy Efficiency
416-327-8552
Oct 24, 2011

Reviewed by all divisions February 8, 2012

CONNECTION CONSTRAINTS – CAE/microFIT

ISSUE

What is being done to connect constrained microFIT and Capacity Allocation Exempt (CAE) FIT projects to the grid?

Key Messages:

- The microFIT program has been very successful.
- Over 15,000 microFIT projects and over 500 small FIT or Capacity Allocation Exempt (CAE) – 10-500kW projects have already been connected or are ready to connect (as of August 21, 2012).
- Hydro One alone connected 7,600 microFIT projects to its distribution system in 2011, representing 72MW of generating capacity
- As a result of microFIT participants' contributions, Ontario will avoid producing about 11,000 tonnes of greenhouse gases in 2011. This is equivalent to removing 2,400 cars from the road.
- The high volume of applications for these renewable energy projects have outpaced the upgrades required to connect them to the grid in some areas.
- Hydro One is currently upgrading transmission stations that will allow more projects to connect to the grid.
- Applicants with conditional offers who are still facing connection constraints have been offered the opportunity to re-locate an individual project to another property that does not have connection constraints. Aggregators can move multiple microFIT projects to a single location, subject to certain limits and requirements.
- The Ministry directed the Ontario Power Authority (OPA) to provide constrained microFIT applicants with four options to relocate constrained projects. Applicants were required to express their interest in participating in the relocation options by submitting a form and the required evidence by May 31, 2012. The OPA is currently processing the documentation received to ensure that projects meet the eligibility requirements to participate in the relocation options.
- The OPA will be contacting participants directly with information on next steps.
- As a result of recommendations made as part of the FIT 2-Year Review, the microFIT application process has been further streamlined and adjusted so that microFIT projects can be developed more efficiently, while ensuring that system safety and reliability are protected.

If asked about how many projects are impacted:

- As of August 21, 2012, over 15,000 microFIT projects and over 500 small FIT (CAE) projects were already connected or ready to connect.
- As of July 9, 2012, more than 1,500 small FIT (CAE) projects were contracted totalling more than 270 MW.
- As of August 7, 2012 over 11,000 microFIT projects have conditional offers of contract.
- Participants will continue to be updated on progress.

If asked about the 7% rule:

- Maintaining system reliability and safety are our top electricity priorities.

- Hydro One has a number of thresholds and rules in place to evaluate how much new generation can be accommodated onto its system.
- These thresholds are important not only for system reliability, but also for safety.
- Hydro One commissioned a study of its thresholds and rules to ensure they're at appropriate levels to **accommodate new generation** while **maintaining safety**.
- The report concludes that Hydro One's position is reasonable based on information that is available.
- It recommends maintaining current thresholds and rules, pending results of additional studies recommended by the report. **This recommendation is also reflected in the FIT 2-Year Review Report.**
- Hydro One is moving forward with a number of the additional studies.
- For any further detail, I suggest you get in contact with Hydro One.

If asked about Hydro One's 6-month exemption from the DSC:

- Over 15,000 microFIT projects are already connected or ready to connect.
- Hydro One has received a large proportion of these applications (25,500 out of a total of 42,500 applications or 60% province wide, excluding terminated applications). This level of interest has posed some challenges in processing applications to assess and connect these projects to the grid.
- In 2011, Hydro One sought and received an exemption to the Distribution System Code requirements to provide offers of connection to microFIT applicants, and to physically connect the projects, within certain timeframes. Hydro One has recently applied for extension of this exemption.
- Hydro One applied for the exemption because the remarkable popularity of the OPA's microFIT program in Hydro One's service territory has made it difficult to keep up with certain existing requirements in the Distribution System Code.
- In May 2012, the Ontario Energy Board initiated a consultation process to improve the connection process for microFIT projects, looking at a number of issues, including timelines. This initiative may result in changes to the Board's codes to address the identified issues, including the prescribed microFIT application processing and connection timelines.
- Hydro One continues to make every effort to process applications and is working with the OPA and our Ministry to address constrained projects.

If asked about transmission station upgrades:

- Over the past year, Hydro One has been making progress on upgrading several transmission stations.
- In addition to the priority station upgrades, Hydro One recently initiated upgrades to key supply stations across southern Ontario that will remove limitations to connecting more renewable generation in some regions of the Province.

BACKGROUND

The popularity of the microFIT and CAE FIT programs has meant that some applicants have not been able to connect their projects to the grid because of system limitations and capacity constraints at some transformer stations. Few connection constraints were expected because projects were anticipated in moderate numbers and to be near load centres with robust transmission and distribution infrastructure.

Prior to December 8, 2010, microFIT applications were not screened for capacity at their connection point prior to conditional offers being issued by the OPA. This meant that some applicants received conditional offers, but were not able to subsequently connect their projects because of grid constraints. Similarly, prior to December 8, 2010 FIT CAE

applications were also not screened for capacity prior to contract offers being provided by OPA.

Relocation Options:

On August 19, 2011, a directive was issued to the OPA, allowing individual microFIT projects to be re-located to another property that does not have connection constraints. The directive also allowed aggregators to move multiple projects to a single location, subject to certain limits and requirements.

Constrained microFIT applicants were notified of this and also asked to express their interest in the to-be-determined third-party option where projects would be relocated on proponents' behalf.

On April 5, 2012 the OPA posted further information about relocation options for constrained applicants who met the following criteria:

- Submitted a complete microFIT application before December 8, 2010 and received a conditional offer that had not expired as of August 19, 2011.
- Had requested an Offer to Connect as of August 19, 2011, and were notified by their LDC that connection capacity was not currently available.
- Constrained microFIT applicants were offered the following options:
 - 1) Individual Relocation -- Applicants who have a conditional offer but cannot currently connect can relocate their project to another property without connection constraints – such as a cottage or second property.
 - 2) Assignment -- Any applicant (whether holding one or multiple conditional offers) can assign their constrained projects to another applicant who also holds one or more constrained conditional offers, provided that applicant is either an “Eligible Participant” or a co-operative corporation.
 - 3) Combined Project Option -- Any applicant with multiple conditional offers and multiple projects that cannot connect can combine up to 50 projects, with a total capacity of up to 500 kW, and relocate them to a new property. The new project would be subject to all the permitting and regulatory requirements associated with developing projects of up to 500 kW on the new site.
 - 4) Built Project Option -- If the constrained project is built, the conditional offer holder will also have the option to participate in a remediation option exclusively for built projects
- Applicants were required to express their interest in participating in the relocation options by submitting a form and the required evidence by May 31, 2012.
- On May 25, 2012 the OPA posted an updated form allowing constrained applicants to express interest in relocation, without selecting a specific option.

The 7% Rule:

- Constraints on the system have appeared at the transmission level and at the distribution level of the electricity system. Transformer station upgrades will help to address limits at the transmission level, but distribution limits remain. The ability for small projects such as microFIT to fit safely onto the distribution system is assessed through screening processes employing rules such as the 7% rule.
- The 7% rule is a metric that Hydro One employs to assess how much small generation can be safely connected to its distribution system. According to the rule, for every megawatt of peak demand on a distribution line, a safe level of penetration on that line is about 70 kW on a smaller rural line (F-class), and about 100 kW on a medium rural line (M-class). These levels of penetration align with levels at which safety features associated with solar equipment can function effectively.

- In response to industry concerns about the basis for this rule, Hydro One commissioned a third-party study with Kinectrics to review the technical basis of the 7% rule and to better understand its distribution system.
- On March 22, 2012, Hydro One publicly released the results of the Kinectrics study on the 7% rule. The report concludes that the rule is reasonable based on a review of industry standards and preliminary field results.
- The report recommends maintaining the 7% rule until further studies are conducted to refine understanding of Hydro One's system. Hydro One continues to make progress on other technical studies along the lines of what was recommended in the Kinectrics report.
- Maintaining the 7% rule, pending the outcome of further studies that are underway by Hydro One, is a recommendation that is reflected in the FIT 2-Year Review Report.

FIT rule change for Capacity Allocation Exempt (CAE) projects – effective Dec. 8, 2010:

- On February 9, 2011, following consultations, the OPA finalized a change to the FIT rules for CAE applications. Under the new rules, CAE applications which were not capable of connecting at their proposed connection point would be rejected and not reviewed. This rule change was to be applied to all applications submitted on or after December 8, 2010.
- Following the FIT 2-Year Review, all CAE FIT applications on or after December 8, 2010 are now subject to FIT 2.0 rules.
- CAE projects are now called "small FIT" under FIT 2.0. In order for these pre-existing applications to retain their earlier timestamp, they must re-apply under the upcoming small FIT application window, anticipated to open on October 1, 2012 and close on November 30, 2012.
- According to FIT 2.0 rules, small FIT projects must undergo testing for grid capacity to determine if they are eligible for FIT contract offers – if not, the applications will be rejected.
- The new approach to screening for grid connection capacity will help ensure that small FIT applicants do not invest in projects that will not be able to connect and to provide greater certainty and appropriately manage potential participant expectations.

microFIT rule change – effective Dec. 8, 2010:

- On February 9, 2011, following consultations, the OPA finalized a change to the rules for microFIT applications. Under the new rules for microFIT applications, the OPA will issue the conditional offer only after the project has received an offer to connect from a local distribution company (LDC).
- As such, microFIT applicants are now required to request a connection from their LDC prior to receiving a decision on their program application from the OPA.
- The rule change applies to all microFIT applications submitted on or after December 8, 2010. This approach is also being continued under microFIT 2.0.

CURRENT STATUS

Relocation Options:

- The OPA is currently processing the documentation received to ensure that projects meet the eligibility requirements to participate in the relocation options.
- The OPA will be contacting participants directly with information on next steps.

Appendix

- On February 28, 2011, the Ontario Energy Board amended Hydro One’s license consistent with Minister’s directive issued on February 17th, 2011. The amendment allows Hydro One to increase transmission-level capacity at up to 15 transmission stations. Projects affected by distribution-level constraints will not be helped by these station upgrades.
- On April 7, 2011, the OPA recommended upgrades at up to 10 priority transmission stations to enable small-scale renewable generation. According to Hydro One, six upgrades stations are now in-service, two are pending upgrade, and two are no longer needed. Costs will be borne by Hydro One and will not be recovered through rates charged to customers.

Table 1: Updated Transformer Station Upgrade Schedule (as of May 28, 2012)

Station	Life-to-date Spend (\$M)	Projected Cost (\$M)	Expected In-Service	Work Status
KENT TS	8.9	15.0	In Service	The project went in service on April 11, 2012.
GODERICH TS	3.2	13.0	Delayed to December 2012	Longer than expected to receive Drainage Certificate of Approval. Civil construction in progress.
PORT HOPE TS	-	-	N/A	Not required based on further review and new information.
KINGSVILLE TS	2.9	3.0	In Service	The project went in service on November 5, 2011.
LONGWOOD TS	1.1	2.5	In Service	The project went in service on March 31 2012.
CALEDONIA TS	1.0	2.5	In Service	The project went in service on March 30 2012.
CLARKE TS	0.9	2.5	In Service	The project went in service on March 30 2012.
KEITH TS	0.9	2.5	In Service	The project went in service on April 27 2012.
BIRCH TS	-	-	N/A	Not required based on agreement with local LDC to increase operating rule limits.
NEBO TS	-	19.2	December 2013	Study completed to determine scope of upgrades (replacing existing transformers and adding new feeder positions) required to alleviate overloading and accommodate future load growth in the Hamilton area.

Updated by: Maryanna Lewyckyj, Senior Project Advisor
Renewable Energy Facilitation Office, 416-212-7723

Tiffany Chow, Policy Analyst, Transmission Policy, 416-325-6596

Updated on: August 22, 2012

Approved by: Chris Quirke, Team Lead, Renewable Energy Facilitation Office, 416-314-9467

Samir Adkar, Senior Policy Advisor, Transmission Policy
Energy Supply, Transmission and Distribution Policy Division, 416-326-9412

CONNECTION CONSTRAINTS – CAE/microFIT

ISSUE

What is being done to connect constrained microFIT and Capacity Allocation Exempt (CAE) FIT projects to the grid?

Key Messages:

- Nearly 13,000 microFIT projects (under 10kW) and over 400 Capacity Allocation Exempt (CAE) FIT projects (10-500kW) have already been connected or are ready to connect (as of November 14, 2011).
- The number of microFIT and CAE FIT applications has outpaced needed upgrades to the electricity grid.
- Hydro One is currently upgrading transmission stations that will allow hundreds of projects to connect to the grid.
- The Ministry and the OPA are now offering an opportunity to constrained microFIT applicants with conditional offers to relocate an individual project to another property that does not have connection constraints. For example, this could be a cottage or second property, a small business, or the home of a friend or relative.
- Aggregators can move multiple microFIT projects to a single location, subject to certain limits and requirements.
- The Ministry is also working with Hydro One and the Ontario Power Authority, as well as stakeholders, on a range of innovative and technological solutions that will enable more project connections.

If asked about how many projects are impacted

- As of November 14, 2011, more than 44,000 microFIT applications and 8,000 CAE FIT applications had been received. The OPA has made about 15,000 microFIT conditional offers and 1,800 CAE FIT contract offers.
- Nearly 13,000 microFIT projects and over 300 CAE FIT projects are already connected or ready to connect (as of November 14, 2011).
- Hydro One is currently upgrading transmission stations that will allow hundreds of projects to connect to the grid.
- The province is also working with Hydro One and the Ontario Power Authority, as well as industry stakeholders, on a range of innovative and technological solutions that will enable more project connections among the remaining projects waiting to connect.
- Participants will continue to be updated on progress over the next couple of months.

BACKGROUND

The popularity of the microFIT and CAE FIT programs has meant that some applicants have not been able to connect their projects to the grid because of system limitations and capacity constraints at some transformer stations. Few connection constraints were expected because projects were anticipated in moderate numbers and near load centers with robust transmission and distribution infrastructure.

At the time of the Launch Period both CAE FIT and microFIT programs were characterized as having a high level of certainty and therefore low risk for proponents not successfully

connecting.

In February 2011, conditional offer holders without offers to connect were informed that connection to the grid must wait until technical and capacity issues are addressed. In June 2011, proponents were advised of progress that had been made (e.g. transformer station upgrades) in connecting some conditional offer holders.

FIT rule change for CAE projects:

On February 9, 2011, following consultations, the OPA finalized a change to the FIT rules for CAE applications. Under the new rules, CAE applications with a connection point connecting to a transmission station on the list would be rejected and not reviewed. Furthermore, these applicants will have their program application fee returned (\$500 for CAE projects).

This rule change applies to all applications submitted on or after December 8, 2010. It will help ensure that CAE applicants do not invest in projects that will not be able to connect with a goal to provide greater certainty and to appropriately manage potential participant expectations

microFIT rule change:

On February 9, 2011, following consultations, the OPA finalized a change to the rules for microFIT applications. Under the new rules for microFIT applications, the OPA will issue the conditional offer only after the project has received Offer to Connect from LDC. As such, the microFIT applicant is now required to request a connection from their LDC prior to receiving a decision on their program application from the OPA. The rule change applies to all microFIT applications submitted on or after December 8, 2010.

Impacted Projects:

- As of the rule change date of December 8, 2010,
 - Approx. 23,000 microFIT applications had been submitted, resulting in 19,000 conditional offers, of which:
 - 5,200 can connect
 - 1,200 were determined to be constrained
 - Approx 13,000 had unknown connection status
 - Approx. 2,900 CAE FIT applications had been submitted and two contract award announcements had been made covering applications up to June 5, 2010, resulting in 1,040 contract offers.
- As of July 28, 2011, Hydro One had identified and notified a total of 3,000 microFIT conditional offer holders and 400 CAE FIT conditional offer holders, who applied to the OPA before December 8, 2010, that they were constrained.
 - The OPA, Hydro One and the Ministry identified a number of solutions to help constrained projects connect to the grid. Through these efforts, about 1,000 of these projects no longer face grid connection constraints including:
 - Transmission station upgrades – Hydro One will extend offers to connect about 300 projects as station upgrades reach completion (July 28, 2011 Hydro One update). See Appendix for transmission upgrade details.
 - Smart meter pilot project at Kent TS and Kingsville TS (Hydro One) – estimated to connect more projects by end of 2011 (July 28, 2011 Hydro One update). The pilot could be extended to other stations if successful.
 - Since July 28, 2011, Hydro One has identified an additional 1,100 conditional offers submitted prior to the rule change, which will not be helped by the transmission upgrades or smart meter pilot. This brings the total number of constrained applicants to 3,075 (Oct 7, 2011 Hydro One update). These proponents have been offered an option to relocate their projects from constrained areas to locations with grid capacity.
- Although efforts are being made to connect the 3,075 constrained conditional offers, it may not be economic to connect them.
- Since the December 8, 2010 rule change until November 11, 2011, the OPA has received

- an additional 21,700 microFIT applications resulting in:
- 6,300 more conditional offers (All of which can connect due to the rule change provisions for connection)

CURRENT STATUS

- Update letters to constrained microFIT proponents were sent by Hydro One and the OPA at the end of June 2011 to inform proponents of the progress that is being made to enable the connection of additional projects. Some of these proponents also received a letter informing them that they will be able to connect due to transmission station upgrades.
- On Aug, 19, 2011, a directive was issued to the OPA, allowing individual microFIT projects to be re-located to another property that does not have connection constraints. The directive also allows aggregators to move multiple projects to a single location, subject to certain limits and requirements.

Prepared by: Mark Smith
Media and Issues Officer

Updated by: Nathan Fahey, Senior Project Advisor
Renewable Energy Facilitation Office, 416-212-2674

Tiffany Chow, Policy Analyst
Transmission Policy, 416-325-6596

Updated on: November 21, 2011

Approved by: Mirrun Zaveri, Deputy Director
Renewable Energy Facilitation Office
416-212-7701

Pearl Ing, Director
Renewable Energy Facilitation Branch
416-327-3868

Appendix

- On February 28, 2011, the Ontario Energy Board amended Hydro One’s license consistent with Minister’s directive issued on February 17th, 2011. The amendment allows Hydro One to increase connection capacity at up to 15 transmission stations.

Table 1: Transformer Station Upgrade Schedule (Approved on April 7, 2011)

Station Name	Riding	Expected Completion	Status
Kingsville TS	Essex	September 2011	Civil work completed. Remaining electrical work pending outage availability.
Kent TS	Chatham Kent Essex	November 2011	Most civil work completed. All material has been ordered. Engineering 90% complete.
Caledonia TS	Haldimand-Norfolk	April 2012	Major equipment and material have been ordered. Civil work completed.
Clarke TS	London-Fanshawe	April 2012	Major equipment and material have been ordered.
Keith TS	Windsor-West	April 2012	Major equipment and material have been ordered.
Longwood TS	Lambton-Kent- Middlesex	April 2012	Major equipment and material have been ordered.
Goderich TS	Huron-Bruce	July 2012	Engineering in progress and long lead material on order.
Nebo TS	Niagara West- Glanbrook	N/A	Alternative low or zero cost options are being evaluated.
Birch TS	Thunder Bay- Atikokan	N/A	Alternative low or zero cost options are being evaluated.
Port Hope TS	Northumberland- Quinte West	N/A	No longer required based on further review and new information.

CONNECTION CONSTRAINTS – CAE/microFIT

ISSUE

According to Hydro One analysis, many conditional microFIT contracts that were offered before December 8, 2010, as well as pre-December 8 offers for almost 400 proposed CAE FIT projects cannot be immediately connected in Hydro One's service territory due to transmission and distribution system constraints.

Update letters to about 1860 constrained microFIT proponents were sent by Hydro One and the OPA at the end of June to inform proponents of the progress that is being made to enable the connection of additional projects. Some of these proponents also received a letter informing them that they will be able to connect due to transmission station upgrades.

Key Messages:

- Ontario is a clean energy leader. Its Feed-In-Tariff program is the most comprehensive of its kind in North America – bringing clean, renewable power to our homes and businesses.
- Thousands of Ontarians, including farmers, are participating in the microFIT program with over 11,000 projects already connected or ready to connect
- The microFIT program is very successful. As a result, the number of applications has outpaced needed upgrades to the electricity grid.
- We remain committed to the long-term success and sustainability of this program and are working to connect as many MicroFIT projects as possible.
- We're making progress - Hydro One is currently upgrading transmission stations that will allow hundreds of projects to connect to the grid.
- We are also working with Hydro One and the Ontario Power Authority, as well as stakeholders, on a range of innovative and technological solutions that will enable more project connections.
- We will continue to update participants on our progress. Over the summer we will provide more details about the innovative solutions we are working on to connect additional constrained projects.
- These measures will help us to continue to deliver on our plan for clean, renewable energy for Ontario. Our Long-Term Energy Plan set a target of 10,700 MW of non-hydro renewables by 2018.
- These measures will help us to continue to deliver on our plan for clean, renewable energy for Ontario. Our Long-Term Energy Plan set a target of 10,700 MW of non-hydro renewables by 2018.

If pressed on transmission and distribution constraints:

- The existing constraints may limit the number of projects that can be connected immediately.
- As described in the Long-Term Energy Plan, Ontario will continue to invest in upgrades to the transmission and distribution systems to accommodate renewable energy supply in an efficient and cost-effective way.
- We recognize that transmission and distribution systems will require upgrades to accommodate renewable generation on an ongoing basis.

- It is expected that Hydro One and local distribution companies will seek to deliver cost-effective system expansions that balance the need to connect renewable power to the grid with the interests of Ontario's ratepayers. However, the expansions that can be done will take time to be implemented.

If asked about how many projects are impacted

- Thousands of Ontarians, including farmers, are participating in the microFIT program with over 10,000 projects already connected or ready to connect.
- The microFIT program is very successful. As a result, the number of applications has outpaced needed upgrades to the electricity grid. We're making progress - Hydro One is currently upgrading transmission stations that will allow hundreds of projects to connect to the grid.
- We are also working with Hydro One and the Ontario Power Authority, as well as industry stakeholders, on a range of innovative and technological solutions that will enable more project connections among the remaining projects waiting to connect. We will continue to update participants on our progress over the next couple of months.

If pressed on what will happen to existing unconnected projects in constrained areas:

- We are committed to connecting renewable energy projects and to finding solutions to the technical issues currently impacting people's ability to connect.
- We will continue to connect projects as quickly and efficiently as possible.
- For example, Hydro One is currently making transformer station investments across the province that will allow more small-scale renewable energy projects to connect.
- We are also working with Hydro One and Ontario Power Authority, as well as stakeholders, on a range of innovative and technological solutions that will enable more project connections.

BACKGROUND

In June, Hydro One and the OPA will send out letters to microFIT project proponents who have a conditional offer with the OPA but do not yet have an offer to connect from Hydro One. These proponents were informed in February that connection to the grid must wait until technical and capacity issues are addressed.

The upcoming letters will provide a general update that Hydro One and the OPA continue to work on a range of solutions to help connect proponents unaffected by the transmission stations upgrades.

About 300 of these proponents will receive a more detailed letter informing them that upgrades to upstream transmission stations will soon allow them to be connected.

The OPA and Hydro One worked closely to prioritize the stations that should be upgraded. On April 7, 2011, 10 initial stations were identified for upgrading. According to Hydro One's transmission licence conditions, up to 5 additional stations could be identified and considered for upgrades in the future. The initial 10 stations are:

Station Name	Riding	Expected Completion
Kingsville	Essex	July 2011
Kent	Chatham Kent Essex	July 2011
Port Hope	Northumberland-Quinte West	January 2012
Birch	Thunder Bay-Atikokan	April 2012
Caledonia	Haldimand-Norfolk	April 2012
Clarke	London-Fanshawe	April 2012
Keith	Windsor-West	April 2012
Longwood	Lambton-Kent-Middlesex	April 2012
Nebo	Niagara West-Glanbrook	April 2012
Goderich	Huron-Bruce	July 2012

CURRENT STATUS

- The popularity of the microFIT program has led to applicants not being able to connect their projects to the grid due to technical issues/limitations and capacity constraints at some transformer stations.
- As of June 3, 2011 the OPA has issued over 21,000 conditional offers and over 5,900 projects have been connected.
- On February 9, 2011 a new MicroFIT rule came into effect requiring proponents to obtain capacity confirmation from their LDC before the OPA would provide a Conditional Offer. The purpose of the new rule was to provide more certainty and clarity to proponents about their ability to connect early in the process. The rule change applies to all microFIT applications submitted on or after December 8, 2010.
- Hydro One has identified more than 1,700 constrained applications submitted prior to the rule change, which won't be helped by the Smart Meter Pilot or transmission upgrades alone. There are also additional constrained applications from other LDCs. Together, this includes about 162 projects where individuals have said they have installed systems that can't connect, and a further 367 who have spent money on equipment.
- In February letters were sent to MicroFIT proponents whose projects were deemed to be capacity constrained at this time. Proponents were given the option of extending their conditional offer for an additional year while work could be undertaken to address constraint issues.
- On February 17th, 2011, the Minister directed the Ontario Energy Board (OEB) to amend the Hydro One transmission licence to increase connection capacity at up to 15 transmission stations and alleviate constraints affecting large numbers of small scale renewable generation (microFIT and CAE) projects. On February 28, 2011, the Ontario Energy Board amended Hydro One's licence consistent with Minister's directive.
- Hydro One and the OPA are working on multiple solutions to increase the number of renewable projects that can connect and allow proponents identified as being constrained prior to the rule change the opportunity to connect their projects.
- The OPA, Hydro One and the ministry have established a connection strategy. They have identified a number of solutions to help constrained projects connect to the grid or offer a different opportunity to participate in the microFIT program by:
 - Transmission station upgrades – Hydro One will extend offers to connect to about 300 projects as station upgrades reach completion.
 - Smart meter pilot project at Kent TS and Kingsville TS (Hydro One) – estimated to connect 116 more projects by Fall 2011. The pilot could be extended to other stations if successful.
 - Solar co-ops or aggregation – solar panel farm (OPA) -- potential to allow hundreds of people to participate who can't benefit other solutions
- The OPA, Hydro One and the Ministry would like to take the first step in communicating to

affected microFIT proponents about transmission upgrades while other solutions are developed.

- In June and July 2011, constrained proponents received letters from Hydro One and the OPA updating them on progress being made to allow additional project connections, and informed them that they will receive further updates on the status of their project over the summer. Some proponents also received a letter informing them that they will be able to connect due to transmission station upgrades.
- The FIT program was designed to encourage renewable energy generators of all sizes to bring new projects online quickly and easily. The application processes for microFIT and Capacity Allocation Exempt (CAE) FIT projects were designed to allow applicants to quickly contract build and connect their projects. Given the relatively small size of these projects, and the Distribution System Code's (DSC) connection requirements, the OPA designed the original rules for microFIT and CAE FIT projects with the assumption that proponents would have little difficulty obtaining a connection.
- MicroFIT participants may have purchased equipment prior to confirming a grid connection with their LDC. There are conditions in the FIT contract which require CAE projects to pass a Connection Impact Assessment (CIA) before proceeding, but that step is late in the application process.
- Both CAE FIT and microFIT programs have been characterized as having a high level of certainty and therefore low risk for proponents not successfully connecting.
- Few connection constraints were expected because projects were anticipated in moderate numbers and near load centers with robust distribution systems.
- The high interest has resulted in capacity constraints that are related to the safety and reliability of the system. These limits have been reached sooner than anticipated and at a rate where plans cannot be delivered soon enough to accommodate immediate connection requirements.
- On February 10, 2011, the OPA announced the final rule change for microFIT and CAE projects, that requires these projects to undergo a capacity screening prior to be issued a conditional contract offer (for microFIT) or contract offer (for CAE FIT).
- Prior to this rule change, the OPA offered conditional contracts to microFIT applicants without performing a connection capacity assessment.
- All applicants who applied for either a microFIT project or a CAE FIT project on or after December 8, 2010 (the date the draft rule change was announced) will be subject to the new rules.
- These changes will help ensure efficient administration of the programs and help to properly sequence the confirmation of connection ability and project development.

FIT rule change for CAE projects:

Hydro One will distribute a tailored list of affected transformation stations to LDCs who may have interests with those stations (i.e. LDCs will only receive a list of affected stations that are relevant to their catchment area).

CAE applications with a connection point connecting to a TS on the list would be rejected and not reviewed. Furthermore, these applicants will have their program application fee returned (\$500 for CAE projects).

This rule change will help ensure that CAE applicants do not invest in projects that will not be able to connect with a goal to provide greater certainty and to appropriately manage potential participant expectations

microFIT rule change:

For microFIT applications, the OPA will issue the conditional offer only **after** the project has received Offer to Connect from LDC. As such, the microFIT applicant will now be required to

request a connection from their LDC prior to receiving a decision on their program application from the OPA.

The LDC would provide an Offer to Connect or reject the connection request as per the DSC

- Applications given an Offer to Connect will be **issued** a Conditional Offer by the OPA
- Applications denied an Offer to Connect will be rejected by the OPA

Conditional Offer Extensions:

The OPA is offering to amend the contracts of all FIT counterparties who have not yet reached commercial operation so that these Suppliers can elect to extend their Milestone Dates for Commercial Operation (MCOD) by up to one year.

The OPA is also offering to extend the expiry date for anyone with a microFIT conditional contract offer for up to one year.

Approximately 19,000 microFIT conditional offers could be affected, representing approximately 173 MW of generating capacity. The extension is available for any conditional offer with an application submitted prior to December 8, 2010 – the date that the rule change was initially announced.

The extension on the conditional offer will not affect domestic content requirements. Domestic content requirements for microFIT will continue to be tied to the date that the project comes into commercial operation.

Prepared by: Mark Smith
Media and Issues Analyst, November 8, 2010

Updated by: Tomas Nikolakakos, Senior Project Advisor
Renewable Energy Facilitation Office
416-212-7723

Updated on: July 22, 2011

Approved by: Mirrun Zaveri, Deputy Director
Renewable Energy Facilitation Office
416-212-7701

Pearl Ing, Director
Renewable Energy Facilitation Branch
416-327-3868

Green Energy Act – Feed-In-Tariff

ISSUE:

What is the status of the Feed-In-Tariff (FIT) program?

For details on the trade disputes associated with domestic content provisions, please see C10. For details on connection constraints, please see E06.

MESSAGING:

- Ontario's Green Energy Act has helped create over 20,000 jobs and is on track to create 50,000 jobs by the end of 2012.
- At the heart of the Green Energy Act is North America's most comprehensive Feed-in Tariff (FIT), which is sparking the development of renewable energy projects by offering guaranteed incentives to developers of wind, water, solar, and bio-sourced power.
- Ontario's Feed-In Tariff (FIT) program has been tremendously successful.
- The Korean Consortium agreement and FIT contracts announced to date represent approximately \$26B in investment and thousands of jobs, and are expected to produce enough electricity each year for more than 1.8 million homes.
- Through the FIT program, thousands of jobs have been created and 30 companies have publicly announced plans to manufacture here in the province.
- Since launching FIT in 2009, the Ontario Power Authority has awarded over 2,000 large and medium renewable energy contracts and offered more than 24,000 microFIT contracts totalling over 4,800 MW – enough energy to power almost 1.2 million homes.

FIT TWO-YEAR REVIEW MESSAGING:

- On October 31, 2011, we launched our scheduled review of the program.
- Current FIT prices differ based on project size and type of renewable energy technology and were developed based on experience here in Ontario and in other jurisdictions.
- They cover capital, operating and maintenance costs and allow for a reasonable return on investment over a 20-year (40-year for waterpower) contract term.
- New rules and prices will balance the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy.
- The review will build on the success of the program – continuing to ensure long-term sustainability, and transparency and predictability for industry and investors.
- Regular program reviews are a feature of some 88 FIT programs around the world.
- We encourage Ontarians to participate in the review by answering an online survey or making a written submission until December 14, 2011.

BACKGROUND:

General

- The FIT Program was enabled by the *Green Energy and Green Economy Act*, 2009 which received Royal Assent on May 14, 2009.
- The legislation was enacted to create and sustain jobs by making Ontario a 'hub' for green manufacturing and development. It is also intended to help combat climate change and support Ontario's phase out of coal-fired power.
- The Ontario Power Authority is responsible for implementing the Feed-In Tariff program (FIT). It began accepting applications on October 1, 2009.
- The FIT Program was designed to spark the development of renewable energy projects by offering guaranteed, long-term contracts to developers, a streamlined approval process and incentives for Aboriginal and community projects
- It was North America's first comprehensive FIT program, offering guaranteed prices for projects of all sizes from renewable sources including biomass, biogas, landfill gas, wind, solar photovoltaic (PV) and water power.
- FIT prices differ by project size and type of renewable energy technology and were designed to allow for a reasonable return on investment over a 20-year contract term for most projects (40 years for water power).
- The review of the FIT Program was launched on October 31, 2011.
- New rules and prices will balance the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy.
- The review will build on the success of the program – continuing to ensure long-term sustainability, and transparency and predictability for industry and investors.

Key Statistics

- The Korean Consortium agreement and FIT contracts announced to date represent approximately \$26B in investment and thousands of jobs, and are expected to produce enough electricity each year to power more than 1.8 million homes.
- More than 30 companies have publicly announced plans to manufacture in Ontario to help supply current and future FIT and microFIT projects.
- As of November 14, 2011, more than 2,000 medium and large FIT contracts totalling about 4,600 MWs have been awarded. Eighty-nine (89) medium projects totalling more than 15 MW and six large FIT projects totalling about 9 MW are online.
- As of November 14, 2011, nearly 13,000 microFIT projects have either been connected to the electricity grid or are ready to connect (out of more than 44,000 total applications).
- FIT prices range from 10.3¢ per kilowatt-hour (kWh) to 80.2¢ per kWh.

CURRENT ISSUES

Feed-in Tariff Program Review

- The review was launched on October 31st, 2011 and will build on the success of the program. New rules and prices will balance the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy.

The review will consider a range of issues, including, but not limited to:

- FIT price reduction
- Ensuring the long-term sustainability of clean energy procurement
- Continuing to build on the success of Ontario-based manufacturing and clean energy job creation
- Consideration of new technologies and fuel sources
- Local consultations and the renewable approval process (REA)

- As a result of this review, new prices for FIT contracts will be carefully developed to balance the interests of ratepayers with the need to encourage investments in new clean energy in Ontario. Going forward, all future clean energy contracts will be subject to the new price schedule.
- Ontario has appointed Deputy Minister Fareed Amin to lead the review – he will work together with the Ontario Power Authority and consult with the sector throughout the review.
- The Two-Year Review consultations will run until December 14th, 2011.

Projected Electricity Bill Increases

- The Long-Term Energy plan forecasts that the industrial rate will increase by 2.7% annually over the next 20 years and residential rates will increase by about 3.5% annually over the next 20 years.
- However, residential electricity prices are expected to rise by 7.9% per year – or a total of 46% – over the next five years. Only half of that amount can be attributed to the FIT Program
- To dampen electricity price increases, the government created the Clean Energy Benefit to give families, farms and small businesses a 10% reduction on electricity bills for five years starting January 1, 2011.
- Successful and sustainable FIT programs in a number of international jurisdictions (such as Germany, France and Denmark) have decreased price incentives.
- A new FIT price schedule will be carefully developed to achieve a balance between the interests of ratepayers and the encouragement of investment in new clean energy in Ontario.

Trade Policy Challenges

- Canada is the subject of three international trade agreement challenges and one internal Canadian trade challenge over policies and practices implemented by Ontario.
- For details on the trade disputes associated with domestic content provisions, please see C10.

Connection constraints

- The popularity of the microFIT and FIT program has meant that applications have outpaced the available transmission and distribution space.
- For details on connection constraints, please see E06.

REA Approval Process

- When Ontario launched the FIT program, it also introduced a new environmental approvals process that provides a consistent set of rules and approvals across the province.
- We received feedback from renewable energy project developers that they needed more time to prepare the material for a complete submission, which can include specialized scientific and environmental studies for sites, community outreach, open houses and aboriginal consultations.
- In February 2011 the ministry asked the OPA to offer FIT contract extensions of up to one year – acknowledging that the new REA process has involved a learning curve for both developers and the ministries.

Municipal Concerns Regarding Renewable Projects

- Municipalities have lost power to carry out local planning authorities such as protecting agricultural lands or designated employment lands.
- 78 municipalities have passed resolutions asking the province for some degree of action regarding wind development, from health and property value studies to outright moratoriums.
- Ontario is a leader in establishing clear setbacks for renewable energy projects that are protective of human health and the environment.

- The government is committed to protecting the health of residents in communities that are home to renewable energy projects.

Surplus Baseload Conditions

- Surplus baseload generation (SBG) occurs when electricity from baseload generation (such as hydroelectric and nuclear) is projected to be greater than Ontario demand.
- Bringing more renewable energy contracts online in the next few years will add to the challenge of dealing with surplus baseload generation.
- The energy sector is actively engaged in finding ways to manage and reduce instances of surplus power.

Commercial Feed-in Tariff Program (CFIT)

- On February 1, 2011, the OPA announced that it is planning a new stream in the Feed-in Tariff Program for commercial aggregators, called the CFIT Program, to accommodate the unique nature of commercial micro-generation projects.
- The program has not been launched and is not included in the Integrated Power System Plan.

Offshore Wind

- On February 11, 2011, the Ministry of the Environment announced that Ontario will not proceed with proposed offshore wind projects while further scientific research is conducted regarding potential environmental effects on the Great Lakes.
- To comply with this policy direction, the OPA stopped accepting FIT applications for offshore wind projects.
- On May 19, 2011, Trillium Power Corporation filed a Statement of Claim against the province, stating that the Ontario Power Authority's decision to stop accepting applications for off-shore wind projects resulted in the confiscation of the company's property. The company is claiming damages of \$2.25 billion.
- As this matter is under litigation, it would be inappropriate to comment.

DEVELOPMENT OF THE FIT PROGRAM (2009 TO PRESENT)

The Ontario Power Authority began taking applications on October 1, 2009.

In the FIT program there are **three** categories of renewable energy projects depending on size:

- Small projects (10 kW and below) – **microFIT** projects follow microFIT contract rules.
- Mid-size projects (10 kW to 500 kW) – Capacity Allocation Exempt (**CAE**), follow FIT rules.
- Large-scale projects (over 500 kW) – Capacity Allocation Required (**CAR**) follow FIT contract rules.

FIT Renewable Energy Contracted by Phase*

The following table identifies which FIT renewable energy projects are still active (either on-line or in development) effective November 14, 2011. The table below reflects contract attrition and therefore excludes contracts or contract offers that have either expired or been terminated. Details following this table include all contract offers that were made and when they were announced.

Phase	Wind		SolarPV		Hydro		Bio-energy		Total	
	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW
CAE 1	3	1.0	363	80.3	4	0.8	16	5.1	386	87.2
CAE 2	4	0.6	637	119.5	0	0.0	11	2.5	652	122.7
CAE 3	2	0.7	745	124.1	1	0.2	8	2.6	756	127.6
CAR 1	45	1508.4	76	646.4	43	186.9	15	48.9	179	2390.6
CAR 2	4	615.0	33	253.8	1	0.5	0	0.0	38	869.3
Bruce to Milton	19	1018.4	6	27.5	0	0.0	0	0.0	25	1045.9
Total	77	3144.2	1860	1251.6	49	188.4	50.0	59.0	2036	4643.2

* Excludes contracts that have expired or were terminated as of November 14, 2011.

Capacity Allocation Exempt (CAE) Phase 1

On March 10, 2010, 510 new green energy projects, most of which were solar power installations, were offered contracts under the FIT Program. With their total generating capacity of 112 megawatts, they are expected to produce enough electricity each year to power more than 13,000 homes.

Capacity Allocation Required (CAR) Phase 1

On April 8, 2010, the OPA announced that 184 projects announced were offered contracts. They are expected to produce almost 2,500 megawatts of electricity each year, enough to power 600,000 homes.

CAE Phase 2

Between June 2010 and February 2011, 836 new green energy projects were offered contracts under the FIT Program. With their total generating capacity of almost 160 megawatts, they were expected to produce enough electricity each year to power more than 20,000 homes.

CAR Phase 2

On February 24th, 2011, 40 new large scale renewable energy projects totalling 872 megawatts were approved. These solar, wind and water projects are expected to attract \$3 billion in private sector investment, and produce enough electricity each year to power more than 200,000 homes.

CAE Phase 3

On May 26, 2011, the Ontario Power Authority offered contracts to 839 CAE FIT projects, representing more than 140 megawatts of capacity. These projects are expected to create 2,000 direct and indirect jobs and attract more than \$900 million in private sector investment. They are expected to produce enough electricity each year to power more than 16,000 homes.

Bruce to Milton Extension

On July 4, 2011, the Ontario Power Authority approved 25 new large-scale renewable energy projects, representing 1,046 MW of capacity. These contract offers represent projects that are enabled by the new Bruce to Milton transmission reinforcement project. They include 19 wind (1,018 MWs) and 6 solar projects (28 MWs). These projects represent about \$3 billion in investment and are expected to create an estimated 4,800 jobs. They are expected to produce enough electricity each year to power more than 280,000 homes.

North-South Distribution of FIT Projects

Based on the Ministry of Northern Development, Mining and Forests (MNDMF) definition of Northern Ontario, the breakdown of FIT contract offers between Northern and Southern Ontario as of August 5, 2011 is as follows:

	MWs of CAR Projects	MWs of CAE Projects	MWs of microFIT
Northern Ontario	707	14	26
Rest of Ontario	3,633	561	182

Note: These totals do not exclude either expired or terminated contracts.

In summary, about 16.3% of CAR FIT projects, 2.4% of CAE FIT projects and 12.5% of microFIT projects are located in Northern Ontario.

CURRENT STATUS OF FIT AND MICROFIT APPLICATIONS

Success of the FIT Program

- Since the FIT program launch in October 2009, Ontario has garnered world-wide attention and been very successful in attracting industry and investment.
- More than 2,000 medium and large FIT contracts totalling about 4,600 MWs have been awarded.
 - About 19,000 MWs of large FIT projects await transmission availability and/or next rounds of contract awards.
 - 5,400 applications totalling about 960 MW for medium size FIT contracts (predominantly rooftop solar) await next round of contract awards
- microFIT applications total approximately 44,500. 99 per cent of these are solar PV.
 - More than 13,000 microFIT projects have either been connected to the electricity grid or are ready to connect.
- Moderate success in attracting First Nation and community projects:
 - First Nations – 19 contracts for 480 MW
 - Community – 92 contracts for 330 MW
- More than 30 companies have publicly announced plans to manufacture in Ontario to help supply current and future FIT and microFIT projects.
 - These companies are currently operating and/or plan to set up solar and wind manufacturing facilities in Ontario in the following categories: wind turbine blades, wind towers, solar PV modules, mounting systems and solar inverters.

microFIT Applications

- The OPA has received microFIT applications from across the province.
- As of November 14, 2011, the OPA has received more than 44,000 applications. The OPA has made over 24,000 conditional offers (excluding withdrawn and terminated), and more than 8,600 projects are online.

microFIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Applications	362.05	39,190	0.67	95	361.04	39,054	0.05	7	0.29	34
Conditional contracts offered	223.56	24,521	0.38	63	223.06	24,444	0.01	3	0.10	11
Online	76.55	8,670	0.03	5	76.52	8,665	0.00	0	0.00	0

Numbers are net of terminations

FIT CONTRACTS ONLINE

- Capacity Allocation Exempt (CAE) FIT projects (10 to 500 kW) have come online more quickly than larger projects. As of November 14, 2011, more than 1,700 of these medium-sized projects were contracted totalling more than 320 MW with 89 projects totalling more than 15 MW online.

CAE FIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Contracted	325.01	1,723	2.39	9	311.49	1,674	0.96	5	10.17	35
Online	15.61	89	0.00	0	14.76	86	0.00	0	0.85	3

- As of November 14, 2011, more than 240 large-scale (generally over 500 kW) (CAR) FIT projects have been contracted totalling more than 4,300 MWs. As of November 14, 2011 six projects totalling about 9 MW online were online.

CAR	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Contracted	4,305.75	242	3,141.80	68	927.67	115	187.42	44	48.87	15
Online	8.88	6	0.80	1	0.50	1	0.00	0	7.58	4

Notes:
1. Comber is counted as one project; the OPA has it as two contracts.
2. Wind totals include 300 MWs of offshore wind (1 project in approvals).

DOMESTIC CONTENT

- Developers are required to have a certain percentage of their project cost come from Ontario goods and labour at the time they reach commercial operation:
 - For wind, the requirement starts at 25 per cent and increases to 50 per cent on January 1, 2012.

- For micro solar PV (10 kW or smaller), the requirement started at 40 per cent and increased to 60 per cent on January 1, 2011.
- For larger solar PV, the requirement started at 50 per cent and increased to 60 per cent on January 1, 2011.
- The OPA has a transparent process to clarify the Feed-in Tariff's domestic content requirements.

FIT SUPPORT PROGRAMS

Aboriginal Energy Partnership Program (AEPP)

- On April 27, 2010, the Aboriginal Energy Partnerships Program (AEPP) was launched to provide knowledge and support to help communities interested in building new renewable energy generation projects in Ontario. It is administered by the Ontario Power Authority (OPA).
- The AEPP has three interrelated components as follows:
 - The Aboriginal Renewable Energy Fund
 - To fund some of the initial up-front costs associated with developing a new renewable energy project. Qualified Aboriginal community projects are eligible for a maximum of \$500,000 under this fund.
 - The Aboriginal Renewable Energy Network
 - This is an evolving web-based tool that provides information about Ontario's electricity system, types of renewable energy resources and technology, the FIT and microFIT programs, environmental requirements, business planning, project development and project management.
 - Aboriginal Community Energy Plans
 - This component is still under development. When complete, First Nation and Métis communities will have the opportunity to identify energy savings, identify new resources and plan their future energy needs.
- The Aboriginal Advisory Committee, comprised of eight members nominated by First Nation Political Territorial Organizations, the Métis Nation of Ontario and the OPA, provides advice and guidance for the AEPP.
- A total of 19 Aboriginal-led or -partnered projects have been awarded FIT contracts for a total of about 480 MW.

Community Energy Partnerships Program (CEPP)

- On May 10, 2010, the Community Energy Partnerships Program (CEPP) was launched.
- The program is designed to help eligible projects (including those from charities, not-for-profits, coops and farmers) cover upfront costs to get more community projects online.
- It covers up to 90 per cent of eligible development costs to a maximum of \$200,000 for community power projects greater than 10 kilowatts and no larger than 10 megawatts.
- By the end of October 2011, funds totalling \$7.18 million were committed, covering 113 executed contracts for a range of solar photovoltaic, wind, hydro and bio-energy projects, and representing over 78 MW of new, community-owned renewable energy projects.
- On July 19, 2011, the CEPP awarded its first Education Grants, designed to help recipient organizations educate, build awareness and encourage local community engagement, participation and investment in renewable energy projects.
- Six charity or not-for-profit proponents were awarded education grants totalling \$483,004.

Municipal Renewable Energy Program (MREP)

- The Municipal Renewable Energy Program (MREP) is intended to reimburse municipalities for unforeseen direct costs associated with facilitating the development of renewable energy projects.
- MREP has not been launched.
- We are continuing to investigate way to address concerns of municipalities relating to the cost of hosting renewable energy projects.

Updated on: December 2, 2011

Updated by Vern Riediger, Senior Policy Analyst
Renewable Energy Unit
416-212-7706

Approved by: Leo Tasca, Manager
Renewable Energy Unit
416-326-3776

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

Sue Lo, ADM
Renewables and Energy Efficiency Division
416-327-8552

APPENDICES

APPENDIX 1 – FIT PRICES

Feed-In Tariff Prices				
Renewable Fuel	Type	Size tranche	Contract Price ¢/kWh	Escalation Percentage**
Biomass*^		≤ 10 MW	13.8	20%
		> 10 MW	13.0	
Biogas*^	On-Farm	> 10 kW ≤ 100 kW	19.5	20%
		> 100 kW ≤ 250 kW	18.5	
	Any type	≤ 500 kW	16.0	
		>500 kW ≤ 10 MW	14.7	
		> 10 MW	10.4	
Waterpower*^		≤ 10 MW	13.1	20%
		> 10 MW <50 MW	12.2	
Landfill gas*^		≤ 10MW	11.1	20%
		> 10 MW	10.3	
Solar PV	Rooftop	≤10 kW	80.2	0%
		> 10 ≤ 250 kW	71.3	
		> 250 ≤ 500 kW	63.5	
		> 500 kW	53.9	
	Ground Mounted	≤10 kW	64.2	
	Ground Mounted^	> 10 kW ≤ 10 MW	44.3	
Wind^	Onshore	Any size	13.5	20%
	Offshore	Any size	19.0	

*Peak Performance Factor of x1.35 during On-Peak and x0.90 during Off-Peak applies for non-microFIT projects.

^Aboriginal Price Adder and Community Price Adder eligible as outlined below for non-microFIT projects.

**Escalation Percentage based on the Consumer Price Index will be applied to eligible Renewable Fuels as calculated in FIT Contract. The Base Date is September 30, 2009

The following table shows the maximum level of the Aboriginal and community price adders a project could receive in addition to the contract price:

	Wind	PV (Ground Mounted)	Water	Biogas	Biomass	Landfill Gas
Maximum Aboriginal Price Adder (¢/kWh)	1.5	1.5	0.9	0.6	0.6	0.6
Maximum Community Price Adder (¢/kWh)	1.0	1.0	0.6	0.4	0.4	0.4

Percentage of Control	Percentage of corresponding price adder
50% to 100%	100%
10% to 50%	Double the percentage of control
0% to 10%	0%

CONNECTION CONSTRAINTS – CAE/microFIT

ISSUE

What is being done to connect constrained microFIT and Capacity Allocation Exempt (CAE) FIT projects to the grid?

Key Messages:

- Nearly 13,000 microFIT projects (under 10kW) and over 400 Capacity Allocation Exempt (CAE) FIT projects (10-500kW) have already been connected or are ready to connect (as of November 14, 2011).
- The number of microFIT and CAE FIT applications has outpaced needed upgrades to the electricity grid.
- Hydro One is currently upgrading transmission stations that will allow hundreds of projects to connect to the grid.
- The Ministry and the OPA are now offering an opportunity to constrained microFIT applicants with conditional offers to relocate an individual project to another property that does not have connection constraints. For example, this could be a cottage or second property, a small business, or the home of a friend or relative.
- Aggregators can move multiple microFIT projects to a single location, subject to certain limits and requirements.
- The Ministry is also working with Hydro One and the Ontario Power Authority, as well as stakeholders, on a range of innovative and technological solutions that will enable more project connections.

If asked about how many projects are impacted

- As of November 14, 2011, more than 44,000 microFIT applications and 8,000 CAE FIT applications had been received. The OPA has made about 15,000 microFIT conditional offers and 1,800 CAE FIT contract offers.
- Nearly 13,000 microFIT projects and over 300 CAE FIT projects are already connected or ready to connect (as of November 14, 2011).
- Hydro One is currently upgrading transmission stations that will allow hundreds of projects to connect to the grid.
- The province is also working with Hydro One and the Ontario Power Authority, as well as industry stakeholders, on a range of innovative and technological solutions that will enable more project connections among the remaining projects waiting to connect.
- Participants will continue to be updated on progress over the next couple of months.

BACKGROUND

The popularity of the microFIT and CAE FIT programs has meant that some applicants have not been able to connect their projects to the grid because of system limitations and capacity constraints at some transformer stations. Few connection constraints were expected because projects were anticipated in moderate numbers and near load centers with robust transmission and distribution infrastructure.

At the time of the Launch Period both CAE FIT and microFIT programs were characterized as having a high level of certainty and therefore low risk for proponents not successfully

connecting.

In February 2011, conditional offer holders without offers to connect were informed that connection to the grid must wait until technical and capacity issues are addressed. In June 2011, proponents were advised of progress that had been made (e.g. transformer station upgrades) in connecting some conditional offer holders.

FIT rule change for CAE projects:

On February 9, 2011, following consultations, the OPA finalized a change to the FIT rules for CAE applications. Under the new rules, CAE applications with a connection point connecting to a transmission station on the list would be rejected and not reviewed. Furthermore, these applicants will have their program application fee returned (\$500 for CAE projects).

This rule change applies to all applications submitted on or after December 8, 2010. It will help ensure that CAE applicants do not invest in projects that will not be able to connect with a goal to provide greater certainty and to appropriately manage potential participant expectations

microFIT rule change:

On February 9, 2011, following consultations, the OPA finalized a change to the rules for microFIT applications. Under the new rules for microFIT applications, the OPA will issue the conditional offer only after the project has received Offer to Connect from LDC. As such, the microFIT applicant is now required to request a connection from their LDC prior to receiving a decision on their program application from the OPA. The rule change applies to all microFIT applications submitted on or after December 8, 2010.

Impacted Projects:

- As of the rule change date of December 8, 2010,
 - Approx. 23,000 microFIT applications had been submitted, resulting in 19,000 conditional offers, of which:
 - 5,200 can connect
 - 1,200 were determined to be constrained
 - Approx 13,000 had unknown connection status
 - Approx. 2,900 CAE FIT applications had been submitted and two contract award announcements had been made covering applications up to June 5, 2010, resulting in 1,040 contract offers.
- As of July 28, 2011, Hydro One had identified and notified a total of 3,000 microFIT conditional offer holders and 400 CAE FIT conditional offer holders, who applied to the OPA before December 8, 2010, that they were constrained.
 - The OPA, Hydro One and the Ministry identified a number of solutions to help constrained projects connect to the grid. Through these efforts, about 1,000 of these projects no longer face grid connection constraints including:
 - Transmission station upgrades – Hydro One will extend offers to connect about 300 projects as station upgrades reach completion (July 28, 2011 Hydro One update). See Appendix for transmission upgrade details.
 - Smart meter pilot project at Kent TS and Kingsville TS (Hydro One) – estimated to connect more projects by end of 2011 (July 28, 2011 Hydro One update). The pilot could be extended to other stations if successful.
 - Since July 28, 2011, Hydro One has identified an additional 1,100 conditional offers submitted prior to the rule change, which will not be helped by the transmission upgrades or smart meter pilot. This brings the total number of constrained applicants to 3,075 (Oct 7, 2011 Hydro One update). These proponents have been offered an option to relocate their projects from constrained areas to locations with grid capacity.
- Although efforts are being made to connect the 3,075 constrained conditional offers, it may not be economic to connect them.
- Since the December 8, 2010 rule change until November 11, 2011, the OPA has received

- an additional 21,700 microFIT applications resulting in:
- 6,300 more conditional offers (All of which can connect due to the rule change provisions for connection)

CURRENT STATUS

- Update letters to constrained microFIT proponents were sent by Hydro One and the OPA at the end of June 2011 to inform proponents of the progress that is being made to enable the connection of additional projects. Some of these proponents also received a letter informing them that they will be able to connect due to transmission station upgrades.
- On Aug, 19, 2011, a directive was issued to the OPA, allowing individual microFIT projects to be re-located to another property that does not have connection constraints. The directive also allows aggregators to move multiple projects to a single location, subject to certain limits and requirements.

Prepared by: Mark Smith
Media and Issues Officer

Updated by: Nathan Fahey, Senior Project Advisor
Renewable Energy Facilitation Office, 416-212-2674

Tiffany Chow, Policy Analyst
Transmission Policy, 416-325-6596

Updated on: November 21, 2011

Approved by: Mirrun Zaveri, Deputy Director
Renewable Energy Facilitation Office
416-212-7701

Pearl Ing, Director
Renewable Energy Facilitation Branch
416-327-3868

Appendix

- On February 28, 2011, the Ontario Energy Board amended Hydro One’s license consistent with Minister’s directive issued on February 17th, 2011. The amendment allows Hydro One to increase connection capacity at up to 15 transmission stations.

Table 1: Transformer Station Upgrade Schedule (Approved on April 7, 2011)

Station Name	Riding	Expected Completion	Status
Kingsville TS	Essex	September 2011	Civil work completed. Remaining electrical work pending outage availability.
Kent TS	Chatham Kent Essex	November 2011	Most civil work completed. All material has been ordered. Engineering 90% complete.
Caledonia TS	Haldimand-Norfolk	April 2012	Major equipment and material have been ordered. Civil work completed.
Clarke TS	London-Fanshawe	April 2012	Major equipment and material have been ordered.
Keith TS	Windsor-West	April 2012	Major equipment and material have been ordered.
Longwood TS	Lambton-Kent- Middlesex	April 2012	Major equipment and material have been ordered.
Goderich TS	Huron-Bruce	July 2012	Engineering in progress and long lead material on order.
Nebo TS	Niagara West- Glanbrook	N/A	Alternative low or zero cost options are being evaluated.
Birch TS	Thunder Bay- Atikokan	N/A	Alternative low or zero cost options are being evaluated.
Port Hope TS	Northumberland- Quinte West	N/A	No longer required based on further review and new information.

Feed-In Tariff Trade Legal Challenges

ISSUE:

Canada is the subject of four trade agreement challenges over policies and practices implemented by Ontario:

- 1. The Government of Japan launched a World Trade Organization (WTO) dispute over Ontario's domestic content requirements in its Feed-in-Tariff (FIT) program.**
- 2. The European Union has also launched a World Trade Organization (WTO) dispute over Ontario's domestic content requirements in its FIT program.**
- 3. Mesa Power Group LLC (Mesa Power) filed a Notice of Intent to Submit a Claim to Arbitration (Notice of Intent) under the North American Free Trade Agreement (NAFTA), and prematurely filed a Notice of Arbitration under NAFTA. Mesa Power's dispute is primarily with respect to the awarding of FIT contracts on the Bruce-to-Milton transmission line, as well as domestic content requirements in Ontario's FIT program.**
- 4. Alberta launched a complaint under the Agreement on Internal Trade (AIT) against the domestic content requirements of Ontario's FIT program and the awarding of FIT contracts on the Bruce-to-Milton transmission line.**

It is our view that the Ontario Feed-in-Tariff program is in compliance with Ontario's obligations under the WTO, NAFTA and AIT.

1. SUGGESTED RESPONSE ON COMMENCEMENT OF DISPUTE RESOLUTION PANEL PROCEEDINGS FOR JAPAN

- The Government of Canada, with the full engagement of the Government of Ontario, was in consultations with Japan for some time. The establishment of a WTO panel, and the commencement of panel proceedings, is the next phase in the process.
- The WTO is the normal and appropriate forum for the resolution of disputes of this nature.

2. SUGGESTED RESPONSE TO MESA POWER'S FILING OF NOTICE OF INTENT:

- The province is working with the Government of Canada to assess the information provided in the Notice of Intent.
- As a Notice of Intent has been filed, it would be inappropriate to comment further about the specifics of the case.
- NAFTA has a formal process that a claimant must follow.
- The Notice of Intent is the first step in this process. It gives the parties involved the opportunity to achieve a resolution through dialogue.

3. SUGGESTED RESPONSE ON THE EUROPEAN UNION'S REQUEST FOR THE ESTABLISHMENT OF A DISPUTE RESOLUTION PANEL

- The WTO is a normal and appropriate forum to resolve disputes between trading partners.

4. SUGGESTED RESPONSE ON ALBERTA'S CHALLENGE THROUGH AIT:

- Ontario held consultations with Alberta, British Columbia and Saskatchewan under the Agreement on Internal Trade (AIT).
- These consultations relate to the domestic content requirements of Ontario's Feed-in-Tariff (FIT) program, and the allocation of FIT contracts on the Bruce-to-Milton transmission line.

Ministry of Energy: Accomplishments since 2003
(highlighted text shows accomplishments since October 2011)

As of January 23, 2013

New clean energy generation:

- **\$21 billion invested in 11,500 megawatts of new and refurbished clean generation** since 2003 to tackle the shortfall in supply we inherited.
- Ontario will eliminate **coal-fired electricity generation by the end of 2014** – like taking up to 7 million cars off Ontario's roads (*almost every car in Ontario today*).
 - This is the single largest climate change initiative in North America – saving \$4.4 billion in avoided costs (including financial, health and environmental costs).
 - Ontario has already shut down 11 of 19 coal units. Six more units will be shut down this year when the Province stops generating electricity with coal at its remaining coal-fired generating stations in southern Ontario.
 - As a result of Ontario's coal replacement strategy, coal-fired generation in 2012 was 4.3 TWh, nearly 90% less than 2003 levels, with a corresponding reduction in greenhouse gas emissions.
- With the first large FIT wind farm coming online recently, **Ontario is home to five of Canada's six largest wind farms.**
- In 2003, Ontario had 15 megawatts of wind capacity – **we now have over 2000 megawatts of clean wind power** – enough power to meet the annual needs of **about 550,000 homes.**
- Ontario is home to the 25 largest solar PV projects and is the leading solar energy producer in Canada,
 - In August 2010, opened what was, at the time, the **largest solar PV farm in the world in Sarnia** – 80 megawatts of clean electricity, \$400 million private sector investment, created 800 construction jobs.
- Ontario is investing \$2.6 billion in hydroelectric expansions on the Lower Mattagami River – **will create 1,300 jobs including over 250 First Nation jobs, largest hydro project in Northern Ontario in 40 years & a partnership with Moose Cree First Nation.**
- The Niagara Tunnel Hydroelectric Project is the **largest construction project in Niagara Region in 55 years, with over 400 jobs.** The project is expected to produce enough power to meet the annual needs of about **160,000 homes.**

Planning for the future:

- A **Long-Term Energy Plan** that lays out the course for a clean energy future is creating thousands of new, good jobs for Ontario, cleaning up the air we breathe, and creating a modern, reliable electricity system for future generations.
- The plan provides a balanced mix of resources to power our homes and businesses, phases out coal-fired generation by the end of 2014, increases investment in renewables, invests in and expands our hydro assets, and maintains our commitment to clean, reliable nuclear power.

Creating clean jobs and attracting investment:

- Ontario's clean energy initiatives have been a success, creating more than **28,000 jobs**, on track to creating **50,000 jobs** and attracting more than **\$27 billion** in private-sector investment.
 - The *Green Energy & Green Economy Act, 2009* (GEA) created the **Feed-In Tariff Program**, which will attract over **\$20 billion** in private-sector investment to Ontario during challenging economic times.
 - More than 30 businesses have announced plans to set up or expand plants in Ontario to manufacture parts for the solar and wind industries.
 - Released the **Feed-in-Tariff Two Year Review** which will:

- Create more jobs sooner by streamlining the regulatory approvals process for projects.
 - Develop a **Clean Energy Economic Development Strategy** to leverage Ontario's expertise to become a global leader.
- The ministry attracted a \$7 billion private sector investment in Ontario by Samsung to build 2,500 megawatts of renewable energy, and create 16,000 direct and indirect Ontario jobs . Out of the 16,000 jobs over a six year period, 900 direct manufacturing jobs will need to be created by December 2012, per the commitment in the Green Energy Investment Agreement,
 - Siemens Turbine Blade Plant (Tillsonburg) – operational December 2011
 - CS Wind Tower Plant (Windsor) – operational December 2011
 - SMA Solar Inverter Plant (Toronto) – operational December 2011
 - Solar Module Assembly Plant (London) – not yet operational
 - Samsung has received REA approvals for their Phase 1 projects (419 MW):
 - Grand Renewable Energy Park – 149 MW wind and 100 MW solar.
 - South Kent Wind Park – 270 MW.
- Refurbishing and operating Ontario's nuclear capacity will create and sustain **almost 25,000 jobs and generate annual economic activity of \$5 billion.** (*according to Canadian Manufacturers & Exporters*)
 - Large northern industrial facilities that commit to electricity efficiency and sustainability through the **Northern Industrial Energy Rate Program** will receive a **25% reduction in bills.**
 - The Industrial Electricity Incentive (IEI) program will help Ontario's industrial companies to expand their operations and create jobs.
 - The Ministry of Energy is eliminating barriers and encouraging partnerships with First Nation and Métis communities on energy projects:
 - Providing incentives under the Feed-in Tariff Program for Aboriginal participation, that have so far resulted in **450 megawatts** of clean, renewable energy under contract with Aboriginal led or partnered renewable energy projects, with participation from at least **12 First Nation** communities.
 - **Supporting 48 proposed renewable energy projects** in 37 communities through the Aboriginal Energy Partnerships Program's **Aboriginal Renewable Energy Fund.**
 - Providing loan guarantees for up to 75 percent of an Aboriginal corporation's equity on eligible renewable energy and transmission projects through the Ontario Financing Authority's \$400 million **Aboriginal Loan Guarantee Program.**
 - The Ministry of Energy is encouraging community participation in renewable energy projects:
 - **176 project grants** representing about 100 MW of new, community-owned renewable energy projects awarded through the **Community Energy Partnerships Program (CEPP)**. This includes 156 solar photovoltaic, 13 wind, 5 bio-energy and 2 hydro projects.

Encouraging a culture of conservation:

- **Conservation efforts decreased electricity demand by over 1,900 megawatts between 2005 and 2011 — the equivalent of over 600,000 homes being taken off the grid.**
- **\$2 billion invested in conservation** from 2006 to 2010 will save ratepayers \$4 billion in avoided system costs. As of 2011, the lifetime cost of conserving one kWh was about 3.1cents– the lowest in five years.
- In 2011, the OPA launched **province-wide electricity conservation programs under the saveONenergy brand.** **These programs** help residential, commercial and industrial consumers to manage their energy consumption and cost.
- **In 2011, during the first year of a four year framework, LDCs achieved 216 MW and 606,000,000 kWh of savings resulting from conservation- equivalent to taking approximately 63,000 typical houses off the grid that year. Added to other conservation programs**

delivered directly by the OPA, the total energy saved in 2011 amounted to 717, 000,000 kWh, the equivalent of taking approximately 75,000 houses off the grid for one year.

- Improved Ontario's conservation rating from a C- in 2004 to an A+ in 2009 (according to the Canadian Energy Efficiency Alliance)
- On January 1, 2012 a new regulation came into force requiring Ontario's broader public sector to demonstrate leadership in energy conservation by developing and implementing energy conservation plans beginning July 1, 2013.
- Residents and businesses, including tenants and social housing providers, are improving the energy efficiency of their homes and businesses by implementing conservation measures through programs and incentives provided by the gas, electricity utilities, and the Ontario Power Authority.
- Subject to the oversight of the Ontario Energy Board, Ontario's natural gas utilities continue to deliver conservation programs to their customers and have achieved significant savings.
 - In February 2012, Ontario filed an amendment to the Energy Efficiency Regulation to set minimum energy performance standards for general service lighting (ban on inefficient lighting). Incandescent light bulbs manufactured after January 1, 2014 (for 100 and 75W bulbs) and December 31, 2014 (for 60 and 40W bulbs) will be banned in Ontario.
 - The new general service lighting efficiency standards will result in an estimated 5.7 million MWh of electricity savings in the residential and commercial sectors per year by 2030, equivalent to taking about 543,000 homes off the grid.
- Ontario continues to take a leadership role in enhancing energy efficiency of energy using products/appliances. On December 17, 2012 the province filed a new energy efficiency regulation that established or updated efficiency standards for 45 products. Ontario now regulates the energy efficiency of 74 products.
 - Updated efficiency standards in the new regulation are estimated to save about 2.1 million MWh of electricity per year by 2030, equivalent to taking 200,000 homes off the grid. In addition, this regulation will also result in 17 PJ/year by 2030 of both gas and oil savings that is equivalent to the annual energy use of 156,000 homes.

Protecting Ontario energy consumers:

- The government brought forward the **Energy Consumer Protection Act** – tough new rules that greatly strengthen protections for consumers from unfair practices in the energy retail sector.
- Up to **\$1,078 in tax relief for seniors** and **\$946 in tax relief for families** is available through the **Ontario Energy and Property Tax Credit**.
- The **Ontario Clean Energy Benefit** is helping families, small businesses, and farms manage rising electricity prices by providing **a benefit equal to ten per cent of the total cost of electricity on eligible consumers' bills**, including tax, limited to the first 3,000 kWh of electricity consumed each month until the end of 2015.
- Up to **\$210 in tax relief for families** and **\$137 in tax relief for individuals in Northern Ontario** is available through the **Northern Ontario Energy Credit**.
- As of May 1, 2011, off-peak hours start two hours earlier at 7pm instead of 9pm on weekdays. This provides an extra 10 hours a week during the lowest-cost period.
- New rules and prices were introduced through the **FIT Two Year Review**, balancing the interests of ratepayers with the need to continue to invest in Ontario's clean energy economy. **We reduced prices** - for solar projects by more than 20 per cent, on average, and wind projects by approximately 15 per cent.

Driving efficiencies in our electricity sector:

- We are working with Ontario Power Generation (OPG) and Hydro One to reduce costs and improve productivity:
 - OPG has launched a business transformation initiative to help achieve business planning targets for 2012-2014 that will save the company at least **\$200 million** over the three year period. These savings include staff headcount reductions of approximately 2,000 as well as process improvement efficiencies.
 - In 2011, Hydro One achieved **\$41 million in savings** and productivity improvements through improvements to key information technology (IT) systems. In developing its financial outlook for the next three years (2013-2015), Hydro One has identified over \$500 million in cost reductions and productivity improvements, stemming from measures such as replacement and integration of key IT systems, improved outsourcing agreement terms, centralization of work planning and dispatch functions, and upgrades to wide area network to reduce leased line costs.
- We are undertaking an **independent benchmarking review** of Hydro One and Ontario Power Generation to continue to drive efficiencies and cost savings.
- We established the **Ontario Distribution Sector Review Panel** to identify potential benefits for ratepayers and operational efficiencies associated with consolidating the province's 80 local distribution companies (LDCs). We are currently reviewing the panel's report.
- The passage of the *Public Sector Compensation Restraint to Protect Services Act, 2010* froze the compensation structure of public sector for non-bargaining unit for 2 years in 2010-12. The Restraint Act also applied to all energy agencies, resulting in savings in agencies' compensation expenses.
- Compensation restrictions for designated executives have been extended until the province ceases to have a deficit, and is effective March 31, 2012.

Modernizing our grid for the 21st century:

- **Over \$10 billion has been invested since 2003 in improvements in Hydro One's systems, including upgrades to over 7,500 kilometres of power lines —more than twice the distance from Sault Ste. Marie, Ontario to Vancouver, B.C.**
 - Nearly \$1.5B in investments by Hydro One in 2011 alone
- The IESO estimates that significant transmission projects over the last the ten years have increased Ontario's transmission capacity by about 10,000 MW.
- **Among major accomplishments is the commissioning of the Bruce to Milton Reinforcement Project in 2012. It is the largest transmission infrastructure investment in Ontario in the last 20 years.**
 - The 180 km transmission line will connect more than 3,000 megawatts of clean energy from nuclear and renewable power resources. The new line is in-service as announced on June 19, 2012.
- **Over 15% of transmission stations across Ontario have received over-hauls in the five years from 2006-2010, amounting to a total investment of \$850M.**
- **We completed full rollout of smart meters** to Ontario homes and small business consumers, **over 4.7 million in total.**
- **Over 4.4 million customers are on time-of-use rates.**
- **We launched a \$50M Smart Grid Fund** to help advance smart grid and economic development opportunities for Ontario's LDCs and businesses.
 - 9 projects have completed agreements and are currently underway, including a co-funding arrangement with MEDI for the GE Grid IQ Centre, announced in 2011.
 - A few remaining projects are in the late stages of finalizing agreements and arrangements are being made to launch the projects shortly.

- Over 500 direct jobs are involved in these first group of projects.
- A working group led by the Ministry of Energy and the MaRS Discovery District is developing the Ontario Green Button initiative. The initiative will use smart grid technology to help families and businesses track their electricity use and conserve energy.

ENERGY ACCOMPLISHMENTS IN LONDON-MIDDLESEX

2003 – February 2013

Supply

- The London Cogeneration Facility is a natural gas-fired 17.2 MW combined heat and power facility that started commercial operation in 2008. Twelve MW of output was contracted by the OPA through their CHPI program. In addition to electricity production, the facility provides steam to a district heating system for space heating and cooling in nearby commercial, government and residential buildings. It generates enough electricity to power approximately 8,700 homes.

Distribution

Green Button Initiative

- London Hydro is an active member of the Green Button working group.
- On February 27, 2013, London Hydro launched its Download My Data feature, which will provide customers with a secure and standard way to download and share their electricity consumption data.
- London Hydro is leveraging the province's investment in smart meter infrastructure to provide customers with more access to data that can be used to help them conserve energy and save on electricity costs.
- As a leader in this initiative, London Hydro is helping other LDCs learn from the utility's experiences as the sector prepares for province-wide implementation.

Smart Meters and Time-of-Use

- London Hydro has successfully implemented Ontario's smart meter initiative and transition to time-of-use (TOU) billing.
- London Hydro has all of its 145,894 customers on TOU billing.
- London completed a major upgrade of their Customer Information System moving to an SAP platform.

Transmission

Completed

- Since 2011, Hydro One has been carrying out upgrades on a number of priority transmission stations throughout Ontario to enable small-scale renewable generation, including Clarke TS, in the London area. Upgrades were completed in March 2012.
- In 2006 and 2007, Hydro One upgraded Buchanan TS (in London) and installed two new transformers at the existing Talbot TS (in London) to meet customer supply needs as identified in a joint study with London Hydro.

Underway & Proposed

- In accordance with a recommendation by the OPA, Hydro One is upgrading an existing line west of London—a key step in our transmission plan to bring more clean energy projects online. Hydro One will upgrade about 70km of an existing 230 kilovolt double circuit line in the West of London area by installing a new higher capacity conductor (transmission wire). The project will increase capacity for renewable connections in the west of London transmission area generally. Construction is planned to begin in spring 2013. Expected to be in-service by the end of 2014. Estimated cost \$40 M
- Replacing and upgrading part of Nelson TS (in the London area) to add transformation capacity in London Area to improve supply reliability to meet future load growth. Expected in-service Q4 2014. Estimated cost \$29.8 M

Renewable Energy Projects Online

- To date, 33 FIT projects have come into operation in the London area under the Feed-in Tariff (FIT) program, totalling over 5.8 megawatts (MW) of generation capacity. This includes:
 - Solar (Ground mounted) – 2 projects (1 MW) online
 - Solar (Rooftop) - 31 projects (4.8 MW) online
- Additionally, the 2.85 MW London Biogas project also came into operation at year-end 2011 under the RESOP program.

Renewable Energy Projects Under Development

- To date, 37 FIT projects are under development in the London area under the Feed-in Tariff (FIT) program, totalling over 370 megawatts (MW) of generation capacity. This includes:
 - Wind - 5 projects (329 MW) under development
 - Solar (Ground mounted) – 10 projects (38.4 MW) under development
 - Solar (Rooftop) - 22 projects (6.4 MW) under development

Note: The Projects for 'London' were chosen using postal codes, including those for London, Rural N0L, Rural N0M as far north as St Mary's, and all smaller postal codes (St Mary's, Strathroy, Port Stanley, Aylmer, St Thomas) within the selected region of NOM and NOL.

Renewable Energy Manufacturing

- To date, London has attracted three companies that manufacture solar PV components, one producing solar PV inverters, and two producing solar mounting systems. As of early fall 2012, this solar PV sector manufacturing accounted for about 45 direct jobs.
- Because of their high-quality products, KACO New Energy in London will be supplying solar inverters for "the Americas" and these exports are expected to account for 50 percent of future business.

ENERGY ACCOMPLISHMENTS IN WINDSOR

2003 – February 2013

Supply

- The natural gas fired 84 MW East Windsor Cogeneration Centre, procured through the OPA CHP I combined heat and power program. It became operational in October 2009 and generates enough electricity to power 61,300 homes. The Centre also provides heat to an adjacent Ford motor assembly plant.
- Brighton Beach Power Station is a 541 MW combined cycle gas fired generating station that was contracted by the OPA in 2006. It became operational in 2004 and generates enough electricity to power 222,000 homes. The facility is run as a joint operation between Ontario Power Generation and Atco Power. [Note: Brighton Beach GS began under the previous government and was close to completion when the current government took over in October 2003.]

Distribution

Smart Grid Fund

- Distribution Monitoring and Control
 - Essex Energy Corporation, in collaboration with the local distribution company, Essex Powerlines Corporation, is leading a data management project under the Smart Grid Fund
 - The \$1.7M project involves the construction of a software system that will integrate data sources from a variety of technologies (including existing smart meters), monitor the state of the distribution system, and alert operators to system problems.
 - The Smart Grid Fund is providing \$688,000 in support.
 - Essex Energy Corp. has forecast 12 FTE (full-time equivalent) persons will be working directly on the project, with an additional 8 FTEs supplied from the LDC and other collaborators.

Smart Meters and Time-of-Use

- EnWin Utilities, which services Windsor, has successfully rolled out smart meters to their customers, however, it is still in the process of transitioning to time-of-use (TOU) billing.
- Essex Powerlines Corporation, the local distribution company for the towns of Amherstburg, LaSalle, Leamington and Tecumseh in Essex County, has successfully implemented Ontario's smart meter initiative and transition to TOU billing.

Transmission

Completed

- Since 2011, Hydro One has been carrying out upgrades on a number of priority transmission stations in Ontario to enable small-scale renewable generation, including Kingsville TS (near Leamington) and Keith TS (in Windsor). Upgrades at Kingsville TS were completed in November 2011 and upgrades at Keith TS were completed in April 2012.
- As part of its ongoing investments to sustain its system, Hydro One replaced transformers and equipment that reached its end of life at Malden TS (in the Windsor area) in 2012.
- Essex TS (in Windsor area) was refurbished and upgraded in 2007 to meet reliability criteria.

Underway & Proposed

- In accordance with a recommendation by the OPA, Hydro One is upgrading an existing line west of London—a key step in our transmission plan to bring more clean energy projects online. Hydro One will upgrade about 70km of an existing 230 kilovolt double circuit line in the West of London area by installing a new higher capacity conductor (transmission wire). The project will increase capacity for renewable connections in the west of London transmission area generally, including Essex. Construction is planned to begin in spring 2013. Expected to be in-service by the end of 2014. Estimated cost \$40 M.

Renewable Energy Projects Online in Windsor-Essex

- To date, 20 FIT projects have come into operation in the Windsor area under the Feed-in Tariff (FIT) program, totalling over 218 megawatts (MW) of generation capacity. This includes:
 - Wind - 3 projects (214 MW) online
 - Solar (Rooftop) - 17 projects (4.6 MW) online
- The largest two of these FIT projects are the 165.6 MW Comber Wind Project (East and West) – currently the sixth largest operational wind farm in Canada – and the 48.6 MW Pointe Aux Roches Wind Project, both located in Lakeshore.
- In addition to the FIT Program:
 - Over 125 MW of renewable energy projects have come online under RESOP:
 1. 6 wind projects contributing 89.6 MW of capacity;
 2. 2 solar PV projects contributing 35 MW of capacity;
 3. 1 biogas project contributing 1.64 MW of capacity.
 - The 50.6 MW Gosfield Wind Project came online in mid-September 2010 under the RES III procurement program.

Renewable Energy Projects Under Development in Windsor-Essex

- To date, 79 FIT projects are still under development in the Windsor area under the Feed-in Tariff (FIT) program, totalling over 18 megawatts (MW) of generation capacity. This includes:
 - Wind - 2 projects (1 MW) under development
 - Solar (Ground mounted) - 2 projects (0.8 MW) under development
 - Solar (Rooftop) - 74 projects (16.8 MW) under development
 - Bioenergy - 1 project (0.2 MW) under development

Renewable Energy Manufacturing in Windsor-Essex

- In March 2011, CS Wind opened its Windsor wind tower manufacturing plant as part of the Green Energy Investment Agreement. As of early fall 2012, the plant employed over 280 people directly.
- Additionally, as of early fall 2012, the Windsor-Essex area had at least six manufacturers that produced solar PV components accounting for over 70 direct jobs. Five of these companies produced solar mounting systems, while one company produced solar PV modules.

Electricity Pricing

- A typical residential consumer in Ontario uses 800 kilowatt-hours of electricity per month.
- Consumers with electric heating typically consume more than double this amount.
- As of June 2011, approximately 4.7 million smart meters are providing Ontarians with more precise hourly readings of energy consumption.
- More than 3.1 million customers are on Time-of-Use pricing (TOU). The rest of Ontario's residential customers are being transitioned to TOU, but remain on tiered electricity pricing in the interim.

Regulated Price Plan (RPP) - Tiered Prices	Regulated Price Plan (RPP) - Time-of-Use (TOU) Prices
Prices effective November 1, 2011 (per kWh)	
First 1,000 kWh: 7.1 ¢	Off-peak: 6.2 ¢
After 1,000 kWh: 8.3 ¢	Mid-peak: 9.2 ¢
Note: in the summer the threshold changes to 600 kWh	Peak: 10.8 ¢

Electricity Bills (after-tax, including the Ontario Clean Energy Benefit)

- Typical Ontario electricity bill for TOU customers, at current rates:
 - Residential: \$113.70 (800kWh)
 - General Service: \$273 (2,000kWh)
 - Small Business: \$1,260 (10,000kWh)
- Typical Ontario electricity bill for tiered customers, at current rates:
 - Residential: \$109.90 (800kWh)
 - General Service: \$279 (2,000kWh)
 - Small Business: \$1,325 (10,000kWh)

Jurisdictional Comparison (residential and industrial)

2011 All-In Electricity Prices		
Jurisdiction	Residential Price (Canadian cents per kWh)	Industrial Price (Canadian cents per kWh)
Ontario	13.83	7.28
Quebec	7.02	4.51
Manitoba	7.53	3.56
Michigan	13.11	7.48
New York	18.29	8.94
Alberta	11.05	7.47

Note: Prices for Canadian provinces (except Ontario) are from the Manitoba Hydro Utility Rate Comparison (for rates effective May 1, 2011). The residential price for Ontario is a 2011 average for an 800 kWh per month consumer paying TOU prices and includes OCEB. The industrial price for Ontario is for the year-to-date September and assumes an average Class A Global Adjustment of 2.37 c/kWh. Rates for U.S. states are for year-to-date August from the Energy Information Administration using an exchange rate of 1USD=1CAD.

Industrial Price Forecast

	2010	2011	2012	2013	2014	2015
Nominal dollars	88	87.72	96	101	109	112
Industrial Rate Increase		-0.3%	9.1%	5.3%	8.4%	2.0%

- Programs/credits in place to assist with energy costs include:
 - The **Ontario Clean Energy Benefit** (OCEB) provides a 10 per cent benefit to help consumers manage rising electricity prices for the next five years – this saves a typical residential consumer an average of \$150 a year.
 - The **Energy and Property Tax Credit** provides qualifying non-senior single people and families up to \$917 for 2011 – up to \$713 in property tax relief and up to \$204 in relief for the sales tax on energy. Qualifying seniors, 65 years of age or older on December 31, can receive up to \$1,044 for 2011 – up to \$840 in property tax relief and up to \$204 in relief for the sales tax on energy. The amount of the credit is based on adjusted net income and the amount of rent or property tax paid for 2010.
 - The **Northern Ontario Energy Credit** (NOEC) provides families living in Northern Ontario with up to \$204 in tax relief to eligible customers. Single individuals can receive up to \$132. To be eligible for the NOEC, consumers must pay property taxes or rent for their principal residence. The amount of the credit is based on adjusted net income.
 - The **Northern Industrial Electricity Rate Program** (NIERP) provides about a 25 per cent reduction in bills for eligible industrial customers. To qualify for the program, consumers must be located in Northern Ontario, consume a minimum of 50,000 megawatt hours of electricity per year and be classified as being in the Mining or Manufacturing sectors.
 - The **Industrial Conservation Initiative** (ICI) rewards companies that avoid consuming electricity during peak periods. In general, to be eligible for the program, consumers must have an average monthly peak demand of five megawatts or higher.

Electricity Generation and Consumption

Overview

- Ontario consumed about 142 terawatt-hours of electricity, or 142,000,000,000 kilowatt hours, in 2010.
- Ontario has 5.2 million electricity consumers, including:
 - 4.8 million residential customers;
 - 410,000 small business customers; and
 - 230 large industrial customers.
- About 60 large industrial customers generally account for one-fifth of all electricity consumption in Ontario.
- More than 75 per cent of the power generated in Ontario in 2010 came from emission-free sources, such as wind, hydroelectric and nuclear.
- Since 2003, Ontario has added about 9,000 MW of electricity generation capacity, more than 25% of our current electricity supply. Equivalent to powering a city the size of Toronto and Ottawa combined.

Generation Type	Installed Capacity – 34,882 MW	Generation – 150.8 TWh
Nuclear	32.8%	55%
Gas/Oil	27.4%	13.6%
Water	22.9%	20.4%
Coal	12.8%	8.3%
Wind	3.8%	1.9%
Other (Solar, Bio)	0.3%	0.8%

**PLEASE NOTE: generation data does not include embedded generation projects connected directly to local distribution systems.*

Nuclear

- Nuclear operates 24 hours a day, seven days a week, and produces about 50 per cent of the electricity generated in Ontario.
- Ontario has three nuclear power plant sites – Bruce, Darlington and Pickering – with a total of 18 operational reactors. Two of those are currently shutdown for refurbishment.

Hydro

- Ontario has more than 150 waterpower facilities with a total installed capacity of more than 8,100 megawatts. These facilities are able to produce enough electricity each year to power more than 3 million homes. Equivalent to powering a city the size of Toronto.

Coal

- By the end of 2014, Ontario will be one of the first jurisdictions in the world to eliminate coal as a source of electricity production.
- Ontario has shut down eight of 19 coal units, with another two units coming offline at Nanticoke this year.
- Coal-fired generation made up about 8 percent of Ontario's total electricity generation last year.

Natural gas

- Ontario has 9,549 megawatts of natural gas-fired generation capacity. In 2010, Ontario's natural gas-fired generators produced 20.5 TWh of electricity, enough to power 2,135,000 homes. Equivalent to powering cities the size of Ottawa and Mississauga combined.
- Compared to the average air emissions from coal-fired generation, natural gas produces 50 per cent of the carbon dioxide, less than one-third of the nitrogen oxides and only 1 per cent of the sulphur oxides at the power plant.

Solar

- More than 300 megawatts of solar power are online in Ontario, and are expected to produce enough electricity each year to power more than 40,000 homes. Equivalent to powering a city the size of St. Thomas or Woodstock.
- The capacity of Enbridge's solar farm, the largest operational solar photovoltaic (PV) farm in the world, is 80 megawatts. It is expected to produce enough electricity each year to power more than 12,000 homes.

Wind

- Ontario has more than 1,600 megawatts of wind generating capacity online, which is expected to produce enough electricity each year to power more than 450,000 homes. Equivalent to powering a city the size of Windsor.
- More than 900 wind turbines are operating in Ontario.
- Ontario has more than 50 wind farms in service, including the four largest wind farms in Canada.
- The average audible sound from a wind turbine is 40 decibels, which is the level of sound found in most living rooms.

Electricity Procurement

Feed-In Tariff

Six technologies are eligible for the Feed-in Tariff (FIT) and microFIT programs: on-shore wind, solar photovoltaic (PV), biogas, landfill gas, biomass and hydro.

Domestic content requirements:

- Wind: 25 per cent until the end of 2011 and 50 percent beginning on Jan 1 2012.
- Solar: 60 per cent.

FIT/microFIT contracts (as of November 14, 2011)

- Total FIT contracts: 1,966 (4,659 MW capacity)
 - Wind contracts offered: 77 (2,782 MW capacity) expected to produce enough electricity each year to power over 900,000 homes). Equivalent to powering a city the size of London.
 - Solar contracts offered: 1,686 (1,222 MW capacity) expected to produce enough electricity each year to power 150,000 homes). Equivalent to powering a city the size of Chatham.
- Total connected FIT projects: 119 (28 MW capacity), enough electricity to power over 2,000 homes) No city equivalent.
 - Wind projects connected: 1 (1 MW capacity) expected to produce enough electricity each year to power 274 homes). No city equivalent.
 - Solar projects connected: 111 (18 MW capacity) expected to produce enough electricity each year to power 2,000 homes). No city equivalent.
- Total microFIT conditional offers: 24,603 (223 MW capacity) expected to produce enough electricity each year to power 25,000 homes). Equivalent to powering a city the size of Orillia or Niagara-on-the-lake.
- Total connected microFIT projects: 8,760 (74 MW capacity), expected to produce enough electricity each year to power 9,000 homes). Equivalent to powering a city the size of Kenora or Parry Sound.

Korean Consortium

- Under the Green Energy Investment Agreement (GEIA), through 5 phases, KC and its partners are to develop 2000 MW of wind projects and 500 MW of solar projects, combined this is enough to power over 600,000 homes.
- Currently 6 Power Purchase Agreements have been signed, totalling 1068 MW (200 MW of solar and 868 MW of wind) or enough to power more than 250,000 homes. Equivalent to power a city the size of Waterloo or Guelph.

- This Agreement kick-started our renewable manufacturing industry by bringing 4 green manufacturing partners to Ontario, with an investment totalling \$7 billion.
- As part of the re-negotiated GEIA signed in July 2011, the economic development adder payments to Samsung were reduced.
 - Adder reduced to a maximum of \$110 million for Phase 1 and Phase 2 projects only (which are spread over 20 years)
 - Down from a projected \$437 million when the deal was first signed.
- Current direct jobs in manufacturing to be created by Korean Consortium under the Green Energy Investment Agreement: 900.

Hydro

- Almost 900 MW of new and refurbished hydroelectric capacity is expected to be added to the grid by 2018 – enough electricity to power 650,000 homes. Equivalent to powering a city the size of Windsor.
- The Niagara Tunnel project (Big Becky) is the largest project of its kind under construction in the world, and will produce an additional 1.6 billion kilowatt-hours of electricity per year, enough to power 160,000 homes. Equivalent to powering a city the size of Brantford.
- The Lower Mattagami hydroelectric project will add about 440 megawatts of clean electricity generating capacity to Ontario's energy grid, while providing \$2.6 billion of investment in the North – this represents enough electricity to power 300,000 homes. Equivalent to powering a city the size of Oshawa or (Sudbury and Orillia combined).

Nuclear

- Nuclear is expected to continue to be the single largest source for Ontario's electricity generation over the next 20 years.
- Under the Long-Term Energy Plan, Ontario will refurbish 10,000 MW of generation at Darlington and Bruce, and build two units at Darlington with a capacity of about 2,000 MW. Together, these 12,000 MW of generation will provide enough electricity to power 50% of the Province's requirements.

Solar

- More than 1,500 megawatts of solar PV are under contract, and are expected to produce enough electricity each year for about 190,000 homes. Equivalent to powering a city the size of Whitby or Oshawa.

Wind

- About 3,000 MW of wind power capacity are under contract, which is expected to produce enough electricity each year to power more than 900,000 additional homes. Equivalent to powering cities the size of (Hamilton and St. Catharines combined), (London and Stratford combined), or Brampton.

Natural Gas

- 393 megawatts of peaking natural gas-fired generation are currently under construction – enough to power 140,000 homes. Equivalent to powering cities the size of Newmarket and Aurora combined.
- The need for an additional 450 MW of gas generation capacity has been identified in the Long Term Energy Plan.

Electricity Transmission, Distribution and Trade

- Hydro One's system includes about 29,000 kilometres of transmission lines and 123,000 kilometres of distribution lines, which is enough to circle the earth three times.
 - Since 2003 Hydro One has invested over \$8 billion into its transmission and distribution systems.
 - Hydro One has invested \$1,021 million in transmission and distribution capital expenditures in 2011 through to the end of third quarter.
 - Thirty-two remote communities in Ontario are not connected to the provincial transmission grid and rely on diesel generation for their electricity.
- Over 80 local electricity distribution companies licensed by the Ontario Energy Board provide electricity to residential and business customers across Ontario.
 - Of Ontario's 4.8 million customers, about 1.3 million are served by Hydro One's distribution companies.
 - The remaining customers are served by other local distribution companies, such as Toronto Hydro and Ottawa Hydro.
 - A small number of large industrial customers are directly connected to the high-voltage transmission grid.
 - Thirty-two remote communities in Ontario are not connected to the provincial transmission grid and rely on diesel generation for their electricity.

- Hydro One owns and operates 26 facilities that interconnect Ontario's transmission system with neighbouring jurisdictions.
 - Ontario's electricity system is capable of importing or exporting 4,800 megawatts, mainly to Quebec and New York.
 - Since 2006, Ontario has received about \$1.8 billion from neighbouring jurisdictions for net exports of electricity.

Electricity Conservation

- Ontario has saved over 1,700 megawatts of peak demand since 2005, the equivalent of over 500,000 homes being taken off the grid.
- The Long-Term Energy Plan makes a commitment to reduce peak demand by 7,100 megawatts (MW) and overall demand by 28 terawatt hours (TWh) by 2030. This represents the equivalent of taking over 2.4 million homes "off the grid".
- Over its four-year span, Ontario's Home Energy Savings Program helped more than 428,000 homeowners complete home energy audits and helped more than 380,000 homeowners (10%) complete energy efficiency retrofits in their homes. Retrofits reduced energy consumption by over 20 per cent on average. This program reduced Ontario's annual greenhouse gas emissions by over 600,000 tonnes per year, which is equivalent to taking nearly 124,000 cars off the road.

Fossil Fuels

- Oil is the number one source of energy for Ontario, supplying 40 per cent of Ontario's total energy in 2009.
 - 16.8 billion litres of gasoline were sold in Ontario in 2010, at a cost of \$17.2 billion.
- Natural gas is the number two source of energy for Ontario, supplying 35 per cent of Ontario's total energy in 2009.
 - Natural gas supplied 65 per cent of total residential energy in 2009, mainly for space and water heating.

Bio-energy Definitions

Biogas is produced when micro-organisms digest organic matter such as manure or food waste.

- It has similar properties to natural gas but is considered carbon neutral.
- Biogas can be used for electricity generation (typically <10MW) and/or heating.

Landfill gas is similar to biogas. It is produced by the decomposition of material in landfill sites.

- Unlike the direct burning of municipal solid waste, landfill gas is considered a renewable resource.
- Landfills continue to produce methane gas long after they are closed.

Biomass refers to solid fuels from forest-based or agricultural sources. Biomass can be pelletized or baled to reduce transportation costs.

- Traditionally wood waste has been used in Ontario's forestry sector to produce heat and electricity at saw and pulp mills (referred to Combined Heat and Power)
- Other potential markets include large-scale electricity generation, greenhouse heating, and cement production.

Business Customer Definitions

Small-Sized Business

Non-residential RPP consumers (small business, retail, etc.) are charged the Regulated Price Plan (RPP) price for electricity regulated by the Ontario Energy Board, either through tiered rates or time-of-use. The OEB reviews the RPP price every six months (May 1 and November 1) and adjusts it as necessary, to ensure the price for electricity reflects the cost paid to generators. The RPP rate includes both the commodity cost of electricity (wholesale price) and Global Adjustment (cost of generators under supply contracts).

Medium and Large-Sized Business

Businesses that have a demand of more than 50 kilowatts (kW) (roughly 250,000 kilowatt hours (kWh) of electricity a year, spending roughly \$2,000 a month) pay the wholesale price through their local utility. With wholesale pricing the business pays the Hourly Ontario Energy Price (HOEP). Wholesale customers are also subject to the monthly Global Adjustment (GA) fee which is a fixed rate based on their load size during Ontario's peak electricity demand days (by

comparison, RPP customers are charged GA based on consumption). Some business contract with an electricity retailer or energy management company that will purchase and manage their electricity consumption on their behalf.

Large Industrial Consumers

Most large businesses participate directly in the hourly market. These companies are either connected directly to the transmission grid and buy electricity through the market. They might also receive payments for providing extra supply to the system and through participation in OPA demand Response and conservation programs.

Job Creation

- Energy is one of the engines of Ontario's economy and employs more than 95,000 people.
- Approximately 70,000 workers are employed in the nuclear industry in Canada, most of them here in Ontario.
 - A 2010 report by the Canadian Manufacturers and Exporters estimated that the employment and economic benefits from refurbishing and operating the Bruce and Darlington reactors will provide a substantial boost to Ontario's economy, supporting almost 25,000 jobs for a decade and injecting \$5 billion into the Ontario economy annually.

Renewables jobs

- To date, it is estimated that the GEA has led to the creation of more than 20,000 jobs.
- Current estimated direct jobs in Ontario's renewable energy sector: 2,600.
- Current estimated direct and indirect jobs in Ontario's renewable energy sector: 7,900.

Feed-In Tariff

ISSUE:

What is the status of the Feed-In Tariff program?

For details on the trade disputes associated with domestic content provisions, please see C10. For details on connection constraints, please see E06.

BACKGROUND:

General

- Ontario's Feed-In Tariff (FIT) Program was enabled by the *Green Energy and Green Economy Act*, 2009 which received Royal Assent on May 14, 2009. The Ontario Power Authority is responsible for implementing the program.
- The FIT Program was designed to spark the development of renewable energy projects by offering guaranteed incentives to developers. The Ontario Power Authority began taking applications on October 1, 2009.
- This was North America's first comprehensive FIT program. It offers guaranteed prices under long-term contracts for energy generated from renewable sources including biomass, biogas, landfill gas, on-shore wind, solar photovoltaic (PV) and water power.
- The FIT prices differ by project size and type of renewable energy technology, and were developed based on experience here in Ontario and other jurisdictions.
- The FIT prices were designed to cover capital, operating and maintenance costs and allow for a reasonable return on investment over a 20-year (40-year for waterpower) contract term.
- The Feed-in Tariff Program is to be reviewed at least every two years. With the first such review slated for completion this year.
- The Korean Consortium agreement and FIT contracts announced to date represent approximately \$26B in investment and thousands of jobs, and are expected to produce enough electricity each year to power more than 1.8 million homes.

CURRENT ISSUES

Commercial Feed-in Tariff Program (CFIT)

- On February 1, 2011, the OPA announced that it is planning a new stream in the Feed-in Tariff Program for commercial aggregators, called the CFIT Program, to accommodate the unique nature of commercial micro-generation projects.
- The program has not been launched and is not contemplated under the Integrated Power System Plan.

Feed-in Tariff Program Review

- The September 24, 2009 directive requested the OPA to review the program at least every 2 years and report back to the Minister with findings and recommendations.
- The first review is scheduled for 2011, led by the Ministry of Energy together with the OPA.

DEVELOPMENT OF THE FIT PROGRAM (2009 TO PRESENT)

The broader FIT Program is divided into two streams - FIT and microFIT. FIT is for renewable energy projects that can generate more than 10 kilowatts (kW) of electricity. Very small projects, at a home or small business, that can generate 10 kW or less come under microFIT.

Within FIT, projects have been awarded under two categories, one for medium-sized projects up to 500 kW called “capacity-allocation exempt” or CAE projects, and one for larger projects over 500 kW called “capacity-allocation restricted” or CAR projects.

FIT Renewable Energy Contracted by Phase*

The following table identifies which FIT renewable energy projects are still active (either on-line or in development) effective September 16, 2011. The table below reflects contract attrition and therefore excludes contracts or contract offers that have either expired or been terminated. Details following this table include all contract offers that were made and when they were announced.

Phase	Wind		Solar		Hydro		Bio-energy	
	Projects	MWs	Projects	MWs	Projects	MWs	Projects	MWs
CAE 1	3	1.0	363	79.8	4	0.8	16	5.1
CAE 2	4	0.6	638	118.9	0	0	11	2.5
CAE 3	2	0.7	775	130.3	1	0.2	7	2.1
CAR 1	45	1207.4	76	646.4	43	186.6	15	48.9
CAR 2	4	615	32	256	1	0.5	0	0
Bruce to Milton	19	1018.4	6	27.5	0	0	0	0

* Excludes contracts that have expired or were terminated as of September 16, 2011.

Capacity Allocation Exempt (CAE) Phase 1

On March 10, 2010, 510 new green energy projects, most of which were solar power installations, were offered contracts under the FIT Program. With their total generating capacity of 112 megawatts, they are expected to produce enough electricity each year to power more than 13,000 homes.

Capacity Allocation Required (CAR) Phase 1

On April 8, 2010, the OPA announced that 184 projects announced were offered contracts. They are expected to produce almost 2,500 megawatts of electricity each year, enough to power 600,000 homes.

CAE Phase 2

Between June 2010 and February 2011, 836 new green energy projects were offered contracts under the FIT Program. With their total generating capacity of almost 160 megawatts, they were expected to produce enough electricity each year to power more than 20,000 homes.

CAR Phase 2

On February 24th, 2011, 40 new large scale renewable energy projects totalling 872 megawatts were approved. These solar, wind and water projects are expected to attract \$3 billion in private sector investment, and produce enough electricity each year to power more than 200,000 homes.

CAE Phase 3

On May 26, 2011, the Ontario Power Authority offered contracts to 839 CAE FIT projects, representing more than 140 megawatts of capacity. These projects are expected to create 2,000 direct and indirect jobs and attract more than \$900 million in private sector investment. They are expected to produce enough electricity each year to power more than 16,000 homes.

Bruce to Milton Extension

On July 4, 2011, the Ontario Power Authority approved 25 new large-scale renewable energy projects, representing 1,046 MW of capacity. These contract offers represent projects that are enabled by the new Bruce to Milton transmission reinforcement project and include 19 wind (1,018 MWs) and 6 solar projects (28 MWs). These projects represent about \$3 billion in investment and are expected to create an estimated 4,800 jobs. They are expected to produce enough electricity each year to power more than 280,000 homes.

North-South Distribution of FIT Projects

Based on the Ministry of Northern Development, Mining and Forests (MNDMF) definition of Northern Ontario, the breakdown of FIT contract offers between Northern and Southern Ontario as of August 5, 2011 is as follows:

	MWs of CAR Projects	MWs of CAE Projects	MWs of microFIT
Northern Ontario	707	14	26
Rest of Ontario	3,633	561	182

Note: These totals do not exclude either expired or terminated contracts.

In summary, about 16.3% of CAR FIT projects, 2.4% of CAE FIT projects and 12.5% or microFIT projects are located in Northern Ontario.

CURRENT STATUS OF FIT AND MICROFIT APPLICATIONS

microFIT Applications

- The OPA has received microFIT applications from across the province.
- As of September 14, 2011, the OPA has received more than 34,000 applications. The OPA has made more than 23,000 conditional offers, and more than 7,500 projects are online.

microFIT	Total		Wind		Solar PV		Water		Bio-Energy	
	MW	projects	MW	projects	MW	projects	MW	projects	MW	projects
Applications	314.42	34,115	0.62	90	313.48	33988	0.06	8	0.26	29
Conditional contracts offered	211.73	23,244	0.38	62	211.24	23169	0.01	3	0.09	10
Online	66.70	7,576	0.03	5	66.67	7571	0.00	0	0.00	0

Numbers are net of terminations

FIT Applications

- Capacity Allocation Exempt (CAE) FIT projects (10 to 500 kW) are more likely to have grid space available than larger projects. As of September 16, 2011, more than 1,800 of these medium-sized projects were contracted totalling more than 300 MW.

CAE FIT	Total		Wind		Solar PV		Water		Bio-energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Contracted	341.99	1824	2.39	9	328.97	1776	0.96	5	9.67	34
Online	14.70	84			13.85	81			0.85	3

- As of September 16, 2011, more than 200 large-scale (generally over 500 kW) (CAR) FIT projects have been contracted totalling more than 4,000 MWs.

CAR FIT	Total		Wind		Solar PV		Water		Bio-energy	
	MW	Projects	MW	Projects	MW	Projects	MW	Projects	MW	Projects
Contracted	4006.70	241	2840.80	68	929.92	114	187.12	44	48.87	15
Online	8.88	6	0.80	1	0.50	1			7.58	4

DOMESTIC CONTENT

- Developers are required to have a certain percentage of their project cost come from Ontario goods and labour at the time they reach commercial operation:
 - For wind, the requirement starts at 25 per cent and increases to 50 per cent on January 1, 2012.
 - For micro solar PV (10 kW or smaller), the requirement started at 40 per cent and increased to 60 per cent on January 1, 2011.
 - For larger solar PV, the requirement started at 50 per cent and increased to 60 per cent on January 1, 2011.
- The OPA has a transparent process to clarify the Feed-in Tariff's domestic content requirements.
 - Industry questions that require further clarification of the domestic content requirements will be referred to an inter-ministerial domestic content working group comprising ENERGY, MEDT and OPA staff and others as necessary. The working group will review and prioritize questions, and develop draft interpretations. Draft interpretations will be posted for industry comment. All comments will be considered before a final interpretation is posted.

- The OPA provides a binding commitment letter to renewable energy developers who have submitted a domestic content plan that the OPA has determined, after a careful review, would meet the domestic content requirements if the plan is executed as stated. Developers who receive a binding commitment letter are still required to submit a final domestic content report within 60 days of their project coming into commercial operation. The report must show that the project is in compliance with its domestic content requirements and provide supporting evidence.

PROGRAM RULE CHANGES

1. Price Change for Groundmount Solar PV Projects

On August 13, 2010, the OPA updated the FIT price schedule and offered 64.2 cents per kWh for ground-mounted solar PV projects. Given the relative lower costs of groundmount versus rooftop solar installations, a lower price was introduced for groundmount solar projects. Had they received the 80.2 cents per kWh offered for rooftop projects they would have greatly exceeded the reasonable rate of return allowed for microFIT projects. The microFIT groundmount projects were originally intended as an exception to the rule in cases where microFIT proponents could not use their roof due to structural problems or a lack of sunlight due to shade. In fact, groundmount applications proliferated dramatically as commercial aggregators leased land from farmers and saw an opportunity to greatly increase the rate of return.

2. Domestic Content Deadlines for FIT CAE Solar PV projects

On October 8, 2010, the OPA announced a change in existing FIT rules for solar PV and wind projects that are capacity allocation exempt (CAE). Initially these projects could elect to have an early milestone date for commercial operation of December 31, 2010 and December 31, 2011 respectively, in order to qualify for lower domestic content requirements. This option to elect an early milestone date was no longer available for FIT Program solar PV applications submitted after October 8, 2010, as the time required for FIT application review, project development process steps and FIT contract requirements to declare commercial operation was at least six months.

3. Rule Change for CAE FIT Applications – Connection Impact Assessment

On February 9, 2011, the OPA made a rule change for capacity allocation exempt (CAE) FIT applications submitted on or after December 8, 2010. A new eligibility criterion was added that required CAE facilities to be deemed by the OPA as capable of connecting at the proposed connection point. The intent of this change was to better align CAE FIT projects with available connection capacity. This rule change was first proposed on December 8, 2010, and based on feedback received, the OPA now requires CAE FIT applicants to obtain a Connection Impact Assessment from their local distribution company after the OPA issues a contract.

4. Extension to Commercial Operation Dates

- On February 9, 2011, the OPA offered to extend the expiry date for interested applicants with a microFIT conditional contract offer for up to one year. The extension is available for any project with a microFIT application submitted before December 8, 2010.
 - This extension had the potential to affect approximately 19,000 microFIT conditional offers, representing approximately 173 MW of generating capacity.
 - To qualify for the microFIT conditional offer extension, proponents had to contact the OPA.
- On February 9, 2011, the OPA offered to amend the contracts of all FIT counterparties who have not yet reached commercial operation so that these developers can elect to extend their Milestone Dates for Commercial Operation (MCO) by up to one year. This extension was available for projects that were offered contracts by February 9, 2011. This included more than 1,200 contracts, representing approximately 2,700 MW of generating capacity. Subsequent FIT applications that are awarded contracts will be expected to meet their contractual commercial operation date.
- Clarification was also provided on June 9, 2011 about what the extension meant for microFIT domestic content requirements. The domestic content requirement for

microFIT solar PV applications submitted in 2009 and 2010 can be determined by the date of submission of the microFIT application.

- Applicants who submitted eligible solar PV microFIT applications to the OPA on or before October 8, 2010, have to meet a minimum domestic content requirement of 40 per cent. Applicants have the option of choosing to meet a higher domestic content threshold.
- All other applicants for solar PV microFIT projects, including those who submit their application in 2011, will have to meet a minimum domestic content requirement of 60 percent.

The rules ensured fair treatment for thousands of people whose projects had been delayed due to factors beyond their control.

- When the FIT Program was launched, Ontario also introduced a new environmental approvals process that provides a consistent set of rules and approvals across the province. The new approvals process has meant adjustments for several ministries, as well as a learning curve for developers. The OPA had received feedback from renewable energy project developers that they needed more time to prepare the material for a complete submission, which could include specialized scientific and environmental studies for sites, community outreach, open houses and aboriginal consultations. As such, the OPA offered extensions of up to one year to developers to help them successfully bring their projects into operation.
 - The six-month approval timeline for the Renewable Energy Approval (REA) is based on the government's receipt of a complete REA submission. Offering this extension recognizes the upfront work involved in this process and gives developers more time to prepare their complete REA submission, should they need it.
- The up to one-year COD extension did not affect a developer's current Domestic Content Level requirements. If a wind power project had a COD of March 1, 2011, it would have had a Domestic Content Level requirement of 25 percent. Under the extension, the project could now have a new COD of March 1, 2012, but would still have a Domestic Content Level of 25 percent, not 50 percent.
- To be eligible for the MCOD extensions, developers had to enter into an amending agreement with the OPA. The OPA requested that certain types of force majeure (FM) claims be surrendered entirely in exchange for the extension. These provisions were to ensure that the time granted in this extension, which already grants time due to certain unforeseeable delays, was not double-counted via separate FM claims to the OPA.

5. Offshore Wind Applications No Longer Accepted

On February 11, 2011, the Ministry of the Environment announced that Ontario will not proceed with proposed offshore wind projects while further scientific research is conducted regarding potential environmental effects on the Great Lakes. To comply with this policy direction, the OPA stopped accepting FIT applications for offshore wind projects.

6. Waiver of OPA Termination Rights

- On August 2, 2011, the Ministry of Energy directed the OPA to offer FIT contract holders the opportunity to have the OPA's termination rights under section 2.4(a) of the FIT Contract waived, with the intent to support manufacturing supply chain development.
- Section 2.4(a) of the FIT contract says that either the OPA or the developer may terminate the FIT contract until the OPA issues a notice to proceed (NTP) and the developer has paid the Incremental NTP security.
- The Minister's Directive established a December 31st, 2011 deadline for approved Domestic Content Plans and equipment purchase agreements. These plans need to be reviewed by the OPA. To ensure that there was enough time to thoroughly review plans, the OPA established the following timeline:
 - Large FIT projects (generally larger than 500 kW) must submit the waiver, a Domestic Content Plan and evidence of agreement(s) for the purchase of generating equipment as follows:
 - The waiver by October 14, 2011;
 - A Domestic Content Plan, in the prescribed form titled FIT contract form of Domestic Content Plan (waiver), by October 14, 2011; and

- Evidence of agreement(s) for the purchase of generating equipment, in the form of a Statutory Declaration, by November 30, 2011.
- The Domestic Content Plan would be reviewed for completeness and substantiation.
 - Medium-sized FIT projects must submit the Waiver and a Domestic Content Plan by 5 p.m. December 30, 2011.
- If those requirements are not met by the specified deadline, the waived termination rights will be reinstated.
- All developers still need to submit an NTP Request to the OPA and provide evidence of regulatory approvals (Renewable Energy Approval, or environmental assessment or screening in the case of a hydroelectric project), a completed Financing Plan, a Domestic Content Plan, if applicable, and documentation related to required impact assessments, as well as pay the required security.
- Further to the August 2, 2011 program update regarding the waiver on OPA termination rights, the following option on the waiver of OPA termination rights was announced on August 5, 2011:
 - If a developer submits an accurate and complete waiver on or before August 15, 2011, the OPA will use commercially reasonable efforts to review and execute the waiver by September 30, 2011.

FIT SUPPORT PROGRAMS

Aboriginal Energy Partnership Program (AEPP)

- On April 27, 2010, the Aboriginal Energy Partnerships Program (AEPP) was launched to provide knowledge and support to help communities interested in building new renewable energy generation projects in Ontario. It is administered by the Ontario Power Authority (OPA).
- Prior to this program, Ontario initiatives to support Aboriginal participation included a \$250-million loan guarantee program and price adders for Feed-In Tariff projects in which Aboriginal communities have a minimum of 10 per cent equity stake.
- The AEPP has three interrelated components as follows:
 - The Aboriginal Renewable Energy Fund
 - To fund some of the initial up-front costs associated with developing a new renewable energy project (e.g., resource assessments, engineering studies, environmental and regulatory approval studies, business plan preparation). Qualified Aboriginal community projects are eligible for a maximum of \$500,000 under this fund.
 - The Aboriginal Renewable Energy Network
 - This is an evolving web-based tool that provides information about Ontario's electricity system, types of renewable energy resources and technology, the FIT and microFIT programs, environmental requirements, business planning, project development and project management.
 - Aboriginal Community Energy Plans
 - This component is still under development. When complete, First Nation and Métis communities will have the opportunity to identify energy savings, identify new resources and plan their future energy needs.
- The ongoing evolution of the AEPP will be guided by advice and guidance from the Aboriginal Advisory Committee which is comprised of eight members nominated by First Nation Political Territorial Organizations, the Métis Nation of Ontario and the OPA.
- During the FIT launch period, the OPA received 38 Aboriginal-led or partnered project applications, with 16 projects receiving FIT contracts.
- Two additional FIT launch period contracts (representing one project) qualified for the Aboriginal price-adder, after a private developer entered into a strategic partnership with a group of First Nation communities.
- Following the most recent round of contract awards by the OPA, another project led by an Aboriginal community has been awarded a FIT contract. This brings the total number of Aboriginal-led or -partnered projects awarded FIT contracts to 19 for a total of 480.3 MW.

Community Energy Partnerships Program (CEPP)

- On May 10, 2010, the Community Energy Partnerships Program (CEPP) was launched. It covered up to 90 per cent of eligible development costs to a maximum of \$200,000 for community power projects greater than 10 kilowatts and no larger than 10 megawatts.
- Charities, not-for-profits and co-ops were eligible for the fund as well as projects developed by individual Ontario residents, such as farmers.
- One of the biggest barriers to the development of community-owned renewable energy projects was a lack of financial resources needed to cover upfront development costs which prevent renewable projects from coming on-line.
- The Community Power Fund and Deloitte are responsible for administering the CEPP. The Ontario Power Authority selected the Community Power Fund and Deloitte through a competitive procurement process.
- Funding under the Community Energy Partnerships Program is divided into two phases:
 - One phase involves project design and development. Examples of costs covered by the CEPP include engineering studies, business plan development and connection impact assessments.
 - Another phase provides funding support for regulatory approvals including federal and provincial environmental assessments and the province's Renewable Energy Approval.
- For the budget year ending May 31st 2011 funds totalling about \$4.18 million were committed (well within the \$10 million cap), covering 67 executed contracts for a range of solar photovoltaic, wind, hydro and bio-energy projects.
- At the end of July 2011, this total was up to \$5.03 million committed, covering 84 executed contracts for a total of 272 MW.
- To the end of July 2011, 79 (or 94%) of the 84 executed contracts were for solar PV or wind projects; 71 (almost 85%) were for solar PV projects, and 64 (or 76%) were for solar rooftop projects.
- From a total of 43 applications for CEPP Educational Grants received by the June 3rd deadline, 31 met all mandatory selection criteria, and 6 charity or not-for-profit proponents were awarded grants totalling \$483,004 (accounting for 96.6% of the \$500,000 annual allocation).

Updated on: October 4, 2011

Updated by Vernon Riediger, Senior Policy Analyst
Renewable Energy Unit
416-212-7706

Approved by: Leo Tasca, Manager
Renewable Energy Unit
416-326-3776

Pearl Ing, Director
Renewables and Energy Facilitation Branch
416-327-3868

Sue Lo, ADM
Renewables and Energy Efficiency Division
416-327-8552

APPENDICES

APPENDIX 1 – FIT PRICES

Feed-In Tariff Prices				
Renewable Fuel	Type	Size tranche	Contract Price ¢/kWh	Escalation Percentage**
Biomass*^		≤ 10 MW	13.8	20%
		> 10 MW	13.0	
Biogas*^	On-Farm	> 10 kW ≤ 100 kW	19.5	20%
		> 100 kW ≤ 250 kW	18.5	
	Any type	≤ 500 kW	16.0	
		>500 kW ≤ 10 MW	14.7	
		> 10 MW	10.4	
Waterpower*^		≤ 10 MW	13.1	20%
		> 10 MW <50 MW	12.2	
Landfill gas*^		≤ 10MW	11.1	20%
		> 10 MW	10.3	
Solar PV	Rooftop	≤10 kW	80.2	0%
		> 10 ≤ 250 kW	71.3	
		> 250 ≤ 500 kW	63.5	
		> 500 kW	53.9	
	Ground Mounted	≤10 kW	64.2	
	Ground Mounted^	> 10 kW ≤ 10 MW	44.3	
Wind^	Onshore	Any size	13.5	20%
	Offshore	Any size	19.0	

*Peak Performance Factor of x1.35 during On-Peak and x0.90 during Off-Peak applies for non-microFIT projects.

^Aboriginal Price Adder and Community Price Adder eligible as outlined below for non-microFIT projects.

**Escalation Percentage based on the Consumer Price Index will be applied to eligible Renewable Fuels as calculated in FIT Contract. The Base Date is September 30, 2009

The following table shows the maximum level of the Aboriginal and community price adders a project could receive in addition to the contract price:

	Wind	PV (Ground Mounted)	Water	Biogas	Biomass	Landfill Gas
Maximum Aboriginal Price Adder (¢/kWh)	1.5	1.5	0.9	0.6	0.6	0.6
Maximum Community Price Adder (¢/kWh)	1.0	1.0	0.6	0.4	0.4	0.4

Percentage of Control	Percentage of corresponding price adder
50% to 100%	100%
10% to 50%	Double the percentage of control
0% to 10%	0%

Briefing Note
April 12, 2012 CFPL Article “Green Energy: Samsung could miss targets for 2014”

Issue:

- April 12, 2012 article in CFPL titled, “Green Energy: Samsung could miss targets for 2014”.
- This article reveals an interview with Samsung officials which notes that the job commitments in the Green Energy Investment Agreement may not come to fruition as a result of delays to the Province’s Renewable Energy Approvals process and because of the ability for one individual to appeal a Renewable Energy Approval.

Key Messages:

- **We remain committed to working closely with Samsung on these very important projects.**
- **In an effort to expedite the Renewable Energy Projects approvals process, the government has created a new Renewable Energy Committee.**
- **This committee includes senior officials from relevant ministries who will meet on a regular basis to support the government’s efforts synchronizing the process with all government partners.**

Context:

- The Green Energy Investment Agreement (GEIA) was signed between the Korean Consortium (KC) and the Province of Ontario in January 2010. The Agreement was subsequently amended by both parties in July 2011.
- The Korean Consortium (KC) is made up of Samsung C&T and the Korean Electric Power Corporation (KEPCO) and plans to invest \$7 billion through construction operation of 2,500MW of wind and solar projects and establishment of four manufacturing facilities in Ontario.
- Ontario’s Long Term Energy Plan (LTEP) targets 10,700MW of renewables sourced from wind, solar and bio-energy by 2018 the Korean Consortium projects (wind and solar) make up ¼ of that target.
- Per the GEIA, KC is committed to establish four manufacturing plants in Ontario (Wind Towers - Windsor, Wind Blades - Tillsonburg, Solar Inverters – Don Mills, Solar Modules - TBD) and create 900 jobs by the

end of 2012. In return, KC receives priority access to Ontario's electricity grid and receives an economic development adder valued at \$110M.

- Samsung is very concerned about the impacts on their partner manufacturing plants if MOE requires the full six months for the GRAND REA technical review (decision rendered in September 2012)
- Strong likelihood that this project if approved, will be appealed to the Environmental Review Tribunal maximum six month delay) and/or possibly Judicially Reviewed (Divisional Court – possibly a year-to-two years to reach a decision)
- REA delay and the possibility of project appeal limit KC's ability to receive project financing from lenders resulting in KC not placing manufacturing orders at the manufacturing facilities and affecting the viability and jobs at the manufacturing facilities.
- Samsung currently has 2 Renewable Energy Approval submissions that are undergoing technical review by the MOE at this time:
 1. Grand Renewable Energy Project (Haldimand County) – 149MW wind and 100MW solar
- Pre-submission studies and field work were initiated mid-2009 for Grand Project.
- REA application submitted to the MOE in October 2011 (2.5 years after initiating pre-submission studies and field work).
- Submission was deemed complete March 12 2012 and is currently posted on the Environmental Bill of Rights for a 30 day public review and comment period.
 - Five months required to deem application complete (October 2011-March 2012) as a result of missing noise studies, missing endangered species application and ongoing Aboriginal consultation issues;
- Samsung is very concerned about the impacts on their partner manufacturing plants if MOE requires the full six months for the GRAND REA technical review (decision rendered in September 2012)
- Strong likelihood that this project if approved, will be appealed to the Environmental Review Tribunal maximum six month delay) and/or possibly Judicially Reviewed (Divisional Court – length of time unknown)
- REA delay and the possibility of project appeal limit KC's ability to receive project financing from lenders resulting in KC not placing manufacturing orders at the manufacturing facilities and affecting the viability and jobs at the manufacturing facilities.

2. South Kent Wind (Chatham Kent) – 270MW Wind Project

- REA application submitted to the MOE in October 2011
- REA submission deemed complete by MOE on February 7th 2012 and posted on the Environmental Bill of Rights (EBR) for a 30 day public review and comment period
 - Four months required (October 2011 to February 2012) to deem application complete by MOE as a result of an incomplete cumulative noise assessment study for the Project
 - Work on REA studies initiated in 2010 by Samsung/Pattern for the South Kent Project – approximately 2 years to submit REA application (January 2010-October 2011)
- Pattern/Samsung submitted turbine location changes (39) following the EBR posting:
 - As a result of project changes, MOE will post the application for an additional 30 days once project studies are updated by Pattern/Samsung.
 - MOE has communicated to KC that the technical review will not be stopped while Pattern is revising the reports - unless there are major concerns with the updated reports or comments made through the EBR posting.
- On March 22, 2012 Premier McGuinty received a letter from Samsung's CEO highlighting delays to Renewable Energy Approvals for Samsung's Phase 1 Projects (Grand and South Kent)
- According to Samsung as a result of the REA delays, there have hiring delays at manufacturing plants:
 - Impacting the Green Energy Investment Agreement commitment of 900 jobs by December 2012)
 - Threatening the life/success of the commercially operational plants
 - Investment delays at the manufacturing plants
 - Hefty penalties owed by Samsung to their manufacturing partners
- Samsung has also requested that:
 - They require extensions to their Phase 3,4,5 commercial operation dates
 - Need to manage risk associated with curtailment in power purchase agreements
- Samsung requests that the Premier:
 - Allocate more staff in MOE to review Samsung project applications
 - Empower working group members at ENERGY or appoint an executive lead to champion Samsung projects within government
 - Shorten Renewable Energy Approval (REA) appeal process

- Approve non-appealable REAs for the South Kent Wind Farm and Grand Renewable Energy Park no later than July 1, 2012.
- March 29, 2012 - delays to the Renewable Energy Approvals process and Samsung's projects was raised at the multi-corners Renewable Energy Committee by Enerav.

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- April 3, 2012 – Minister Bentley had a telephone conversation with Senior Executive Vice President Choo, Samsung and communicated the government's proactive actions on this issue. These actions include:
 - a. committed to expediting the technical review on the Grand and South Kent projects by June 15, 2012 (shortened by more than half of the available six month MOE service guarantee).
 - b. In an effort to streamline the Renewable Energy Process, the government has created a new Renewable Energy Committee that includes senior officials from relevant ministries to help drive the progress of projects through the approvals process. This Committee will continue to meet on a regular basis to support the government's efforts in leading and synchronizing the approvals process across involved Ministries.
 - c. The government sees no need to consider the request to shorten the REA appeal process at this time.

Prepared by:

Jennifer Wismer
Director (A), Project Management Office
Ministry of Energy
April 13, 2012

QUICK FACTS

FEED-IN TARIFF Ontario Energy by the Numbers

1

Ontario has North America's [first comprehensive feed-in tariff program](#).

5

[Five technologies](#) are eligible for the Feed-in Tariff (FIT) and microFIT programs: wind, solar, biogas, landfill gas and hydro.

25

The [minimum percentage of domestic content for wind projects](#) to the end of 2011.

50

The [minimum percentage of domestic content for wind projects](#) beginning January 1, 2012.

60

The current [minimum percentage of domestic content for solar projects](#).

2,101

The number of [FIT contracts](#) as of August 5, 2011.

4,356

The number of [megawatts](#) of FIT contracts as of August 5, 2011.

7,652

The number of [microFIT projects](#) connected as of August 15, 2011.

22,929

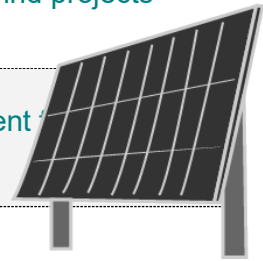
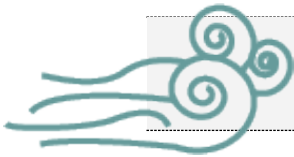
The number of [microFIT conditional offers](#) as of August 15, 2011.

67

The number of [megawatts](#) of microFIT projects connected as of August 15, 2011.

209

The number of [megawatts](#) of microFIT conditional offers as of August 15, 2011.



QUICK FACTS

ELECTRICITY GENERATION - SOLAR

Ontario Energy by the Numbers

1

Ontario is home to the **largest operational solar photovoltaic (PV) farm** in the world.

10

The **10 largest solar farms** in Canada are located in Ontario.

80

The capacity of Enbridge's solar farm, the largest operational solar PV farm in the world, is **80 megawatts**.

99

99 per cent of microFIT applications are for solar PV.

300

More than **300 megawatts** of solar power are online in Ontario, and are expected to produce enough electricity each year to power more than 40,000 homes.

1,500

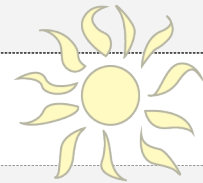
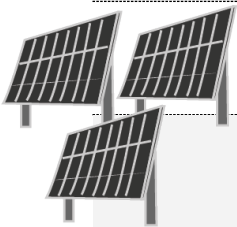
In addition to solar power that is online, more than **1,500 megawatts** of solar PV are under contract, and are expected to produce enough electricity each year for about 190,000 homes.

50,000

A typical 10 megawatt FIT solar farm has roughly **50,000 solar panels**. This assumes the size of each panel is 230 Watts.

50

A typical 10 kilowatt microFIT solar project has roughly **50 solar panels**. This assumes the size of each panel is 230 Watts.



QUICK FACTS

ELECTRICITY GENERATION – WIND

Ontario Energy by the Numbers

1

Ontario **ranks first** for installed wind capacity in Canada.



1.8

The average size of a wind turbine in Ontario is **1.8 megawatts**, which is expected to produce enough electricity each year to power nearly 500 homes.

4

Ontario has the **four largest wind farms** in Canada.

34

Ontario has **34 wind farms** in service.



40

The average audible sound from a wind turbine is **40 decibels**, which is the level of sound found in most living rooms.

80

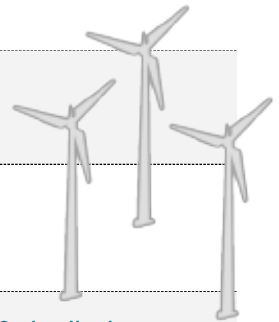
New turbine towers on a wind farm are typically between **80 and 100 metres tall**.

900

More than **900 wind turbines** are operating in Ontario.

1,600

Ontario has more than **1,600 megawatts** of wind generating capacity online, which is expected to produce enough electricity each year to power more than 450,000 homes.



Large Renewable Competitive Procurement Process

ISSUE:

The OPA is developing a new competitive procurement process for future renewable energy projects larger than 500 kilowatts (kW). The new process will replace the existing large project stream of the Feed-In Tariff (FIT).

RESPONSE:

- Building clean, reliable and affordable energy in a way that respects communities is our top priority.
- Ontario is developing new processes to strengthen municipal participation in future renewable energy projects. We will continue to honour existing contracts. We will be seeking input from municipalities as the process is developed. The changes we're making will provide municipalities with a stronger role going forward.
- We have asked the Ontario Power Authority (OPA) to develop a new competitive procurement process for future renewable energy projects larger than 500 kilowatts (kW), which will take into account local needs and considerations before contracts are offered.
- This new competitive procurement process, tailored to meet the needs of communities, will replace the Large Feed-In Tariff (FIT) program.
- The OPA has begun to engage with stakeholders, municipalities and Aboriginal communities to help inform the identification of appropriate locations and siting requirements for future renewable energy projects and will report back to Minister of Energy with interim recommendations by September 1, 2013.
- We need to ensure our approach is balanced and considers the views of local communities while ensuring the long-term sustainability of Ontario's electricity system.
- We will be in a position to provide more details once we have completed this development work – we expect to have more information once the province has updated its Long-Term Energy Plan later in the fall.

CURRENT STATUS:

Ontario Power Authority (OPA):

- On June 12th, the Minister of Energy directed the OPA to make changes to the FIT Program, including removing large renewable projects from the program and providing a new competitive procurement process for large renewables that considers input from stakeholders, municipalities and Aboriginal communities to help identify appropriate locations and siting requirements for large renewable projects
- In response to the Minister's June 12th directive, the OPA launched its consultation initiative on the competitive procurement process on August 1, 2013.
- Engagement activities include:
 1. **Webinars** – The OPA has hosted 3 webinars to discuss the development of the new procurement process.
 - Municipal Webinar held on Aug 7, 2013 at 10am
 - Public Webinar held on Aug 7, 2013 at 2pm
 - First Nations and Metis Communities Webinar held on Aug 8, 2013 at 2pm

2. **Stakeholder meetings** – A series of meetings will be held the weeks of August 12th and 19th, 2013 to further the discussion on the development of the procurement process. Invitations for these meetings are expected to be issued shortly.
 3. **Written submissions** –Written submissions on the development of the new procurement process will be accepted until Wednesday, August 21, 2013. Submissions should be sent to lrp@powerauthority.on.ca with the subject line: Feedback on the Large Renewable Competitive Procurement Process.
- The OPA will be providing the Minister with interim recommendations by September 1, 2013, and it is expected that additional engagement activities will occur in fall 2013.

Ministry of Energy:

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- The Ministry of Energy is in the process of planning the inter-ministerial consultation.

BACKGROUND:

- Over the past 10 years, Ontario has brought more than 3,400 megawatts of renewable energy online — enough to power 900,000 homes each year.
- During the last decade Ontario has issued several request for proposals (RFP) for renewable energy supply:
 - 2004 – Renewable Energy Supply I
 - 2005 – Renewable Energy Supply II
 - 2008 – Renewable Energy Supply III
- On June 24, 2004 the Ministry of Energy issued a request for proposals (RFP) for 300 MW of renewable energy supply (RES I). This resulted in the execution of 10 contracts for wind, hydro and landfill gas projects.
 - On November 6, 2005, the Minister of Energy directed the Ontario Power Authority to assume these contracts.
- On June 17, 2005, the Ministry of Energy issued a request for proposals for up to 1,000 MW of renewable energy supply (RES II).
 - Nine proponents were selected.
- On November 16, 2005, the Minister of Energy directed the Ontario Power Authority to execute these contracts.
 - Two contracts from RES I and II have been terminated.
- In order to meet renewable energy targets in the June, 2006 Supply Mix Directive, on August 27, 2007, the Minister of Energy directed the OPA to procure up to 2,000 MW of renewable energy generation of projects greater than 10 MW in size. 500 MW were to be procured by the end of 2007 (RES III).
- The OPA issued the Renewable Energy Supply III Request for Proposals for 500 MW of renewable energy supply on August 22, 2008.
 - Six winning projects, all wind, were announced on January 23, 2009. Of these, 1 was terminated.

- RFP Contract Requirements:
 - Evaluation criteria for all RFPs incorporated desired positive project attributes – quality and low price.
 - Prices determined through market discovery.
 - Successful bids ranged from 8.2 cents/kWh to 11.9 cents/kWh.
 - Proponents were required to post security deposits, undergo review of their finances, and commit to in-service dates.
 - There were financial consequences for failing to reach in-service deadlines.
 - Domestic content was not required
 - The majority of projects were wind power (1,509 MW out of 1,566 MW).
 - Only one RES projects has not yet come online: Yellow Falls (formerly Island Falls) Generating Station: 20MW waterpower in Smooth Rock Falls. Expected to come on-line in Q3 2016

Prepared on: August 8, 2013

Updated by : Jason Collins
Renewable Energy Facilitation Office
416-212-7717

Prepared by: Comms

Approved by: Leo Tasca
Manager (A)
Renewable Energy Facilitation Office
416-212-7701

Mirrun Zaveri
Director (A)
Renewables and Energy Facilitation Branch
416-327-3868

Kaili Sermat-Harding
ADM (A)
Renewables and Energy Efficiency Division
416- 327-5555

Electricity Generation and Consumption

- Ontario consumed about 141.3 terawatt-hours of electricity, or 141,300,000,000 kilowatt hours, in 2012.
- Ontario has over 5.2 million electricity consumers, including:
 - 4.8 million residential customers;
 - 427,000 small business customers;
 - 57,000 mid-sized business customers; and
 - 144 large industrial customers.
- About 65 large industrial customers generally account for **one-sixth** of all electricity consumption in Ontario.
- Since October 2003, more than 3,100 MW of renewable (solar, wind, hydro, bioenergy) energy capacity has come online. This is expected to produce enough electricity each year to power over **900,000 homes**.
- More than **80 per cent** of the power generated in Ontario in 2012 came from **emission-free sources**, like wind, hydroelectric and nuclear.
- Since 2003, Ontario has added about **11,500 MW** of new and refurbished clean electricity generation capacity – that’s almost **one-third** (32%) of our current supply.

Generation Type	Installed Capacity	2012 Generation
Nuclear	36%	56.4%
Gas/Oil	28%	14.6%
Hydro	22%	22.3%
Coal	9%	2.8%
Wind	4%	3.0%
Other (Bio)	0.3%	0.8%

(Note that the IESO only tracks generators connected to the transmission system. No solar is connected to the transmission system at this time so it is not included in this table.)

Nuclear

- Nuclear operates 24 hours a day, seven days a week, and produces over **50 per cent** of the electricity generated in Ontario.
- Ontario has three nuclear power plant sites – **Bruce, Darlington and Pickering** – with a total of **18 operational reactors**.

Hydro

- Ontario has almost **200 waterpower facilities** with a total installed capacity of more than **8,200 megawatts** - enough electricity to power **more than 3 million homes**.

Coal

- By the end of 2014, Ontario will be one of the first jurisdictions in the world to eliminate coal as a source of electricity production.
- Ontario has shut down 11 of 19 coal units.
- By the end of 2013, Southern Ontario will be coal-free and only one coal-fired station (with two units) will remain in the North for reliability purposes until the end of 2014.
- Coal-fired generation made up only **2.8 percent** of Ontario's total electricity generation last year – a decrease of **nearly 90 percent compared to 2003**.
- Replacing coal will reduce Ontario emissions by **up to 30 megatonnes** – making it the single largest climate change initiative in North America.

"Coal is especially damaging to our atmosphere, releasing 70% more carbon dioxide than natural gas for every unit of energy produced" (World Wildlife Federation)

Natural Gas

- Ontario has nearly 10,000 megawatts of natural gas-fired generation capacity.
- In 2012, Ontario's natural gas-fired generators produced enough electricity to power over **2 million homes**.

Solar

- About **650 megawatts** of solar power are online - enough electricity each year to power about **90,000 homes**.
- When it was first built in 2010, **Enbridge's 80 MW solar farm in Sarnia**, was the largest operational solar photovoltaic (PV) farm in the world; that's enough electricity to power **10,000 homes**.

Wind

- Ontario has more than **2,000 megawatts** of wind online, generated by more than **1,100 turbines** - enough electricity each year to power more than **550,000 homes**.
- In 2003, there were only **15 megawatts** of wind power generated by ten turbines.
- Ontario has **about 60 wind farms in service**, including the five of the six largest wind farms in Canada.
- Ontario's regulatory requirements for wind turbine noise are consistent with the 2009 World Health Organization outdoor night noise limit of **40 decibels** – similar to the noise level in a library or office.

Conservation

- Since 2005, Ontarians have conserved over 1,900 MW of peak demand savings — the equivalent of **over 600,000 homes being taken off the grid**.
- Through our Long-Term Energy Plan, we have set a goal of reducing peak energy demand by 7,100 mega-watts and consumption by 28 terawatt-hours by the year 2030. This represents the **equivalent of taking over 2.4 million homes off the grid**.
- Under the Green Energy Act, local distribution companies were assigned mandatory conservation targets for 2011 to 2014 – the aggregate targets for all LDCs are **1,330 MW of provincial peak demand savings and 6,000 GWh of overall demand**.
- Since early 2010, the Ontario Power Authority and local distribution companies have worked to design and deliver province-wide conservation programs that include **over 20 initiatives to help Ontario families and businesses understand and manage their energy usage**.
- A four year investment in the province-wide conservation programs is expected to yield: **\$4B benefit to the electricity system** (lifetime avoided supply costs)

Nuclear Job Creation

- The Ontario nuclear power industry supports **15,600 jobs** annually, including **7,800 direct jobs**.

- Refurbishing the Darlington and Bruce units and operating Ontario's existing nuclear capacity – will annually generate around **25,000 jobs** (**9,000 jobs** for refurbishments in addition to the **15,600 jobs** for operations) and over **\$5 billion** in annual economic activity. (*Canadian Manufacturers & Exporters, 2010*)
- The Darlington refurbishment project alone will create more than **6000 direct and indirect jobs** in the Durham community and across Ontario.

GEA Jobs

- To date, Ontario's green initiatives have helped lead to the **creation** of more than **28,000 jobs**.
- Ontario remains on track to create **50,000 jobs**.

Samsung

- Samsung and its partners are developing **2,000 MW** of wind projects and **500 MW** of solar projects.
- Currently 6 Power Purchase Agreements have been signed, totalling **1,068 MW - 200 MW** of solar and **868 MW** of wind.
- This Agreement commits Samsung to bring **4 green manufacturing partners** to Ontario, with an investment totalling **\$7 billion**.
- As part of the re-negotiated Samsung agreement signed in July 2011, the economic development adder payments to Samsung were reduced.
- Adder reduced to a maximum of **\$110 million** for Phase 1 and Phase 2 projects only (which are spread over 20 years)
- Down from a projected **\$437 million** when the deal was first signed.

Health Impacts of Reducing Emissions via Coal Closure and Clean Energy

Ontario's decision to replace its coal-fired electricity generation (as it existed in 2005) is expected to result in:

- **\$4.4 Billion** in avoided annual financial, health care and environmental costs
- **668 fewer** premature deaths per year
- **928 fewer** hospital admissions per year
- **1,100 fewer** emergency room visits per year

- **333,660 fewer** minor illnesses such as headaches, coughing and other respiratory symptoms per year
- **Reduced economic costs such as lost productivity/time; sick days; cost of treatment; pain and suffering**

Electricity Pricing

- A typical residential consumer in Ontario uses **800 kilowatt-hours** of electricity per month.
- As of June 2011, approximately **4.7 million** smart meters are installed.
- More than **4.4 million** customers are on Time-of-Use pricing (TOU).

Regulated Price Plan (as of Nov 1 st , 2012)	
Tiered Prices	Time-of-Use (TOU) Prices
<i>First 1,000 kWh: 7.4 ¢</i>	<i>Off-peak: 6.3 ¢ (7 PM to 7AM)</i>
<i>After 1,000 kWh: 8.7 ¢</i>	<i>Mid-peak: 9.9 ¢ (7AM TO 11AM) & (5PM TO 7PM)</i>
	<i>Peak: 11.8 ¢ (11AM to 5PM)</i>

Electricity Bills (after-tax, including the Ontario Clean Energy Benefit, w/ 3,000/month kWh cap)

- Typical monthly Ontario electricity bill for TOU customers, at current rates:
 - Residential: \$120 (800kWh)
 - General Service: \$289 (2,000kWh)
 - Small Business: \$1,445 (10,000kWh) (with cap)
- Typical monthly Ontario electricity bill for tiered customers, at current rates:
 - Residential: \$118 (800kWh)
 - General Service: \$295 (2,000kWh)
 - Small Business: \$1,518 (10,000kWh) (with cap)

Programs/credits in place to assist with energy costs include:

The *Ontario Clean Energy Benefit* (OCEB) – the benefit provides 10% off electricity bills up to 3,000 kWh/month for eligible consumers.

Customer Type	Savings (w/ 3,000/month kWh cap,

	TOU Customers)
<i>Residential (9,600 kWh/ year)</i>	\$160/ year
<i>Farms (144,000 kWh/ year)</i>	\$590/ year
<i>Small Businesses (120,000 kWh/ year)</i>	\$536/ year

- The OCEB provides a benefit equal to ten per cent of the total cost of electricity on eligible consumers' bills, including tax, limited to the first 3,000 kWh of electricity consumed each month. The 3,000 kWh per month cap became effective on September 1, 2012.

The *Energy and Property Tax Credit*

Customer Type	Property Tax Relief	Energy Sales Tax Relief	Total Relief
<i>Individuals & Families</i>	\$736	\$210	\$946
<i>Seniors (65+)</i>	\$868	\$210	\$1,078

- The amount of the credit is based on adjusted net income and the amount of rent or property tax paid.

The *Northern Ontario Energy Credit* (NOEC) – helps eligible individuals and families living in Northern Ontario.

Customer Type	Tax Relief
<i>Families</i>	Up to \$210
<i>Individuals</i>	Up to \$137

- To be eligible for the NOEC, consumers must live in northern Ontario, and pay property taxes or rent for their principal residence. The amount of the credit is based on adjusted net income.

The *Northern Industrial Electricity Rate Program* (NIERP)

- Provides about a **25%** reduction in bills for eligible industrial customers.
- A 3 year extension of NIERP will be effective in 2013/2014.

Criteria

- must be located in Northern Ontario
- consume a minimum of 50,000 megawatt hours of electricity per year
- be classified as being in the Mining or Manufacturing sectors
- Expires March 31, 2013

The *Industrial Conservation Initiative* (ICI)

- Companies can reduce bills by reducing consumption of electricity during the 5 highest peak hours.
- In general, to be eligible for the program, consumers must have an average monthly peak demand of five megawatts or higher.

Feed-in-Tariff

Six technologies are eligible for the Feed-in Tariff (FIT) and microFIT programs:

- on-shore wind
- solar photovoltaic (PV),
- biogas,
- landfill gas,
- biomass
- hydro

Domestic content requirements

- Wind: **50 %** as of Jan. 1, 2012.
- Solar: **60 %**. as of Jan. 1, 2012

Projects

- There are over 1,700 Small and Large FIT contracts totalling almost **4,700 MW**
 - Wind contracts: **75 projects – 3,113 MW** - enough electricity each year to power over **850,000 homes**
 - Solar contracts: **1,559 projects - 1,189 MW** - enough electricity each year to power over **150,000 homes**
- Including **450 megawatts** of clean, renewable energy under contract with Aboriginal led or partnered projects, with participation from at least **12 First Nation communities**.

- Total **connected** microFIT projects: almost **15,000 projects – 130 MW** - enough electricity each year to power over **15,000 homes**.
- microFIT **conditional** offers not yet online: **over 7,500 projects – over 70 MW** - enough electricity each year to power almost **15,000 homes**

Hydro

- Almost **700 MW** of new and refurbished hydroelectric capacity is expected to be added **by 2018** - enough electricity to power over **450,000 homes**.
- The Niagara Tunnel project (Big Becky) is the largest project of its kind under construction in the world,
- It will produce **1.6 billion kilowatt-hours** of electricity per year - enough to power **160,000 homes** for the next 100 years.
- The Lower Mattagami hydroelectric project will add about **440 megawatts** – enough electricity to power an additional **150,000 homes**.
- It is also providing **\$2.6 billion** of investment in the North, as well as 1,300 jobs.

Nuclear

- Nuclear is expected to continue to be the single largest source for Ontario's electricity generation over the next 20 years.
- Ontario is expected to refurbish approximately 10,000 MW of generation at Darlington and Bruce, and carefully assessing plans to build a new nuclear plant at Darlington with a capacity of about 2,000 MW.
- Together, these 12,000 MW of generation will provide enough electricity to power around 50% of the Province's requirements.

Natural Gas

- **393 megawatts** of peaking natural gas-fired generation came online in 2012 – enough to power **140,000 homes**.

- The need for an additional 450 MW of gas generation capacity has been identified in the Long Term Energy Plan.

Electricity Transmission

- Hydro One’s system includes about 29,000 kilometres of transmission lines and 123,000 kilometres of distribution lines - enough to circle the earth 3 times.
- Since 2003 we’ve invested more than \$10 billion into Hydro One’s transmission and distribution system, including upgrades to more than 7,500 km of power lines (transmission and distribution) – more than twice the distance from Sault Ste. Marie, Ontario to Vancouver, B.C.
- The IESO estimates that significant transmission projects over the last the ten years have increased Ontario’s transmission capacity by about 10,000 MW.
- One example of these significant investments is the Bruce to Milton Reinforcement Project which went into service in 2012. It is the largest transmission infrastructure investment in Ontario in the last 20 years.

Grid Investments (millions)			
Year	Investment	Year	Investment
1996	\$308M	2004	\$720M
1997	\$304M	2005	\$687M
1998	\$359M	2006	\$819M
1999	\$510M	2007	\$1,071M
2000	\$432M	2008	\$1,274M
2001	\$521M	2009	\$1,561M
2002	\$546M	2010	\$1,565M
2003	\$581M	2011	\$1,438M

Local Distribution Companies

- **80 local electricity distribution companies** licensed by the Ontario Energy Board (77 of which are rate-regulated)
 - Of Ontario’s **4.8 million** residential customers - **28%** are served by Hydro One’s distribution companies (**1.3 million** customers).
 - The remaining customers are served by other local distribution companies, such as Toronto Hydro, London Hydro and Hydro Ottawa.
 - Thirty-two remote communities in Ontario are not connected to the provincial transmission grid and rely on

diesel generation for their electricity. Twenty-five of these are First Nation communities in Northwestern Ontario.