

A Progress Report On Contracted Electricity Supply

THIRD QUARTER 2014



Preface

The Ontario Power Authority (OPA) was established by the Ontario government under the *Electricity Restructuring Act, 2004* (amending the *Electricity Act, 1998*), as Ontario's long-term energy planner to ensure a clean, reliable, cost-effective and sustainable supply of electricity for Ontarians.

Together with our partners, we ensure that electricity needs are met for the benefit of Ontario both now and in the future. We plan and procure electricity supply from diverse resources and facilitate the measures needed to achieve ambitious conservation targets.

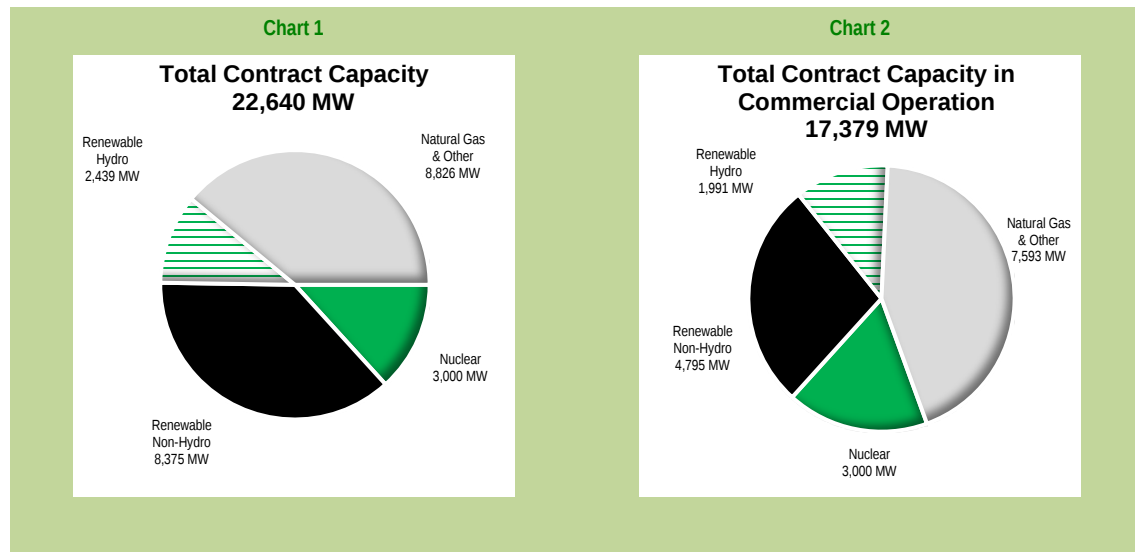
In accordance with the Ontario Energy Board (OEB) Order EB-2005-0489, dated March 3, 2006, the OPA posts regular updates on its website on the progress of procurement initiatives, including the progress of selected projects, subject to confidentiality constraints. *A Progress Report on Contracted Electricity Supply* is updated quarterly to provide the status of the OPA's contracted electricity supply projects and procurement initiatives. The numbers and information provided in this report include only electricity projects and initiatives in Ontario contracted by the OPA.

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Report Summary

Overview



As of the end of the third quarter of 2014, the OPA administered contracts for 22,640 megawatts (MW) of electricity supply generation, of which 17,379 MW or 77 percent were already in commercial operation.

Of the 22,640 MW of supply capacity, 4,675¹ MW were procured from existing generating facilities, which required minimal or no new capital investment. The remaining capacity was procured from new development, expansion, redevelopment or refurbishment of existing facilities.

Since the last reporting period, capacity increased by 118 MW. This was as a result of the addition of 145 MW through new contracts offset by a reduction in capacity of 27 MW.

By the end of the reporting period, the OPA had 8,375 MW of renewable non-hydroelectric, 2,439 MW of renewable hydroelectric, 8,826 MW of natural gas and other fuel sources, and 3,000 MW of nuclear capacity under contract (see Chart 1).

Of this total capacity, 4,795 MW from renewable non-hydroelectric, 1,991 MW from hydroelectric, 7,593 MW from natural gas and other fuel sources, and 3,000 MW from nuclear generation were in commercial operation, for a total of 17,379 MW (see Chart 2). The remaining 5,314 MW of the OPA's contracted capacity (including the Smoky Falls 53-MW

¹ Includes the existing Smoky Falls Generating Station with a capacity of 53 MW, which will be decommissioned in January 2015.

facility) were in various stages of development. Chart 3 below illustrates the contracted generation capacity by fuel type.

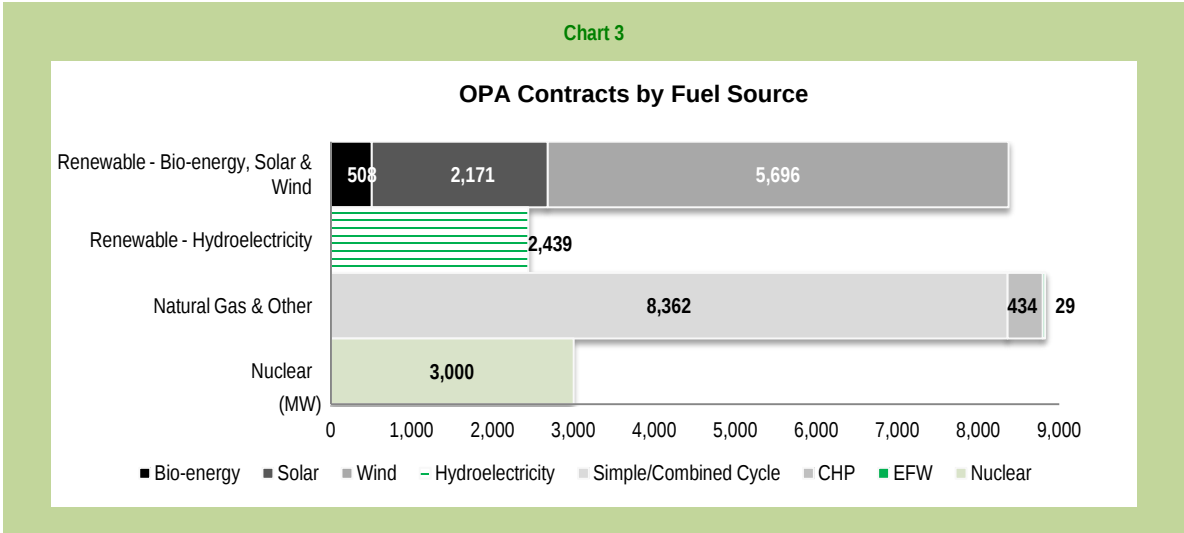


Table 1: Breakdown of Total Contracted Capacity as of September 30, 2014

	Total (MW)	Under Development (MW)	Commercial Operation (MW)
Renewable			
Bio-energy	508	175	333
Solar	2,171	775	1,396
Wind	5,696	2,631	3,066
Non-Hydroelectric – Subtotal	8,375	3,581	4,795
Hydroelectric	2,439	501	1,991 ²
Renewable – Subtotal	10,814	4,082	6,786
Natural Gas and Other Fuel Sources			
Combined Heat and Power (CHP)	434	14	420
Simple Cycle and Combined Cycle (SC/CC)	8,362	1,189	7,173
Energy-from-Waste (EFW)	29	29	0
Natural Gas and Other – Subtotal	8,826	1,233	7,593
Nuclear			
Bruce A	3,000	0	3,000
Nuclear – Subtotal	3,000	0	3,000
Total Contract Capacity (MW)³	22,640	5,315	17,379

New Contracts

Renewable Energy – Hydroelectricity

The OPA entered into a new Hydroelectric Contract Initiative (HCI) contract with 1149377 Ontario Limited for 1.65 MW of capacity. The Chiblow Lake Generating Station is located in Blind River in the District of Algoma. The facility is in commercial operation.

Renewable Energy – Non-Hydroelectricity

Solar

Within the reporting period, 3.6⁴ MW of combined capacity was contracted through the micro Feed-in Tariff (microFIT) Program and 0.3 MW of combined capacity was contracted through the FIT 2 Program.

² The existing Smoky Falls capacity of 53 MW to be decommissioned in January 2015 is included in the current in-service capacity but is excluded from the total capacity.

³ Totals may differ due to rounding.

⁴ The capacity of the executed microFIT contracts is in-service capacity.

Bio-energy

Under a directive from the Ministry of Energy dated November 23, 2010, in the third quarter of 2014 the OPA successfully negotiated and executed an eight-year non-utility generator (NUG) contract with Tembec Industries Inc. for an existing biomass facility. The Chapleau Co-Generating Station, with a capacity of 5 MW, is a combined heat and power facility located in Chapleau in the District of Sudbury. The facility is now in commercial operation.

In addition, 135 MW were also contracted from Ontario Power Generation through the Thunder Bay Biomass Energy Supply Agreement (TBESA). Unit 1 of the existing Thunder Bay Generating Station will undergo equipment conversion in order to accept advanced biomass as its fuel. The facility is located in Thunder Bay and is under development.

Contracts That Reached Commercial Operation

Renewable Energy – Hydroelectricity

Within the reporting period, 89.3 MW of capacity came into commercial operation under the Hydroelectric Energy Supply Agreement (HESA). Construction of the Smoky Falls Generating Station Unit 1 was completed and the unit achieved commercial operation on September 30, 2014. This facility is located in the District of Cochrane.

Renewable Energy – Non-Hydroelectricity

Bio-energy

Within the reporting period, 205 MW of capacity came into commercial operation under the Atikokan Biomass Energy Supply Agreement (ABESA). Construction of the Atikokan Generating Station was completed and the unit achieved commercial operation on July 24, 2014. This facility is located in Atikokan in the District of Rainy River.

Solar

Within the reporting period, further to the 3.6 MW of combined capacity from the microFIT Program, 156.9 MW of combined capacity came into commercial operation under the FIT Program.

Wind

Within the reporting period, 203.5 MW of capacity came into commercial operation under the FIT Program. An additional 9.48 MW of capacity came into commercial operation under RESOP.

Contract Amendments

Renewable Energy – Non-Hydroelectricity

Bio-energy

Within the reporting period, capacity was decreased by 0.1 MW through contract amendments to one contract under the FIT Program.

Solar

Within the reporting period, capacity was decreased by 1.1 MW through contract amendments to 47 contracts under the FIT Program.

Wind

Within the reporting period, capacity was decreased by 1.7 MW through contract amendments to two contracts under the FIT Program.

Contract Terminations

Other Fuels

Within the reporting period, 2.7 MW of capacity was terminated by mutual agreement.

Renewable Energy – Non-Hydroelectricity

Solar

Within the reporting period, 5.5 MW of capacity from 26 FIT contracts was terminated by mutual agreement.

Wind

Within the reporting period, 16.5 MW of capacity from one FIT contract was terminated by mutual agreement.

Contract Capacity – Progress Table

The following table shows the OPA-contracted capacity that has achieved commercial operation since 2005 and the capacity that is expected to reach commercial operation up to 2022⁵.

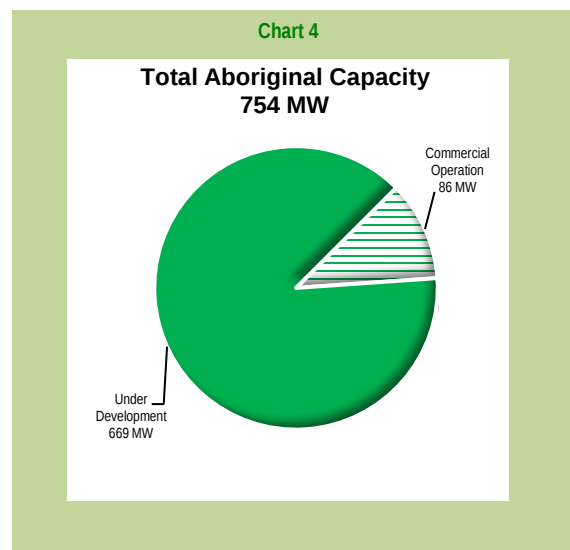
Table 2: Contract Capacity (MW) – Commercial Operation Progress Table as of September 30, 2014

Energy Supply	2005-2012	2013	2014	2015	2016	2017	2018	2019	2020-2021	2022	Total
Renewable	4,436	938	3,354	1,474	100	50	413	13	0	35	10,814
Natural Gas and Other Fuel Sources	7,654	(63) ⁶	7	0	20	289	909	10	0	0	8,826
Nuclear	3,000	0	0	0	0	0	0	0	0	0	3,000
Total	15,090	875	3,361	1,474	120	339	1,323	24	0	35	22,640
Cumulative Total	15,090	15,964	19,325	20,800	20,920	21,259	22,581	22,605	22,605	22,640	

Aboriginal and Community Participation under the FIT Program⁷

Aboriginal Participation

By the end of the reporting period, First Nations and Métis communities were participating in 243 FIT projects located throughout Ontario. This included 76 MW of solar, 599 MW of wind and 80 MW of hydroelectric generation projects.



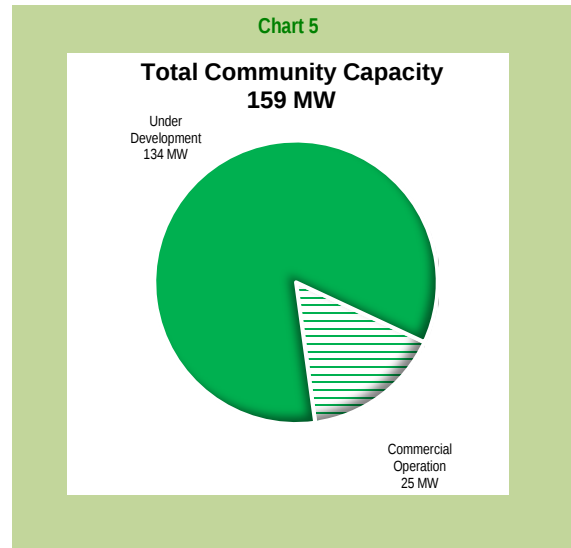
⁵ Totals may differ due to rounding.

⁶ The new contract capacity of the Lennox Generating Station for its 10-year contract is 2,000 MW, a reduction of 140 MW from the original contract. Within the same period, the OPA also entered into an Energy-from-Waste pilot contract with Plasco Trail Road Inc. for the 2.8-MW Plasco Trail Road Energy-from-Waste facility. A new NUG contract was signed for 73.7 MW. The net change in capacity was therefore -63 MW.

⁷ This section includes only FIT contracts for which the supplier has indicated Aboriginal or community participation under the rules of the FIT Program. Non-FIT contracts that have Aboriginal or community revenue and profit-sharing arrangements or co-ownership are not included.

Community Participation

By the end of the reporting period, Ontario communities were participating in 211 renewable generation projects located throughout the province. This included 14 MW of bio-energy, 53 MW of solar, 87 MW of wind and 5 MW of hydroelectric generation projects.



Additional Details and Related Links

For further information on the OPA's electricity supply projects, visit:

<http://www.powerauthority.on.ca/current-electricity-contracts>.

For further information on the OPA's multiple FIT programs, visit:

<http://fit.powerauthority.on.ca>.

For further information on programs offered to First Nations and Métis communities, visit:

<http://www.aboriginalenergy.ca>.

Renewable Energy

Non-Hydroelectric Projects

By the end of the reporting period, the OPA was managing 8,375 MW of combined capacity from renewable non-hydroelectric energy projects, of which 4,795 MW were in commercial operation and 3,581 MW were under development. The breakdown is shown in Charts 6 and 7 below.

Chart 6

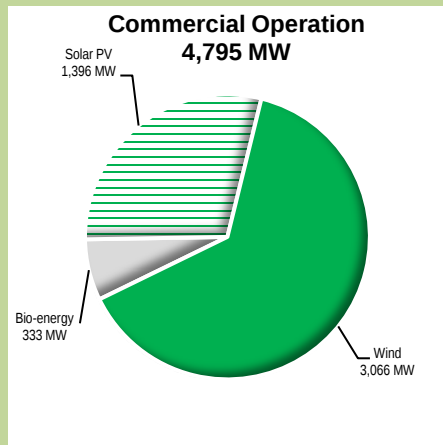
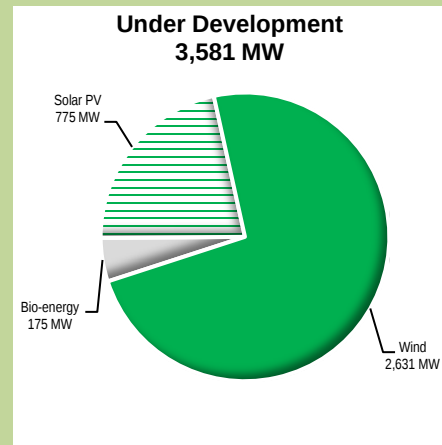


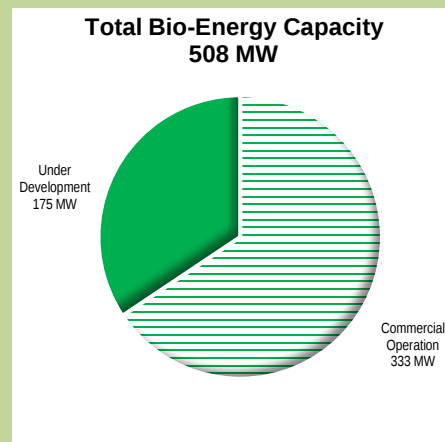
Chart 7



Bio-Energy

By the end of the reporting period, the OPA was managing 508 MW of combined capacity from bio-energy projects. Of the total capacity, 333 MW were in commercial operation and 175 MW were under development. All of the capacity from projects that were under development is scheduled to be in service at or before the end of 2016.

Chart 8



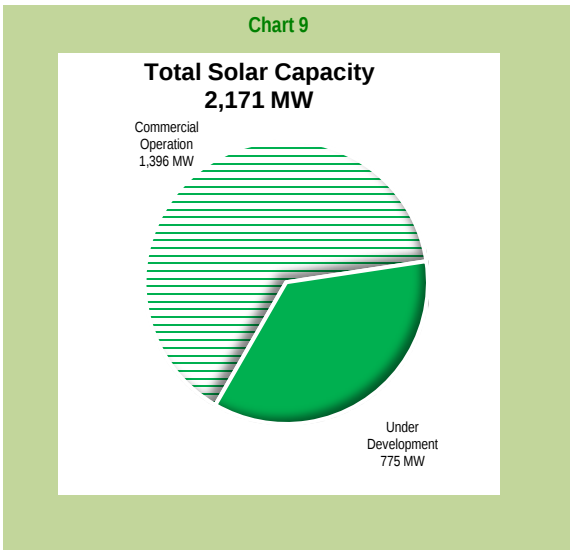
The status of the non-FIT bio-energy projects under development in the reporting period, as submitted by developers to the OPA, is shown in Table 3 below.

Table 3: Progress Status of non-FIT Bio-Energy Projects as of September 30, 2014

Developer	Project
Ontario Power Generation	Thunder Bay Generating Station Biomass Conversion, Thunder Bay
	Capacity: 135 MW
	Status: - Initial fuel supply contract was awarded and first delivery of fuel was received - Construction contract was awarded and construction was mobilized on site

Solar

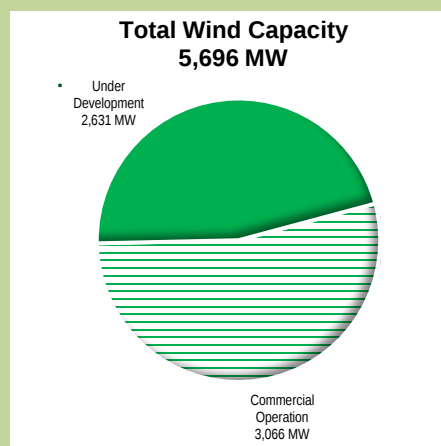
By the end of the reporting period, the OPA was managing 2,171 MW of combined capacity from solar projects. All of the capacity from projects that were under development is scheduled to be in service at or before the end of 2017.



Wind

By the end of the reporting period, the OPA was managing 5,696 MW of combined capacity from wind projects. Of the total capacity, 2,631 MW were under development. All of the capacity from projects that were under development is scheduled to be in service at or before the end of 2018.

Chart 10

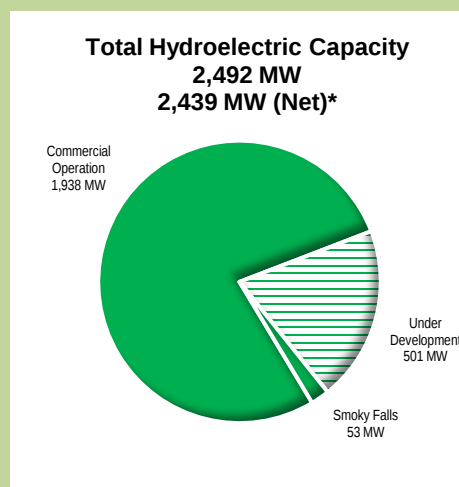


Hydroelectric Projects

Hydroelectricity

By the end of the reporting period, the OPA was managing 2,439 MW of combined capacity from hydroelectric projects (see Table 1 for further clarification). Of the total capacity, 501 MW were under development. All of the capacity from projects that were under development is scheduled to be in service at or before the end of 2022.

Chart 11



*The net hydroelectric capacity is 2,439 with 53 MW (Smoky Falls) scheduled for decommissioning.

The status of the non-FIT hydroelectric projects under development in the reporting period, as submitted by developers to the OPA, is shown in Table 4 below.

Table 4: Progress Status of non-FIT Hydroelectric Projects as of September 30, 2014

Developer	Project
Chaudiere Hydro L.P.	Chaudiere Hydro Generating Station, Ottawa: Ottawa River Capacity: 29.35 MW Post-contract and pre-construction activities continued
H2O Power Limited	Twin Falls Expansion, Iroquois Falls: Abitibi River Capacity: 5 MW Status: - Refurbishment of the Generator 2 turbine components was completed and shipped to the site - Turbine was reassembled in advance of the delivery of the new generator shaft - New generator shaft was installed and installation of the rotor poles commenced
Ontario Power Generation and Moose Cree First Nation Partnership	Lower Mattagami Hydroelectric Station Expansion, Kapuskasing: Mattagami River Capacity: 274 MW Status: Kipling GS - Construction on Unit 3 was completed - Installation of plant equipment continued and was nearing completion Smoky Falls - Unit 1 construction, wet testing and commissioning tests were completed and the unit was brought into service - Unit 2 construction, wet testing and commissioning tests were completed and the trial run of the unit commenced - Unit 3 construction was completed and wet testing commenced - Installation of plant, mechanical and electrical equipment continued - Upstream cofferdam removal and downstream rock plug removal were completed
Peterborough Utilities Inc.	London Street Generating Station Expansion Capacity: 5.9 MW - Installation of the upstream cofferdam and downstream plug was completed - Excavation and civil works associated with widening the existing tailrace were completed - Excavation of the new powerhouse, intake canal and tail race commenced

Renfrew Power Generating Inc.	Thomas Low Generating Station, Renfrew: Bonnechere River Capacity: 1.5 MW Status: • Penstock installation and testing was completed • Construction of the substation commenced • Construction of the powerhouse foundation and turbine installation was completed
	First Chute Generating Station, Renfrew: Bonnechere River Capacity: 1.7 MW • Environmental and connection impact assessments commenced
	Shickluna Hydro Electric Generating Station, St. Catharines: Twelve Mile Creek Capacity: 4.2 MW • Connection impact assessments commenced • Pre-construction activities commenced
Yellow Falls Power Limited Partnership	Yellow Falls Generating Station, Smooth Rock Falls: Mattagami River Capacity: 16 MW Status: • Stakeholder engagement activities continued • Design and procurement activities continued

Renewable Program Projects – Development Status

Renewable Energy Standard Offer Program

A total of 830 MW were contracted through RESOP; 827 MW or 99.5 percent of the contracted capacity was in service by the end of the reporting period, and the remaining 4 MW have milestone commercial operation dates prior to the end of 2014.

Feed-in Tariff Program

By the end of the reporting period, 4,608 MW of combined capacity was contracted through the FIT Program, of which 62 MW were from bio-energy, 1,327 MW were from solar, 3,033 MW were from wind and 185 MW were from hydroelectricity. Of this total capacity, 1,801 MW or 39 percent of the contracted capacity was in commercial operation. In addition, 171 MW of combined contract capacity from solar generation was in commercial operation under the microFIT Program.

Furthermore, 1,240 MW or 26.9 percent of the contracted capacity reached the notice to proceed (NTP) stage of development. Of these, 29 MW were from bio-energy, 494 MW were from solar, 672 MW were from wind and 46 MW were from hydroelectric generation. The remaining 1,566 MW, or 34 percent of the contracted capacity, was in the pre-NTP stage of development, of which 7 MW were from bio-energy, 82 MW were from solar, 1,360 MW were from wind and 118 MW were from hydroelectric generation.

Feed-in Tariff Projects – Progress Table

The status of selected large FIT projects under development in the reporting period, as submitted by developers to the OPA, is shown in Table 5 below.

Legend

C	Complete or not required	CIA	Connection Impact Assessment
CON	Construction	DCP	Domestic Content Plan
FIN	Financing Plan	NTP	Notice to Proceed
Reg EA	Regulatory Environmental Approvals	SIA	System Impact Assessment
U	Under Way		

Table 5: Progress Status of Selected Feed-in Tariff Projects (including the Korean Consortium Projects) Under Development as of September 30, 2014

Developer (Total capacity under development)	Project Name	Location	MW	Pre-NTP								Achieved NTP	CON	
				Reg EA		SIA/CIA		DCP		FIN			U	C
				U	C	U	C	U	C	U	C			
Algonquin Power	Amherst Island Wind Project	Stella	75	✓			✓		✓	✓				
Capstone Infrastructure Corporation (93 MW)	Goulais Wind Farm	Sault Ste. Marie	25		✓		✓		✓		✓	✓		
	Grey Highlands Zero Emission People	Singhampton	10	✓			✓		✓	✓				
	Grey Highlands Clean Energy	Singhampton	18	✓			✓		✓	✓				
	Settlers Landing Wind Park	Pontypool	10	✓			✓		✓	✓				
	Snowy Ridge Wind Park	Bethany	10	✓			✓		✓	✓				
	Wind Farm Ganaraska	Orono	20	✓			✓		✓	✓				
China Longyuan Power Group Corporation Limited	Dufferin Wind Farm	Shelburne	100		✓		✓		✓		✓	✓	✓	
DP Energy (60 MW)	Bow Lake Phase 1 (wind)	Montreal River Harbour	20		✓		✓		✓		✓	✓		
	Bow Lake Phase 2b (wind)	Montreal River Harbour	40		✓		✓		✓		✓	✓		

Developer (Total capacity under development)	Project Name	Location	MW	Pre-NTP								Achieved NTP	CON	
				Reg EA		SIA/CIA		DCP		FIN			U	C
				U	C	U	C	U	C	U	C			
Henvey Inlet First Nation	Nigig Power Corporation (wind)	Pickerel	300	✓		✓			✓	✓				
Invenenergy Wind Canada ULC	Conestogo Wind Energy Centre 1	Drayton	69	✓			✓	✓		✓				
Korean Consortium: Samsung C&T Corporation and Korea Electric Power (1,069 MW)	Armow (wind)	Kincardine	180		✓		✓		✓		✓	✓	✓	
	Grand Renewable Energy Park (wind)	Haldimand County	149		✓		✓		✓		✓	✓	✓	
	K2 (wind)	Ashfield-Colborne-Wawanosh	270		✓		✓		✓		✓	✓	✓	
	Grand Renewable Energy Park (solar)	Haldimand County	100		✓		✓		✓		✓	✓	✓	
	Sol-Luce Kingston Solar Energy Project	Kingston and Loyalist Township	100		✓		✓		✓		✓	✓	✓	
NextEra Energy (469 MW)	Adelaide Wind Energy Centre ⁸	Middlesex County	60		✓		✓		✓		✓	✓	✓	
	Bluewater Wind Energy Centre ⁹	Zurich	60		✓		✓		✓		✓	✓	✓	
	Bornish Wind Energy Centre ¹⁰	Keyser	74		✓		✓		✓		✓	✓	✓	
	East Durham Wind Energy Centre	Priceville	23		✓		✓		✓		✓	✓		
	Goshen Wind Energy Centre	Dashwood	102		✓		✓		✓		✓	✓	✓	
	Jericho Wind Energy Centre	Thedford	150		✓		✓		✓		✓	✓	✓	
Niagara Region Wind Corporation	Niagara Region Wind Farm	Smithville	230	✓			✓		✓	✓				
Northland Power (160 MW)	Grand Bend Wind Farm	Zurich	100		✓		✓		✓		✓	✓		

⁸ Achieved commercial operation in August 2014.

⁹ Achieved commercial operation in July 2014.

¹⁰ Achieved commercial operation in August 2014.

Developer (Total capacity under development)	Project Name	Location	MW	Pre-NTP								Achieved NTP	CON	
				Reg EA		SIA/CIA		DCP		FIN			U	C
				U	C	U	C	U	C	U	C			
Pic Mobert First Nation and White River Hydro Limited Partnership (a wholly owned subsidiary of Regional Power Inc.) (19 MW)	Gitchi Animki Bezhig Generating Station	Brothers Township	9		✓		✓		✓		✓	✓		
	Gitchi Animki Niizh Generating Station	Brothers Township	10		✓		✓		✓		✓	✓		
Suncor Energy Products Inc. (140 MW)	Adelaide Wind Power Project	Strathroy	40		✓		✓		✓		✓	✓		
	Cedar Point Wind Power Project Phase II	Forest	100		✓		✓		✓		✓			
Veresen Inc. (73 MW)	Grand Valley Wind Farms Phase 3	Grand Valley	40	✓			✓		✓					
	St. Columban 1 Wind Energy Project	Seaforth	18		✓		✓		✓		✓			
	St. Columban 2 Wind Energy Project	Seaforth	15		✓		✓		✓		✓			
wpc Canada Corp. (90 MW)	Fairview Wind Farm	Stayner	18	✓			✓	✓						
	Sumac Ridge Wind Farm	Pontypool	12		✓		✓	✓						
	White Pines Wind Farm	Milford	60	✓			✓	✓						

Natural Gas and Other Fuel Sources

Chart 12

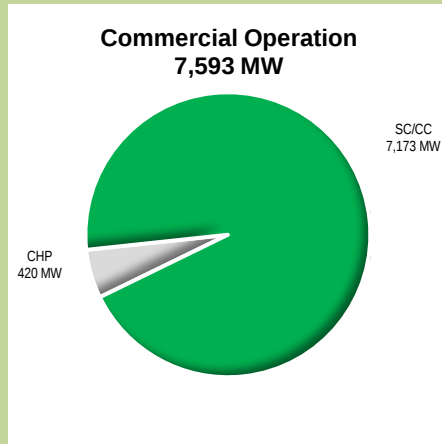
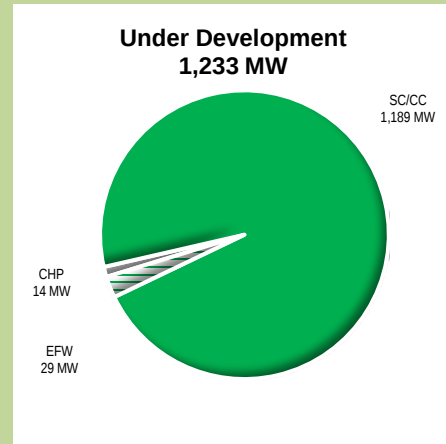


Chart 13



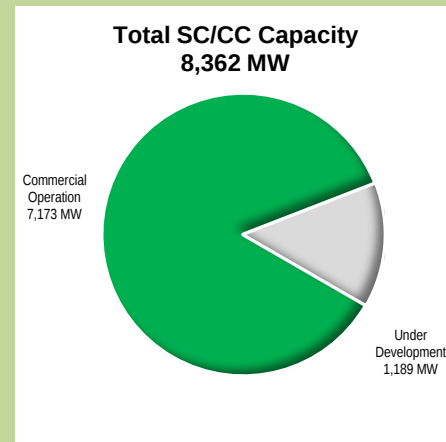
By the end of the reporting period, the OPA was managing 8,826 MW of combined capacity from natural gas-fired projects and projects with other fuel sources. This capacity included 8,362 MW from simple cycle and combined cycle facilities, 434 MW from combined heat and power contracted facilities and 29 MW from energy-from-waste facilities. Of this capacity, 7,593 MW were under commercial operation and 1,233 MW were under development.

Simple Cycle and Combined Cycle Projects

Simple Cycle and Combined Cycle

By the end of the reporting period, the OPA was managing 8,362 MW of combined capacity from simple cycle and combined cycle projects. Of this capacity, 7,173 MW were already in operation and 1,189 MW were under development.

Chart 14



The status of the combined cycle projects under development in the reporting period, as submitted by developers to the OPA, is shown in Table 6 below.

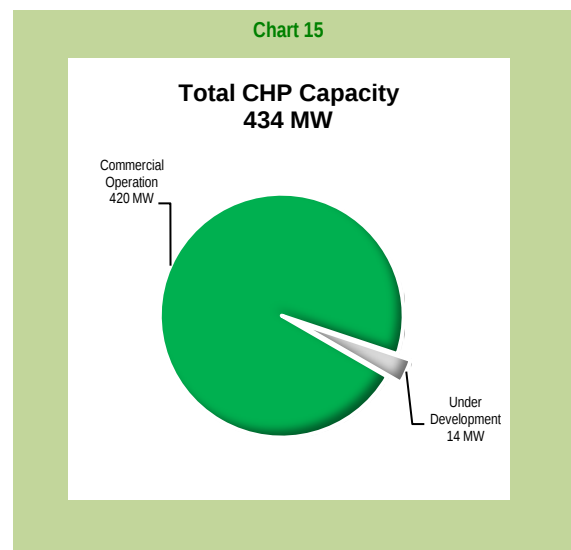
Table 6: Progress Status of Combined Cycle Projects as of September 30, 2014

Developer	Project
Greenfield South Power Corporation	Green Electron Power Plant, Sarnia Capacity: 289 MW Status: - Construction of switchyard structures continued - Installation of the combustion turbine, generator, heat recovery steam generator components continued
	Napanee Generating Station, Napanee Capacity: 900 MW Status: - Environmental and municipal permitting continued - Stakeholder activities continued with First Nations and Métis communities and the Town of Greater Napanee - Detailed plant engineering and procurement of engineering equipment continued - Major equipment procurement activities continued
TransCanada Energy Ltd.	

Combined Heat and Power Projects

Combined Heat and Power

By the end of the reporting period, the OPA was managing 434 MW of combined capacity from combined heat and power contracted projects. The 14 MW of capacity from the two projects under development in Table 7 below is scheduled to be in service by 2019.



The status of the combined heat and power projects under development in the reporting period, as submitted by developers to the OPA, is shown in Table 7 below.

Table 7: Progress Status of Combined Heat and Power Projects as of September 30, 2014

Developer	Project
Envida Community Energy Inc.	Hanlon Creek District Energy Project, Guelph Capacity: 10.2 MW Status: • Consultation engagement activities continued
Rosa Flora Growers Limited	Rosa Flora Growers, Dunnville Capacity: 4 MW Status: • Reconstruction of the generator building, destroyed by a fire, continued • Generators were delivered to the site

Energy-from-Waste Projects

By the end of the reporting period, the OPA was managing 29 MW of combined capacity from energy-from-waste projects. All of this capacity was under development. The 29 MW of capacity from the projects listed in the following table is scheduled to be in service by late-2018.

The status of the energy-from-waste projects under development in the reporting period, as submitted by developers to the OPA, is shown in Table 8 below.

Table 8: Progress Status of Energy-from-Waste Projects as of September 30, 2014

Developer	Project
Elementa Algoma LP	Elementa Algoma Generating Station, Sault Ste Marie Capacity: 9.45 MW Status: Post-contract and pre-construction activities commenced
Regional Municipality of Durham-York	Durham York Energy Centre, Clarington Capacity: 20 MW Status: - Civil construction was completed - Construction of the switchyard was completed and the 44 KV connection energized - First fire on waste will take place in Q4 2014

Nuclear

Bruce A Restart and Refurbishment Projects

The OPA had 3,000 MW of nuclear energy supply capacity under contract; 1,500 MW were from the restart of units 1 and 2, which was completed at the end of October 2012. The other 1,500 MW were from units 3 and 4, which were in operation prior to contract execution and continued operations during the reporting period. Planning activities for refurbishment of units 3 and 4 continued.

For additional information on the Bruce A Restart Project, visit:

- <http://powerauthority.on.ca/nuclear/bruce-restart-and-refurbishment-project-3000-mw-tiverton>
- <http://www.brucepower.com>.

Photo Gallery

Dufferin Wind Farm



Photo 1 – View of several installed wind turbines



Photo 2 – View of the operations and maintenance building

Durham York Energy Centre



Photo 3 – Aerial view of the nearly completed facility



Photo 4 – Southwest view of the nearly completed facility

Gitchi Animki Niizh/Gitchi Animki Bezhig Generating Stations



Photo 5 – Installing reinforcing bars in the overflow spillway area



Photo 6 – Constructing the upper site low-level spillway

Grand Renewable Energy Park – Solar (Korean Consortium)



Photo 7 – Laying out framing for solar panel racks



Photo 8 – Constructing infrastructure for the solar farm

Grand Renewable Energy Park – Wind (Korean Consortium)



Photo 9 – Installing turbine blades on a wind stack



Photo 10 – Construction work at the switchyard

Green Electron Power Plant



Photo 11 – View of the base of the heat recovery system



Photo 12 – Internal view of the facility: pipelines and flange

K2 Wind Farm (Korean Consortium)



Photo 13 – Constructing a transformer foundation slab



Photo 14 – Offloading the T200 turbine stack

Jericho Wind Energy Centre



Photo 15 – Installing turbine blades on a wind stack



Photo 16 – Offloading equipment

Lower Mattagami Hydroelectric Station Expansion

Kipling Generating Station

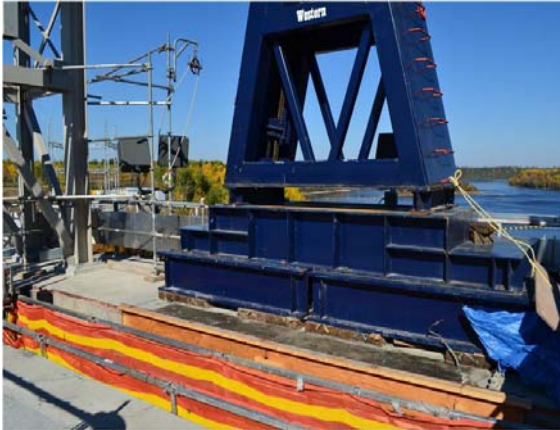


Photo 17 – Repairing the intake gate concrete

Smoky Falls Generating Station



Photo 18 – View of the powerhouse and tailrace

Thomas Low Generating Station



Photo 19 – Constructing the powerhouse tailrace

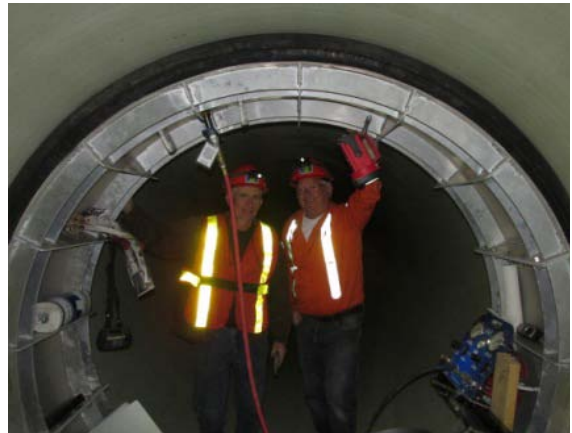


Photo 20 – Pressure testing the penstock

Twin Falls Generating Station (Runner Upgrade)



Photo 21 – Heating top rotor keeper ring of Generator 2



Photo 22 – Mounting the rotor on the shaft of Generator 2

Thunder Bay Generating Station (Biomass Conversion)



Photo 23 – Aerial view of advanced biomass processing



Photo 24 – Advanced biomass processing

Appendices

Appendix I: OPA Contracts and Contract Capacity

Table 9: All Contract Capacity as of September 30, 2014

Energy Source	Contract Type	Number of Contracts			New Capacity (MW) Post-OPA Inception		Total Capacity (MW) Pre- and Post-OPA Inception		In Service and Under Development (MW)
		Total	In Service	Under Development	In Service	Under Development	In Service	Under Development	Total
Bio-energy	Atikokan	1	1	0	205	0	205	0	205
	CHP III	2	2	0	48	0	48	0	48
	FIT 1	48	33	15	26.2	31.4	26.2	31.4	58
	FIT 2	12	0	12	0	4.2	0	4.2	4
	NUG	1	1	0	0	0	5	0	5
	RES	3	3	0	9.3	0	9.3	0	9
	RESOP	19	18	1	39.7	4	39.7	4	44
	TBESA	1	0	1	0	135	0	135	135
	Subtotal	87	58	29	328.2	174.6	333.2	174.6	508
Solar	FIT 1	1,479	1,140	339	748	415.7	748	415.7	1,164
	FIT 2	990	26	964	3.7	159.6	3.7	159.6	163
	KC	2	0	2	0	200	0	200	200
	microFIT	19,640	19,640	0	170.5	0	170.5	0	171
	RESOP	57	57	0	473.7	0	473.7	0	474
	Subtotal	22,168	20,863	1,305	1,395.9	775.3	1,395.9	775.3	2,171
Wind	FIT 1	65	20	45	1,001.2	2,032.1	1,001.2	2,032.1	3,033
	KC	4	1	3	270	598.6	270	598.6	869
	microFIT	5	5	0	0.03	0	0.03	0	0.03
	RESOP	35	35	0	284.9	0	284.9	0	285
	RES	15	15	0	1,509.4	0	1,509.4	0	1,509
	Subtotal	124	76	48	3,065.5	2,630.7	3,065.5	2,630.7	5,696
Renewable Non-Hydro Subtotal		22,379	20,997	1,382	4,789.5	3,580.6	4,794.5	3,580.6	8,375
Hydroelectricity	FIT 1	44	4	40	22	163.4	22	163.4	185
	FIT 2	1	0	1	0	0.1	0	0.1	0.1
	HCI	55	55	3	16.5	12.4	1,095	12.4	1,107
	HESA	4	4	1	304.7	274.2	814.8	274.4	1,036
	HESOP	3	0	3	0	35.3	0	35.3	35
	RESOP	16	16	0	28.2	0	28.2	0	28
	RES	3	2	1	31	16	31	16	47
Renewable Hydro Subtotal		126	81	49	402.4	501.4	1,991	501.4	2,439¹¹

¹¹ The existing Smoky Falls Generating Station with a capacity of 53 MW will be decommissioned in January 2015.

Energy Source	Contract Type	Number of Contracts			New Capacity (MW) Post-OPA Inception		Total Capacity (MW) Pre- and Post-OPA Inception		In Service and Under Development (MW)
		Total	In Service	Under Development	In Service	Under Development	In Service	Under Development	Total
Natural Gas, Other Fuel and Nuclear									
Natural Gas (SC/CC)	ACES	3	3	0	2,030.6	0	2,030.6	0	2,031
	CES	5	3	2	1,672	1,189	1,672	1,189	2,861
	EMCES	5	5	0	985.3	0	1,003.6	0	1,004
	Lennox	1	1	0	0	0	2,000	0	2,000
	NUG	1	1	0	73.7	0	73.7	0	74
	PGS	1	1	0	393	0	393	0	393
	Subtotal	16	14	2	5,080.9	1,189	7,172.9	1,189	8,362
Natural Gas (CHP)	CHP I & CHPSOP	12	10	2	420.1	14.2	420.1	14.2	434
Other	EFW	2	0	2	0	29.5	07	29.5	29.5
Natural Gas and Other Subtotal		30	24	6	5,501	1,232.7	7,593	1,232.7	8,826
Nuclear	Bruce	1	1	0	3,000	0	3,000	0	3,000
Nuclear Subtotal		1	1	0	3,000	0	3,000	0	3,000
Subtotal			21,103	1,437	13,692.9	5,314.6	17,378.5	5,314.6	22,640
Total			22,536		19,008		22,640 ¹²		

Acronyms

ACES = Accelerated Clean Energy Supply

CES = Clean Energy Supply

CHPSOP = Combined Heat and Power Standard Offer Program

EFW = Energy-from-Waste

EMCES = Early Movers Clean Energy Supply

HCI = Hydroelectric Contract Initiative

HESA = Hydroelectric Energy Supply Agreement

HESOP = Hydroelectric Standard Offer Program

KC = Korean Consortium

NUG = Non-utility Generator

PGS = Peaking Generation Supply

RES = Renewable Energy Supply

TBESA= Thunder Bay Biomass Energy Supply Agreement

¹² The existing Smoky Falls Generating Station with a capacity of 53 MW will be decommissioned in January 2015.

Appendix II: ¹³ Contracted Facilities in Commercial Operation

Table 10: Renewable Energy – Bio-energy as of September 30, 2014

Contract Facility	Contract Capacity (MW)	Commercial Operation/Term Commencement Date	Contract Expiry Date
Atikokan Generating Station	205	24-Jul-14	Q3 2024
Becker Cogeneration Plant	8	15-Feb-14	Q1 2024
Eastview Landfill Gas Energy Plant	1.7	18-Aug-05	Q3 2025
Hamilton (Digester Gas) Cogeneration Project	1.6	10-Jul-06	Q3 2026
Trail Road Landfill Generating Facility	6	31-Jan-07	Q1 2027
Thunder Bay Condensing Turbine Project	40	20-Mar-13	Q1 2023
Subtotal	262		

Table 11: Renewable Energy – Wind as of September 30, 2014

Contract Facility	Contract Capacity (MW)	Commercial Operation/Term Commencement Date	Contract Expiry Date
Enbridge Ontario Wind Farm	181.5	19-Feb-09	Q1 2029
Erie Shores Wind Farm	99	24-May-06	Q2 2026
Gosfield Wind Project	50.6	16-Sep-10	Q4 2032
Greenwich Wind Farm	98.9	14-Oct-11	Q4 2031
Kingsbridge I Wind Power Project	39.6	16-Mar-06	Q1 2026
Kruger Energy Chatham Wind Project	99.4	01-Jan-11	Q4 2031
Kruger Energy Port Alma Wind Power Project	101.2	31-Oct-08	Q4 2028
Melancthon I Wind Plant	67.5	04-Mar-06	Q1 2026
Melancthon II Wind Plant	132	24-Nov-08	Q4 2028
Prince I Wind Power Project	99	21-Sep-06	Q3 2026
Prince II Wind Power Project	90	19-Nov-06	Q4 2026
Raleigh Wind Energy Centre	78	29-Jan-11	Q1 2031
Ripley Wind Power Project	76	22-Dec-07	Q4 2027
South Kent Wind (Korean Consortium)	270	28-Mar-14	Q1 2034
Talbot Wind Farm	98.9	16-Dec-10	Q4 2031
Wolfe Island Wind Project	197.8	26-Jun-09	Q2 2029
Subtotal	1,779		

¹³ Does not include FIT Program and RESOP.

Table 12: Renewable Energy – Hydroelectricity as of September 30, 2014

Contract Facility	Contract Capacity (MW)	Commercial Operation/Term Commencement Date	Contract Expiry Date
Andrews Generating Station	47	1-Dec-09	Q4 2029
Appleton Eco Power Centre	1.4	1-Jan-11	Q4 2030
Aubrey Falls Generating Station	162	1-Dec-09	Q4 2029
Ayton Mills NUGS	0.3	1-Apr-13	Q2 2033
Barrie Small Hydro Limited	0.1	17-Jul-10	Q3 2030
Bracebridge Falls Generating Station	2.6	1-May-10	Q2 2030
Brewers Mills	0.9	1-May-10	Q2 2030
Burk's Falls	1.1	1-May-10	Q2 2030
Calm Lake Generating Station	9	1-Dec-09	Q4 2029
Campbellford-Seymour Electric Generation Inc. – Plant No. 1	2	1-Jan-10	Q4 2029
Casselman Generating Station	0.5	1-Nov-11	Q4 2031
Chaudiere No. 2. Generating Station	8.4	1-Apr-10	Q1 2030
Chaudiere No. 4 Generating Station	9.3	1-Apr-10	Q1 2030
Chiblow Lake Generating Station	1.65	1-Jul-14	Q3 2024
Clergue Generating Station	52	1-Dec-09	Q4 2029
Conestogo Dam Generating Station	0.6	1-Jan-13	Q1 2033
Current River Hydro	0.5	1-Mar-10	Q1 2030
Devil's Gap Generating Station	0.5	1-Jun-10	Q2 2030
Domtar, Espanola Mill	18	1-Jan-12	Q1 2032
Drag River GS	0.3	11-Mar-13	Q1 2033
Dunford Generating Station	45	1-Dec-09	Q4 2029
Enerdu Power Systems Ltd.	0.3	1-Mar-11	Q1 2031
Fort Frances Generating Station	10	1-Dec-09	Q4 2029
Galetta Eco Power Centre	1.6	1-Jan-11	Q4 2030
Gananoque	0.7	1-May-10	Q2 2030
Gartshore Generating Station	23	1-Dec-09	Q4 2029
Glen Miller Generating Station	8	19-Dec-05	Q4 2025
Harmon Generating Station	219	22-Jun-10	Q4 2065
Harris Generating Station	12	1-Dec-09	Q4 2029
Healey Falls Generating Station	15.7	7-Apr-10	Q2 2060
Heywood Generating Station	7.2	1-Jan-10	Q4 2029
High Falls Generating Station #1	0.8	1-Oct-10	Q3 2030
Hogg Generating Station	18	1-Dec-09	Q4 2029
Hollingsworth Generating Station	23	1-Dec-09	Q4 2029

Hound Chute Generating Station	9.5	27-Oct-10	Q4 2060
Hurdman Dam	0.6	1-Jun-11	Q2 2031
Iroquois Falls Generating Station	29	1-Dec-09	Q4 2029
Island Falls Generating Station	38	1-Dec-09	Q4 2029
Jones Falls	2.4	1-May-10	Q2 2030
Kagawong Generating Station	0.8	1-Jan-10	Q4 2029
Kenora Generating Station	6	1-Dec-09	Q4 2029
Kingston Mills	1.9	1-May-10	Q2 2030
Kipling Generating Station	157	22-Jun-10	Q4 2065
Lac Seul/Ear Falls Generating Station	29.3	18-Feb-09	Q1 2059
Little Burgess Generating Station	0.2	1-Aug-13	Q3 2033
Little Long Generating Station	207.5	22-Jun-10	Q4 2065
London Street Generating Station	4.1	1-Jan-10	Q4 2029
Long Slide GS	0.7	1-Mar-13	Q1 2033
Lower Sturgeon Generating Station	14	27-Oct-10	Q4 2060
MacKay Generating Station	62	1-Dec-09	Q4 2029
Maple Hill	0.6	1-Dec-10	Q4 2030
Marmora GS	1	27-Jul-13	Q2 2033
Matthias Generating Station	3	1-Jan-10	Q4 2029
McPhail Generating Station	13	1-Dec-09	Q4 2029
Minden Generating Station	4	1-Jan-10	Q4 2029
Mission Generating Station	16	1-Dec-09	Q4 2029
Moose Rapids Generating Station	1.4	1-Jan-11	Q4 2030
Norman Generating Station	10	1-Dec-09	Q4 2029
Parry Sound PowerGen Corporation – Cascade Street Generating Station	1.2	1-Mar-10	Q1 2030
Ragged Chute Eco Power Centre	6.6	1-Nov-13	Q2 2029
Rayner Generating Station	46	1-Dec-09	Q4 2029
Red Rock Falls Generating Station	41	1-Dec-09	Q4 2029
Renfrew Power Generation Inc. – Lower Plant	1	1-Jan-10	Q4 2029
Renfrew Power Generation Inc. – Upper Plant	1	1-Jan-10	Q4 2029
Rideau Falls	2	1-May-10	Q2 2030
Sandy Falls Generating Station	5.5	27-Oct-10	Q4 2060
Saugeen Generating Station	0.3	1-Aug-12	Q3 2032
Scone Generator	0.1	1-Jan-10	Q4 2029
Scott Falls Generating Station	22	1-Dec-09	Q4 2029
Shand Dam Generating Station	0.7	1-Sep-10	Q3 2030
Smoky Falls Generating Station	53	22-Jun-10	Q4 2015
Smoky Falls Generating Station (Redevelopment) – Unit 1	89.3	30-Sept-14	Q3 2064

Stanley Adamson Powerhouse	3.9	16-Jun-13	Q2 2033
Steephill Generating Station	16	1-Dec-09	Q4 2029
Stewart Generating Station	0.2	5-Jun-10	Q2 2030
Sturgeon Falls Generating Station	7	1-Dec-09	Q4 2029
Swift Rapids Generating Station	7.9	1-Jan-10	Q4 2029
Tembec, Smooth Rock Falls Facilities	8	14-Mar-10	Q1 2030
Truisler Chute Generating Station	0.6	1-Jun-11	Q2 2031
Tweed Generating Station	0.2	1-Nov-10	Q4 2030
Twin Falls Generating Station	22	1-Dec-09	Q4 2029
Umbata Falls Generating Station	23	12-Nov-08	Q4 2028
Washburn	0.2	1-May-10	Q2 2030
Water Street Pumphouse	1.3	1-Mar-13	Q1 2033
Wawaitin Generating Station	15	27-Oct-10	Q4 2060
Wells Generating Station	239	1-Dec-09	Q4 2029
West Nipissing Power Generation	6.5	1-Mar-10	Q1 2030
Wilson's Falls	2.9	1-May-10	Q2 2030
York River Generating Station	0.6	1-Sept-13	Q3 2033
635294 Ontario Inc.	0.5	1-Feb-10	Q1 2030
1149377 Ontario Limited	2.3	1-Jan-10	Q4 2029
Subtotal	1,941		

Table 13: Table 13: Natural Gas and Biomass as of September 30, 2014

Contract Facility	Cogeneration Facility	Contract Capacity (MW)	Commercial Operation/Term Commencement Date	Contract Expiry Date
Birchmount Energy Centre	✓	2.6	23-Dec-13	Q4 2033
Bur Oak Energy Centre	✓	3.3	20-Feb-14	Q1 2034
Brighton Beach Power Station		541.3	01-Jan-06	Q3 2024
Chapleau Co-Generation Facility*	✓	5	11-Sept-14	Q3 2022
Durham College District Energy Project	✓	2.3	11-Mar-08	Q1 2028
East Windsor Cogeneration	✓	84	06-Nov-09	Q4 2029
Essar Cogeneration Facility*	✓	63	13-Jun-09	Q2 2029
Great Northern Tri-Gen Facility	✓	11.3	31-Oct-08	Q4 2028
Goreway Station		839.1	04-Jun-09	Q2 2029
Greenfield Energy Centre		1,005	16-Oct-08	Q4 2028
GTAA Cogeneration Plant	✓	90	01-Feb-06	Q1 2026
Halton Hills Generating Station		641.5	01-Sep-10	Q3 2030
Lennox Generating Station		2,000	01-Jan-13	Q3 2022
London Cogeneration Facility	✓	12	31-Dec-08	Q4 2028
Ottawa Health Sciences Centre		73.7	1-Jan-14	Q1 2034
Portlands Energy Centre		550	22-Apr-09	Q2 2029
Sarnia Regional Cogeneration Plant	✓	444	01-Jan-06	Q4 2025
St. Clair Energy Centre		577	30-Mar-09	Q1 2029
Sudbury District Energy Cogeneration Plant	✓	5	01-Jan-06	Q4 2024
Sudbury District Energy, Hospital Cogeneration	✓	6.7	01-Jan-06	Q4 2024
Thorold Cogen	✓	236.4	28-Mar-10	Q1 2030
Trent Valley Cogeneration Plant	✓	6.7	01-Jan-06	Q4 2015
Warden Energy Centre	✓	5	04-Jun-08	Q2 2028
Villa Colombo Vaughan	✓	0.2	14-Nov-13	Q3 2030
York Energy Centre		393	09-May-12	Q2 2032
Subtotal		7,598		

* Biomass fuel

Table 14: Nuclear Energy as of September 30, 2014

Contract Facility	Contract Capacity (MW)	Term Commencement Date	Contract Expiry Date
Bruce A Units 1 – 4	3,000	31-Oct-05	Q4 2037
Subtotal	3,000		

Appendix III: Contracted Facilities Under Development¹⁴

Table 15: Korean Consortium Renewable Energy – Solar as of September 30, 2014

Contract Facility	Contract Capacity (MW)	Scheduled Commercial Operation Date	Forecasted Contract Expiry Date
Grand Renewable Energy Park	100	Q1 2014	Q1 2034
Sol-Luce Kingston Solar Energy Project	100	Q4 2014	Q4 2034
Subtotal	200		

Table 16: Korean Consortium Renewable Energy – Wind as of September 30, 2014

Contract Facility	Contract Capacity (MW)	Scheduled Commercial Operation Date	Forecasted Contract Expiry Date
Armow Wind Project	180	Q4 2014	Q4 2034
Grand Renewable Energy Park	148.6	Q3 2014	Q3 2034
K2	270	Q3 2015	Q3 2035
Subtotal	599		

¹⁴ Does not include FIT Program and RESOP.

Table 17: Renewable Energy – Hydroelectricity as of September 30, 2014

Contract Facility	Contract Capacity (MW)	Scheduled Commercial Operation Date	Forecasted Contract Expiry Date
Chaudiere Hydro GS2 Facility	29.4	Q1 2022	Q1 2062
First Chute Generating Station	1.7	Q1 2022	Q1 2062
Harmon Generating Station (Runner Upgrade)	17.6	Q4 2016	Q4 2066
London Street Generating Station (Expansion)	5.9	Q3 2015	Q3 2035
Kipling Generating Station (Expansion)	78	Q4 2015	Q4 2065
Shickluna Hydro Electric Generating Station	4.2	Q1 2022	Q1 2062
Smoky Falls Generating Station (Redevelopment) – Unit 2 and Unit 3	178.6	Q4 2015	Q4 2065
Thomas Low Generating Station	1.5	Q1 2014	Q4 2029
Twin Falls Generating Station (Runner Upgrade)	5	Q4 2014	Q4 2029
Yellow Falls Hydroelectric Project	16	Q3 2016	Q3 2036
Subtotal	338		

Table 18: Natural Gas and Biomass as of September 30, 2014

Contract Facility	Cogeneration Facility	Contract Capacity (MW)	Scheduled Commercial Operation Date	Forecasted Contract Expiry Date
Hanlon Creek District Energy Project	✓	10.2	Q1 2019	Q1 2039
Green Electron Power Plant		289	Q3 2017	Q3 2037
Napanee Generating Station		900	Q4 2018	Q4 2038
Rosa Flora Growers	✓	4	Q4 2014	Q4 2034
Subtotal		1,203		

Table 19: Natural Gas and Other Fuel Sources – Energy-from-Waste as of September 30, 2014

Contract Facility	Contract Capacity (MW)	Scheduled Commercial Operation Date	Forecasted Contract Expiry Date
Elementa Algoma	9.45	Q4 2018	Q4 2020 ¹⁵
Durham York Energy Centre	20	Q3 2016	Q3 2036
Subtotal	29		

¹⁵ With a right to extend the term to Q4 2038.

Appendix IV: Summary of RESOP and FIT Contracts

Table 20: RESOP as of September 30, 2014

Program	Fuel Source	Under Development (MW)	Commercial Operation (MW)	Total (MW)
RESOP	Bio-Energy	4	39.7	830.4
	Hydroelectric	0	28.2	
	Solar	0	473.7	
	Wind	0	284.9	
	Total	13.4	827	

Table 21: FIT Program as of September 30, 2014

Program	Fuel Source	Under Development (MW)			Commercial Operation (MW)	Total (MW)
		Pre-NTP	NTP	Total UD		
FIT 1	Bio-Energy	3.7	27.7	31.4	26.2	4,440
	Hydroelectric	117.9	45.5	163.4	22	
	Solar	36	379.7	415.7	748	
	Wind	1359.7	672.4	2,032	1,001.2	
	Subtotal	1,517.3	1,125.3	2,642.5	1,797.4	
FIT 2	Bio-Energy	3.2	1	4.2	0	168
	Hydroelectric	0.1	0	0.1	0	
	Solar	45.5	114.1	159.6	3.7	
	Subtotal	48.9	115.1	164	3.7	
microFIT	Solar				170.5	171
	Wind				0.03	
	Subtotal				170.5	
Total (MW)		1,566.2	1,240.3	2,806.5	1,971.6	4,779

NTP = Notice to Proceed
UD = Under Development

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