

Results-based Plan Briefing Book 2012-13

Ministry of Energy

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Part I: Results-Based Plan 2012-13

Ministry of Energy

PART I: PUBLISHED RESULTS-BASED PLAN 2012-13

MINISTRY OVERVIEW

Vision

The Ministry of Energy is guided by a vision of a new clean energy economy that provides 21st century jobs and sustainable, liveable communities for all Ontarians and for generations to come.

Mission/Mandate

The Ministry of Energy is responsible for setting the legislative and policy framework to assure a clean, modern and reliable electricity system for all Ontarians.

The Ministry develops and advises on all aspects of energy policy for Ontario, including electricity, natural gas and oil. It oversees the Ontario Energy Board, Ontario Power Authority and Independent Electricity System Operator. The Ministry also represents the shareholder in dealings with Hydro One and Ontario Power Generation. Continuing to develop a diverse supply mix, including more renewable energy sources, and fostering a conservation-oriented culture are cornerstones of Ontario's balanced plan to provide clean and reliable energy - while encouraging the development of a clean energy economy for our future.

The Ministry of Energy works with many partners inside and outside government to develop the electricity generation, transmission and other energy-related facilities that help power our economy, and ensure that Ontario remains one of the best places in the world in which to live, work, invest and raise a family.

The Long-Term Energy Plan sets a 20-year course for Ontario's clean energy future. Guided by this Plan and the *Green Energy and Green Economy Act, 2009* (GEGEA), the Ministry of Energy is establishing a new clean energy economy that creates jobs, enhances prosperity and builds sustainable communities.

The GEGEA created the framework for the launch of the Feed-in Tariff (FIT) program which provides a stable price for clean energy producers and encourages them to invest in Ontario, creating new industries that did not exist a few years ago. Since the GEGEA was passed, more than 30 companies have announced plans to build or expand solar and wind turbine manufacturing facilities in Ontario. More than 20,000 clean energy jobs have been created and the province is on track to create 50,000 direct or indirect jobs. The Ministry is modernizing transmission and distribution grids, upgrading and refurbishing existing generation assets, and adding more renewable sources to the system for a balanced mix of clean power sources.

The Ministry is achieving these objectives through the creation of a legislative and policy framework that promotes:

- A modern and reliable energy system providing consumers with reasonably priced power
- Investments in clean, renewable energy
- Upgrades, refurbishments and expansions of Ontario's energy infrastructure
- Building a culture of conservation and energy efficiency
- Smart meters and the development of a smart grid
- Energy consumer protection
- A commitment to completely phase out coal-fired generation by the end of 2014

In 2012-13, the Ministry will remain focused on the implementation of the Long-Term Energy Plan, reinforcing Ontario's role as a clean energy leader and maintaining the electricity generation, transmission and distribution infrastructure that powers our economy and enhances liveability.

Priorities and Results

The Ministry plays a critical role in supporting the government's long-term priorities of economic prosperity, environmental stewardship and sustainable communities.

To meet these priorities, the Ministry is focused on three key deliverables:

- To ensure a clean, reliable and reasonably priced energy system
- To build a culture of conservation in Ontario
- To build Ontario's clean energy economy

A Clean, Reliable and Reasonably Priced Energy System

A top strategic objective for the Ministry is transitioning to a modern, clean and reliable electricity system that is reasonably priced and will meet Ontario's electricity needs now and in the future. By continuing to make the necessary investments to modernize our system, we are ensuring that our system remains reliable, efficient and cost-effective. By reducing carbon emissions and other pollution, a clean energy supply will also help ensure a cleaner future for Ontarians.

The Ministry is achieving this objective through the creation of a legislative and policy framework that promotes:

- Investments in clean, renewable energy
- Upgrades, refurbishments and expansions of Ontario's energy infrastructure
- Building a culture of conservation
- A commitment to completely phase out coal-fired generation by the end of 2014

The Ministry also takes action in other sectors:

- The Ministry monitors oil and gas markets, including surveying the retail price of gasoline and other transportation fuels in several Ontario cities weekly and publishing the results on its website.
- The Ministry represents the interests of Ontario natural gas consumers before the National Energy Board and in associated forums.
- The Ministry is responsible for the regulatory framework governing natural gas delivery.

Ontario is transitioning to a modern and reliable energy system by modernizing our transmission and distribution grids, upgrading and refurbishing existing generation assets, and adding more renewable sources to the system for a balanced mix of clean power sources.

In 2009, the Legislature passed the *Green Energy and Green Economy Act, 2009* (GEGEA), which boosted growth in renewable sources of energy such as wind, solar, hydro, and bio-energy, by making it easier to bring such projects to life. Under the GEGEA, Ontario created the framework for the first comprehensive Feed-in Tariff (FIT) program in North America, which guarantees specific rates for energy generated from certain renewable sources. The FIT program makes it easier for homeowners, small businesses, farmers, not-for-profit groups, community groups, Aboriginal communities and large commercial developers, to take part in renewable energy projects. On March 22, 2012, the government released the first scheduled review of the FIT Program, building on the success of the program while continuing to ensure long-term sustainability, transparency and predictability for industry and investors.

In November 2010, the government released Ontario's Long-Term Energy Plan, investing in our energy system to ensure the power needs of Ontario are met for the next 20 years. The Long-Term Energy Plan will increase Ontario's mix of non-hydro renewable energy sources to 10,700 megawatts by 2018, increasing Ontario's clean energy mix to 13 per cent, or the equivalent average electricity requirement of two million homes. This plan builds on the GEGEA to transform the province's electricity system into a clean energy powerhouse.

Since October 2003, the government and its agencies signed more than 28,000 small and large-scale renewable energy supply contracts from wind, water, solar and bio-energy sources, totalling more than 7,800 megawatts. Of these, more than 2,500 megawatts of renewable energy capacity has come online, expected to produce enough electricity each year to power over 700,000 homes.

Building and implementing a "smart" power grid to support the development and integration of these renewable energy projects and other new technologies into the electricity system is also a key part of the Long-Term Energy Plan. The Smart Grid is an advanced electricity delivery network that allows a two-way flow of electricity and information, improving the

flexibility, security, reliability and efficiency of the electricity system. In April 2011, the Ministry launched a Smart Grid Fund to accelerate the growth of a smart grid industry in Ontario. The Smart Grid Fund will offer targeted financial support for Ontario-based projects that advance the commercialization of smart grid products and services, provide economic development opportunities and create new jobs.

Much of Ontario's infrastructure required to provide a stable and reasonably priced electricity supply is aging. Since 2003, we have embarked on a plan to upgrade and replace 80% of Ontario's electricity supply capacity. Estimated capital investments totalling \$87 billion from both public and private sectors will help ensure that Ontario has a clean, modern and reliable energy system. Substantial investments will be made to upgrade and expand the province's transmission system which is the backbone of Ontario's electricity system. A modern and reliable transmission system is crucial for supporting Ontario's reliability and evolving generation mix.

Ontario's Long-Term Energy Plan makes updating the following key areas of energy infrastructure a priority:

- Phasing out coal-fired electricity by the end of 2014
- Improving transmission through five priority projects to be completed in the next seven years

Commitment to Shut Down Coal-Fired Generation by the end of 2014

As part of the government's commitment to a clean energy future and fighting climate change, Ontario is committed to eliminating coal-fired electricity generation by the end of 2014. On October 1, 2010, the province shut down four coal-fired power units – two at Nanticoke Generating Station and two at Lambton Generation Station – four years ahead of schedule. On December 31, 2011, the province shut down two more coal-fired power units at Nanticoke.

Since 2003, ten units have been shut down and once the coal phase-out is complete, 19 coal units at five Ontario Power Generation plants will cease to burn coal as a fuel.

Eliminating coal-fired electricity generation will reduce our annual carbon dioxide emissions by up to 30 megatonnes (Mt) per year. To replace coal, Ontario will rely on a mix of conservation, nuclear refurbishment, renewable energy and natural gas.

OPG is investigating the conversion of its coal-fired units to clean fuels including natural gas and biomass. Currently, no decisions have been made on conversions at the Lambton or Nanticoke Generating Stations. OPG is also conducting feasibility studies on converting Lambton and Nanticoke to natural gas; public consultation on a natural gas pipeline will begin in 2012. This preparatory work is being conducted to allow conversion to proceed at a later date if the station is needed for system reliability. The need for Lambton and Nanticoke depends partly on the timeframe for continued operations at the Pickering

Nuclear Generating Station. The government expects to have an update in 2012 on the progress of extending the life of the Pickering units.

The Ontario Power Authority (OPA) was directed to negotiate a power purchase agreement with Ontario Power Generation (OPG) for biomass-fuelled electricity at the Atikokan Generating Station.

As part of the Long-Term Energy Plan, the Thunder Bay Generating Station will be converted from coal to natural gas, cutting carbon dioxide emissions from the plant in half. Once converted, the plant is expected to generate as much as 150 million kilowatt-hours of electricity per year, enough electricity each year to power 15,000 homes. This project, along with the conversion of the Atikokan Generating Station to biomass fuel, will make northern Ontario the first region of the province with existing coal plants to become coal-free. Continued use of the Thunder Bay facility is more cost-effective than building a new plant, and will ensure that this important asset continues to supply power for the people of Ontario.

Investing in Upgrades and Expansions of the Province's Transmission System

The transmission and distribution component of the Long-Term Energy Plan incorporates and builds on a number of planning initiatives, ongoing priorities, and a new competitive project development process that have been introduced in recent years.

The Long-Term Energy Plan announced the government's commitment to move forward with five cost-effective priority transmission projects based on advice from the OPA. These projects will ultimately accommodate renewable generation, support reliability and serve new demand. These priority projects are:

- Device(s) to enhance transfer capability in Southwestern Ontario
- Upgrading existing power line(s) west of London
- A new transmission line west of London
- Enhancing the East-West tie along the east shore of Lake Superior through a new transmission line
- A new line to Pickle Lake to better serve industry needs and help future remote community connections north of Pickle Lake

Two of the priority projects (East-West Tie and Supply to Pickle Lake) were identified to serve the unique needs of Northern Ontario. These significant investments will allow expansion of the system to meet long term reliability needs cost effectively, serve new demand arising from economic activity and accommodate new renewable generation over time.

As outlined in the Long-Term Energy Plan, Ontario has instructed the OPA to develop a plan for connecting remote First Nation communities in Northwestern Ontario to the

provincial electricity grid. These communities currently rely on costly and polluting diesel generation for the supply of electricity.

In recognition of the tremendous response to the OPA's small FIT and microFIT programs, the province has invested in upgrades to the electricity grid in order to enable further connections of small-scale renewable projects.

Transmission planning will also continue on the regional level, using an approach that considers conservation, demand management, distributed generation and transmission. Regional plans will assess needs based on a region's unique resource mix and community priorities. Ontario will continue to plan and study additional transmission projects as demand and changes to supply require.

Building a Culture of Conservation

The province recognizes the importance of energy efficiency in terms of cost savings, greenhouse gas emission reduction and green job creation. Conservation is Ontario's most environmentally friendly and cost effective resource, and the easiest way for Ontarians to manage their electricity bills.

As a result of the government's energy efficiency efforts, Ontario has saved more than 1,700 megawatts of electricity since 2005, equivalent to more than half a million homes being taken off the grid. Under the Long-Term Energy Plan, Ontario has set one of the most ambitious energy efficiency goals in North America: 7,100 megawatts and 28 terawatt hours by 2030, the equivalent of taking more than 2.4 million homes off the grid.

Promoting energy efficiency is key to ensuring both adequate energy supply and price competitiveness into the future. The Ministry is setting long-term and immediate targets and ensuring that local distribution companies across Ontario continue to promote energy efficiency programs for residential, commercial and industrial customers across the province, and roll out smart electricity meters.

Smart Meters

More than 4.7 million smart meters have been deployed across Ontario. These meters will provide precise readings of energy consumption instead of estimates. Smart meters are helping electric utilities pin-point and respond more quickly to power outages, and can support demand response programs to help Ontarians better control their electricity use.

Smart meters have also enabled time-of-use (TOU) pricing – the price we pay for electricity now better reflects the cost of producing it at peak and off-peak times. That means that in the evenings and on weekends, power is less expensive, and we have the choice to shift our usage to different times of the day or between days.

The TOU rate structure is designed to reduce peak demand by encouraging load shifting which will reduce system costs over the long-term, drive environmental benefits by using

less peaking forms of generation, and reward consumers who shift their consumption away from times when electricity is most costly to produce. Over 3.8 million customers are currently on TOU pricing and more are coming on every day.

Helping Protect Energy Consumers

Protecting Ontario's energy consumers remains a top priority. In January 2011, new rules under the *Energy Consumer Protection Act, 2010* came into effect. This legislation helps ensure that consumers throughout the province are aware of their rights and are treated fairly. As well, the legislation sets out a framework for enabling suite metering in multi-unit buildings, including ensuring informed consent for tenants.

Over the next 20 years, the cost of electricity is estimated to increase by about 3.5 percent a year on average. To help consumers through this period of transition, a number of initiatives are currently in place:

- The **Ontario Clean Energy Benefit** (OCEB) is automatically taking 10 percent off electricity bills for each billing period to almost all residential customers and most small businesses for five years beginning January 2011.
- The permanent **Northern Ontario Energy Credit** will continue to help eligible low-to middle-income northern residents manage energy costs.
- The enhanced **Energy and Property Tax Credit** provides support of up to \$946 for families and up to \$1,078 for seniors.

The 2012 Ontario Budget included changes to the OCEB that would limit financial assistance to the first 3,000 kilowatt hours of electricity consumption per month. The proposed cap would not affect eligibility for the benefit. Consumers who use more than 3,000 kWh per month would continue to receive the full benefit on their first 3,000 kWh of electricity consumption.

For industrial consumers:

- The three-year **Northern Industrial Electricity Rate Program**, launched in March 2010, makes available \$150 million annually to qualifying large industrial facilities to reduce their electricity prices by an average of about 25 per cent.
- The **Industrial Conservation Initiative** encourages the largest industrial energy users to shift consumption and reduce bills.
- The **Industrial Accelerator Program** provides financial incentives to help fast-track investments in major energy efficiency and co-generation projects under 10 megawatts.

Building Ontario's Clean Energy Economy

Ontario's commitment to clean energy is making the province a global leader in renewable energy development and one of the top destinations for investment in that sector. The

Green Energy and Green Economy Act, 2009 and Feed-in Tariff (FIT) program have prompted businesses from Ontario and across the globe to invest in the province.

Ontario's clean energy strategy has attracted significant renewable energy development, leveraging more than \$27 billion in new investment and economic opportunities. Since the highly successful FIT program was first launched, more than 30 companies have publicly announced plans to set up or expand operations in Ontario and more than 20,000 clean energy jobs have been created. The FIT program includes domestic content provisions that are helping build a clean energy economy in Ontario while welcoming investment from outside the province.

Ontario continues to move 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.

On October 31, 2011, the Ministry launched the first scheduled review of the program. Published on March 22, 2012, the review builds on the success of the program, continuing to ensure long-term sustainability, and transparency and predictability for industry and investors.

The government will act quickly to implement all the recommendations outlined in the review, 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 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 and Aboriginal support
- Reserving a minimum of 10 per cent of remaining contract 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

The Ministry continues to actively pursue investment in new manufacturing and service infrastructure while investigating ways to support the training and skills development needed for the clean energy jobs being created by this emerging industry. Ontario is well-positioned to take advantage of the growing commitment to clean energy development throughout North America.

In 2012 and 2013, the Ministry will continue to support programs and policies to advance the implementation of Ontario's Long-Term Energy Plan and transform Ontario into North America's clean energy leader.

Ministry Contribution to Key Priorities and Results

The Ministry manages government policy and initiatives leading to a clean, reliable energy system and revitalized energy infrastructure that enhances economic competitiveness, protects the environment and builds sustainable communities.

Priorities	Economic prosperity	Environmental stewardship	Sustainable Communities
Results	- Competitive business environment - New clean economy and jobs - Reliable energy supply	- Climate protection - Cleaner air - Preservation of natural resources	- Strong, vibrant, healthy and prosperous communities for generations to come - High standard of living for citizens
Strategies	- Ensure a reasonably priced and sustainable energy system - Reduce electricity demand, especially peak use - Increase renewable energy - Protect and empower consumers - Invest in energy infrastructure and initiatives that will increase economic output, maximize job creation, and spur economic development	- Transition to a modern and reliable energy system by upgrading our transmission and distribution systems and adding more renewable sources to the system for a balanced mix of clean energy sources - Phase out coal by the end of 2014 and explore renewable fuel sources as possible replacements	- Revitalize energy infrastructure - Empower communities to participate in clean energy projects
Deliverables	- A clean, reliable and reasonably priced energy system - A culture of conservation in Ontario - A clean energy economy		
Key Initiatives	- Energy conservation and efficiency - Renewable energy - Coal phase out replacement - Nuclear refurbishment and new build - Smart grid and smart meters - Energy consumer protection		
Measures	- Reduce projected peak demand by 7,100 MW by 2030 - Phase out coal by the end of 2014, reducing carbon emissions by up to 30 megatonnes (Mt) per year		

Highlights of Achievements

In 2011-12, the Ministry focused on the ongoing implementation of the *Green Energy and Economy Act, 2009* and Ontario's Long-Term Energy Plan. The Ministry of Energy continued to create and deliver key initiatives in support of the government's long-term priorities including:

1. Maintaining a reliable energy supply system and encouraging conservation
2. Protecting energy consumers and keeping energy costs affordable
3. Transforming Ontario's energy supply mix

Maintaining a Reliable Energy Supply System and Encouraging Conservation

Transmission and Distribution

Transmission is the backbone of Ontario's electricity system. A modern and reliable transmission system is crucial for supporting Ontario's evolving generation mix, including the decommissioning of coal-fired generation by the end of 2014 and the further expansion of our clean energy portfolio.

Since 2003, Hydro One has invested more than \$9 billion in its transmission and distribution systems. In 2011 alone, Hydro One invested nearly \$1.5 billion in improvements, replacements, and expansions within its power systems. Ontario's average annual investment in Hydro One's transmission and distribution systems from 2004 through 2011 was more than double the average annual investment over the preceding eight years (1996-2003).

Maintaining system reliability is the government's top electricity priority. Ontario continues to take a leadership role within Canada in working with other provinces, the federal government, and the United States to ensure electricity system reliability. Ontario's Independent Electricity System Operator (IESO) is responsible for maintaining reliable operation of the Ontario's bulk power system including adherence to mandatory North American electric reliability standards throughout Ontario.

Since the filing of the 2007 Integrated Power System Plan (IPSP), Ontario has moved forward on transmission projects to enable a total of 5,000 megawatts of clean, emissions-free electricity, including renewables, import potential and refurbished nuclear generation.

Conservation

The province recognizes the importance of energy efficiency in terms of cost savings, greenhouse gas emission reduction and green job creation. Conservation is Ontario's most environmentally friendly and cost effective resource, and the easiest way for Ontarians to manage their electricity bills. Creating a culture of conservation across the province is critical to ensuring a sustainable energy system. The Ministry continues to emphasize

energy conservation, setting tough intermediate and long term conservation targets.

In its Long-Term Energy Plan, Ontario set one of the most ambitious energy efficiency goals in North America to reduce peak demand by 7,100 megawatts in electricity savings and a reduction in overall demand by 28 terawatt-hours by 2030. Since 2006, \$1.7 billion has been invested in conservation, saving ratepayers \$3.8 billion in avoided system costs. Altogether, Ontarians have conserved over 1,700 megawatts of peak demand savings since 2005 – the equivalent of over 500,000 homes being taken off the grid.

Building on work begun in 2011-12, the Ministry's energy efficiency efforts will continue to focus on empowering consumers through tools, information and incentives, and building an institutional and regulatory framework for energy efficiency.

On November 12, 2010, the Ontario Energy Board assigned local utilities mandatory conservation targets for 2011 to 2014. Local utilities are continuing to meet these targets through a combination of conservation programs – province-wide programs (OPA-contracted) or regional/local programs (OEB-approved).

As of April 2011, all residential, commercial and industrial energy efficiency programs have been redesigned, streamlined and offered province-wide. A new low-income conservation program was also launched in the summer of 2011. The design and management of these programs has been made possible by all local distribution companies (LDCs) and the Ontario Power Authority and will run from 2011 to 2014. Consumers recognize these province-wide programs through the saveONenergy brand and the Cleaner Ontario mark. LDCs are expected to meet the bulk of their energy efficiency targets through these programs.

Protecting Energy Consumers and Keeping Energy Costs Affordable

The *Energy Consumer Protection Act, 2010 (ECPA)* and its supporting regulations came into effect on January 1, 2011 to offer enhanced protection to Ontario energy consumers. This legislation enhances protection of consumers in their dealings with energy retailers, ensuring that consumers will have the information they need to make the right decisions about energy contracts, and confidence that they are protected by fair business practices. This legislation also provides the Ontario Energy Board with a strong legislative framework to create codes and rules to protect Ontario's electricity and natural gas consumers.

The Electricity Price Mitigation program assists consumers with the transition to a reliable and cleaner electricity system and complements existing tax-related mitigation benefits.

The Ontario Clean Energy Benefit (OCEB), launched on January 1, 2011 and running until December 31, 2015, continues to provide direct relief to eligible electricity

consumers, taking 10 percent off their total electricity bills, including electricity costs, regulatory charges, the debt retirement charge and taxes, for five years.

The 2012 Ontario Budget included changes to the OCEB that would limit financial assistance to the first 3,000 kilowatt hours of electricity consumption per month. The proposed cap would not affect eligibility for the benefit. Consumers who use more than 3,000 kWh per month would continue to receive the full benefit on their first 3,000 kWh of electricity consumption.

Transforming Ontario's Energy Supply Mix

Ontario is committed to reducing the environmental footprint of electricity generation across the province. New supply will enable the province to eliminate coal-fired capacity from Ontario's supply mix by the end of 2014, accounting for the majority of the government's greenhouse gas reduction target.

Since 2003, over 9,000 megawatts of new energy supply have come online, including a mix of cleaner gas-fired generation, nuclear power and renewable energy. This new supply includes more than 2,500 megawatts of renewable energy supply from wind, hydro, solar and bio-energy sources through government procurement contracts.

Clean Energy

In 2009, the *Green Energy and Green Economy Act, 2009* enabled implementation of North America's first comprehensive Feed-in-Tariff program, which guaranteed specific rates for energy generated from renewable sources. As a result, more than 4,800 megawatts of contracts have been awarded.

Ontario now has more than 1,950 megawatts of wind power online generated by more than 1,000 wind turbines. This represents more than a 100-fold increase in wind-power capacity from 2003, when there were only 15 megawatts of wind power generated by 10 turbines. About 3,800 megawatts of additional wind power capacity are under contract, which is expected to produce enough electricity each year to power more than 1,000,000 additional homes.

The province now has more than 400 megawatts of solar photovoltaic (PV) capacity online, more than any other jurisdiction in Canada. Ontario has the largest operational solar PV farm in North America and the ten largest solar farms in Canada are all located in Ontario. More than 1,700 megawatts of additional solar PV capacity are currently under contract.

More than 200 megawatts of capacity from bio-energy has been brought online. Of this, more than 50 megawatts is new and from government procurements. More than 160 megawatts of additional bio-energy projects are currently under contract.

New renewable energy supply that is online or under construction totals more than 3,100 megawatts of large and small-scale projects across Ontario. This represents more than \$12 billion of investment.

On October 31, 2011, the Ministry launched the first scheduled review of the FIT program. Published on March 22, 2012, the review builds the success of the program, continuing to ensure long-term sustainability, and transparency and predictability for industry and investors.

Water Power

Ontario's abundant and reliable hydro power will continue to play a key role in developing a clean and reliable provincial energy supply.

New and redeveloped hydroelectric stations provide valuable peaking generation, which allows them to operate in a similar fashion to a gas plant, but with much lower emissions. Ontario currently has more than 8,000 megawatts of installed water power capacity, including about 7,800 megawatts from projects before 2003. Water power from clean hydroelectric sources such as the facilities at Niagara Falls accounted for approximately 22 per cent of the electricity generated in the province in 2011. Ontario now has more than 700 megawatts of new waterpower under contract, with about 120 megawatts already online.

Ontario will continue to grow its hydroelectric capacity with a target of 9,000 megawatts by 2018. This will be achieved through new facilities and through significant investments to maximize the use of Ontario's existing facilities. As part of this commitment, the government continues to move forward with its plans to increase power generation in the Niagara region through the Niagara Tunnel project.

The tunnel will increase the amount of water available for power generation at the Sir Adam Beck Generating Station, effectively increasing its output by the equivalent of 200 megawatts. Once completed, the project will produce an additional 1.6 terawatt hours of clean, renewable electricity per year, which is enough to meet the annual needs of about 160,000 homes.

Ongoing construction on the Lower Mattagami project in Kapuskasing represents not only the largest hydroelectric generation construction project in Ontario in 40 years, but also the largest renewable energy project in the province. Construction began in June 2010 and the first unit could be in service at the end of 2013. By redeveloping four existing Ontario Power Generation sites, Lower Mattagami will add almost 440 megawatts of clean, renewable hydro-electricity to the grid while providing \$2.6 billion of investment in the North. It also represents the largest electricity-related partnership with a First Nation community in Ontario's history. Ontario Power Generation's partner in the project is the Moose Cree First Nation, which will have up to a 25 per cent equity share in the project.

Gas-fired Generation

New gas-fired plants perform two major roles within Ontario's electricity system: to address local reliability requirements while supporting the government's commitment to develop new clean energy and eliminate coal-fired generation by the end of 2014. New gas-fired generation facilities such as Goreway Station, Halton Hills, the Portlands Energy Centre, St. Clair Energy Centre and York Energy Centre will meet the need for clean, reliable power in areas of rapid growth.

In 2011, Ontario Power Generation's (OPG) Thunder Bay Generating Station began the conversion to natural gas. The converted units are expected to be online in 2014 and 2015. Once converted, the plant is expected to generate as much as 150 gigawatt-hours of electricity annually. This project, along with the conversion of Atikokan Generating Station to biomass fuel, will make northern Ontario the first region of the province with existing coal plants to become coal-free.

By ensuring the reliability of the electricity system during periods of peak demand, these facilities will provide communities with an increased security of supply while complementing the province's nuclear and hydro facilities, which provide base load power. In total, natural gas projects in Ontario provide more than 9.5 gigawatts of clean energy capacity to the province.

Combined Heat and Power (CHP)

Ontario has identified Combined Heat and Power (CHP) as a clean, efficient way to generate electricity and heat for nearby users. The government will encourage new local CHP generation projects, where price, size and location make sense.

Nuclear Build and Refurbishment

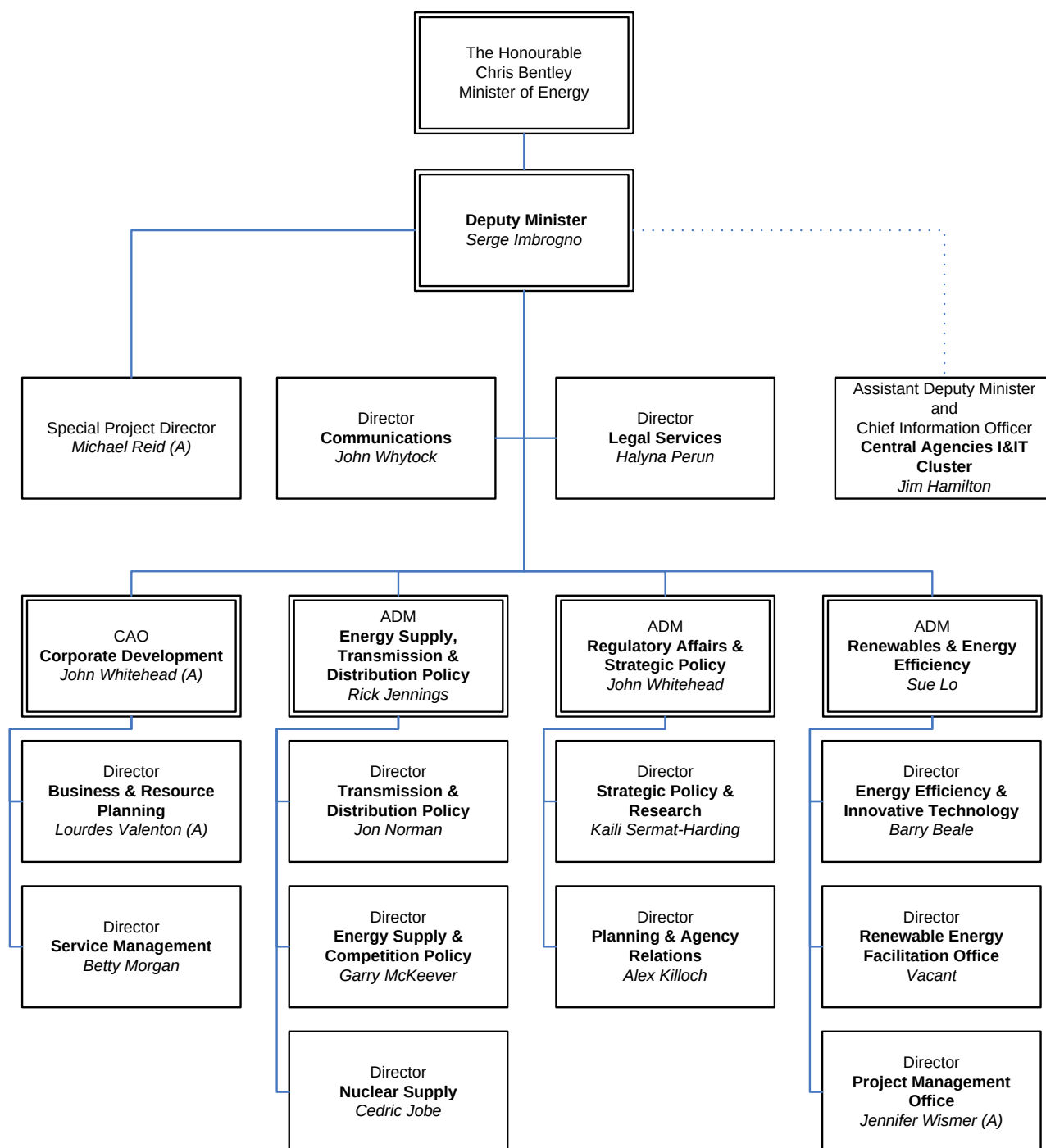
Nuclear power remains a crucial aspect of Ontario's electricity supply mix, providing about half of the electricity used by Ontarians every day. As a clean source of energy, it is expected to continue to be the single largest source for Ontario's electricity generation over the life of the LTEP. Ontario is moving towards modernizing the province's aging fleet through refurbishment of existing units at the Darlington and Bruce Power sites.

In 2008, OPG's Darlington site was selected for construction of about 2,000 megawatts of new nuclear capacity. The new build nuclear option continues to be carefully assessed against other baseload generation options, including natural gas-fired generation and purchases from other provinces to ensure that this direction is in Ontario's best economic interests.

OPG announced a two-part investment strategy for its nuclear generation stations in Durham Region in February 2010. As a result of initial studies of plant condition and performance, OPG will proceed with a detailed planning phase for the mid-life

refurbishment of the Darlington Nuclear Generating Station with refurbishment work expected to start in 2016. OPG will invest \$300 million to ensure the continuing safe and reliable operation of the Pickering station for approximately 10 years. Combined with planned refurbishment of generating facilities at Bruce Power, these measures will help ensure nuclear power will remain a crucial component in Ontario's electricity supply mix.

Ministry Organizational Chart



As of April 25, 2012

Legislation

The following is a list of legislation for which the Ministry of Energy has primary legislative or administrative responsibility.

Statutes Administered by ENERGY:

1. *Electricity Act, 1998*, S.O. 1998, c. 15, Sched. A
 - Except Part VIII and Part IX.1
2. *Energy Consumer Protection Act, 2010*, S.O. 2010, c. 8
3. *Green Energy Act, 2009*, S.O. 2009, c. 12, Sched. A
 - Except for section 10 and except for subsection 8 (2) which is shared with the Minister of Infrastructure
4. *Hydro One Inc. Directors and Officers Act, 2002*, S.O. 2002, c. 3
5. *Ministry of Energy Act, 2011*, S.O. 2011, c. 9, Sched. 25
 - In respect of energy matters, except for sections 7 and 10 insofar as the powers and duties set out in those sections are required to develop and administer the Ontario Ethanol Growth Fund program, assigned to the Minister of Agriculture, Food and Rural Affairs
6. *Ontario Clean Energy Benefit Act, 2010*, S.O. 2010, c. 26, Sched. 13
 - Except in respect of sections 7, 8, 9 and 10, which are administered by the Minister of Finance.
7. *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, Sched. B
8. *Power Corporation Act*, R.S.O. 1990, c. P. 18
9. *The Toronto District Heating Corporation Act, 1980*, S.O. 1980, c. 73
10. *Toronto District Heating Corporation Act, 1998*, S.O. 1998, c. 15, Sched. C
 - Except for section 4

Agencies, Boards and Commissions (ABCs)

Entities that report to the Ministry of Energy:

Ontario Energy Board

The Ontario Energy Board (OEB) is a quasi-judicial board that regulates the province's electricity and natural gas sectors in the public interest. Its mandate is determined by the provincial government, and is embodied in the *Ontario Energy Board Act, 1998* and its regulations.

\$	2012-13
Operating	35,980,900
Capital	1,177,800
Total	37,158,700

Government Organizations

The Ministry of Energy oversees two government organizations that are consolidated onto the Ministry's financial records:

Independent Electricity System Operator

The Independent Electricity System Operator (IESO) is responsible for maintaining reliability of Ontario's bulk electricity system and operating the wholesale electricity market. It is also responsible for overseeing smart metering initiatives in the province. The mandate of IESO is embodied in the *Electricity Act, 1998*.

\$	2012-13
Operating	142,314,700
Capital	19,350,000
Total	161,664,700

Ontario Power Authority

The Ontario Power Authority (OPA) is responsible for medium and long-term system planning and engaging in activities to ensure adequate, reliable and secure electricity supply and resources for Ontario. The OPA also designs and coordinates conservation programs across the Province. Its mandate is embodied in the *Electricity Act, 1998*.

\$	2012-13
Operating	64,845,000
Capital	3,200,000
Total	68,045,000

Government Business Enterprises

The Ministry has oversight of the following government business enterprises. The Government of Ontario, through the Minister of Energy, is the sole shareholder of these corporations.

Hydro One and Ontario Power Generation

Hydro One Inc. (Hydro One), through its wholly-owned operating subsidiaries, owns and operates most of the province's electrical transmission system. It also serves as a local electricity distributor, mostly in rural communities in Ontario.

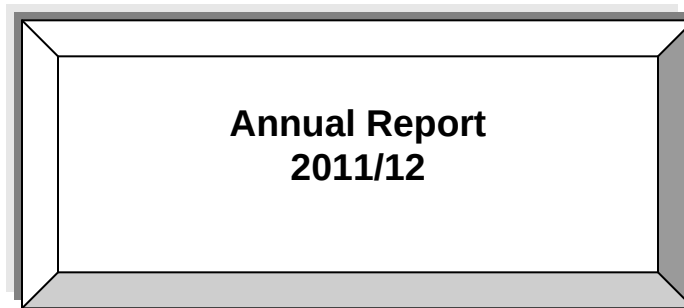
Ontario Power Generation (OPG) is in the business of generation and sale of electricity in Ontario. OPG generating assets include: two nuclear generating stations, five thermal generating stations and 65 hydroelectric generating stations.

\$	2012-13
Projected Net Income	655,000,000

Ministry Financial Information

Ministry Planned Expenditures 2012-13	
Operating	1,165,263,414
Capital	2,000
Total	1,165,265,414

Note: Totals do not include consolidated adjustments of \$266.8684M.



APPENDIX: 2011-12 ANNUAL REPORT

2011-12 Annual Report

In 2011-12, the Ministry of Energy supported the government's long-term priorities of economic prosperity, environmental stewardship and sustainable communities by focusing on three key deliverables:

- To ensure a clean, reliable and reasonably priced energy system
- To build a culture of conservation in Ontario
- To build Ontario's clean energy economy

Key to this focus was the ongoing implementation of the *Green Energy and Green Economy Act, 2009* (GEGEA) and Ontario's Long -Term Energy Plan.

Major Accomplishments

Clean, Reliable and Reasonably Priced Energy System

Ontario continues to lead the transition to a cleaner energy system. The Renewable Energy Facilitation Office (REFO), mandated through the GEGEA, played a key role in 2011-12 by helping create a transparent and welcoming environment for the development of new renewable energy projects.

Feed-in-Tariff (FIT) and microFIT Projects

The province continues to encourage Ontarians to become active participants in clean energy generation, benefiting the environment, the energy system, the renewable energy sector, and ultimately the economy.

In October 2009, the province launched the largest, most comprehensive clean energy initiative of its kind in North America. The GEGEA's Feed-in Tariff (FIT) program is sparking the development of renewable energy projects by offering guaranteed incentives to developers of wind, water, solar, biomass and biogas sourced power.

The FIT program delivers significant benefits to project developers - including communities and Aboriginal communities leading or partnered on projects - as well as equipment suppliers and installers, consumers and the overall provincial economy. By encouraging further investment in generation, transmission and distribution, even more renewable energy sources are being incorporated into Ontario's electricity system.

The province originally signed a Green Energy Investment Agreement (GEIA) with the Korean Consortium (Samsung and Korea Electric Power Corporation) in January 2010,

allowing for the creation of jobs and investments into Ontario's economy. Under the terms of the GEIA, the Korean Consortium agreed to develop 2,500 megawatts of wind and solar renewable generation projects in Ontario in five phases and committed to bring manufacturing plants to Ontario. In the summer of 2011, the GEIA was amended to improve the deal to better deliver results and provide even greater value to Ontario families.

On August 3, 2011, the Ontario Power Authority (OPA) announced six power purchase agreements (PPAs) with the Korean Consortium and its project companies to develop wind and solar projects in the province, representing the implementation of the first two phases of the GEIA.

On October 31, 2011, the Ministry launched the first scheduled review of the program. Published on March 22, 2012, the review builds the success of the program, continuing to ensure long-term sustainability, and transparency and predictability for industry and investors.

The government will act quickly to implement all the recommendations outlined in the review, 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 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 a minimum of 10 per cent of remaining contract 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

Overall, Ontario now has more than 1,950 megawatts of wind power already online, generated by more than 1,000 wind turbines – over a 100-fold increase from 2003. As a result, the five largest wind farms in Canada are all located in Ontario.

Ontario currently has more than 400 megawatts of solar capacity online, more than any other jurisdiction in Canada. Ontario is home to the largest operational solar photovoltaic (PV) farm in North America and the ten largest solar farms in Canada. More than 1,700 megawatts of additional solar PV capacity are currently under contract.

Clean Water Power

Ontario's abundant and reliable hydro power continues to play a key role in ensuring a clean and reliable power supply. Over 8,000 megawatts of power is currently on-line – with plans to grow this to 9,000 megawatts by 2018.

Construction of the 10.2 kilometre Niagara Tunnel Project continued to progress steadily in 2011. It remains the single biggest construction project in the Niagara region in over 55 years and the largest tunnelling project under construction in Ontario. Attracting significant international attention, tunnelling operations concluded in May 2011. By January 2012, half of the tunnel was fully lined with concrete, a significant construction milestone. Once fully operational at the end of 2013, the tunnel will increase the amount of water available for power generation at the Sir Adam Beck Generating Station. It is expected to operate for up to 100 years with little maintenance required, providing Ontarians with enough clean, renewable hydro power for about 160,000 homes annually.

Construction continues on the Lower Mattagami project in Kapuskasing, representing not only the largest hydroelectric generation construction project in Ontario in 40 years, but also the largest renewable energy project in the province. It is also the largest electricity partnership with a First Nation community in Ontario's history. Construction began in June 2010 and the first unit could be in service at the end of 2013. Once completed, Lower Mattagami will add almost 440 megawatts of clean, renewable hydro-electricity to the grid while providing \$2.6 billion of investment in the North. This project will generate jobs for Northern Ontario and allow both Aboriginal and local communities to benefit from the province's growing clean energy economy.

Coal Phase-out and Conversion to Biomass

As part of the Long-Term Energy Plan, the government moved forward on its goal to end coal-fired generation by the end of 2014. On December 31, 2011, the province shut down two more coal-fired power units at Nanticoke. Ontario's commitment to phase out coal-fired electricity by the end of 2014 remains the single largest climate change initiative in North America.

Ontario Power Generation's Thunder Bay Generating Station is beginning the conversion to natural gas. The converted units are expected to be online in 2014 and 2015. Once converted, the plant is expected to generate as much as 150 gigawatt-hours of electricity annually. This project, along with the conversion of Atikokan Generating Station to biomass fuel, will make northern Ontario the first region of the province with existing coal plants to become coal-free.

Gas-fired Generation

Ontario is achieving the end of coal-fired generation through renewables, conservation, and the strategic use of natural gas. Natural gas-fired "peaking" plants ensure the reliability of the electricity system during periods of peak demand. They complement Ontario's nuclear and hydro facilities, which provide baseload power, and allow the province to develop new, clean energy.

New gas-fired generation facilities such as Goreway Station, Halton Hills, the Portlands Energy Centre, St. Clair Energy Centre and York Energy Centre will meet the need for clean, reliable power in areas of rapid growth. In total, natural gas projects in Ontario provide more than 9.5 gigawatts of clean energy capacity to the province.

Nuclear

Ontario also moved forward in 2011-12 with its plans to refurbish several older nuclear units.

In February of 2010, OPG announced it would proceed with a detailed planning phase for refurbishing generating units at Darlington, and with investments to ensure the continued safe and reliable operation of units at Pickering for the next ten years.

Plans to build up to 2000 megawatts of new nuclear plant at Darlington continue to be carefully assessed to ensure that this direction is in Ontario's best economic interests.

Combined with a planned refurbishment of the generating facilities at Bruce, these measures will help ensure emission-free nuclear power will continue to be a crucial component of Ontario's electricity supply mix.

Transmission: Enabling a Changing Supply Mix

A modern and reliable transmission system is crucial for supporting Ontario's evolving generation mix, including the decommissioning of coal-fired generation in 2014 and further expansion of the clean energy portfolio.

The transmission component of the Long-Term Energy Plan incorporates and builds on a number of recent planning initiatives, ongoing projects, and a new competitive project development process that have been introduced in recent years. The Plan lays out five priority transmission projects that will enable renewables, ensure reliability and serve new demand.

Northern Industrial Electricity Rate Program

In March 2010, the three-year Northern Industrial Electricity Rate Program was launched. This program continues to make \$150 million available annually to qualifying large industrial facilities to reduce their electricity prices by an average of about 25 per cent. The program helps large industries in Northern Ontario improve their energy efficiency and sustainability. The program also helps northern industries build and maintain a globally competitive advantage and, in turn, help protect and create jobs.

Building a Culture of Conservation

Encouraging conservation is a key component of both the *Green Energy and Green Economy Act, 2009* (GEGEA) and Ontario's Long-Term Energy Plan. The province recognizes the importance of energy efficiency in terms of cost savings, greenhouse gas emission reduction and green job creation. Conservation is Ontario's most environmentally friendly and cost effective resource, and the easiest way for Ontarians to manage their electricity bills.

In November 2010, the Ontario Energy Board assigned local utilities mandatory conservation targets for the period 2011 through 2014. Province-wide conservation programs were developed through collaboration between the Ontario Power Authority (OPA) and local distribution companies (LDCs), with input from stakeholders. In early 2011, the OPA launched a suite of conservation programs for families and businesses under the saveONenergy brand via an awareness campaign that included:

- television and radio commercials
- the saveONenergy website, which provides information on programs and incentives
- saveONenergy coupon booklets, either mailed to residences across the province or available online

Ontario's Home Energy Savings Program came to a close as scheduled on March 31, 2011. The four-year program greatly exceeded its targets. Participating homeowners reduced their energy consumption by, on average, over 20 per cent. Since April 2007, Ontario has provided over \$64 million to help nearly 430,000 Ontario homeowners (11.1 per cent of eligible homeowners) complete home energy audits. The province has also provided more than \$500 million to help over 385,000 Ontarians (9.9 per cent of eligible homeowners) complete energy efficiency retrofits in their homes. Ontario continued to fund 50 per cent of the cost of a home energy audit up to \$150 through the Ontario Home Energy Audit Program, which ran until March 31, 2012.

Shifting energy use from periods of high demand to periods of lower demand can reduce both energy costs and strain on the electricity system. To help reduce the peaks in Ontario's energy demand, the Ministry has continued to make steady progress implementing the province's smart meters and time-of-use (TOU) pricing.

Over 4.7 million smart meters have now been installed across Ontario. These meters will provide more precise hourly readings of energy consumption. Smart meters have also enabled TOU pricing, so the price we pay for electricity now better reflects the cost of producing it at peak and off-peak times. Ontario's electric utilities have prudently been moving customers over to TOU pricing. As of February 2012, there were over 3.8 million customers on TOU pricing.

Building on the successful rollout of the smart meter infrastructure, and the objectives laid out in the GEGEA, the ministry developed a policy framework for smart grid implementation in Ontario. This framework outlined a set of principles and objectives for Ontario's smart grid and was sent as a Ministerial Directive to the Ontario Energy Board (OEB). The OEB, in consultation with a working group consisting of various sector participants, is currently using the Directive to develop a framework for LDCs to use for the smart grid implementations.

In April 2011, the Ministry launched the Smart Grid Fund, a grant program that will provide financial resources to help companies and organizations design, test and commercialize 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 and jobs for Ontario; and reduce risk and uncertainty of important electricity sector investments. The Ministry will announce successful applicants in the near future.

In November 2010, the Long-Term Energy Plan reinforced Ontario's commitment to pursue aggressive conservation efforts, setting a new target of 7,100 megawatts and 28 terawatt hours by 2030. This would mean the equivalent of taking 2.4 million homes off the grid and a reduction in Ontario's greenhouse gas emissions by up to 11 megatonnes annually by 2030. These targets are among the most ambitious in North America.

Protecting Energy Consumers

Ontario has introduced a number of initiatives to help protect energy consumers and ease the transition to a cleaner, more reliable energy system.

The *Energy Consumer Protection Act, 2010*, which took effect in January 2011, is helping to ensure that energy consumers are aware of their rights and are treated fairly. This Act continues to help protect Ontarians by ensuring they receive accurate information from energy retailers before signing a contract.

The Ontario Clean Energy Benefit (OCEB), which also took effect in January 2011, helps consumers manage energy costs by taking 10 percent off electricity bills for five years. The 2012 Ontario Budget included changes to the OCEB that would limit financial assistance to the first 3,000 kilowatt hours of electricity consumption per month. The proposed cap would not affect eligibility for the benefit. Consumers who use more than 3,000 kWh per month would continue to receive the full benefit on their first 3,000 kWh of electricity consumption.

The enhanced Energy and Property Tax Credits provides low-to-middle-income Ontarians with additional relief for the sales tax on energy and property taxes paid. The credits provide up to \$946 for families and up to \$1,078 for seniors for the 2012-13 benefit year. Similarly, the permanent Northern Ontario Energy Credit will continue to help eligible low to middle income northern residents manage energy costs.

Clean Energy Economy

The *Green Energy and Green Economy Act, 2009* (GEGEA) has stimulated a new, clean energy economy by creating a new generation of clean jobs while protecting our environment. Launched in 2009, the highly successful Feed-in Tariff (FIT) program has sparked the development of renewable energy projects in Ontario by offering guaranteed incentives to developers of wind, water, solar, biomass and biogas power.

Since the launch of the GEGEA, more than 30 companies have announced plans to set up or expand solar and wind manufacturing facilities in Ontario, supporting thousands of jobs and revitalizing our manufacturing sector. Through the FIT program, the Ontario Power Authority (OPA) has signed about 2,000 large and small renewable energy contracts and offered about 25,000 microFIT contracts totalling over 4,800 megawatts.

This represents more than \$27 billion in investment and more than 20,000 direct and indirect jobs. Since 2003, Ontario has signed more than 28,000 renewable energy supply contracts from wind, water, solar and bio-energy sources, totalling more than 7,800 megawatts.

- In April 2011, the Ministry launched the Smart Grid Fund, a grant program that will provide financial resources to help companies and organizations design, test and commercialize the next generation of smart grid solutions, further solidifying Ontario's reputation as a global hub for smart grid technology.
- In May 2011, tunnelling operations on the 10.2 kilometre Niagara Tunnel Project were concluded. By January 2012, half of the tunnel was fully lined with concrete, a significant construction milestone. Once fully operational at the end of 2013, the tunnel will increase the amount of water available for power generation at the Sir Adam Beck Generating Station, effectively increasing its capacity by the equivalent of 200 megawatts. It is expected to operate for up to 100 years with little maintenance required, providing Ontarians with enough clean, renewable hydro power for about 160,000 homes annually.
- In July 2011, 25 new FIT projects (19 wind and six solar) were announced, with a capacity of more than 1,000 megawatts of new clean energy – expected to produce enough electricity each year to power more than 280,000 homes. These projects, now all contracted, will also help attract approximately \$3 billion in new private-sector investment to the province. These projects will be brought online through the Bruce to Milton reinforcement project, Ontario's largest transmission project in 20 years. The projects will be located in areas throughout Southwestern Ontario along the Bruce to Milton transmission line, including Tiverton, Woodstock, Strathroy, Seaforth, Paisley and Zurich.

- In August 2011, the Ontario Power Authority (OPA) announced six power purchase agreements (PPAs) with the Korean Consortium and its project companies to develop wind and solar projects in the province, representing the implementation of the first two phases of the Green Energy Investment Agreement (GEIA). The over \$3 billion in investments for the first two phases represents over 1,000 megawatts of contracted capacity.
- In October 2011, the Ministry launched the first scheduled review of the Feed-in Tariff (FIT) program. Published on March 22, 2012, the review builds the success of the program, continuing to ensure long-term sustainability, and transparency and predictability for industry and investors.
- During 2011, Hydro One connected more than 7,600 small renewable generation projects to their distribution system through the microFIT program, representing approximately 72 megawatts of generation.

Ministry Interim Actual Expenditures 2011-12

	Ministry Interim Actual Expenditures (\$M) 2011-12
Operating	1,405.8
Capital	21.0
Staff Strength (as of March 31, 2012)	190

Interim actuals reflect the numbers presented in the 2012 Ontario Budget

MINISTRY/GOVERNMENT CONTACT INFORMATION AND WEB LINKS

MORE INFORMATION

More information on the programs and policies in this document can be found online at:

For more information on the Ministry of Energy:

<http://www.energy.gov.on.ca>

For more information on the Ontario Power Authority (OPA):

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

For more information on the Ontario Energy Board (OEB):

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

For more information on the Independent Electricity System Operator (IESO):

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

For more information on the Ontario Power Generation (OPG):

<http://www.opg.com/>

For more information on Hydro One:

<http://www.hydroone.com/>

GLOSSARY OF TERMS

ABCs	Agencies, Boards and Commissions
CHP	Combined Heat and Power
CNSC	Canadian Nuclear Safety Commission
EA	Environmental Assessment
ECPA	<i>Energy Consumer Protection Act, 2010</i>
EMO	Emergency Management Ontario
FIT	Feed-in-Tariff
GEGEA	<i>Green Energy and Green Economy Act, 2009</i>
GEIA	Green Energy Investment Agreement
IESO	Independent Electricity System Operator
IPSP	Integrated Power System Plan
LDC	Local Distribution Company
LTEP	Long-Term Energy Plan
Mt	megatonnes
MW	megawatts
OCEB	Ontario Clean Energy Benefit
OEB	Ontario Energy Board
OPA	Ontario Power Authority
OPG	Ontario Power Generation
OPS	Ontario Public Service
PPA	Power Purchase Agreement
PV	photovoltaic
REFO	Renewable Energy Facilitation Office
TOU	Time-of-Use