

Ontario's Feed-in Tariff Program Two-Year Review Report



Building Ontario's Clean Energy Future

Table of Contents

Letter to Minister	Page 1
Executive Summary	Page 2
Background	Page 4
Consultations	Page 10
Recommendations	Page 13
Technical Recommendations	Page 19
Glossary	Page 21
Appendix	Page 24
1. MicroFIT process	
2. FIT Process	
3. Point System	
4. Price Schedule	
5. Price Adders	

LETTER TO MINISTER

March 19, 2012

Dear Minister:

The *Green Energy and Green Economy Act, 2009* (GEA) sparked a new industry in Ontario. It gave Ontario families and businesses an opportunity to participate in building the province's clean energy economy. The GEA has helped launch a clean energy manufacturing base, creating new jobs and cleaner air.

Ontario is a North American leader in clean energy, with almost 2,000 small and large Feed-in Tariff (FIT) contracts totaling more than 4,600 megawatts (MW) of power.

The two-year review of the FIT Program, announced in October 2011, had a mandate to consider a range of issues including:

- Reducing FIT prices;
- Ensuring the long-term viability of clean energy procurement;
- Continuing to build on the success of Ontario-based manufacturing and clean energy job creation;
- Improving local consultation and renewable energy environmental approval processes; and
- Developing new technologies and fuel sources.

I was asked, with the support of the Ministry of Energy and the Ontario Power Authority, to track the FIT Program's progress, consult broadly, research developments in other jurisdictions and provide recommendations for improvements. As part of the consultation process, we reached out to the renewable energy sector and met with individuals and groups who requested meetings. We heard from thousands of Ontarians through in-person meetings, written submissions and online.

We made every effort to develop final recommendations that would balance the interests of all Ontarians, recognizing ratepayers, community participants and the renewable energy sector.

Our goal is to build on the accomplishments of the clean energy sector in Ontario so that families, communities, including First Nations and Métis, farmers as well as small and large businesses can continue to play a role. This report contains six strategic areas of recommendations that emerged through our review of the program and from our consultations with Ontarians.

1. Continue commitment to clean energy.
2. Streamline processes and create jobs.
3. Encourage greater community and Aboriginal participation.
4. Improve municipal engagement.
5. Reduce price to reflect lower costs.
6. Expand Ontario's clean energy economy.

The recommendations outlined in this report would help maintain Ontario's position as a North American leader, creating highly skilled jobs and opportunities to export the province's clean energy expertise and knowledge.

Yours truly,



Fareed Amin
Deputy Minister

EXECUTIVE SUMMARY

Since its launch in 2009, the FIT Program has helped create certainty in Ontario's economy, attract new investment, spur jobs and economic benefits for communities, and support a healthier future for all Ontarians. From the consultations emerged recommendations in six strategic areas that will enhance the Feed-in Tariff (FIT) Program and ensure its continued success.

Continue Ontario's commitment to clean energy

The FIT Program moved Ontario forward as a leader in clean energy. The program continues to be one of the best ways to attract investment, build clean energy and encourage local participation in the electricity sector. Ontario's clean energy initiatives have been a success, creating more than 20,000 jobs, on track to creating 50,000 jobs and attracting more than \$27 billion in private-sector investment. With Ontario on track to procure 10,700 MW of non-hydro renewable energy generation by 2015, the government should review Ontario's electricity supply and demand forecast in 2013 to explore whether a higher renewables capacity target is warranted.

Streamline processes and create jobs

Ontario has been a North American leader in clean energy procurement. There are currently about 2,900 MW of FIT projects moving through environmental approvals, such as the Renewable Energy Approval (REA) process. To stimulate job creation and economic investments in local communities, Ontario should improve the regulatory approvals process, while maintaining the highest standards of environmental protection. For example, regulatory ministries should better align approvals with the size and characteristics of a project, reduce duplication, improve service standards and streamline the process – this could improve timelines for project approval by up to 25 per cent.

Encourage greater community and Aboriginal participation

Projects with local participation lead to significant economic opportunities and job creation benefits for the communities they are located in. The FIT Program should prioritize projects through a new system that is designed to award points based on the participation of local or Aboriginal communities. To ensure that projects are rooted in and that investment remains in the community the Province should reserve a minimum of 10 per cent of the remaining FIT contract capacity for community and Aboriginal projects.

Improve municipal engagement

There is an opportunity for municipalities to play a greater role in the development of renewable energy across the province. Projects with municipal support should be prioritized by awarding points during the application review process. In addition, the province should clarify project-siting rules by removing all exemptions and strengthening the protection of prime agricultural lands. Solar ground-mount projects should not be permitted in or bordering residential areas. Solar ground-mount projects should be permitted in commercial or industrial areas only where energy generation is a secondary use, helping ensure responsible project development. In consultation with the Association of Municipalities of Ontario (AMO), the Province should revise the Municipal Consultation Form in the REA process.

Reduce prices to reflect lower costs

When Ontario launched the FIT Program in 2009, prices were set to reflect capital costs, provide investors stability and cultivate a domestic clean energy industry. While balancing the interests of all Ontarians, the clean energy sector and program participants, FIT prices should be reduced by more than 20 per cent for solar, on average, and approximately 15 per cent for wind. Prices for hydro, biogas, biomass and landfill gas should be maintained at the current level. In order to support the sustainability of the program, prices should be adjusted annually to reflect current costs.

Expand Ontario's clean energy economy

In light of the province's significant commitment to renewable energy and early investment in smart grid technologies, Ontario's clean energy expertise is substantial and growing. To leverage this experience, the Ministry of Energy and the Ministry of Economic Development and Innovation should develop a Clean Energy Economic Development Strategy that recognizes Ontario's diverse strengths.

BACKGROUND

The *Green Energy and Green Economy Act, 2009* (GEA) helped spark significant growth in the production of clean and renewable energy in Ontario. It has created more than 20,000 clean energy jobs to date and is on track to creating more than 50,000.

The GEA authorized the creation of Ontario's ground-breaking Feed-in Tariff Program—the most comprehensive program of its kind in North America. The program encourages investment through price certainty for different types of renewable energy sources, regulatory consistency and standard rates of return. The renewable energy sources include: Biogas; Biomass; Landfill gas; Solar photovoltaic (PV); Waterpower; and Wind.

The FIT Program was designed to:

- Create new clean energy industries and jobs;
- Boost economic activity and the development of renewable energy technologies; and
- Improve air quality by phasing out coal-fired electricity generation by 2014—the largest climate change initiative in North America.

Accomplishments

The FIT Program has:

- Created thousands of direct and indirect clean energy jobs;
- Contracted 4,600 megawatts (MW) in addition to 2,500 MW through the Green Energy Investment Agreement (GEIA)—expected to produce enough electricity each year to power 1.8 million homes;
- Attracted over \$20 billion, along with \$7 billion from the GEIA, in private-sector investment to Ontario during challenging economic times;
- Increased the amount of clean energy in Ontario's supply mix; and
- Supported Ontario's plan to replace coal-fired generation, contributing to lower greenhouse gas emissions and better health for Ontarians.

**LAST YEAR IN ONTARIO, WIND AND SOLAR ALONE
PRODUCED MORE ELECTRICITY THAN COAL.**

New Clean Energy: Powering daily life in Ontario

Ontarians have demonstrated their support for renewable energy through enthusiastic participation in the FIT and microFIT Programs. Today families, farmers, community groups, Aboriginal communities and small businesses are active contributors to Ontario's supply mix—a role previously dominated by larger corporate players.

Ontario has come a long way in a short time. In 2003, the province had only 15 MW of wind power generated by 10 turbines. Through the FIT Program and its predecessors, Ontario now has more than 1,950 MW of wind power online, generated by more than 1,000 wind turbines, which are expected to produce enough electricity each year to power a city the size of London, Ontario.

TODAY, ONTARIO IS HOME TO THE 10 LARGEST SOLAR FARMS IN THE COUNTRY AND IS THE LEADING SOLAR ENERGY PRODUCER IN CANADA.

Since the launch of the FIT Program, the Ontario Power Authority (OPA) has signed about 2,000 small and large FIT contracts with clean energy producers. These contracts total approximately 4,600 MW and are expected to produce enough electricity each year to power 1.2 million homes. In addition, almost 12,000 families, farmers, community groups and small businesses are participating in the microFIT Program.

IN LESS THAN A DECADE, ONTARIO HAS BROUGHT MORE THAN 9,000 MW OF NEW AND REFURBISHED CLEAN ENERGY ONLINE WHICH IS EXPECTED TO PRODUCE ENOUGH ELECTRICITY EACH YEAR TO POWER BOTH OTTAWA AND TORONTO.

Job Creation: Encouraging new clean energy jobs

In 2010, the renewable energy industry employed 3.5 million people around the world. In Ontario, the FIT Program has spurred significant job creation in the renewable energy industry across a variety of sectors, including manufacturing, supply chain providers and construction.

Ontario's clean energy policies have already created more than 20,000 jobs and are well on the way to creating 50,000 jobs through investments in renewable energy and conservation, as well as smart grid technology, transmission and distribution upgrades.

Direct and Indirect Jobs

The FIT Program has contributed to Ontario's manufacturing base. Since 2009, it is estimated that the program has created almost 2,000 direct manufacturing jobs. The manufacturing process encourages the creation of jobs in sectors that supply materials, such as steel.

More than 30 companies are currently operating, or plan to build, solar and wind manufacturing facilities in Ontario. This has led to an increase in employment for supply chain providers with jobs in areas such as hardware and metal fabrication.

North Key Construction, based in Napanee, was the contractor of choice for the development of the "First Light 1" project, one of North America's largest solar photovoltaic energy parks. This 9 MW solar park, located in the Township of Stone Mills, Lennox and Addington County, will power more than 2,000 homes annually. Though a relatively small company, North Key has built upon its First Light success, developed extensive clean energy sector expertise and become a go-to contractor for numerous Ontario solar energy projects.

Other jobs related to the FIT Program are construction-based, providing an economic benefit for many Ontario communities. For every 10,000 construction jobs created by the clean energy sector, almost \$500 million in economic activity flows back into Ontario communities.

Training and Education

In support of new job creation, Ontario's public colleges and universities have introduced a number of new programs related to the clean energy economy, including:

- Wind turbine technician training
 - Green business management
 - Renewable energies technician training
 - Sustainable energy and building technology
 - Clean and renewable energy engineering technology
-

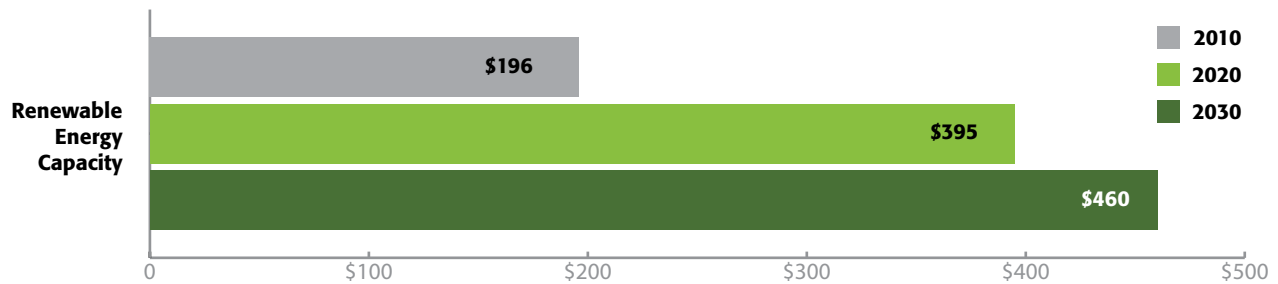
Sault College has established a program in renewable energy and green construction techniques. The program helps students develop knowledge and practical skills related to renewable energy sources such as wind, solar, geothermal and bio-energy, as well as energy conservation, green construction and renovation.

Ryerson University's Centre for Urban Energy (CUE) is an academic-industry partnership that is exploring and developing solutions to urban energy issues, such as the advancement of clean energy technologies, energy conservation and demand management, energy storage, and smart infrastructure.

Economic Development: Launching a new industry

The renewable energy industry has significant economic, environmental and health benefits for many countries around the world. Installed renewable energy capacity worldwide is expected to double in the coming decades.

Global Clean-Energy Projected Growth – 2010-2030 (\$CDN Billions)



Source: Bloomberg New Energy Finance

In 2010, Scarborough-based auto parts maker Samco Machinery Ltd. updated its machinery and invested in new equipment. Today, the company manufactures metal components and assemblies for a number of international racking players and is serving the demand for solar installations at the utility, commercial and residential levels.

Introduced during a period of global economic uncertainty, the Province's FIT Program created jobs in the Ontario-based manufacturing and construction industries. It attracted significant foreign investment into the province at a time when international investors were scaling back their investments in almost every industry. Ontario's FIT Program set the province apart from other jurisdictions by providing market certainty and a secure environment to make capital investments.

The FIT contracts, announced to date, and the GEIA, represent more than \$27 billion in private sector investment in Ontario.

Emissions and Health: Phasing out coal for future generations

By the end of 2014, Ontario will be the first jurisdiction in North America to replace coal-fired generation with cleaner sources of power. This is the equivalent of taking seven million cars off the road, and is already having a significant impact on the quality of Ontario's air.

Ontario has shut down 10 of 19 coal units and reduced the use of coal by nearly 90 per cent since 2003, with corresponding reductions in nitrogen oxides (NOx), sulphur oxides (SOx) and carbon dioxide (CO2). NOx and SOx are major contributors to poor air quality, and CO2 is a greenhouse gas that contributes to climate change.

In addition to cleaner air and fewer harmful emissions, the elimination of coal will also have significant health benefits for Ontarians. A 2005 independent study, “Cost Benefit Analysis: Replacing Ontario’s Coal-Fired Electricity Generation”, found that coal-fired generation costs \$4.4 billion annually when health and environmental costs are taken into consideration.

Future

The Ontario government is committed to building a clean, modern and reliable electricity system. With investments in infrastructure renewal and clean energy generation, the government is helping transform the province today and laying the groundwork for the Ontario of tomorrow.

In 2007, the Canadian Council of Chief Executives acknowledged that Canada’s natural resources in renewable energy (our wind, tidal, biomass, geothermal and solar resources) help ensure that Ontario is well-positioned to be a clean energy leader.

In the last decade, Ontario has:

- Facilitated the replacement of billions of dollars’ worth of outdated infrastructure;
- Dramatically upgraded the grid with more advanced equipment and technology; and
- Invested in cleaner sources of energy.

Ontario’s energy infrastructure upgrades have made the electricity system more efficient and reliable. Investments in smart meters and distributed generation, through programs like FIT, have positioned Ontario at the forefront of an emerging clean energy economy focused on:

- Smart grid technology (grid automation, data management, smart meters);
- Energy storage;
- Electric vehicles; and
- Other emerging technologies, such as concentrated solar photovoltaic (CPV).

A modern electricity system should be able to accommodate new energy supply from a variety of sources and deliver it reliably to consumers. It must take advantage of smart grid technologies to enable the efficient and cost-effective delivery of electricity, integrate more renewable technology and help customers better manage their electricity use.

ONTARIO’S SMART GRID OPPORTUNITY

A smart grid is a modern electricity system. It uses sensors, monitoring, communications, automation and computers to improve the flexibility, security, reliability, efficiency and safety of the electricity system. It increases consumer choice by allowing consumers to better control their electricity use in response to prices or other parameters. A smart grid includes diverse and distributed energy resources and accommodates electric vehicle charging. In short, it brings all elements of the electricity system—production, delivery and consumption—closer together to improve overall system operation for the benefit of consumers and the environment.

Ontario has seized the opportunity in smart grid as part of its efforts to become a clean energy leader. A smart grid will help Ontario achieve its clean energy goals, including the integration of renewable generation on the distribution grid and ambitious conservation targets.

Other jurisdictions, including the United States, China and Japan, are moving toward a smarter grid, but Ontario is leading the way in a number of areas. Ontario's implementation of smart meters represents an essential first step in realizing the benefits of a smarter distribution system for consumers. Ontario's efforts to integrate renewable energy and maximize conservation opportunities have created an ideal situation in which companies and utilities can test, develop and market smart grid technologies that have applications in global markets.

Powerstream, a local distribution utility operating north of Toronto, is developing smart grid utility capabilities, including digital fault detection, isolation and restoration, as well as an outage management system to improve service for its customers and avoid blackouts

The annual global market potential for smart grid equipment manufacturers and solution providers is expected to range from \$15 billion to \$31 billion annually by 2014, according to a 2010 report by McKinsey & Company. This is the ideal time to capitalize on Ontario's leadership in smart grid technology by continuing to press for its development to benefit consumers, and expanding efforts to take Ontario technologies abroad, creating jobs and investment opportunities in the province.

Last year, GE Canada, in partnership with the Ontario government, chose to establish the GE Grid IQ Innovation Centre in Markham, with a commitment to creating 146 jobs in the area. This new global centre of excellence develops and manufactures smart grid products and services for Ontario and the world. Over the next four years, GE expects to spend \$18.5 million to develop and manufacture grid modernization technologies. The centre will include a global testing and simulation laboratory.

There is also considerable promise in the development of electricity storage. Energy storage systems, including batteries, can provide short- or long-term storage. Short-term storage could improve grid reliability. Longer-term storage means that homes and businesses could store power for later use. Once the technology to store electricity is cost-competitive and market-tested, Ontario's electricity system will benefit, as the province will be able to leverage its unique supply mix.

Ontario continues to encourage innovative opportunities and models for small- and micro-sized generation, especially those that can increase both economic and technical efficiency. One potential avenue for investigation is the self-consumption model in which power is generated where it can be used. This model can improve the flow of power on the grid and reduce or eliminate many of the losses associated with the delivery of power.

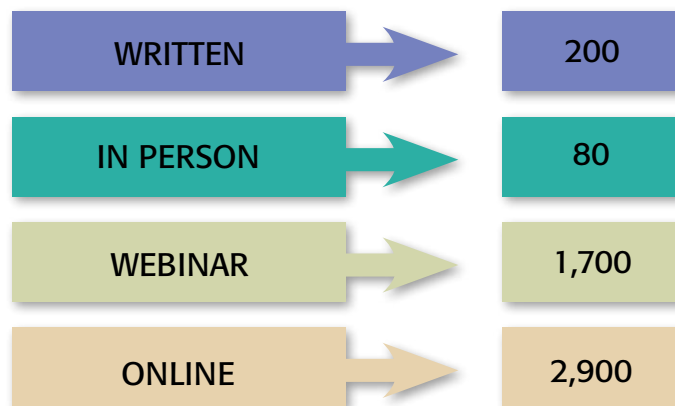
CONSULTATIONS

Thousands of Ontarians across the province are currently participating in the FIT Program. It was essential for the review to consult very broadly and incorporate participant feedback into recommendations. With this review, Ontarians have had an opportunity to help further shape the Province's approach to clean energy.

The consultation period was launched on October 31, 2011 and closed December 14, 2011. The Ministry of Energy and the OPA engaged in a broad outreach process with community groups, municipalities, the energy industry and associations, Aboriginal communities and organizations, environmental groups, consumer advocacy groups, as well as interested individuals. Individuals and organizations had the option to provide feedback through an online survey and/or make a written submission. The Ministry of Energy and the OPA were also available to meet with those who requested meetings.

More than 2,900 individuals and organizations responded to online survey questions and more than 200 written submissions were received. More than 80 meetings took place with associations, municipalities, community groups and companies. In addition, about 1,700 people participated in an OPA webinar shortly after the review was launched.

Participation in the Review



Responses were thoroughly reviewed and reflect a wide range of views and ideas. This input and advice has been carefully considered in developing the recommendations of this report.

Submissions focused primarily on the following:

- **Domestic manufacturing and job creation** – Many stakeholders advocated for the continuation of domestic content requirements as a way to support manufacturers and job creation.
- **Predictable price adjustments** – There was support for instituting pre-determined and pre-scheduled price adjustments. Other stakeholders suggested reducing prices as different capacity targets are achieved.

- **Reliable planning for clean generation needs** – Stakeholders indicated that annual planning targets would allow them to better tailor their operations to meet Ontario’s clean energy needs.
- **Improved municipal and community consultation** – Stakeholders supported increased municipal consultation as well as improved communication and education of municipalities and the general public.
- **Emphasis on conservation** – Stakeholders supported a greater focus on conservation.
- **Clarity around transmission/distribution availability** – Some stakeholders wanted greater clarity about connection processes and availability to focus their development on areas where their projects could connect.
- **Limits on FIT project size** – Stakeholders advocated for the FIT model of procurement to be limited to smaller-sized projects, with large projects being competitively procured. Others recommended realigning project size tranches to better reflect economies of scale.
- **Prices of renewables** – There was broad support for reduction of FIT prices to reflect lower technology costs.
- **Municipal involvement** – Stakeholders indicated a need for an enhanced role for municipalities and clear timelines for municipal involvement and consultation in an improved REA process.
- **Extent of participation from community, municipal and Aboriginal projects** – Stakeholders advocated for greater supports to encourage more community, municipal and Aboriginal projects. Some suggested maintaining or increasing the price adders, or giving these types of projects priority for contract awards. Some Aboriginal communities identified the lack of transmission in Northern Ontario as a barrier to participation.
- **Complexity of regulatory processes** – Several stakeholders advocated for scaling regulatory requirements to better align with the size and impact of projects. Other common suggestions included: better coordination between ministries and agencies, faster response times, improved guidance material and help identifying potential challenges with projects early in the process.

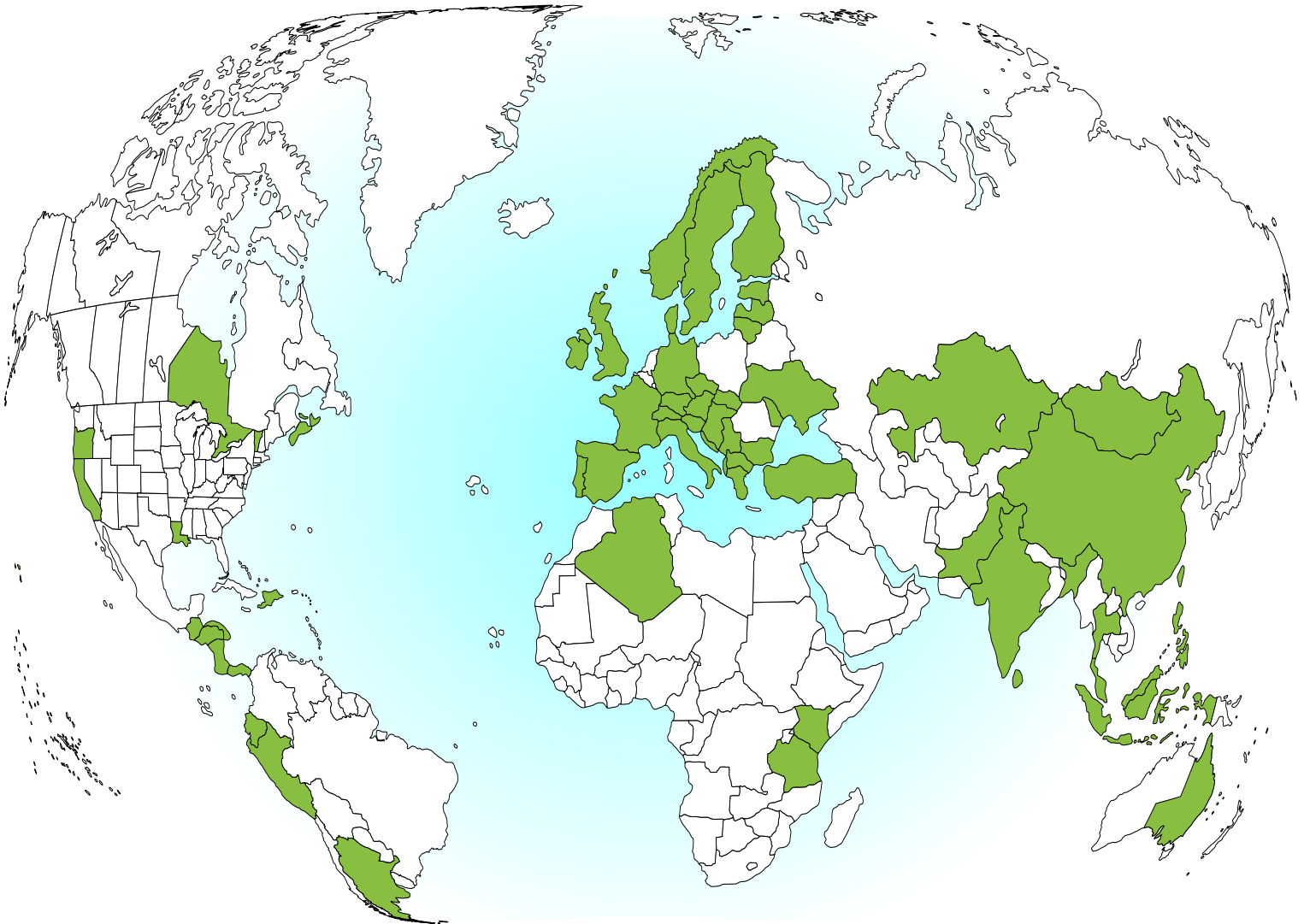
The Two-Year FIT Review

The scheduled two-year FIT Program review is an opportunity to reflect on the Program to ensure that it continues to meet Ontario’s needs. Updating the FIT Program will help strengthen the clean energy sector and build a better, smarter electricity system to meet Ontario’s future energy needs, while creating high-value jobs across the province.

Worldwide, 88 jurisdictions have implemented FIT programs and regular reviews are common practice. For example, both Germany and France focused on price reductions, technology types and project sizes in recent reviews.

The FIT review recommendations reflect current market and economic conditions and will ensure the Program’s continued success while maintaining stability, encouraging investment, supporting domestic manufacturing and developing renewable energy.

Jurisdictions with Feed-In-Tariff Programs



Source: Renewables 2011 Global Status Report, Renewable Energy Policy Network for the 21st Century

RECOMMENDATIONS

Six strategic areas of recommendations emerged from the consultation process:

- 1. Continue commitment to clean energy.**
- 2. Streamline processes and create jobs.**
- 3. Encourage greater community and Aboriginal participation.**
- 4. Improve municipal engagement.**
- 5. Reduce price to reflect lower costs.**
- 6. Expand Ontario's clean energy economy.**

A list of technical recommendations follows this section (see page 19).

1. CONTINUE COMMITMENT TO CLEAN ENERGY

WHY

The FIT Program continues to be one of the best ways to attract investment, encourage participation and efficiently build clean energy projects. It is providing substantial economic, environmental and health benefits for Ontarians.

The program creates jobs in the clean energy sector while creating cleaner air for Ontarians. It also gives individuals and groups an opportunity to participate, along with larger industry players, in the production of renewable energy.

Currently, Ontario is committed to bringing online 10,700 MW of non-hydro renewable energy generation by 2018 as well as 9,000 MW of hydro by 2030—this is expected to produce enough electricity each year to meet almost half of Ontario's demand.

HOW

- 1.1 Ontario should procure 10,700 MW of non-hydro renewable energy generation by 2015.
- 1.2 At the end of 2013, the government should review Ontario's electricity supply and demand forecast to explore whether a higher renewables capacity target is warranted.
- 1.3 Up to 50 MW of the remaining FIT contract capacity should be reserved for hydroelectric projects.
- 1.4 Beginning this year, conduct an annual review of FIT prices to reflect current costs—setting and publishing prices each November that will take effect on January 1st the following year.

2. STREAMLINE PROCESSES AND CREATE JOBS

WHY

Over the last two years, Ontario has led North America in clean energy procurement. There are currently about 2,900 MW of FIT projects moving through the REA process.

As renewable energy project developers shift from planning to development, the government should focus on improving the regulatory approvals process while maintaining the highest standards of environmental protection. Ontarians want to see these projects produce jobs and investments in local communities.

The following recommendations are designed to help encourage job creation by making sure approvals align with the size and characteristics of a project, simplifying the process and increasing accountability. The regulatory process would continue to protect human health and the environment.

HOW

- 2.1 In conjunction with the Ministry of the Environment (MOE), the Ministry of Natural Resources (MNR) and the Ministry of Tourism, Culture and Sport (MTCS), the regulatory approval processes should be streamlined and unnecessary delays or duplication eliminated. This would include changes to the REA regulation to help improve service and ensure that the scale of the environmental approval processes correspond to the size and impacts of projects. Three approval streams are recommended:
 - a. **Exemption:** microFIT solar projects should remain exempt from REA regulations, but subject to enhanced land-use protection (see recommendation 4.3b).
 - b. **Self-Screening:** MOE's self-screening registry system, the Environmental Activity and Sector Registry (EASR), should be expanded to include eligible small-scale solar (less than 500 kW) and bio-energy projects. This change has the potential to reduce timeframes from 18-24 months to approximately 2-3 months for eligible projects.
 - c. **Full Environmental Approvals including REA regulations:** Large, complex projects should continue to require the full environmental approval process, including REA regulations. Regulatory ministries should reduce duplication, improve service standards and streamline the process. These changes could shorten the environmental approval process by up to 4-5 months. For example:
 - i. Final comment letters that MTCS and MNR provide to proponents should be a required part of a complete submission (application), rather than being required before the final public meeting.
 - ii. The timelines for MNR's review of Endangered Species Act (ESA) permit applications should be reduced.
 - iii. MTCS should create a streamlined process to review archaeological reports.
- 2.2 MNR should review and update its policy approach to renewable energy development on Crown land as soon as possible. The release of Crown land should be aligned with provincial energy plans and programs when deciding where to make Crown land available for renewable energy.

- 2.3 The commercial operation milestone for rooftop solar PV should be shortened from three years to 18 months in order to encourage timely project completion.
- 2.4 Create a new Renewable Energy Committee that includes senior officials from relevant ministries to help drive the progress of projects through the approvals process.

3. ENCOURAGE GREATER COMMUNITY AND ABORIGINAL PARTICIPATION

WHY

Active participation of communities is important to the continued success of the FIT Program. Initial FIT rules used the “first come, first served” approach. However, most local community and Aboriginal projects require more time to mobilize.

Applications that have either local or Aboriginal community support or ownership should be given priority to improve the likelihood such projects will receive contracts. Renewable energy projects with local or Aboriginal community partnerships create economic opportunities and jobs for the community. Anticipated results include positive financial returns for the community, as well as additional local benefits, such as new manufacturing facilities and direct and indirect jobs that support projects.

HOW

Project Priority:

- 3.1 Introduce a system to prioritize FIT applications for small (CAE) and large (CAR) projects that awards points to projects with minimum equity participation from Aboriginal and local communities, public schools, colleges, universities, hospitals and long-term care facilities (see appendix 3).
- 3.2 Maintain adders for community and Aboriginal projects with adjusted prices. The adders should align with new participation and equity requirements for the FIT Program (see appendix 5).
- 3.3 Set aside a minimum of 10 per cent of remaining FIT contract capacity for local community and Aboriginal projects with greater than 50 per cent equity participation.
- 3.4 To maintain continued participation, strengthen limitations on assignment and change of control for priority participation projects, except rooftop solar.

Support Programs:

- 3.5 Reaffirm commitment to FIT support programs and adjust as follows:
 - a. Community Energy Partnerships Program (CEPP):
 - i. Considering new program rules and objectives, the Ministry of Energy should ask the CEPP fund manager and program administrator (Community Power Fund) to make recommendations on how CEPP could be improved to help community groups actively participate in renewable energy projects. CEPP should be re-launched by July 1, 2012.
 - b. Aboriginal Energy Partnerships Program:
 - i. Extend support funding to Aboriginal communities partnering with GEIA projects.
 - ii. Align with new participation requirements in the FIT Program.
 - iii. Dedicate support funding for projects that are already in the design/development and regulatory approvals phases.

4. IMPROVE MUNICIPAL ENGAGEMENT

WHY

Many municipalities have embraced the FIT Program by both participating in and supporting local projects. Almost 20 municipalities are currently building FIT projects, including Belleville, Kingston, Kitchener, Markham, Waterloo and Welland. There is room for municipalities to play a greater role in the development of projects. Applicants that work closely with municipalities and have support should receive points during the application process, helping those projects move forward.

HOW

- 4.1 The OPA should introduce a point system for small and large FIT applications that awards points to projects that have demonstrated support from local municipalities or Aboriginal communities.
- 4.2 Enhance municipal engagement in the FIT Program:
 - a. For large FIT projects, require contract launch meetings with municipalities, proponents, project developers, government representatives, utilities and agencies to facilitate early discussion, share information and define expectations.
 - b. MOE should also revise the Municipal Consultation Form in the REA process to better reflect areas of municipal concern, in consultation with AMO.
- 4.3 Clarify and strengthen project siting rules to ensure responsible project development.
 - a. Enhance protection of agricultural lands by prohibiting solar ground-mount projects (over 10 kW) on prime agricultural land that contain class 1, 2 and 3 soils. Expand protection to include organic and mixed soils and remove zoning exemptions.
 - b. Prohibit solar ground-mount projects (of any size) in residential areas and lands bordering residential areas. Permit projects in commercial or industrial areas only when producing renewable energy is a secondary use.

- 4.4 Support municipalities in the development of new resources and protocols to support the integration of renewable energy projects in communities, including:
- a. Allocate annually \$100,000 of CEPP funding to the development of a community guidance and outreach project with AMO.
 - b. The Renewable Energy Facilitation Office (REFO) should update the Municipal Guide to Renewable Energy Projects, in collaboration with AMO, and launch additional outreach initiatives as appropriate.
 - c. Ensure that REFO, developers and renewable energy industry associations work with AMO to develop best-practice guidance materials and help build projects in a sustainable, meaningful and responsible way.
- 4.5 In light of recommendations and initiatives to enhance municipal input and support municipal participation, the OPA should not launch the Municipal Renewable Energy Program.

5. REDUCE PRICES TO REFLECT LOWER COSTS

WHY

When Ontario launched the FIT Program, pricing was designed to reflect capital costs, attract investment capital and kick-start the development of a domestic renewable energy industry. A number of considerations were incorporated including: value for ratepayers, reasonable rates of return on investment, unique aspects of the Ontario market and prevailing international FIT rates.

Ontario has successfully created a domestic renewable energy sector of sufficient size to drive economies of scale and lower prices. In addition to domestic developments, the evolution of the global market has contributed to substantial capital and operating cost reductions. For example, the costs of the raw materials for solar panel technology have dropped, making many projects cheaper to complete.

HOW

- 5.1 FIT program prices for wind and solar technologies should be reduced by more than 20 per cent for solar, depending on size, and approximately 15 per cent for wind (see appendix 4). Maintain current prices for water, biogas, biomass and landfill gas.
- 5.2 Rather than setting a price at the time of project application for small and large FIT projects, price should be set when the contract is offered.

6. EXPAND ONTARIO'S CLEAN ENERGY ECONOMY

WHY

Ontario has one of the most advanced, efficient and sustainable energy systems in North America. In addition, the province's clean energy sector expertise is high and growing.

The prospect for new development in this field is significant. A wide range of clean energy opportunities could generate significant economic gains for the province, including:

- Renewable energy generation components and services (e.g. solar modules, inverters);
- Smart grid technologies (e.g. grid automation, data management, smart meters);
- Energy storage technologies;
- Electric vehicle integration with the energy grid; and
- Other emerging technologies (e.g. concentrated solar PV).

Manufacturers and service providers in the province should be given support and opportunities to showcase their clean energy products and expertise on the world stage. This initiative would encourage additional clean energy companies to invest in Ontario.

Future international expansion by the most innovative and competitive companies in Ontario will be key to long-term industry growth. When cutting-edge technologies and expertise are developed in the province, everybody wins.

HOW

6.1 The Ministry of Economic Development and Innovation and the Ministry of Energy should develop a Clean Energy Economic Development Strategy that recognizes Ontario's strengths and leverages its experience to become a global leader in key areas of the energy sector.

This strategy should consider the following actions:

- a. Provide targeted financial support through the Smart Grid Fund to Ontario-based demonstration and capacity-building projects that test, develop and bring to market the next generation of technology solutions.
- b. Work with key stakeholders to consider the potential for a clean energy institute to spur domestic innovation and achieve greater global market presence for Ontario-based companies.
- c. Support domestic manufacturers by showcasing Ontario's smart energy solutions through a strategic export strategy.
- d. Create a Clean Energy Task Force to advise the Ministers of Energy and Economic Development and Innovation on potential strategies for Ontario's clean energy sector.

6.2 The government should explore potential partnership opportunities for renewable energy projects in off-grid remote Aboriginal communities.

6.3 Establish a working group to explore opportunities for self-consumption or net-metering programs in Ontario that build on the FIT design.

TECHNICAL RECOMMENDATIONS

The following technical recommendations are additional proposed adjustments to the FIT Program.

PROGRAM DETAILS:

- A. The OPA should allow for a window of time during which existing contracts can voluntarily withdraw from the FIT Program and have their security fees returned.
- B. Provide a transition process for: (1) all pre-existing FIT applications; and (2) microFIT applications submitted on and after September 1, 2011. Allow these applications to transition to eligibility requirements in the new FIT and microFIT rules. A revised application should retain its original timestamp. The OPA should return the application and security fee, as appropriate, to any pre-existing applications.
- C. The OPA should introduce a point system (see appendix 3) for small and large FIT applications:
 - i. That awards points to projects with minimum equity participation from an Aboriginal or local community and projects with participation by public schools, colleges, universities, hospitals or long-term care facilities.
 - ii. That awards points to projects that have demonstrated support from the local municipalities or Aboriginal communities.
 - iii. That awards points to water or bioenergy projects which have ancillary electricity system benefits.
 - iv. That awards points for project readiness to wind, solar ground-mount and bioenergy projects on Aboriginal Reserve or private land where applicants have sufficient space for the project and a firm lease, firm option to lease/purchase, or ownership of the land. Solar rooftop applicants that do not own the host building should be eligible for project readiness points if they provide proof of firm site control in the form of a firm lease or option to lease.
- D. The OPA should require a FIT project to earn a minimum of one point to be eligible for a contract.
- E. As a priority, the OPA should work with Hydro One and other local distribution companies to implement the Minister's directive, dated August 19, 2011, to facilitate the participation of eligible constrained microFIT projects.
- F. Update the microFIT process to include an Application Approval Notice instead of a Conditional Offer of microFIT contract. Similar to the Conditional Offer, the Approval Notice will be valid for six months (see appendix 1).
- G. Maintain the intent and focus of the microFIT Program:
 - i. Implement a limit of one microFIT contract per individual/farmer.
 - ii. Maintain the microFIT Eligible Participant Schedule and include farm co-ops.
 - iii. Remove requirement that Aboriginal communities, schools, public colleges, public universities, hospitals, long-term care facilities and social housing providers must own the land on which the project is to be located.
 - iv. Consistent with the goal of keeping the microFIT Program focused on homeowners, farmers, schools and other community applicants, the Commercial FIT (CFIT) Program should not be launched.

- H. For FIT and microFIT projects, additional applications on the same property (e.g. campus-style projects) at the same time should be permitted, provided that they receive the aggregated MW price. Future projects should be permitted, provided the original projects have reached commercial operation.
- I. Following commercial operation, a portion of the FIT price should escalate with inflation over time (as measured by the Consumer Price Index (CPI)) to reflect ongoing operations and maintenance costs.
 - i. 50 per cent price of the bioenergy price adjusted for CPI
 - ii. 20 per cent of the wind and water price adjusted for CPI
 - iii. 0 per cent of the solar price adjusted for CPI
 - iv. For new FIT contracts, the OPA should analyze inflationary pressures to determine if additional cost support is warranted as part of the price review this November.
- J. Strengthen FIT project due diligence requirements in areas including: awareness of regulatory approvals, structural safety and application security fees for small FIT projects.
- K. Create a domestic content grid for concentrated solar PV to facilitate participation in the FIT Program.

TRANSMISSION AND DISTRIBUTION:

- L. To promote efficient use of land and connection infrastructure, the OPA should consult with stakeholders to develop a rule regarding the appropriate maximum distance between a project site and its connection point.
- M. Maintain Hydro One's technical limit for connecting micro-sized projects to its distribution system ("7 per cent rule"), pending the results of additional studies.
- N. Regularly update and publish FIT transmission availability tables following, at a minimum, each round of FIT contract awards.
- O. Where the OPA's screening process indicates that upgrades are required to connect a project, the OPA should offer contracts only to projects where the need for minor transmission upgrades is identified.
- P. Based on planned transmission projects and recommended changes to the FIT Program, do not proceed with the Economic Connection Test (ECT).
- Q. Establish best practices and processes for local distribution companies (LDCs) and transmitters that will improve communication, transparency and coordination between the OPA, LDCs, transmitters and generators regarding the Connection Impact Assessment (CIA) process and the status of applications.

GLOSSARY

The Aboriginal Energy Partnerships Program: The Aboriginal Energy Partnerships Program consists of three key initiatives to support Aboriginal communities considering renewable generation projects:

- **Aboriginal Renewable Energy Fund (AREF)** assists with some of the initial project development costs associated with First Nation and Métis community renewable energy projects.
- **Aboriginal Renewable Energy Network (AREN)** is a web-based source of information relating to conservation and renewable energy development that will continue to evolve based on the needs of and input from Ontario's Aboriginal communities.
- **Aboriginal Community Energy Plans (ACEP)** Program helps Aboriginal communities identify and act upon their local conservation and renewable energy development opportunities.

Community Energy Partnerships Program (CEPP): A grant program to support community groups developing renewable energy projects in Ontario.

Consumer Price Index (CPI): The CPI is an indicator of changes in consumer prices experienced by Canadians. It is obtained by comparing, over time, the cost of a fixed basket of goods and services purchased by consumers. Since the basket contains goods and services of unchanging or equivalent quantity and quality, the index reflects only pure price change. The CPI is also widely used as an indicator of the change in the general level of consumer prices or the rate of inflation.

Distribution: A distribution system carries electricity from the transmission system and delivers it to consumers. Typically, the network would include medium-voltage power lines, substations and pole-mounted transformers, low-voltage distribution wiring and electricity meters.

Electrical Safety Authority (ESA): The ESA is a not-for-profit corporation that operates as an Administrative Authority under the Electricity Act, 1998, and has an Administrative Agreement with the Ministry of Consumer Services. Its role is to enhance public electrical safety in Ontario. It is also responsible for administering specific regulations related to electricity distribution system safety, electrical products safety, the Ontario Electrical Safety Code (OESC) and licensing Electrical Contractors and Master Electricians.

Feed-in Tariff (FIT): A guaranteed rate program that provides stable prices through long-term contracts for energy generated using renewable resources.

Green Energy Investment Agreement (GEIA): The agreement between the Ontario Government and the Korean Consortium to develop, construct and operate wind and solar projects in Ontario.

Green Energy and Green Economy Act (GEA): This act was created to expand renewable energy generation, encourage energy conservation and promote the creation of clean energy jobs. The GEA is sparking growth in clean and renewable sources of energy such as wind, solar, hydro and bioenergy.

Greenhouse Gas (GHG): Gases that contribute to the capture of heat in the Earth’s atmosphere. Carbon dioxide is the most prominent GHG. In addition to natural sources, it is released into the Earth’s atmosphere as a result of the burning of fossil fuels such as coal, oil and natural gas. GHG is widely acknowledged as a contributor to climate change.

Kilowatt (kW): A standard quantity of power in a residential-size electricity system, equal to 1,000 watts (W). Ten 100-watt light bulbs operated together consume one kW of power.

Local Community Project: A co-op with a minimum equity participation of 15 per cent and a minimum participation level of 50 property owners in a municipality where the FIT Project is located.

Local Distribution Company (LDC): An entity that owns a distribution system for the local delivery of electricity to consumers.

Megawatt (MW): A unit of power equal to 1,000 kilowatts (kW) or one million watts (W).

Ontario’s Long-Term Energy Plan (LTEP): A comprehensive plan released in 2010 that provides the framework for the future of Ontario’s electricity system, including a guide for expanding the province’s emerging clean energy economy.

Ontario Power Authority (OPA): The OPA is responsible for ensuring an adequate, long-term supply of electricity in Ontario. Together with its partners, the OPA works to ensure that Ontario’s electricity needs are met by planning and procuring electricity supply from diverse resources and facilitating the measures needed to achieve ambitious conservation targets.

Peak Demand: Peak demand, peak load or on-peak are terms describing a period in which electricity is expected to be provided for a sustained period at a significantly higher-than-average demand level.

Photovoltaic (PV): A technology for converting solar energy into electrical energy, typically by way of photovoltaic cells or panels consisting of a number of cells.

Project Size:

microFIT: Ontario residents are able to develop a very small or “micro” renewable electricity generation project (10 kilowatts or less in size) on their properties. Under the microFIT Program, participants are paid a guaranteed price for all the electricity they produce for at least 20 years.

CAE: Capacity Allocation Exempt (CAE) Feed-in Tariff (FIT) projects are small projects connected directly to the distribution system. The FIT rules adopt the Distribution System Code definition of CAE projects as:

- Projects with no more than 250 kW of rated generating capacity, where the facility is connected to a less than 15 kV line
- Projects of 500 kW or less of rated generating capacity, where the facility is connected to a 15 kV or greater line.

CAR: Capacity Allocation Required (CAR) FIT projects are large projects connected to the distribution or transmission system that are:

- Projects with more than 250 kW of rated generating capacity where the facility is connected to a less than 15 kV line
- Projects of 500 kW or more of rated generating capacity where the facility is connected to a 15 kV or greater line.

Renewable Energy Approval (REA): A central component of the GEA initiative was the introduction of a Province-led approval process with transparent and consistent standards. As a result of the new approvals framework, most renewable energy projects are now subject to the Renewable Energy Approval (Ontario Regulation 359/09)). The REA regulations establish clear, consistent rules and standardized technical requirements across the province.

Renewable Generation: Energy derived from natural resources including solar PV, wind, waterpower, and bio-energy (biogas, landfill gas, and biomass). These resources are naturally replenished, so they are described as renewable.

Renewable Energy Facilitation Office (REFO): REFO was established by the Province to assist in developing new renewable energy projects. It serves as a one-window access point where individuals, communities and municipalities with projects of all sizes can obtain information and connect with the appropriate government and agency resources.

Smart Grid: A smart grid is a modern electricity system. It uses sensors, monitoring, communications, automation and computers to improve the flexibility, security, reliability, efficiency, and safety of the electricity system.

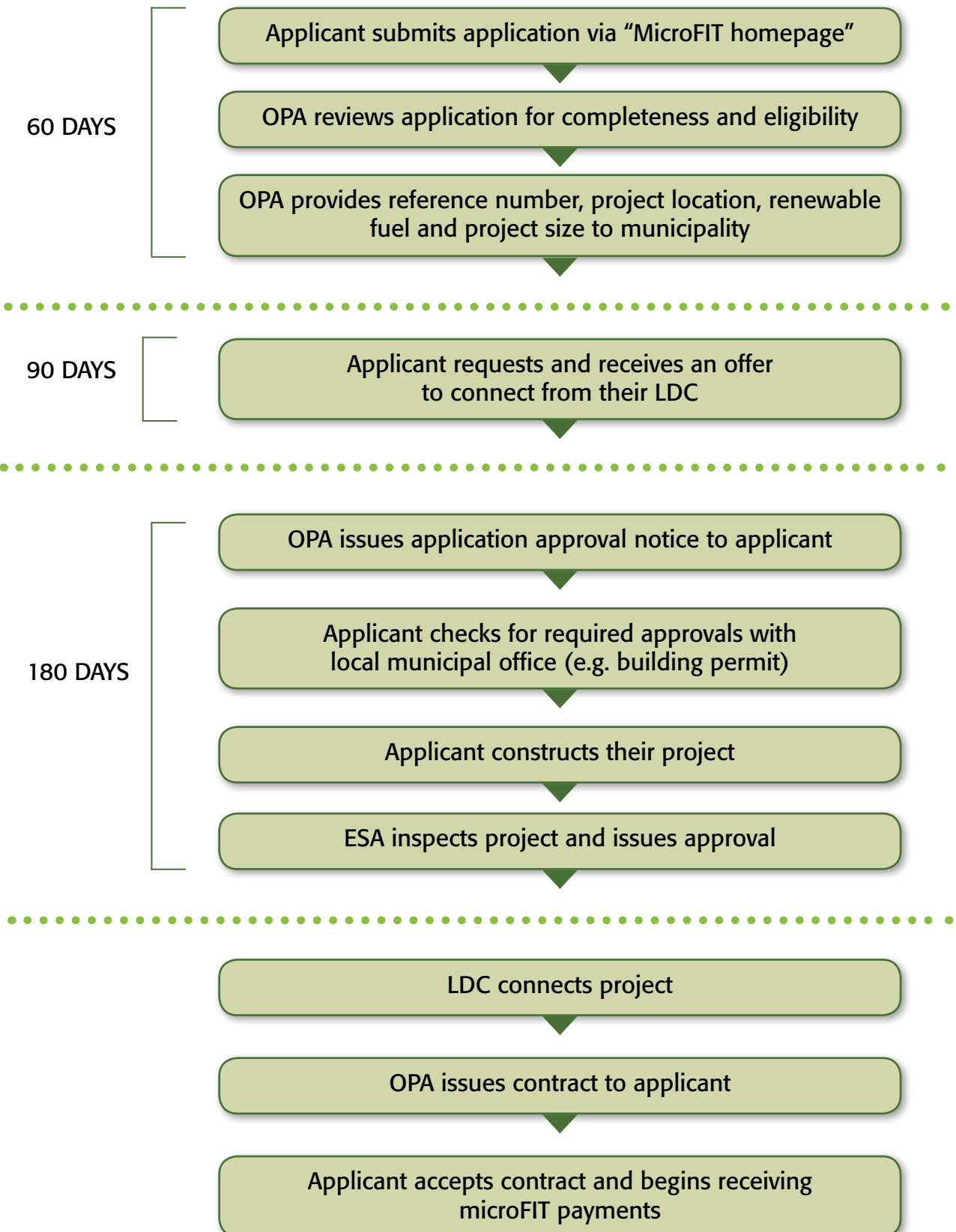
Supply Mix: The different types of fuel that are used to produce electricity in a particular jurisdiction. Normally, the mix is expressed in terms of the proportion of each type within the overall amount of energy produced.

Transmission: The movement or transfer of electricity over an interconnected group of lines and associated equipment between points of supply and points at which it is transformed for delivery to consumers, or is delivered to other, separate electric transmission systems. Transmission of electricity is done at high voltages (50kV or higher in Ontario). The energy is transformed to lower voltages for distribution over local distribution systems.

Transmission Availability Test/ Distribution Availability Test (TAT/DAT): The transmission availability test is performed by the OPA to determine if there is sufficient transmission capacity available to connect a renewable energy project. The DAT applies only to distribution-connected projects. It is performed by the local distribution company if a project first passes the TAT. The DAT will determine if there is sufficient connection availability on the distribution system to connect your renewable energy project.

APPENDIX 1: MICROFIT PROCESS

MICROFIT APPLICATION PROCESS



APPENDIX 2: FIT PROCESS

PRE-APPLICATION: Applicant encouraged to consult with local community about siting, support, etc.

FIT APPLICATION AND CONTRACTING PROCESS

APPLICATION REVIEW

60 DAYS

Note: 60 day window for application review will not begin until application period closes.

Applicant submits an application via their "MyFIT homepage"

OPA reviews application for completeness and eligibility

OPA ranks application by priority points and timestamp

CONNECTION SCREEN

60 DAYS

OPA and LDCs run TAT/DAT to determine FIT program connection availability

Projects pass TAT/DAT subject to procurement limits

APPLICANT ENGAGES IN ENVIRONMENTAL APPROVAL PROCESS AND PUBLIC CONSULTATIONS

OPA issues contracts to successful applicants

Applicant receives and executes contract within 20 days

OPA executes and manages contract

Project launch meeting

Applicant obtains all applicable environmental approvals (e.g. REA, Class EA for water power, Federal approvals)

Request notice to proceed

Commercial operation date

APPENDIX 3: POINT SYSTEM

Applicant Type	Local Participation Level	Points
Local Community with minimum 15% equity	Project includes 50 or more property owners who live in the municipality where the project is located	3
Aboriginal with minimum 15% equity	N/A	3
Public Schools, Colleges, Universities, Hospitals & Long-Term Care Facilities with minimum 15% equity or project host	N/A	2
Other participants	N/A	0
Additional Points		
Municipal Council Support Resolution		2
Aboriginal Community Support Resolution		2
Project Readiness		2
System Benefit (water and bioenergy)		1

Note: All projects should have a minimum of 1 point to be eligible for contract.

APPENDIX 4: PRICE SCHEDULE

Fuel	Project Size Tranche	Original FIT Price (c/kwh)	New FIT Price (c/kwh)	% Change from Original FIT Price
Solar Rooftop	≤10 kW	80.2	54.9	-31.5%
	> 10 ≤ 100 kW*	71.3	54.8	-23.1%
		<250kw		
	> 100 ≤ 500 kW*	63.5	53.9	-15.1%
>250 ≤ 500kw				
>500 kW	53.9	48.7	-9.6%	
Solar Groundmount	≤ 10 kW	64.2	44.5	-30.7%
	> 10 kW ≤ 500kW*	44.3	38.8	-12.4%
	> 500 kW ≤ 5 MW *	44.3	35.0	-21.0%
			34.7	-21.7%
Wind	All sizes	13.5	11.5	-14.8%
Water	≤ 10 MW	13.1	13.1	0.0%
	> 10 MW ≤ 50 MW	12.2	12.2	0.0%
Biomass	≤ 10 MW	13.8	13.8	0.0%
	> 10 MW	13	13	0.0%
Biogas On Farm	≤ 100 kW	19.5	19.5	0.0%
	100 kW ≤ 250 kW	18.5	18.5	0.0%
Biogas	≤ 500 kW	16	16	0.0%
	> 500 kW ≤ 10MW	14.7	14.7	0.0%
	> 10 MW	10.4	10.4	0.0%
Landfill Gas	≤ 10MW	11.1	11.1	0.0%
	> 10 MW	10.3	10.3	0.0%

*New project size.

APPENDIX 5: FIT PRICE ADDERS

	Aboriginal Projects		Community Projects	
	>50%	>15% ≤50%	>50%	>15% ≤50%
Participation Level (Equity)	>50%	>15% ≤50%	>50%	>15% ≤50%
Price Adder (¢/kWh)	1.5	0.75	1.0	0.5

Note: The above table applies to all FIT project sizes and all technologies except rooftop solar.



© Queen's Printer for Ontario, 2012

ISBN 978-1-4435-9151-5Print
ISBN 978-1-4435-9152-2HTML
ISBN 978-1-4435-9153-9PDF

