2017 Long-Term Energy Plan

Part 2– Details on Policy and Program Initiatives

Ministry of Energy
Date: July 26, 2017

Minister

Deputy Minister

DRAFT

GOVERNMENT COMMITMENT

- *"Building on the processes and principles used in the 2010 and 2013 plans and the new legislation, work with partner agencies and energy sector agencies to consult with consumers and stakeholders, and engage with Indigenous communities to develop Ontario's next Long-Term Energy Plan (LTEP) to be released in 2017"*
  - Minister of Energy Mandate Letter, September 2016.

**Note: Specific initiatives identified in "proposed minute" section*

2013 LTEP

- Ontario's 2013 LTEP was released following Cabinet approval, on December 2, 2013.
- The plan set out direction for the energy sector including conservation, generation, transmission/distribution, oil/gas, Indigenous participation, and regional planning.
- The plan identified five principles that guide energy decisions:
  - Cost effectiveness
  - Reliability
  - Clean energy
  - Community engagement
  - An emphasis on conservation and demand management
- The plan was informed by the most comprehensive engagement process the Ministry of Energy has ever undertaken.

2017 LTEP – Timeline

- The Ministry of Energy developed the 2017 LTEP, incorporating other major government priorities:

Minister of Energy requests technical report from IESO **June 2016**

Electricity & fuels technical reports released **Sept. 2016**

LTEP Engagement **Oct. 2016 to Jan. 2017**

LTEP Policy Development & Modelling **April to June 2017**

June 2016 — 2017

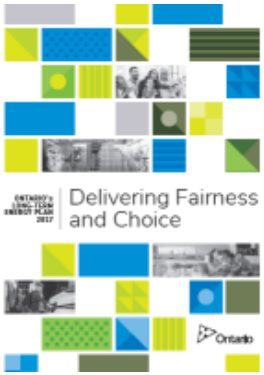
Climate Change Action Plan Released: **June 2016**

8% rebate: Announced **Sept. 13** Legislation passed **Oct .19**

Ontario's Fair Hydro Plan Announced **March 2** Legislation passed: **May 31**

Enhancements Since Previous LTEPs

2010 & 2013 LTEP



2017 LTEP

- No formal process for development
- Procurement targets regardless of need, leading to surplus baseload generation
- Direction to agencies on specific procurements and other actions
- Implemented through subsequent Minister directives
- Focus on electricity sector

- Development followed planning process, enshrined through the Energy Statute Law Amendment Act, 2016.
- Focuses on government policy goals and objectives
- Provides flexibility to IESO and OEB for implementation
- Implemented through Cabinet-approved directives and agency implementation plans
- Broader focus to include fuels sector

Engagement Feedback

Methods for Engagement

- The 2017 LTEP engagement process took place from October 2016 to January 2017. The process yielded feedback from three channels:

In-person sessions

Stakeholder sessions
Public open houses
Indigenous sessions

17 communities visited

~550 stakeholder attendees

Hundreds of open house attendees

17 Indigenous sessions

Written submissions

Environmental Registry
LTEP@ontario.ca
Hardcopies (mail, drop-off)

~1,500 Environmental Registry submissions

~200 letters, emails and paper submissions

Talks Tool

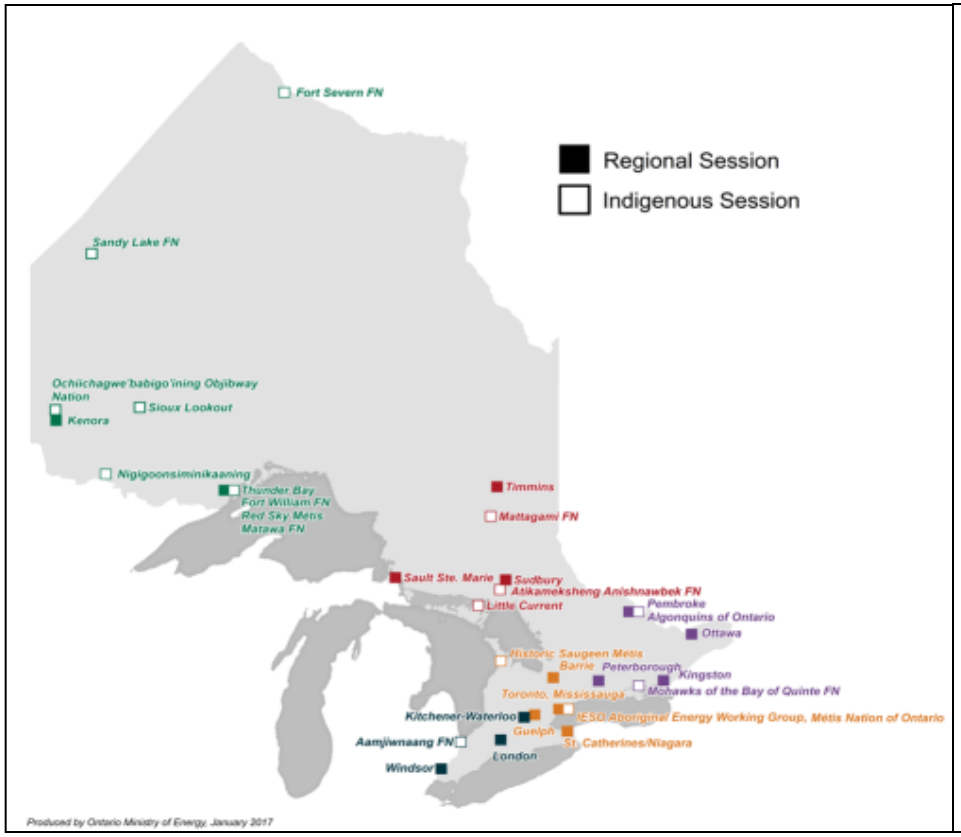
Online survey and comments on an online forum

2,835 online comments and submissions

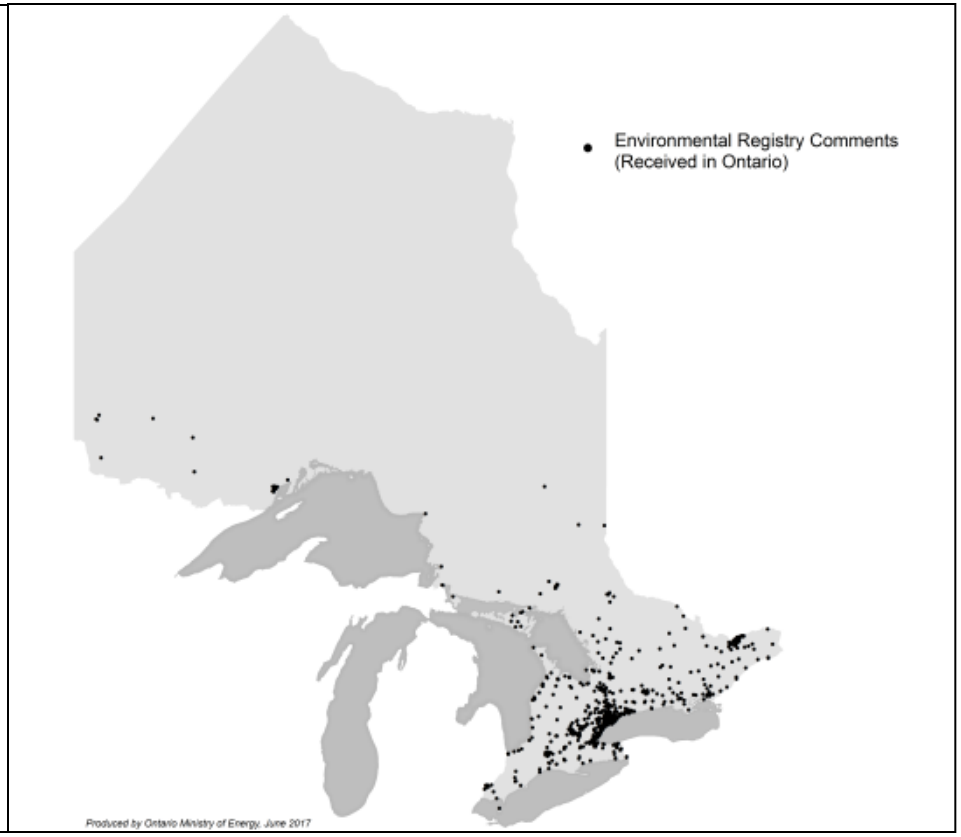
2,285 users

Engagement Feedback

Communities Visited

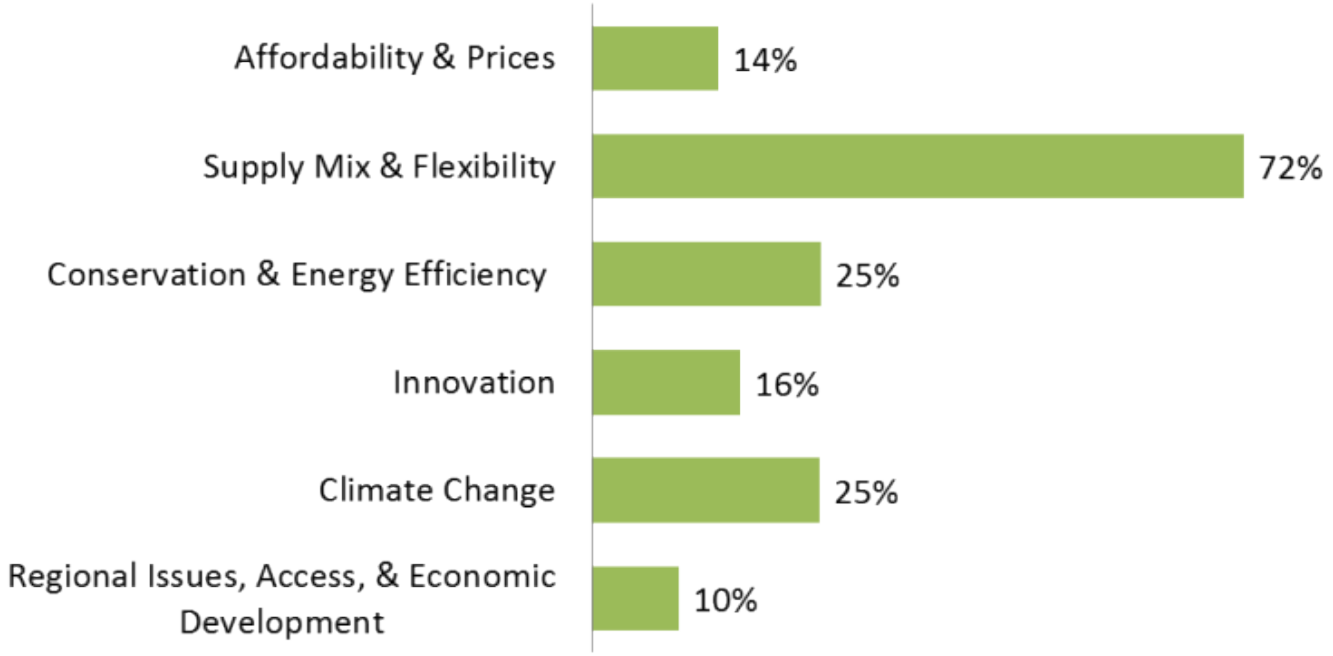


Comments Received



Proportion of Topics through Environmental Registry

- Percentage of comments received through the Environmental Registry that mentioned the following topics:



Note: Comments do not sum to 100% because topics were not mutually exclusive

Feedback – Affordability and Prices

- Costs for residents and businesses are too high
- Energy prices are affecting Ontario's industrial competitiveness
- Consider funding from tax base to reduce electricity rates
- Desire from businesses for energy cost certainty
- Consider impact of carbon pricing on energy system and costs

"Home energy rates are difficult for the average person to grapple with."

"High electricity prices are not conducive to sustaining existing jobs or creating new ones."

"Consideration should be given to moving some of the costs for electricity and gas infrastructure into the tax base."

Source: Feedback from in-person sessions and Environmental Registry submissions and early engagement feedback. (Registry # 012-8840, Comment 207183)

Feedback – Flexible and Efficient Electricity System

- Support outcome based regulatory approach and customer focused reliability measures
- Consider more interconnections with other jurisdictions
- Prepare for impacts of distributed generation
- Consider capacity markets for supply decisions moving forward
- Supply decisions should be technology-neutral
- Differing views on nuclear and renewable generation

"If we are talking about new supply, do it as a competitive bid, technology aside, you are going to get the best prices if you do it competitively."

"The capacity market must be sophisticated enough to allow all required types of generation to successfully compete"

"…the private sector should be given increased opportunities to develop, construct, own and operate rate-based transmission in Ontario."

Source: Feedback from in-person sessions and Environmental Registry submissions and early engagement feedback. (Registry # 012-8840, Comment 207183)

Feedback – Conservation and Energy Efficiency

- Tailor conservation programs for specific customers and regions
- Consider new energy management technologies and strategies such as social benchmarking
- Continue and enhance existing conservation programs
- Support community based energy planning.
- Allow for projects that conserve energy in-front of the meter conservation and prevent line loss
- Consider changes to Time of Use Pricing;
- Align programs with initiatives from Climate Change Action Plan

"People need help to make their houses more energy efficient and green. Use cap and trade revenues for this."

"The current TOU price structure is not easily understood by customers, nor does it set prices that provide consumers with incentives and opportunities to reduce their electricity bills by shifting their time of electricity use."

Source: Feedback from in-person sessions and Environmental Registry submissions and early engagement feedback. (Registry # 012-8840, Comment 207183)

Feedback – Innovation

Revised market systems and regulatory reform could spur innovation

Consider new opportunities/ business models for utilities to invest in new technologies and raise capital

Change rate design to allow for smart grid projects with broad system benefits

Customer, not government, should dictate the technologies that emerge.

Capitalize on opportunities provided by:

- Energy storage
- Renewable natural gas
- Microgrids
- Distributed energy
- Electric vehicles

"The utility of the future will need to present customers with an amalgam of traditional and non-traditional services."

"Give the power back to the communities and to let them decide what energy sources and technologies…best meet their needs."

"Electric vehicles provide an excellent opportunity for the current grid."

Source: Feedback from in-person sessions and Environmental Registry submissions and early engagement feedback. (Registry # 012-8840, Comment 207183)

Feedback – Climate Change Impacts

- Consider impacts of climate change policy on grid and natural gas industry
- Confusion over cap and trade, and what funding will be used for
- Reduce use of fossil fuels across the sector
- Transition towards 100% renewable energy
- Develop an integrated approach to decarbonization
- Demonstrate benefits of electric heating and provide incentives to encourage its use

"I am very pleased that Ontario has taken a leadership role as a climate leader in this country, and we have a great opportunity ahead of us to continue that leadership role."

""We need to factor in externalities, as they are currently understood, with the costs of climate change."

"The importance of tackling climate change cannot be overstated."

Source: Feedback from in-person sessions and Environmental Registry submissions and early engagement feedback. (Registry # 012-8840, Comment 207183)

Feedback – Regional Issues

- Consider non-wires solutions in regional planning;
- Need increased transmission capacity and improved reliability in the North
- Reserve corridor space before development occurs
- Expand access to natural gas
- Consider economic development in transmission planning
- Improve reliability

"Increase alignment between regional electricity planning exercises and community energy plans."

"…ensure economic development is a key consideration when reviewing potential expansion projects"

"The Province should take a leadership role in the long term planning, identification and protection of transmission corridors ensuring system reinforcement and reliability."

Source: Feedback from in-person sessions and Environmental Registry submissions and early engagement feedback. (Registry # 012-8840, Comment 207183)

Feedback – Indigenous Sessions

The need to **address energy affordability,** including improved access to support programs, consideration of an Indigenous rate, and solutions through conservation & more diversified energy options such as fuels

The need for **enhanced energy resiliency** including more reliable transmission, investments in renewable energy and innovation, addressing climate change and linking energy to issues of housing & well-being.

The need to **support local opportunities** from local generation & benefits to increased human capacity to engage in energy issues; training & energy literacy; the need to include the voices of youth & the north, respecting local jurisdiction and decision-making, and the need for better financing options.

Every 30 days a bill comes to someone in our community who can't pay it

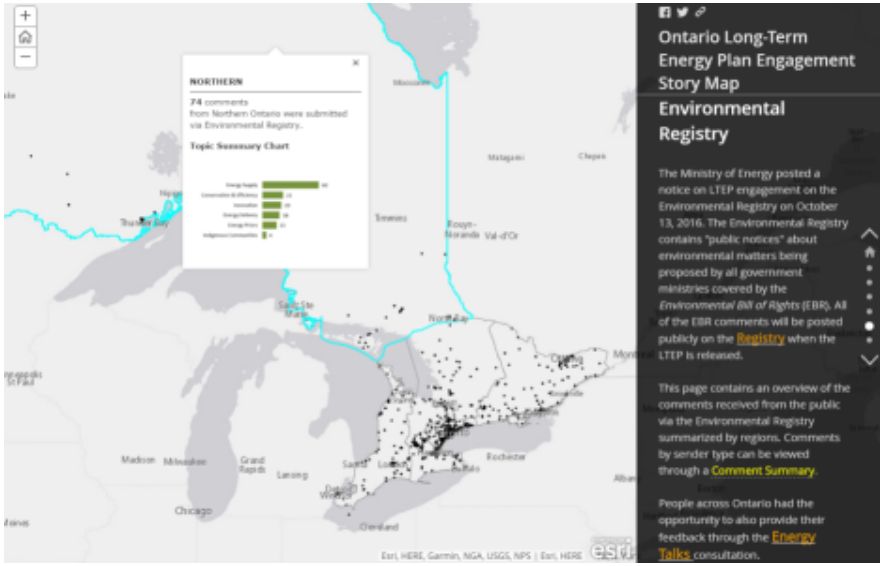
We want to be included.

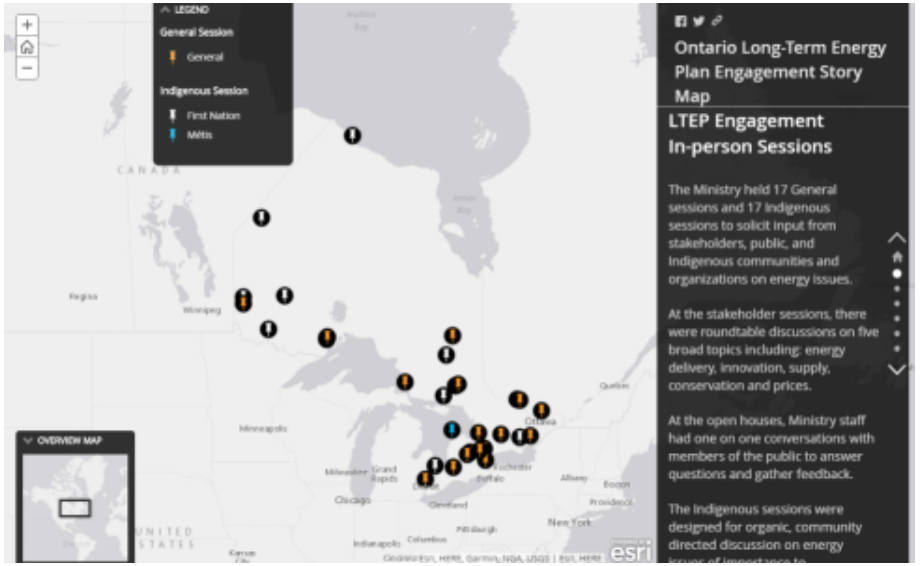
We need to change the culture and mentality about energy.

Public Report Back

- The Ministry of Energy published an interactive story map on June 23, 2017 as a tool to describe the 2017 LTEP consultation and engagement process.

- The story map summarizes where we went and what we heard through the 2017 LTEP engagement process.





http://www.energy.gov.on.ca/en/ltep/ontarios-long-term-energy-plan-2016-2017-consultations/

Indigenous Report Back

- A summary report of 2017 LTEP feedback received from First Nations was compiled and emailed to all First Nation session invitees and participants.
  - The ministry hosted an LTEP First Nation wrap-up event, to confirm accuracy of the ministry's record of feedback, and to receive input on the ministry's initial ideas for the next LTEP.

- A summary report of LTEP feedback received from Métis was compiled and emailed to all Métis session invitees and participants.
  - The Ministry has offered to present feedback and ideas at the Métis Nation of Ontario Annual General Assembly.

Details on Proposed and Ongoing Initiatives

A. Ensuring Affordable and Accessible Energy
B. Flexible Energy System
C. Improving Value and Performance for Consumers
D. Conservation
E. Preparing for the Future/Innovation
F. Responding to the Climate Change Challenge
G. Supporting Indigenous Capacity and Leadership
H. Regional Priorities

A. Ensuring Affordable and Accessible Energy

Rate Reduction via Global Adjustment (GA) Refinancing

- Under the Ontario Fair Hydro Plan Act, 2017 (OFHPA), a portion of Global Adjustment (GA) is being refinanced to spread the cost of electricity investments over a longer period of time. This will relieve the burden on today's ratepayers and share costs more fairly with future generations.
- Under the OFHPA, as of July 1, 2017, residential electricity bills are reduced by an average of 25%. Up to 500,000 small businesses and farms will also benefit.

Expansion of Ontario Electricity Support Program (OESP)

- Ontario has already made significant progress on enhancing the OESP. On-bill, monthly credits have increased by 50% and program eligibility has expanded to include more low-income customers.
- Work is well underway to align the OESP with other social assistance programs, with the goal of significantly increasing uptake by automatically qualifying for OESP. Next steps include working with MCSS to ensure greater uptake of OESP amongst social assistance clients and creating an automatic enrolment process.

Affordability Fund

- An Affordability Fund is being established to help Ontarians who are not eligible for low-income conservation programs and who need financial assistance to make energy efficiency improvements to their homes.
- The Fund will be administered by an independent trust that will distribute funds to electricity distributors on an application basis. Distributors are in the best position to provide consumers in need of assistance with energy efficiency improvements, and it is expected that they will be able to begin applying to the Affordability Fund by the end of summer 2017.

A. Ensuring Affordable and Accessible Energy

Enhanced Distribution Rate Protection

- The Province has expanded rate protection to provide Distribution Rate Protection to about 800,000 residential customers served by local distribution companies with the highest distribution rates, including many of those who continue to receive RRRP. The cost of the DRP will be funded by provincial revenues.
- Eligible residential customers of the affected distribution companies are: Hydro One Networks Inc (R1 & R2); Northern Ontario Wires Inc.; Lakeland Power (Parry Sound service territory); Chapleau Public Utilities Corporation; Sioux Lookout Hydro; InnPower; Atikokan Hydro; and Algoma Power.

First Nations Delivery Credit

- The First Nations Delivery Credit (FNDC) will benefit approximately 21,500 residential customers living on reserve. The costs will be funded by provincial revenues.
- The FNDC will provide much needed relief from the high costs of electricity in First Nations communities and encourage socio-economic well-being. This is an important step towards reconciliation and the strengthening of Ontario's relationship with First Nations.

A. Ensuring Affordable and Accessible Energy

Increased Consumer Protection

- As part of the Long-Term Energy Plan, the Ministry is proposing to proclaim existing (unproclaimed) provisions under the *Ontario Energy Board Act, 1998* (OEBA) that would empower the Ontario Energy Board to rate regulate Unit Sub Meter Providers (USMPs).
  - USMPS are private companies that provide metering services to multi-unit residential buildings so that individual unit residents can be billed for electricity based on their individual consumption levels.

- Enhancing consumer protection and taking a more stringent approach to regulation would give the OEB more insight into how these sub-metering companies determine their costs, set their rates and enter into agreements with developers. By enacting the unproclaimed legislation (through a Proclamation OIC) USMPs would become rate regulated entities.

- Customers would benefit as information about rates would be more transparent. Market participants will see this as a more “fair” process within the industry.

- In proclaiming this legislation the end use customer could see an increase to their costs depending on the level of regulatory oversight and burden.

A. Ensuring Affordable and Accessible Energy

Increased Consumer Protection (con't)

- Currently there are 28 sub-meter providers, licenced by the OEB, who provide services to 2500 buildings, with 326,000 individual units metered. The vast majority of units (87%) are located in the GTA and are split roughly equally between condos (47%) and apartments (51%).
  - Enercare and Carma (the two largest USMPs) serve approximately 78% of the market.
- The OEB received 149 complaints about USMPs in 2016 highlighting concerns related to billing issues, mark-ups, disconnections, fees. Many of these concerns fall outside of the OEB's current jurisdiction.
- Increasing the OEB's regulatory authority over USMPs would ensure that charges to consumers are just and reasonable and provide greater consumer protections, including the opportunity for the OEB to have oversight over USMP monthly service fees.

A. Ensuring Affordable and Accessible Energy

Natural Gas Expansion

- To expand access to natural gas to support greater customer choice and help economic development of local communities, the government launched a new $100 million Natural Gas Grant Program in April 2017 (administered by the Ministry of Infrastructure).
  - The application window for the grant program opened in April 2017 and will close on July 31, 2017.
- A new regulatory framework issued by the OEB in November 2016 gives natural gas utilities more flexibility by allowing them to charge increased rates and surcharges to those customers who benefit from any expansion.
- ENERGY will work with MOI to implement the grant program and monitor OEB regulatory proceedings related to gas expansion applications.

Gasoline Price Review

- Northern communities are concerned about the high cost of the gasoline. As a result, the Minister of Energy directed the OEB in November 2016 to review Ontario's retail market for gasoline and diesel fuel.
- The OEB expects to report back to the Ministry with its findings later this year.
- ENERGY will review the OEB's report in detail and consider the information in future decision-making.

Class A Price Mitigation

- Reference existing industrial price mitigation initiatives, and that government will continue to monitor industrial electricity prices for further opportunities. LTEP to reference that ICI has been expanded to allow more consumers to opt in, and future report on ICI expansion uptake/effectiveness. ENERGY to assist in providing greater awareness of available energy efficiency programs for Class A customers.

B. Flexible Energy System

East West Tie – Overview

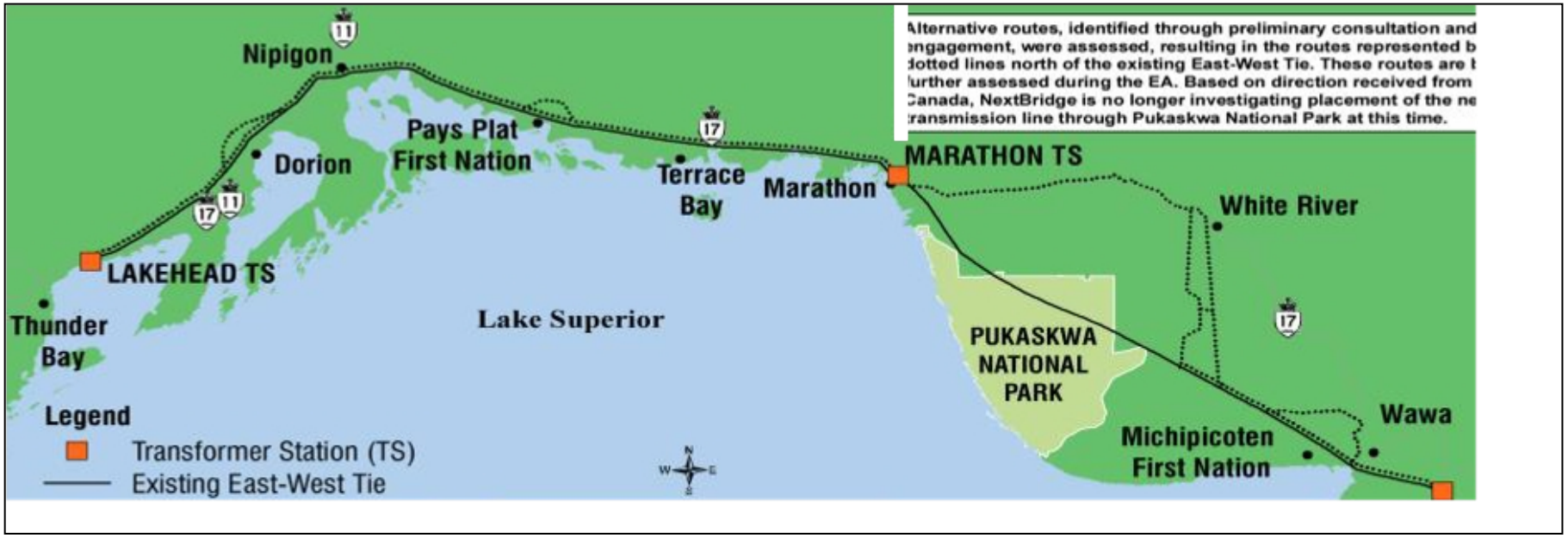
- The EWT is an approximately 400 km, 230 kV transmission line paralleling an existing line between Wawa and Thunder Bay. The proponent, Nextbridge, was selected through a competitive process run by the OEB. Ontario declared the construction of the EWT a priority project in 2016.
- In May 2017, NextBridge informed ENERGY that the estimated capital costs for the EWT had increased from its initial 2011 estimate of $400 million to $740 million. They have not yet filed their "Leave to Construct" application with the OEB, and this cost information will only become public once they do.

Proposed Actions

- When NextBridge files a Leave to Construct application, the Minister will respond to increased costs with a request for an updated need assessment from IESO. The government will retain the option of rescinding or amending the prioritization Order-In-Council that was issued in 2016 to return powers to the OEB in order to fulfill their mandate of ensuring costs are reasonable and that value and fairness are delivered to the ratepayers of Ontario. The OEB may then review the elevated costs and associated project need as part of the Leave to Construct process.
- The LTEP will note that with Ontario's focus on making the electricity system more cost-effective, increasing costs are a concern.

B. Flexible Energy System

East West Tie – Project Map



B. Flexible Energy System

North West Bulk – Overview

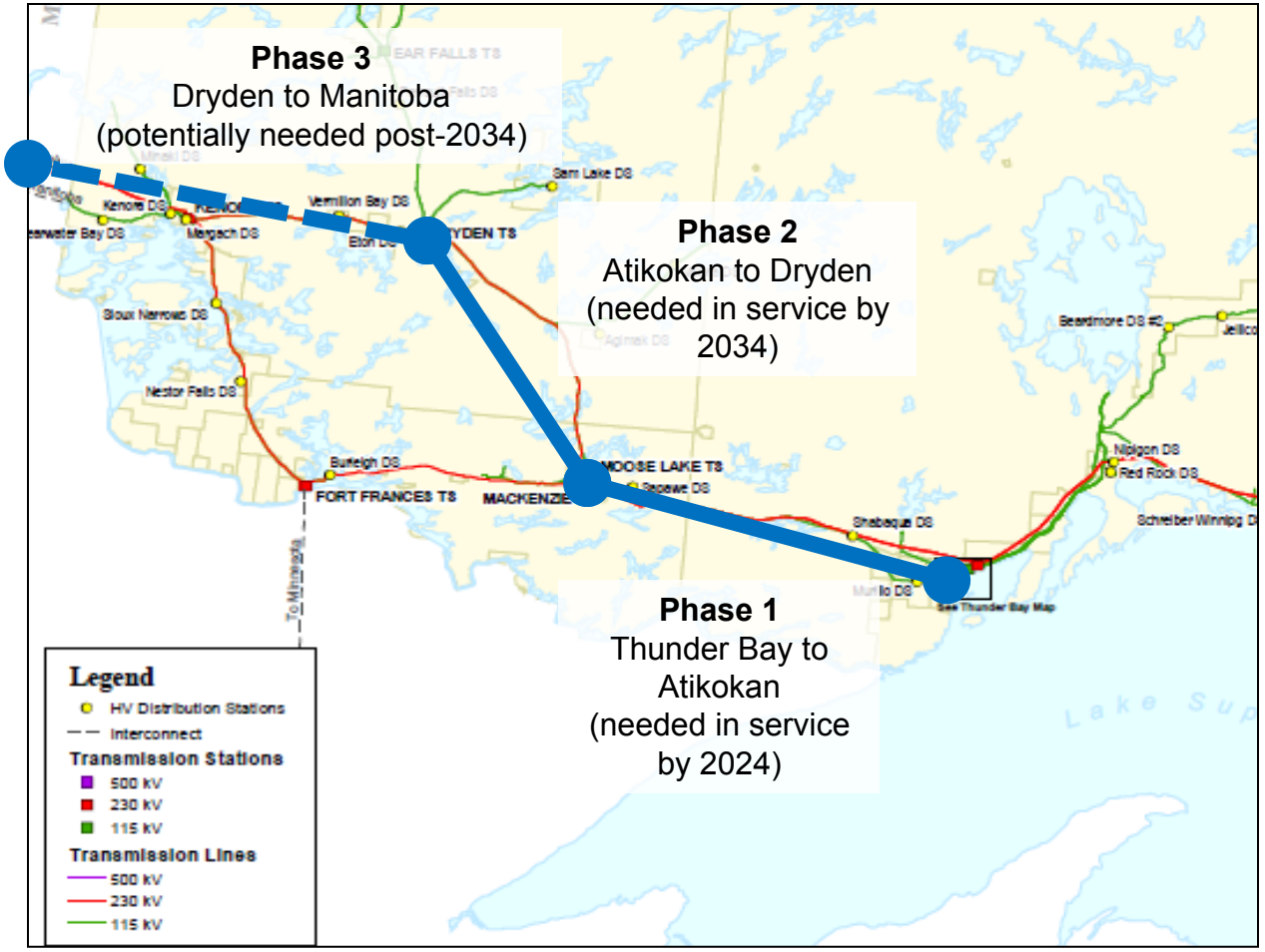
- The Northwest Bulk Project, a reinforcement of the 230 kV system from Thunder Bay to Dryden, was named as a priority in the 2013 LTEP and Hydro One was designated as the transmitter.
- Hydro One has taken limited steps to develop the line and has indicated it needs either a hand-off scope letter from IESO or a prioritization OIC to move forward
- In late 2016, IESO provided an update on the Northwest Bulk Transmission Project and recommended a scope and next steps. The IESO recommended that a scoped project reinforcing the system between Thunder Bay and Atikokan (Phase 1) proceed immediately with a second optional reinforcement from Atikokan to Dryden (Phase 2) to be developed if load forecasts increase.
- The IESO will issue a hand-off letter to Hydro One, defining the project's scope and in-service date (2024) for Phase 1 and recommending that it is prudent for Hydro One to commence development work on both Phase 1 and Phase 2.
- The LTEP would also identify a potential future third phase from Dryden to the Manitoba border to accommodate better integration of provincial electricity grids. The scope of Phase 3 will be determined in the future and will be based on the need for the line, which may evolve over time. Development of this phase would only take place when required, informed by future need forecasts with a general timeline of post-2035.
- Ontario will retain the option to issue an OIC at a later point when development has progressed and the need assessment presents a stronger case for transmission reinforcement to Dryden.

Proposed Actions

- The LTEP will outline a phased approach to the NWB project with Phase 1, a line from Thunder Bay to Atikokan, to come into service as soon as is practical, and no later than 2024, and Phase Two, a line from Atikokan to Dryden, to come into service by 2034 unless IESO's outlook on the demand forecast suggests an earlier date. Development work for the first two phases will proceed at the same time to retain flexibility should Phase 2 be needed sooner. The LTEP will also identify the potential for a future Phase Three line from Dryden to the Manitoba border.

B. Flexible Energy System

North West Bulk – Project Map



B. Flexible Energy System

Bulk Planning – Overview

- The enhanced regional electricity planning process has brought greater consistency and transparency at the regional level and there is a need to establish for a standardized, predictable approach to planning the bulk system.
- A number of bulk system projects were identified in previous LTEPs, including the East West Tie, the Northwest Bulk, and the Clarington Transformer Station. Other bulk system upgrades have been identified through the regional planning process as a result of shared bulk and regional needs.
- A transparent process would provide the public and stakeholders with an overview of the planned and forecast transmission projects that are necessary to maintain bulk system reliability and help to level the playing field once a competitive transmission process is developed.

Proposed Actions

- The Ministry will direct IESO to establish a formal process for planning the future of the integrated province-wide “bulk” system, which includes the high voltage system that is typically 230 kV and 500 kV in Ontario. As part of the process, IESO will consult with stakeholders and communities.

B. Flexible Energy System

IESO's Market Renewal Initiative – Overview

- The IESO has begun a Market Renewal initiative to redesign the province's wholesale electricity markets. Market Renewal is expected to deliver a more efficient, competitive and flexible electricity market to meet future system needs at lowest cost.
- Market-based approaches to procuring new generation have been successful in other jurisdictions to provide a cost-effective supply of electricity.
- Cost savings are expected to be achieved through the maximization of existing assets, greater competition, a reduced need to build new resources, and a more flexible procurement process that will better reflect system needs.
- The project is expected to save up to $5.2 billion over a 10-year period, and forms a key component of Ontario's plan to ensure the affordability of electricity in the longer term.
- The IESO is working with stakeholders and government to consider what, if any, complementary market based mechanisms might be needed to facilitate broader policy objectives such as climate change mitigation.

Proposed Actions

- Align market renewal with climate change strategy by ensuring renewables are competitive while respecting the goals of market renewal.
- This item will be profiled in the LTEP

B. Flexible Energy System

Cap and Trade Impacts – Overview

- On January 1, 2017, Ontario implemented a cap and trade program. It will influence how we plan the province's energy supply and achieve cost-effective reductions in greenhouse gas (GHG) emissions going forward.
- The cap and trade program will increase the competitiveness of non-emitting electricity generation and clean imports, as well as more efficient natural gas generation. Cap and trade also affects the price consumers pay for fossil fuels such as natural gas, gasoline, diesel and propane.
- For natural gas, the OEB approves the costs incurred by regulated natural gas utilities to comply with cap and trade, including acquiring emission allowances, that are then collected in rates charged to their customers.
- For other fuels such as gasoline, diesel and propane, fuel suppliers in Ontario operate in a competitive market which is not subject to economic regulation.
- These fuel suppliers are responsible for complying with cap and trade regulations and it is expected their compliance costs, including acquiring emission allowances, will be passed through to retail consumers.

Proposed Actions

- Ensure compliance of existing natural gas facilities with cap and trade program through amended generator contracts and monitor the impact of cap and trade on the dispatch signals in the existing electricity market.
- This item will be profiled in the LTEP.

B. Flexible Energy System

Maximizing Existing Generation Assets: Nuclear – Overview

- Refurbishing Ontario's nuclear generating stations is the most cost-effective option for meeting the requirements for baseload generation while producing no GHG emissions.
- Maximizing the value of existing nuclear assets provides an opportunity to reduce system costs and ease pressure on ratepayers, including by deferring the need for new generating capacity.
- Ontario is moving forward with the plans laid out in 2013 LTEP to refurbish a total of 10 nuclear units between 2016 and 2033: four units at Darlington and six units at Bruce.
- Refurbishing these 10 units will secure over 9,800 MW of affordable, reliable and emission-free generation capacity for the long-term benefit of Ontario. It will also support the 180 companies and 60,000 jobs that make up Ontario's globally-recognized nuclear supply chain.
- On October 15, 2016, Ontario Power Generation commenced Darlington Unit 2 refurbishment. The project is progressing well and is on track to be complete on time and on budget. First Bruce refurbishment will commence in 2020.
- Ontario has also approved OPG's plan to seek regulatory approvals for operating Pickering to 2022/2024 to ensure a reliable and affordable source of GHG-free electricity during the Darlington and initial Bruce refurbishments.

Proposed Actions

- ENERGY will exercise strict oversight in order to ensure that refurbishments are completed on time and on budget. Off-ramps are in place to ensure that refurbishments are only undertaken if they provide value for ratepayers.

C: Improving Value and Performance for Consumers

Preserving Transmission Corridors – Overview

- The IESO has identified the need for a new transmission line through the Northwest Greater Toronto Area Integrated Regional Resource Plan (2015) to supply portions of the Regions of Halton, Peel and York. Demand forecasts were developed by IESO based on population and employment forecasts included in Ontario's Growth Plan for the Greater Golden Horseshoe.
- Given the size of the forecasted growth and the distance from existing transmission lines, alternatives to a new transmission corridor are either not technically feasible or not economic. The IESO estimates it could cost at least an extra $1 billion to build underground transmission lines later, if an overhead transmission corridor is not reserved before the area develops.
- The PPS and GPGGH reinforce the link between energy infrastructure planning and land use planning, including planning for and protecting infrastructure corridors and not permitting development that could preclude or negatively affect the use of a planned corridor.

Proposed Actions

- Decision: The LTEP will highlight the need to protect corridor lands for a new transmission line in the Northwest GTA, consistent with the Provincial Policy Statement, 2014 (PPS) and the Growth Plan for the Greater Golden Horseshoe, 2017 (GPGGH).

C: Improving Value and Performance for Consumers

Preserving Transmission Corridors – New transmission line through the Northwest Greater Toronto Area

Anticipated Growth Area

Proposed Transmission Corridor

C: Improving Value and Performance for Consumers

Enhancing Reliability – Overview

- While Ontario's transmitters and distributors must adhere to a range of standards and requirements to ensure the safety and stability of the electricity grid, improvements can be made.
- The 2017 LTEP will outline the province's policy objectives that transmitters and distributors provide customers with a commitment to customer service and fairness by:
  - Establishing new reliability metrics and standards that provide more detailed insight into local reliability performance, in addition to the current system-wide averages;
  - Ensuring that utilities report their performance against the standards, in a way that customers find meaningful;
  - Setting out clear timelines and steps that utilities must follow when customers report problems with reliability, power quality and other quality of service issues or when reliability standards are not met; and
  - Creating cost-effective incentives for improvement and penalties for non-compliance to ensure transmitters and distributors are accountable for meeting the standards.

Proposed Actions

- The 2017 LTEP will detail the government's policy objectives for utility reliability and quality of service and will direct the OEB and IESO to review the standards for reliability and quality of service for transmitters and distributors.

C: Improving Value and Performance for Consumers

Enhancing Reliability – Jurisdictional Comparison

Michigan

- In Michigan, residential customers are eligible for a $25 USD credit if their utility fails to restore power after 16 hours of outage under normal conditions, after 120 hours under catastrophic conditions and after 7 outages within a 12-month period.

United Kingdom

- The Office of Gas and Electricity Markets (Ofgem) is the agency in the UK responsible that regulates electricity distribution networks. Its 'Quality of Service Guaranteed Standards' set the service levels that each electricity distribution company needs to meet. Utilities in the U.K. risk losing a percentage of their revenue if they do not meet these reliability targets.
- Customers may also be entitled to a refund if distributors fail to meet a specified level of service. For example, under normal weather conditions, distribution companies are expected to restore an individual's electricity service within 12 hours. If it doesn't, residential customers are entitled to a refund of £75. The distribution company then has to pay an additional £35 for each additional 12-hour period in which service is not restored.
- Ofgem's Guaranteed Standards have similar penalties for failing to keep appointments with customers and failing to give them at least two days warning of planned outages.

C: Improving Value and Performance for Consumers

Competitive Transmitter Selection – Overview

- To increase the role of the private sector in transmission, the Energy Statute and Law Amendment Act, 2016 enabled the Minister to direct IESO to use competitive processes to select companies or consortia to build new transmission lines in Ontario.
- Increasing competition in transmission projects where practical will ensure Ontario ratepayers get the best value from potential investments in the system.

Proposed Actions

- The Minister will direct IESO to develop a competitive transmission selection or procurement process, and identify possible pilot projects. The results of these pilots will be used in developing a procurement process that is cost-effective, transparent, efficient and able to respond to changing policy, market and system needs.

C: Improving Value and Performance for Consumers

Right-Sizing Assets – Overview

- When transmitters and distributors replace aging equipment, they can increase efficiency by "right-sizing" the replacements, ensuring the new investments match current demand and requirements. This could mean upgrading pieces of equipment in communities with growing demand, or downgrading or removing the equipment if demand has dropped.
- Ensuring coordinated planning is taking place at all levels could reduce costs by ensuring new infrastructure is sized appropriately to meet the province's needs by taking a realistic view of the need for expansion with respect to growth uncertainties and considering the effect of government policies and new technologies.

Proposed Actions

- The 2017 LTEP will provide a policy statement supporting "right-sizing" transmission and distribution assets at end of life and the Minister will direct IESO and the OEB to take a coordinated, long-term approach when addressing the need to replace these assets.

C: Improving Value and Performance for Consumers

Modernizing the Utility Business: Enhanced regulation of LDCs – Overview

- Strengthen its regulatory framework by further enhancing performance and improving efficiency of LDCs As part of this initiative the OEB would create a regulatory environment which better replicates the pressures and incentives of a competitive market, whereby utilities are motivated to be more proactive, innovative, cost effective and less risk averse in the delivery of electricity service which responds to their customers' needs and expectations
- Existing tools such as the LDC Performance Scorecard can be better leveraged to use performance metrics to drive efficiency and continuous improvement.
- This framework would create a future where customers get better service at lower cost.

Modernizing the Utility Business: Improved Regulatory Efficiency – Overview

- OEB will identify areas where more effective tools would enhance the OEB's capacity to regulate the sector in the public interest, including:
  - Mitigate costs for by enabling more efficient and proportionate review of utility applications
  - Allow OEB and distributors to focus on the most significant cases/issues
  - Incenting utilities to file better applications
  - Providing OEB the ability to process applications depending on the distributor's circumstances

C: Improving Value and Performance for Consumers

Modernizing the Utility Business: Bill Redesign Action Plan (RAP) – Overview

- The Ministry recently introduced new invoicing requirements to support transparency and communication of the changes made under Ontario's Fair Hydro Plan (OFHP) including requirements to display standardized on-bill OFHP messaging; include quarterly bill inserts about OFHP initiatives; and remove outdated messaging requirements.
- There is an opportunity to further revise the regulatory framework on invoicing to improve the value of electricity bills to all consumers.
- ENERGY proposes to launch a Redesign Action Plan (RAP) with the aim of improving electricity bills by achieving the following policy objectives:
  - Enhancing the customer experience;
  - Better communicating government initiatives and programs;
  - Consolidating the regulatory framework; and
  - Promoting greater understanding.

Proposed Actions

- The Ministry will direct the OEB to strengthen utility accountability and find ways to mitigate costs for consumers.
- The Ministry will convene a Working Group, consisting of local distribution companies and various stakeholders (e.g. Hydro One, the Electricity Distributors Association (EDA), the Coalition of Large Distributors (CLD) etc), the OEB and relevant industry associations to obtain feedback on electricity invoicing in the province. This group will meet throughout the redesign process and assist with the development and implementation of a new regulatory framework on invoicing.

The Digital Transformation – Overview

- The LTEP will detail the government's continued commitment to improve the ways that people can use data to make decisions about their energy use.

C: Improving Value and Performance for Consumers

Modernizing the Utility Business: Bill Redesign Action Plan – Proposed Timeline

- The Ministry believes there is an opportunity to redesign electricity bills, with a goal to refresh the regulatory framework to improve the value of the bill to consumers across the province.

Pre-July 1, 2017
OFHP Bill Inserts

- Requirement for LDCs to issue "8% rebate" envelopes, and include "8% rebate" on-bill messaging revoked from O. Reg. 364/16.
- LDCs voluntarily issued OFHP bill inserts in June ahead of finalized OFHP regulations (bill inserts printed by ENERGY).

July 1, 2017
OFHP Required Messaging

- OFHP legislation and regulations introduced requiring LDCs/USMPs to comply with the following by July 1st:

1. Issue prescribed OFHP bill inserts on a quarterly basis for one year;
2. Include standardized OFHP on-bill messaging;
3. Include a FNDC line item, where applicable; and
4. Remove outdated on-bill messaging (e.g., DRC exemption).

- Hydro One exempted from specified OFHP invoicing requirements and O. Reg. 275/04.

Aug. – Sept. 2017
RAP Consultations

- ENERGY to convene a Working Group in August, including Hydro One, the EDA, the OEB, the Coalition of Large Distributors, as well as other LDCs and industry assoc.
- As part of this working group, ENERGY to seek feedback on changes to bill presentment, regulatory reform, and gather information on behavioural economics, consumer advocacy, and billing system design.

Fall/Winter 2017
RAP Regulatory Amendments

- Following consultations, ENERGY to introduce regulatory amendments to simplify bill presentment in late Fall/Winter 2017.
- Hydro One to begin rolling out its redesigned electricity bills in Q4 2017.

Winter 2018 –
RAP Implementation

- New/amended invoicing regulations to become effective as of January 1, 2018.
- Hydro One expected to complete its roll-out of redesigned bills to its low volume consumers by Q2 2018.
- New regulations to include ample transition period for LDCs to adopt new regulatory invoicing requirements.

D: Conservation

Eligibility of BMG Projects Using Supplied Fossil Fuels Under the CFF and IAP – Overview

- Behind the Meter Generation (BMG) projects, which according to current conservation and demand management (CDM) program rules include Combined Heat and Power (CHP) and Waste Energy Recovery (WER) projects, are eligible to receive incentives through the CFF and IAP.
- Rationale for the eligibility of BMG projects has been that they reduce the participant's draw from the electricity grid and are more energy efficient than the alternative of natural gas heating and electricity grid consumption. They also help mitigate rising electricity prices for large commercial and industrial customers.
- CHP projects mainly use natural gas or propane as fuel, which results in a net increase of GHG emissions. WER projects, which use a facility's waste by-product as its primary fuel typically do not result in a net increase in GHG emissions.

Proposed Actions

- Effective July 1, 2018, IESO will cease accepting incentive project applications for BMG projects that use supplied fossil fuels.
- In recognition of their environmental benefit, the installation of renewable energy projects, such as solar thermal water heating or use of biomass fuel for boilers, will continue to be eligible for funding under the CFF and IAP. Electricity distributors may also offer incentives for energy storage systems that are integrated with a customer's own renewable energy projects.

D: Conservation

In Front of the Meter Conservation (IFMC) – Overview

- IFMC technologies are deployed on the distribution system and provide electricity savings and peak reductions to customers behind the meter. Examples include technologies that reduce line losses and optimize voltage levels.
    - Pilots across in North America, including pilots in Ontario funded by the Smart Grid Fund and Conservation Fund, have shown that IFMC technologies can provide electricity savings for customers behind the meter.
- A recent study commissioned by the Ministry of Energy estimated that IFMC technologies can reduce customer electricity consumption by approximately 1-5% depending on local feeder conditions and technology deployed.

Proposed Actions

- Allow reduced electricity consumption resulting from any distribution rate funded measures a Distributor uses to maximize the efficiency of its new or existing infrastructure to count towards a Distributor's CDM Target, and require the IESO to annually report on the contribution of distribution system energy efficiency to achieving the Province's long-term CDM target.
- Require the OEB to annual report on verified distribution system energy efficiency results.

D: Conservation

Implementing Green Button Province-Wide – Overview

- Green Button is a data standard that can empower households and businesses with access to data on their energy and water consumption. Green Button also allows households and businesses to automate the secure transfer of their own data from their utilities to applications of their choice, which can help them manage and conserve energy and water.
- Greater access to data through Green Button will encourage behavioural changes and energy efficiency improvements, support energy reporting and benchmarking, and create economic development opportunities. See ~~appendix~~ Report-Back Deck for more information about the benefits of Green Button.
- Ontario is a leader in the implementation of Green Button in North America and was the first jurisdiction in Canada to announce its adoption in 2012. However, adoption of Green Button is currently voluntary for Ontario's utilities.
- The 2013 LTEP promoted Green Button as a way to give consumers access to their electricity consumption data. Green Button can also be extended to natural gas and water utility consumption data.
- Since the 2013 LTEP, Ontario has taken several steps in support of broader adoption of Green Button, including supporting the technical pilots, completing a cost-benefit analysis, and consulting on an implementation approach to require Ontario's electricity, natural gas and water utilities to implement Green Button.
- The cost-benefit analysis concluded that Green Button implementation for electricity and natural gas would result in a net societal benefit. The estimated monthly residential electricity bill impact is expected to be about 1¢/month for the first two years, reducing to 0.1 ¢/month for ongoing costs. See ~~appendix~~ Report-Back Deck for more details on the cost-benefit analysis and rate impact assessment.
- The 2016 CCAP committed to expand the Green Button program province-wide to help conserve energy and water.
- Customers, such as Canada's five largest banks and building owner associations (BOMA and REALpac), are urging the government to move forward with broader adoption, so they can access tools to pursue energy efficiency and conservation.

<u>Proposed Actions</u>

- Proceed with the development of a legislative and regulatory framework to mandate province-wide implementation of Green Button for electricity and natural gas distributors, and voluntary implementation for water distributors utilities.
- Note: Further detail on the implementation plan for Green Button is included as part of ENERGY's CCAP Report Back in the following slides.

D: Conservation

CCAP Cabinet Minute 76: ENERGY develop a proposed approach for a province-wide implementation of the Green Button program in 2017, and report back to Cabinet in 2017

Implementing Green Button Province-Wide – CCAP Report Back Item – Overview

- The 2016 CCAP committed to expand the Green Button program province-wide to help conserve energy and water. The following slides are intended to meet ENERGY's requirement to report back on its proposed approach for implementation.

Implementation Approach

- ENERGY is proposing to bring forward amending legislation and a new regulation that would, if approved, require electricity and natural gas distributors to implement Green Button.

Policy Element	Proposed Approach	Rationale
1. Utility and Customer Type	Require electricity and natural gas distributors to implement Green Button for all customer types (residential, commercial, institutional and industrial) on a mandatory basis. Support voluntary implementation for water utilities.	There is wide stakeholder support for requiring the standard for electricity and natural gas. However, some stakeholders questioned the value of requiring water utilities to implement. Implementation for electricity and natural gas is more cost-effective than implementing for all three utility types. The cost-benefit analysis concluded a cost-benefit ratio of 1:4.4 in the first five years if electricity and natural gas distributors implement Green Button. Including water is only cost-effective from a societal level when combined with electricity and natural gas (cost-benefit ratio of 1:1.8). See following slides for more details on the cost-benefit analysis.

D: Conservation

Implementing Green Button Province-Wide – CCAP Report Back Item (cont'd):

Policy Element	Proposed Approach	Rationale
2. Timing	Require electricity and natural gas distributors to implement Green Button by July 31, 2020 (date pending further consultation via Environmental and Regulatory Registry postings).	Provides utilities two years to implement the standard (if regulation is in place by July 1, 2018). Also provides utilities flexibility to determine when a Green Button implementation is most appropriate and ability to implement earlier than the deadline, depending on the readiness of their IT systems, and infrastructure upgrade plans and customer interest/demands.
3. Implementation Type	Allow utilities to choose from a limited number of Green Button platforms. Establish procurement principles in regulation that encourage utilities to enter into joint-procurement of Green Button software platforms (i.e. ensure procurements are cost effective and that selection criteria is fair, open, accessible, competitive and recognizes the need to ensure customer data privacy and security standards).	Reduces risk of using a single provider (e.g. potential to cease operations or increase costs over time due to monopoly). Reduces implementation costs compared to other approaches considered (e.g. each utility develops its own platform in-house) by allowing for economies of scale through cost/resource sharing. Encourage utilities to leverage existing platforms, and creativity and innovation through competition among platform solution providers.

D: Conservation

Implementing Green Button Province-Wide – CCAP Report Back Item (cont'd):

Policy Element	Proposed Approach	Rationale
4. Certification (see following slides for more information)	Mandate utility certification through the Green Button Alliance's certification program or a future Ontario/Canada based certification program. Certification of third party solution provider applications would be voluntary (i.e. developers of Green Button apps could certify their programs on a voluntary basis).	Utility certification provides confidence that an implementation complies with the standard and is compatible with other Green Button products and services. Requiring certification would address challenges with utility implementations to date in the U.S. where utilities have interpreted the standard differently, resulting in inconsistent implementations.
5. Registration Platform for Third Party Solution Providers/ Applications (see following slides for more information)	Allow the marketplace to make registration platform services available (i.e. do not mandate a single registration platform). A registration platform provides a central service that utilities can leverage to offer their customers certified Green Button apps. It also ensures that app providers do not have to register their programs with potentially hundreds of utilities – rather, it can be done in a single spot (similar to having an 'App Store').	The Green Button Alliance (through London Hydro) has indicated it is already developing a registration platform, and planning to offer services to other utilities/solution providers. Allowing the marketplace to drive demand and adoption of a registration platform can ensure utility and solution provider needs are met while encouraging innovation and competition. Where Ontario organizations offer and charge for the use of platform services, this can foster Ontario knowledge expertise and exports for Green Button-enabled services.

D: Conservation

Implementing Green Button Province-Wide – CCAP Report Back Item (cont'd):

Policy Element	Proposed Approach	Rationale
6. Costs	Electricity and natural gas distributors would recover the costs of their Green Button platform procurements through their Ontario Energy Board (OEB) rate applications.	Provides utilities with flexibility to align Green Button implementations with planning and rate application processes to support alignment with IT infrastructure upgrade plans. Leverages the OEB's well-established and transparent rate application process to ensure Green Button implementation costs are reasonable and in the public interest. Would also ensure Green Button costs are reviewed in combination with other utility costs.

Proposed Actions

- **Beginning in Fall 2017:** Establish a working group to adapt the Green Button Standard and develop guidance documents for natural gas and water as well as update the guidance documents for electricity to support a standardized implementation across Ontario.
- **Fall 2017:** Seek LRC and Cabinet approval of legislative amendments (*Green Energy Act, 2009* and *Ontario Energy Board Act, 1998)* that would enable implementation of Green Button. Introduce amending legislation and issue EBR/RR posting of regulation.
- **Early 2018:** Seek LRC and Cabinet approval of regulation.
- **July 1, 2018:** Regulation in force (TBD).

D: Conservation

Green Button: Benefits

- In 2016, ENERGY procured Dunsky Energy Consulting to undertake a cost-benefit analysis of multiple implementation scenarios for Green Button in Ontario, including requiring province-wide implementation of Green Button for electricity, natural gas and water utilities across all sectors (residential, commercial, institutional industrial).
- Analysis showed key benefits for implementing Green Button:
  - Increased efficiencies in consumption, billing and generation data collection, validation and quality control processes.
  - Increased conservation in the Commercial and Institutional sector, including energy efficiency retrofits and behavioural changes.
  - Simplified process for future large building energy and water reporting and benchmarking requirements.
- The cost-benefit analysis concluded that a net societal benefit of $54M, resulting in a cost-benefit ratio of 1:4.4, would accrue in the first five years if all electricity and natural gas utilities implemented Green Button through a multi-integrated implementation approach (i.e. allow utilities to choose from a limited number of Green Button platforms).
- Including water is cost-effective from a societal level only when combined with electricity and natural gas (cost-benefit ratio of 1:1.8). However, deploying Green Button for all water utilities in Ontario is not cost-effective on its own under most scenarios.
  - The results should be interpreted as indicative only. The analysis was intended to determine whether the benefits of a Green Button implementation would outweigh the potential costs.
  - Dunksy applied conservative assumptions to all calculations.
- In addition, the study included indirect benefits of Green Button that were not quantified:
  - Increased energy efficiency awareness and education through Green Button apps
  - Increased customer satisfaction
  - Increased real estate value
  - Innovation in CDM/DSM programs
  - Economic development and innovation (i.e. integration with North American market)
  - Support government policy objectives, such as reducing fossil fuel emissions.

D: Conservation

Green Button: Costs

- In order to support the recommendation that utilities would recover the costs of Green Button procurements through their OEB rate applications, ENERGY conducted an electricity ratepayer impact analysis.
- The impact assessment considered a scenario based upon the estimated costs provided in the cost-benefit analysis, with additional budget for cost uncertainties:
  - Estimated implementation costs + 15% to account for cost-overruns

Monthly Residential Ratepayer Impact ($ per 750 kWh-month)	**2018**	**2019**	**2020**	**2021**	**2022**
	0.014	0.014	0.001	0.001	0.001

- Notes on the analysis:
  - Key costs: set-up costs associated with utilities preparing their IT systems to implement Green Button and annual costs for utilities to make Green Button available to their customers.
  - This analysis is only based on cost and does not take into account the benefits for utilities and customers (described on previous slide).
  - The implementation costs in the first two years are expected to be higher due to initial set-up costs. The costs in 2018 and 2019 are expected to be up to 1.4¢/month.
  - The estimated ratepayer impact is considered conservative as it includes costs which were not contemplated in the cost-benefit analysis (i.e. potential overruns).
  - The analysis includes all implementation costs (electricity + natural gas) in the electricity ratepayer impact calculation as natural gas implementation costs are assumed to be relatively small compared to the costs of the electric utilities.
  - All figures are in nominal dollars.

D: Conservation

Green Button Alliance

- The Green Button Alliance (GBA) is a non-profit, corp-oration based in the United States formed in 2015 to foster the develop-ment, compliance, and wide-spread adoption of the Green Button standard.
- In August 2016, Ontario joined the GBA's Board of Directors.
- GBA will play a large role in future activities affecting the development and roll-out of Green Button in Ontario and across North America.
- Membership provides ENERGY with the opportunity to participate in the development of key activities that could be incorporated into future requirements for the standard in Ontario, such as utility certification.
- It also opens up economic development opportunities for the province and will provide a platform to promote Ontario innovation in other jurisdictions.
    - ENERGY submitted an update on progress towards rolling-out the standard in Ontario to the White House Open Data Innovation Summit with Solutions Showcase, which took place September 2016 in Washington, D.C.
- ENERGY now participates in ongoing international activities to develop the standard, ensure consistency in implementations and support market development and communications.

D: Conservation

Green Button: Certification

- Certification verifies the standard is consistently interpreted and properly implemented.
- Utility certification will provide confidence that an implementation complies with the standard and is compatible with other Green Button products, services, applications and technologies.
- Currently, there is an existing Green Button certification program established by the Green Button Alliance with Underwriters Laboratories (UL), which is the only certification body accredited by the American National Standards Institute (ANSI) to certify Green Button Download My Data and Connect My Data.
  - Ontario could benefit from leveraging the existing GBA's certification program.
- Establishing an Ontario/Canada-based certification program would ensure Canadian-based certification bodies, such as the Canadian Standards Association (CSA), could be eligible certifiers and would provide the opportunity to develop a certification program that meets the Province's needs.
  - ENERGY is working with Standards Council of Canada (SCC, which is ANSI's Canadian counter-part) to consider options for establishing a certification program in Canada for Green Button.
- Allowing utilities to use both certification programs would support a timely roll-out of the standard by allowing those utilities who are ready to certify to do so as soon as the requirement is in place.

D: Conservation

Green Button: Registration Platform

- Registration is the technical process that allows a Green Button solution provider to connect with a utility, so customers can authorize their data to be transferred to that solution provider.
- A registration platform provides a central service for solution providers to register their apps (i.e. avoiding the need to register with potentially hundreds of utilities) and reduces the need for redundant effort among electricity, natural gas and water utilities in Ontario as well as utilities in other jurisdictions that adopt Green Button.
- A registration platform also provides a central service that utilities can leverage to offer their customers certified Green Button apps (similar to an app store), which would reduce the need for individual utilities to develop their own app stores on their website, as is currently the case in Ontario and the United States.
- The Green Button Alliance (through London Hydro) has indicated to ENERGY that it is already developing a registration platform, and planning to offer services to other utilities/solution providers.

D: Conservation

CCAP Cabinet Minute #77: ENERGY develop single portal for energy-related social benchmarking programs for natural gas and electricity, with recognition of the additional energy requirements of homes with electric vehicles, and report back to Cabinet in 2017.

Social Benchmarking Portal – CCAP Report Back Item – Overview:

- Energy comparison, or social benchmarking, allows households and businesses to compare how much energy they use and when with other similar customers, giving them the information they need to manage their usage.
- There is a growing landscape of energy social benchmarking programs in Ontario, delivered through electricity and natural gas distributors.

Status/Progress Update:

- Launching in August 2017 (TBC), under the mandate of the MOECC, the Green Ontario Fund (GreenON) website will provide a one-stop shop for low-carbon technology and energy efficiency programs, including social benchmarking. ENERGY and the IESO have been working to support launch of GreenON.
- Funded through the 2015-2020 (electricity) Conservation First Framework, 16 local distribution companies have indicated in their Conservation and Demand Management (CDM) Plans that they plan to deliver social benchmarking programs to their customers (as of June 2017).
  - Currently, there are a total of 742,896 customers receiving social benchmarking reports in the province from Hydro One, Powerstream (Alectra) and Horizon (Alectra). Toronto Hydro also has a program but has not yet reported results to the IESO.
- Enbridge Gas Distribution and Union Gas are delivering social benchmarking as a component of their outreach and education to promote uptake in the broader residential audit and retrofit programs (funded from gas rates, electricity rates, and the Green Investment Fund (GIF)).
  - The social benchmarking element is funded through the GIF through TPAs with ENERGY, and is expected to reach approximately 125,000 to 140,000 customers per utility by 2019 .
  - Enbridge and Union will also leverage this initiative to assess the opportunity to include behavioural based programs as part of their Demand Side Management programs in the future.

D: Conservation

CCAP Minute #75: ENERGY work with MOECC to establish GHG reduction standards for drinking water and waste water treatment plants, and report back to Cabinet in 2017 with a proposed approach for implementation in 2018.

Energy Efficiency Standards for Drinking Water and Waste Water Treatment Plants – CCAP Report Back Item – Overview

- Ontario's Climate Change Action Plan 2016-2020 included a commitment to "*continue to implement product efficiency standards to reduce energy use. Update energy efficiency standards for key energy-using products and equipment found in drinking water and waste water treatment plants, based on the volume of water processed by the facility".*
- ENERGY's approach is to set and update energy efficiency standards for equipment found in drinking water treatment plants (DWTPs) and waste water treatment plants (WWTPs) through amendments to Ontario's energy efficiency regulation (O. Reg. 404/12).
- Note that ENERGY has the authority to establish energy efficiency standards for products used in WW/DWTPs, however, it does not have authority to establish GHG reduction standards.

Status/Progress Made:

- Ministry of Energy staff have identified the key electricity consuming equipment in WW/DWTPs, including commercial / industrial air compressors, fans, blowers, variable frequency drives, clean water pumps, sludge pumps, motors and ultra-violet lighting.
- O.Reg. 404/12 currently includes new and updated energy efficiency standards for two of these ~~**two**~~ pieces of equipment (commercial/industrial clean water pumps and electric motors).
- In June 2017, ENERGY initiated a study to identify available test methods and efficiency standards for key electricity consuming products in WW/DWTPs, characterize Ontario's market for these products, and determine corresponding estimated potential energy and GHG emissions savings.
- The study is expected to be completed in September 2017, and would help to inform potential future updates to Ontario's energy and water efficiency regulation.
- ENERGY staff intend to continue to set and implement efficiency standards for equipment in WW/DWTPs through future amendments to the efficiency regulation, as appropriate.

D: Conservation

Energy Efficiency Standards – Overview

- Ontario continues to play a leadership role in setting and enhancing energy efficiency standards for products and appliances used in our homes, offices and factories.
- Since 2013, Ontario improved or set new energy efficiency standards for over 60 products.
- The Ministry of Energy is also regulating the water efficiency of products that consume both energy and water, resulting in more efficient use of water and even greater energy savings and reductions in greenhouse gas emissions.
- Ontario is working with other provinces and the federal government to improve and harmonize efficiency standards across Canada, including exploring opportunities and strategies to develop market for high-efficiency products and appliances to support net-zero buildings.

Proposed Actions

- Ontario will continue to set advanced efficiency standards for products and appliances and work with other provinces and the federal government in order to harmonize and raise the bar for energy and water efficiency standards.

D: Conservation

Electricity Conservation Target – Overview

- Ontario has a healthy supply of energy, with any added demand for electricity not expected to materialize until the mid-2020s. In this context, 2017 LTEP will reaffirm its commitment towards the long-term target established in the 2013 LTEP of 30 TWh of electricity savings in 2032.
  - The IESO and electricity distributors are working towards conservation goals (8.7 TWh in 2020)
  - 2017 LTEP will need to balance the broad benefits of conservation investments with the need to mitigate rate impacts.

Proposed Actions

- Explore opportunities to enhance the value of existing planned conservation investments, and to reassess a higher conservation target in the future to reflect updates to the supply/demand forecast and an updated assessment of cost-effective conservation potential.
- The IESO's new capacity auction process will allow demand-side resources to compete on equal footing with supply-side resources.

D: Conservation

Evolution of Demand Response (DR) – Overview

- 2013 LTEP stated that Ontario will aim to use DR to meet 10% of peak demand by 2025 (equivalent to ~2,400 MW under 2013 LTEP forecast conditions). This target includes peak reductions from a variety of initiatives, including the Industrial Conservation Initiative (ICI), Time-of-Use (TOU) rates, DR auction and DR pilots.
- Through the DR auction, IESO has successfully transitioned DR from longer term contract-based procurements (3 to 5 year contracts) to shorter term procurements based on a competitive auction (6 months to 1 year contracts).
  - About 700 contributors* currently provide DR services through the DR auction (as of June 2017).
  - The two DR auctions held in 2015 and 2016 reduced the cost of providing DR by up to 27% compared to previous contracts.
  - For the first time during the IESO's 2016 DR Auction, a residential DR provider (OhmConnect) was contracted to deliver DR services.
- ~~Ontario is in a healthy supply situation and there is limited system need for incremental DR. Moreover, program changes made to ICI, since the 2013 LTEP, have resulted in higher than forecasted peak demand savings from DR.~~
- The IESO is planning to implement a general capacity auction through which DR resources will compete with traditional generation resources and would be procured if cost-competitive with other offers.

Proposed Actions

- ~~Eliminate the long-term DR target of 10% of peak demand reduction by 2025 while reaffirming~~ Highlight the successes of the DR auction and reaffirm the commitment to evolve the DR auction into the capacity auction.
- The transition to a technology-neutral capacity auction will provide an opportunity to grow DR as a system resource, enabling DR to compete directly with traditional generation.

D: Conservation

Alignment and Collaboration Within and Between Conservation Programs – Overview

- ENERGY and its agencies are working with MOECC and other partner ministries to ensure a streamlined, customer-focused approach to conservation and low-carbon technology programs.
- As an early example of collaboration, IESO is providing web, customer and program design services to the Green Ontario Fund.
- Another early example is the expansion of home retrofits to provide residential consumers with a simple, one-stop to energy efficiency improvements and GHG emission reduction.
  - Beginning October 31, 2016 Ontario invested $100 million from its Green Investment Fund (GIF) to expand natural gas rate-funded home audit and retrofit programs delivered by Enbridge Gas and Union Gas, to launch the programs province-wide and help eligible homes heated with natural gas, oil, propane or wood. In May 2017, IESO partnered with Enbridge Gas and Union Gas, to further enhance the programs to include electricity incentives and expand eligibility to electrically-heated homes.
- The IESO and the OEB are currently conducting mid-term reviews (MTR) of the Conservation First Framework and Industrial Accelerator Program (CFF and IAP) for electricity conservation programs and the Demand Side Management Framework and natural gas programs.
  - Through the MTR, IESO and OEB are working together to evaluate the results of collaboration to date and identify barriers to further collaboration. Formal reports are expected in 2018.
  - The IESO is also assessing the impact the CFF and IAP have on electricity planning and Ontario's climate change objectives, including the impact of energy-only savings targets and opportunities to align distributor targets with local and regional electricity needs.

D: Conservation

Smart Thermostat Incentive Programs – Overview

- Smart thermostats are the next important technology for homeowners looking for more ways to reduce their home heating and cooling costs, and their carbon footprint. Ontario has enabled several smart thermostat incentive programs:
  - Standalone $100 bill rebates are available in Enbridge Gas' service area – expanded to homes heated primarily with oil, gas and wood through the Green Investment Fund (GIF).
  - Union Gas offers a $100 incentive for smart thermostats as one measure to undertake when completing its Home Energy Reno Rebate program, also GIF-enhanced (homeowner must complete two measures).
  - The Save on Energy Heating and Cooling Program is offering $50 rebates with the purchase of an energy efficient furnace or air source heat pump beginning July 2017.
- For the first time during IESO's 2016 DR Auction, a residential DR provider (OhmConnect) is contracted for the summer period (1 MW). Residential DR utilizes smart devices / thermostats to call upon customers to reduce energy use when the grid needs it.
- On May 30, 2017, MOECC received Treasury Board approval for certain programs delivered by the Green Ontario Fund, which include a smart thermostat program for residential consumers.

Proposed Actions

- ENERGY will work with its agencies and MOECC to standardize incentive offerings and ensure smart thermostats incentives are available for homeowners across the province.

D: Conservation

Green Investment Fund – Home Energy Audit and Retrofit Programs – Overview

- Ontario allocated $100 million for home energy audits and retrofits available over three years beginning fall 2016 to spring 2019. GIF enhances Enbridge and Union's existing home energy audits and retrofit programs, the Home Energy Conservation (HEC) Program and Home Reno Rebate (HRR) Program respectively.
- The $100 million investment is expected to enable 37,000 homes to be audited and retrofitted by 2019, and cumulatively save approximately 1.6 million tonnes of lifetime GHGs.

Proposed Actions

- Working with Enbridge, Union Gas and other stakeholders, continue to build on the success of the GIF program by encouraging participant uptake.
  - Enbridge and Union Gas will continue to report program progress to ENERGY through monthly and annual reports. Enbridge and Union Gas held their first Quarterly Steering Committee meeting with ENERGY in May 2017. Subsequent steering committee meetings will occur on a quarterly basis until program wind down in spring 2019.
  - ENERGY staff continues to engage with Enbridge and Union Gas on a biweekly basis to address and resolve any issues related with program uptake and/or accessibility.

D: Conservation

Investor Confidence Project – Overview

- Ontario is exploring how to increase access to corporate financing for energy efficiency projects. The Investor Confidence Project creates a standardized method for accurately predicting the energy and financial savings that arise from energy efficiency retrofit investments and gives financiers the information and tools they need to assess these projects.
- The Investor Confidence Project was established by the Environmental Defense Fund in the United States in 2013 and expanded to Europe in late 2014.

Proposed Actions

- ENERGY, in partnership with the MaRS Advanced Energy Centre, will be piloting Investor Confidence Project protocols in Ontario and exploring how they can be adapted for the Canadian market.

E: Preparing for the Future and Innovation

Grid Modernization – Overview

- Ontario has made important investments in grid modernization through smart meters and the Smart Grid Fund. With the availability of new technologies that can provide more reliable and cost -effective distributed energy solutions, now is the time to take the next steps for modernizing the grid. The 2017 LTEP will articulate the government's vision for distribution grid modernization: the creation of an environment that enables the a modern, digital grid for Ontarians.

Proposed Actions

- Provide direction to OEB to address regulatory and cultural barriers in order to encourage innovation, optimal utility investment, and customer choice. Direction options include:
  - Where cost-effective, promoting smart grid and non-wires solutions – along with the digital platform required to support them – that can enable the use of distributed energy resources, grid visibility, realize the full value of data, and promote customer choice;
  - Providing greater clarity on how the OEB will treat these investments, including a cost-benefit framework that recognizes the full value of these alternatives;
  - Allow customers to use their behind-the-meter assets to partner with their utilities, providing benefits to both the customer and the grid at-large;
  - Ensuring that LDCs are able to earn a rate-on-return on all assets that bring value to ratepayers, not just poles and wires; and
  - Direct utilities to create plans that articulate how they intend to cost-effectively modernize their grids and promote innovation within their operations.

E: Preparing for the Future and Innovation

Smart Grid Fund (SGF) – Overview

- The SGF has helped many innovators become successful international companies. However there are still barriers to domestic integration of these solutions, and a renewed SGF will be an important piece to overcome barriers to modernization. The 2017 LTEP will renew the SGF with an expanded scope and more targeted investments in innovative solutions that support grid modernization.

Proposed Actions

- Recommendation: $60 million from the tax-base over 5 years.

- A renewed SGF would provide an opportunity to pursue several key projects / initiatives, such as:
  - EV data gathering deployment – project will generate critical data for EV policy.
  - Non-electricity demonstration / deployment – this would broaden the SGF scope. Initiatives could include power-to-gas and district energy solutions.
  - Turn-key grid solutions – development of complete smart grid solutions that align with utility needs and demonstrate a clear business case.
  - LDC collaboration on modernization plans – this would help change the 'innovation aversion' culture.
  - Transactive energy deployment – explore options to enable highly advanced customer choice options.

E: Preparing for the Future and Innovation

Energy Storage – Overview

- Energy storage has enormous potential to improve how electricity grids work. However each grid has different challenges and needs, and it is critical to first understand how storage will impact them individually.
- Ontario has positioned itself among other North American innovation leaders by taking aggressive, fiscally prudent steps to test the full range of storage technologies. This includes the 50MW procurement that is exploring the technical and commercial viability of energy storage, several Smart Grid Fund investments to better understand what storage can do on distribution grids, and two different studies that examine the value of storage at different points in the system.
- The Ministry will take this work one step further in the 2017 LTEP by eliminating regulatory and market barriers that prevent both vendors and utilities from capturing the full value of energy storage, including behind-the-meter options.

Proposed Actions

- Remove unfair market and regulatory barriers to energy storage so it can compete with traditional assets in future service procurements and market renewal. This includes:
  - Amending regulations to address the “double counting” issue with global adjustment (GA);
  - Directing the OEB to investigate similar issue with network charges to storage facilities; and
  - Directing the IESO to review the application of charges for the wholesale market.

E: Preparing for the Future and Innovation

Electric Mobility – Overview

- Electrification of vehicles and transit will have an impact on electricity grids. There are steps we can take to ensure that those impacts are positive, and that we optimize the integration of electric mobility in Ontario. The 2017 LTEP will support a transition to a low-emission transportation economy by taking steps to understand and plan for the impact of more electric mobility on the grid.

Proposed Actions

- Work with OEB and key stakeholders to remove regulatory barriers for utilities investing in residential smart charging.
- Develop a Vehicle Grid Integration Roadmap, with smart charging as a foundational objective as it ensures the full benefits of EVs are realized.
- Facilitate information sharing between government and utilities so they can provide better services and mitigate costly grid problems.

E: Preparing for the Future and Innovation

International Energy Demonstration Fund – Overview

- The proposed fund would support Ontario energy companies (e.g., renewables, smart grid etc.) by way of demonstration projects located in international jurisdictions.
- Stakeholders have indicated that while the Smart Grid Fund and other business support programs have helped energy companies scale-up and demonstrate their technologies with local distribution companies across the province, programs run by the Ontario or Federal Governments do not typically consider international projects to be in scope.
- An international energy demonstration fund would address this gap by helping Ontario energy companies demonstrate their technologies with foreign utilities, thereby getting a foothold in a new market and creating a pipeline for further business opportunities.

Proposed Actions

- Proposal is for a $10 million (tax base) pilot program to fund 5-10 high-value projects and assess the impact on exports and company growth.
- Priority would be on supporting Ontario-based project costs, including goods and services produced in Ontario, to maximize the benefits to the Province.
- Supporting projects in foreign markets carries unique risks and requires a higher level of due diligence and collaboration with partners.
- The program would be designed in collaboration with the Ministry of International Trade (MIT) and the Ministry of Economic Development and Growth (MEDG) to leverage their expertise in program development and utilize Ontario's representatives in foreign markets.
- A formal arrangement could also be developed with the Federal Government to utilize Trade Commissioners in foreign markets to conduct on-the-ground due diligence on foreign business and utility partners.

E. Preparing for the Future and Innovation

Expanding Net Metering – Overview

- An amended Net Metering Regulation (O.Reg. 541/05), came into force July 1, 2017. These updates, referred to as “Part 1 updates”, included removal of the 500 kilowatt project size limit and clarified the eligibility of energy storage paired with renewable technologies. The amended regulation is expected to broaden participation in net metering while enabling innovative technologies and customer-utility relationships.
- Third-party Ownership and Virtual Net Metering emerged during stakeholder consultations for Part 1 updates as two potential areas for further enhancements to Ontario’s net metering framework.
  - Third-party ownership arrangements involve third parties owning and operating net-metered renewable generation systems located at electricity customer sites and selling the power generated to the customer.
  - Virtual Net Metering (VNM) involves net metering of generation that is not located at the customer site and selling power “virtually” to one or more participants, who receive a credit for the power generated on their bills. VNM projects can be of large-scale or utility-scale depending on the model and specific program restrictions.
- LTEP 2017 will communicate Ontario’s intention to further update Ontario’s net metering framework to allow third-party ownership and operation of net-metered renewable generation, and also to allow for and support deployment of near-term virtual net metering demonstration projects.
- Increased interest in net metering is expected with the Feed-in Tariff (FIT) and microFIT procurement programs winding down in 2017. In the near term, it is expected that uptake will be driven by the availability of incentives.

E. Preparing for the Future and Innovation

Expanding Net Metering – Overview (cont'd):

- Ministry analysis estimates the baseline projected uptake to be 430 MW over 10 years with incentives under the Green Ontario Fund. Proposed changes could drive an estimated additional 80 MW of uptake, bringing the total of new net metering capacity to 510 MW over 10 years.
- This level of uptake would have negligible impact on electricity rates.

Proposed Actions

- ENERGY is seeking approval to expand and enhance Ontario's net metering framework to enable third-party ownership and related consumer protection measures, and to allow for virtual net metering demonstration projects, and to develop and propose necessary legislative and regulatory amendments, together with other instruments as appropriate, as follows:
  1) Legislative and regulatory amendments to the Ontario Energy Board Act, 1998 and the Net Metering Regulation (O. Reg. 541/05) to expand regulatory authority and eligibility for third-party ownership arrangements, and to align electricity retailer licensing requirements for licensing of third-party ownership and operation of net-metered facilities;
  2) Legislative and/or regulatory amendments to the Net Metering Regulation to provide flexibility to local distribution companies who wish to pursue or facilitate virtual net metering demonstration projects; and
  3) Legislative and/or regulatory amendments under the *Energy Consumer Protection Act, 2010* to ensure appropriate consumer protection measures would apply to third party ownership arrangements.
- Work with the IESO to support the deployment of near-term virtual net metering demonstration projects.

E. Preparing for the Future and Innovation

Expanding Net Metering - Proposed Actions (cont.)

- ENERGY is working with the Ontario Energy Board and partner ministries to identify appropriate consumer protection and project siting measures to support implementation of the proposed net metering updates.
- A full regulatory proposal to support implementation of third-party ownership and allow for virtual net metering demonstration projects would be posted to the Environmental and Regulatory Registries for public comment prior to further Cabinet approval.
  - These updates could be in force by July 1, 2018, subject to attaining necessary approvals for all proposed legislative and regulatory changes.

E: Preparing for the Future and Innovation

Smart Renewable Distributed Generation – Overview

- Renewable distributed generation (DG) and other distributed energy resources (DERs) are becoming more widely adopted in Ontario.
- Utilities, customers, energy service providers and regulators are increasingly interested in better understanding the potential value of renewable DG systems.
- To date procurements have not considered the benefits that DG could provide at strategic locations.
- When combined with smart communications and controls, renewable DG and other DERs can provide added value to customers and utilities alike.
- Deploying renewable DG projects at strategic locations combined with other smart grid technologies would demonstrate the benefits and challenges related to the deployment of innovative projects and inform future policy decisions.

Proposed Actions

- Work with the IESO to develop a funding program to support the strategic deployment of innovative renewable DG projects.

E: Preparing for the Future and Innovation

Exporting Ontario's Energy Expertise – Overview

- LTEP will renew the Ministry's commitment to helping Ontario energy companies increase the export of their goods and services:

Ongoing Actions to be Profiled in LTEP

- Working with other provincial and federal government partners, industry associations and companies to develop and support trade initiatives that strengthen international relationships and create new business opportunities;
- Developing market intelligence that determines which foreign markets hold the most promise for Ontario's energy goods and services;
- Participating in energy-related trade missions abroad, in particular those led by the Ministry of International Trade (MIT); and
- Promoting Ontario's technical expertise at appropriate international forums.

E: Preparing for the Future and Innovation

Regulated Price Plan (RPP) Pilots – Overview

- The OEB is testing innovative Time-of-Use (TOU) price plans through pilots in Ontario, including price plans with flat rates, low overnight rates, seasonal TOU rates and critical peak pricing plans. Pilots are expected to be in market by November 2017, with results available in 2019/2020.
- The OEB issued a multi-year "Regulated Price Plan (RPP) Roadmap" in 2015 that outlines a comprehensive review of the RPP, and aims to ensure that the RPP better responds to policy objectives, improves system efficiency, and gives consumers greater control.
- Implementing price pilots are a component of the RPP Roadmap. The OEB launched a call for RPP pilot applications in July 2016 and received five applications from LDCs across Ontario, proposing to involve nearly 27,000 customers.
- The results of the pilots will help inform future OEB decisions on potential new price plans that could be offered, and could better match customer lifestyles and give more control over electricity costs.
- The pilots will provide value by delivering reliable results at a manageable scale, with data about customer understanding and price responsiveness. This will inform OEB decisions that mitigate cross-subsidization between customers and ensure cost recovery.
- To date, two pilots have been approved and two more are in advanced stages of review. More information on the approved pilots is provided on the next slide.

E: Preparing for the Future and Innovation

Regulated Price Plan (RPP) Pilots – Overview (cont'd)

- To date, the OEB has approved two pricing pilots, one by London Hydro and the other Alectra.
  - London Hydro is targeting ~2,000 customers and will test:
    - Critical peak pricing (CPP), which builds on TOU pricing by pinpointing short time periods of extremely high demand, allowing participating customers to shift their consumption to lower-demand periods, when prices are typically much lower.
    - The use of load control technologies that will allow customers to automatically shift consumption during critical peak events.
    - Real-time information delivered through a home energy management system.
  - Alectra (formerly PowerStream) is targeting ~14,500 customers in the former PowerStream service territory, and will test:
    - Enhanced TOU with a higher on-peak to off-peak ratio.
    - Enhanced TOU with low overnight rates and CPP for electric vehicle owners.
    - Variable peak pricing – where there are only two pricing periods and the on-peak prices can vary depending on the forecasted day ahead demand – with CPP.
    - Real-time information delivered through a home energy management system.

Proposed Actions

- ENERGY will continue to monitor the RPP Pilots and work with the OEB to give customers more choice in their electricity price plans.

E: Preparing for the Future and Innovation

Nuclear Innovation – Overview

- Nuclear energy has enabled Canada to be a world leader in nuclear research and nuclear medicine, saving lives and bringing peace of mind to countless numbers of cancer and heart patients around the world.
- Ontario is keenly interested in collaborating with the federal government, universities and industry partners to continue to support the nuclear industry for both energy and non-energy applications.
- Ontario can help create new export opportunities for our "home-grown" nuclear innovations, such as:
  - Small modular reactor (SMR) technology;
  - Nuclear fuel research (e.g., used fuel recycling);
  - Hydrogen production; and
  - Isotopes (e.g., used in the diagnosis and treatment of life-threatening diseases, sterilization of medical equipment and to power space exploration).

Proposed Action

- ENERGY will continue to explore the feasibility of nuclear innovations and assess the policy and regulatory implications for Ontario.
- ENERGY will continue to build relationships with the federal government and key industry stakeholders to:
  - Promote research and innovation across the nuclear sector; and
  - Promote Ontario's nuclear expertise domestically and abroad.

F: Responding to the Climate Change Challenge

Climate Change Adaptation- Overview

- Ontario's Climate Change Strategy commits the province to "integrate climate change mitigation and adaptation considerations into government decision-making and infrastructure planning."
- The Auditor General (2016 report, with reference to electricity distribution), the Environmental Commissioner (2017) and others have called for systematic action on adaptation.
- Several studies show that evidence-based adaptation actions are expected to be highly cost-effective compared to business-as-usual.

Proposed Actions

1. Profile dedicated adaptation actions currently underway in the sector and remote connections to reduce reliance on diesel fuel and winter road fuel transport as an action with adaptation co-benefits.
2. Propose initiatives to improve adaptation capacity focussed on the distribution sector.
   - ENERGY and its agencies will meet with utilities and other stakeholders to share best practices and build their adaptation capacity.
   - ENERGY will support the development of a vulnerability assessment of the energy distribution sector.
   - The OEB will provide guidance to utilities on approaches for integrating cost-effective opportunities for climate change adaptation into their operations as well as planning processes.
   - The IESO will ensure that climate change adaptation is considered and integrated within bulk system and regional planning processes.

- To avoid additional regulatory burden, Ministry, IESO and OEB actions can be integrated into the broader regulatory refresh.

F: Responding to the Climate Change Challenge

Shifting to Renewable Natural Gas – Overview

- The government is looking at using renewable natural gas (RNG) to lower the carbon intensity of the natural gas we burn.
  - RNG is a low-carbon fuel produced by the decomposing organic materials found in landfills, forestry and agricultural residue, green bin and food and beverage waste, as well as wastes from sewage and wastewater treatment plants.
  - Ontario is investing up to $100 million over four years from the proceeds of the cap and trade auctions to help introduce RNG in the province. The province's investment in RNG will reduce GHG emissions and help consumers with the cost of shifting to renewable natural gas , as RNG costs more than conventional natural gas.
  - CCAP outlined that Ontario intends to introduce a renewable content requirement for natural gas.

Proposed Actions

- ENERGY will continue to work with industry stakeholders, MOECC and the OEB to fulfill CCAP commitments to introduce a requirement for renewable content for natural gas and develop a funding mechanism to support RNG from cap and trade proceeds.
- ENERGY will continue to monitor the OEB's development and implementation of regulatory frameworks to incorporate RNG into utilities' plans for cap and trade compliance and gas supply.

F: Responding to the Climate Change Challenge

Shifting to Lower Carbon Transportation Fuels – Overview

- The 2017 LTEP recognizes the CCAP commitment to introduce a Renewable Fuel Standard (RFS) for gasoline. This is an important step towards reducing GHG emissions from the transportation sector.

- Opportunities to increase the use of renewable and low-carbon transportation fuels include:
  - Increasing the use of renewable liquid fuels by existing vehicles. “Drop-in” fuels such as ethanol can be mixed with gasoline to produce blended fuels and used the same way as regular gasoline;
  - Having existing stations offer higher blends of ethanol and biodiesel;
  - Making renewable liquid fuels available to more regions of the province;
  - Adding biomass fuels to the crude oil that Ontario refineries process; and
  - Lowering the carbon intensity of renewable fuels produced by Ontario manufacturers.

Proposed Actions

- ENERGY will continue to work with MOECC and stakeholders to develop an RFS for gasoline.

F: Responding to the Climate Change Challenge

Heating and Cooling with Renewable Energy Technologies – Overview

- Space heating accounts for approximately 75% of the demand for fuels energy in Ontario homes, making it an important target area for reductions in greenhouse gas emissions.
- Ontario supports the use of low-carbon thermal technology to heat and cool Ontario homes and businesses – including geothermal heat pumps, air source heat pumps, and solar thermal panels for air or water heating.
- Solar water heating systems use energy from the sun to heat water for domestic or commercial use. Solar air heating systems use metal collectors on the outside of a building to heat air.
- Ground source heat pump systems use buried pipes that absorb heat from the earth. Air source heat pump systems absorb heat from outside air.
- MOECC is developing CCAP incentives for heating and cooling with renewable energy technologies under the Green Ontario Fund, which will build on existing conservation and renewable energy programs.

<u>Proposed Actions</u>

- The Ministry of Energy will continue to work with MOECC to further investigate and encourage the development and deployment of low-carbon thermal technologies to heat and cool residential, commercial, industrial and institutional buildings.

F: Responding to the Climate Change Challenge

District Heating and Cooling – Overview

- District energy uses a combination of technologies to generate and supply heating and cooling, domestic hot water and electricity to blocks or neighborhoods in a community.
- District heating and cooling can reduce greenhouse gas emissions by using local energy resources, such as locally available biomass and mechanical waste heat.
- Cities around the world are prioritizing modern district energy systems powered by renewable fuels for their ability to integrate renewables and improve energy efficiency with combined heat and power applications.
- Opportunities for district energy are greatest for new residential or commercial developments not served by existing pipelines or distribution networks.

Proposed Actions

- The Ministry of Energy will work with MMA and MOECC to identify policies, regulations and programs that would support adoption and expansion of district heating and cooling.
- The Ministry of Energy will continue to examine policies, regulations and programs implemented in other leading jurisdictions and share best practices with partner ministries in order to inform policy, regulation and program development in Ontario.

F: Responding to the Climate Change Challenge

Near and Net Zero Carbon Buildings – Overview

- Existing programs and new programs offered through the Green Ontario Fund, as well as other conservation and renewable energy programs, will encourage the adoption of high efficiency, low-carbon emission homes and buildings.
- New advanced efficiency standards will be set for products and appliances that have the greatest potential to increase energy efficiency and reduce GHG emissions used in new and existing homes and buildings.
- ENERGY is also taking steps to expand and enhance Ontario's net metering framework, which would provide increased opportunities for building owners to integrate renewable energy generation and energy storage technologies.

Proposed Actions

- These initiatives will be profiled in 2017 LTEP.
- The Ministry of Energy will examine policies, regulations and programs implemented in other leading jurisdictions and share best practices with partner ministries in order to inform policy, regulation and program development in Ontario.

G: Supporting Indigenous Capacity and Leadership

Evolve Indigenous Conservation Programs – Overview

- Conservation programs address a wide range of issues raised during 2017 LTEP consultations and other interactions with Indigenous communities such as energy affordability, community energy plan implementation, and the need for increased human resource capacity.

Proposed Actions

- In alignment with the Mid-Term Review of the Conservation First Framework (CFF) on opportunities to align Conservation and Demand Management (CDM) programs funded through the 2015 to 2020 CFF and Industrial Accelerator Program with initiatives established through the Green Ontario Fund, IESO will produce a report, informed by engagement with Indigenous communities, on options to improve conservation programs for First Nations and Métis including communities served by Independent Power Authorities. This report will include options to improve availability and/or develop new programming with consideration for, but not limited to, programs offered under the CFF and the Demand Side Management Framework.
- This reporting on Indigenous conservation programs can be done within existing budgets and will have no incremental impact on the rate or tax-base.

G: Supporting Indigenous Capacity and Leadership

Evolve Indigenous Support Programs – Overview

- Nearly $11 million has been committed to support 97 First Nation communities with developing community energy plans. Funding for the implementation of those plans (conservation, small-scale renewables, etc.), is needed to maximize and leverage the investments already made.

Proposed Actions

- An evolution of the suite of energy support programs currently offered to Indigenous communities and organizations by IESO should be informed by engagement with Indigenous communities, and should seek to better align programming with community needs and interests and current opportunities including but not limited to activities related to the implementation of community energy plans.
- Evolution of Indigenous support programs can be done within existing budgets and will have no incremental impact on the rate or tax base. The IESO currently has a $10 million annual funding envelope to support energy sector programs which can be allocated to support the continuation of existing programs as well as new proposed initiatives.

G: Supporting Indigenous Capacity and Leadership

Increase Outreach to Indigenous Communities and Organizations to Better Align Policy Development with Local and Regional Needs – Overview

- Through initiatives such as the First Nations-Ontario Energy Table and the 2017 LTEP engagement sessions, Indigenous communities and groups have signaled their desire for ongoing engagement on energy issues.

Proposed Actions

- Increased outreach can be done within existing budgets and will have no impact on the rate or tax-base.
- As Ontario's energy sector landscape continues to shift and change, likewise there is a requirement for the policy to change, in order to address needs, gaps, and opportunities to strengthen Indigenous participation in the energy sector, including the participation of communities that have had limited energy sector participation to date.
- Policy is best informed by the people it has the potential to effect, as they are best positioned to communicate their needs, and current policy gaps.

G: Supporting Indigenous Capacity and Leadership

Addressing Energy Affordability – Overview

- 2017 LTEP will highlight programs available to address electricity affordability for Indigenous consumers including the Ontario Electricity Support Program (OESP), Rural and Remote Rate Protection (RRRP), Low-Income Energy Assistance program and the First Nation Delivery Credit.

Proposed Actions

- These initiatives will be profiled in 2017 LTEP to highlight the various electricity affordability programs that are available to Indigenous residential consumers.

Off-Grid Communities – Overview

- 2017 LTEP will highlight the government's continued commitment to the connection of remote First Nations to the provincial grid, which includes working towards the connection of Pikangikum on an accelerated timeline.
- It will also highlight that the ministry continues to engage with the four communities that are not economic to connect to the grid to develop diesel-reduction options that meet community energy needs.

Proposed Actions

- These initiatives will be profiled in 2017 LTEP as an ongoing commitment of the provincial government to help off-grid communities reduce their diesel consumption and move towards sustainable energy solutions.

G: Supporting Indigenous Capacity and Leadership

Access to Financing – Overview

- 2017 LTEP will highlight that Ontario intends to explore innovative financing models and support tools that may help lower financing costs and stimulate more capital in the financing of First Nation and Métis projects.
- Opportunities to participate in Ontario's energy sector have changed due to Ontario's strong energy supply position. Without power purchase agreements (such as FIT), it will be even more challenging for Indigenous communities to access capital for energy projects. The existing Aboriginal Loan Guarantee Program is designed for larger-scale projects and is not practical for smaller-scale community projects.

Proposed Actions

- The 2017 LTEP will signal Ontario's intent to examine new financing models and support tools to help Indigenous communities fulfill their energy needs.

H. Regional Priorities

Regional Economic Development – Overview

- Through consultations and engagement sessions in support of the development of the 2017 LTEP, many communities highlighted that regional differences in electricity infrastructure are hindering economic development. Concerns included:
  - The impact of declining reliability on load customers
  - The impact of connection constraints and the costs of system expansion or enhancement for:
    - Load customers looking to increase their load profile or set up new facilities; and
    - Generation customers siting new renewable generation.

Proposed Actions

- The Ministry will explore ways to use federal and provincial infrastructure and economic development funding to support electricity transmission and distribution infrastructure that supports regional economic development.

H. Regional Priorities

Regional Planning Review – Overview

- Since 2013, an enhanced regional planning process has brought communities to the table to identify their electricity needs and develop cost-effective solutions to meet them.
- Over the past three years, the electricity needs of all 21 of Ontario's electricity planning regions have been evaluated, marking the completion of a full cycle of regional planning assessments. The completion of the first cycle provides an opportunity to review the process to address lessons learned.

Proposed Actions

- The Minister will direct IESO to review the regional planning process and report back with options and recommendations to address the challenges and opportunities that have emerged, including:
  - Addressing barriers to cost-effective non-wires solutions, such as demand response and distribution energy resources;
  - Integrating bulk, regional, distribution system and community energy planning;
  - Streamlining the regional planning process; and
  - Integrating the regional planning process with the need to right-size assets reaching end of life.

Amending Direction to IESO

Amending Direction to IESO

CONSERVATION FIRST FRAMEWORK DIRECTION

Amending Direction to Independent Electricity System Operator – Conservation

- On March 31, 2014, Minister Chiarelli issued a direction the Ontario Power Authority (OPA) (now Independent Electricity System Operator (IESO)), to establish a six-year Conservation Frist Framework beginning in January 2015, replacing the 2010-2014 Conservation and Demand Management Framework.

- The March 31, 2014 direction established the definition of Conservation and Demand Management in Section7.1:
  - *The OPA shall consider CDM to be inclusive of activities aimed at reducing electricity consumption and reducing the draw from the electricity grid, such as geothermal heating and cooling, solar heating and small scale (i.e. <10MW) behind the meter customer generation. However, CDM should be consider to exclude those activities and programs related to a Distributor's investment in new infrastructure or replacement of existing infrastructure, any measures a Distributor uses to maximize the efficiency of its new or existing infrastructure, activities promoted through a different program or initiative undertaken by the Government of Ontario or the OPA, such as the OPS Feed-in Tariff (FIT) Program and micro-FIT program and activities related to the price of electricity or general economic activity.*

- Under Minister Thibeault's authority given by subsection 25.32(11) of the *Electricity Act, 1998*, the following amendment to the March 31, 2014 direction is proposed to enable two key LTEP initiatives:

  1.1 Section 7 of the Ministerial Direction dated March 31, 2014 is amended by adding the following:

  7.2 Notwithstanding the Definition of CDM established in Section 7.1, CDM shall be considered to exclude behind the meter customer generation that use supplied fossil fuels purchased from, or otherwise supplied by, a third party as a primary fuel source where the application for the project is received on or after July 1, 2018. For greater clarity, CDM shall continue to be inclusive of behind the meter generation based on waste energy recovery, where the generation of electricity is primarily from heat or fuel that is a waste by-product of a facility.

  7.3 Notwithstanding the definition of CDM established in Section 7.1, the IESO shall allow reduced electricity consumption resulting from any measures a Distributor uses to maximize the efficiency of its new or existing infrastructure to count towards a Distributor's CDM Target for the purpose of the Distributor being eligible to receive the tiered performance incentives described in Section 1.6(i) at the end of the 2015-2020 Conservation First Framework.

Amending Direction to IESO (cont'd)

Amending Direction to Independent Electricity System Operator – Conservation (Cont'd)

1.2 Section 5 is amended by removing and replacing 5.1 with the following:

5.1 The IESO shall continue to produce and publish an annual report on overall progress toward achieving the provincial CDM target of 30 TWh, including contribution to the target achieved through each of the following:

i) Province-Wide Distributor CDM Programs,
ii) Local Distributor CDM Programs,
iii) measures used by a Distributor to maximize the efficiency of their new or existing infrastructure, where the resulting electricity reductions are counted towards a Distributor's CDM Target by the IESO,
iv) demand response programs,
v) programs for transmission connected customers, and
vi) product codes and standards.

The annual report shall cover the period from January 1 to December 31 of the previous year.

With respect to the Ministerial Direction dated July 25, 2014, titled "Industrial Accelerator Program":

1.3 Section 6 is amended by adding the following:

6.2 Notwithstanding the definition of CDM set out in Section 6.1, CDM shall be considered to exclude behind the meter customer generation that uses fossil fuels purchased from or otherwise supplied by a third party as a primary fuel source where the application for the project is received by the IESO on or after July 1, 2018. For greater clarity, CDM shall continue to be inclusive of behind the meter generation, where the generation of electricity is primarily from heat or fuel that is a waste by-product of a facility.

Amending Direction to IESO (cont'd)

Amending Direction to Independent Electricity System Operator – support programs

- Section 1 of the Ministerial Direction dated November 21, 2014 titled Support Programs ("Support Programs Direction") is amended by deleting "soft" in section 1.2.
- References to "Aboriginal" in the directive shall be replaced with "Indigenous".
- Section 1 of the Support Programs Direction is amended by deleting section 1.3.
- Section 1 of the Support Programs direction is amended by deleting "…under the FIT and Large Renewable Procurement ("LRP") Programs" in the third and fourth line of section 1.4 and deleting "…under the FIT Program" in the fifth line of section 1.4.
- Section 4 of the Support Programs Direction is amended by deleting the phrase "major transmission lines" in the fourth line and replacing it with "transmission facilities".
- Section 4 of the Support Programs Direction is replaced by:
  - "Indigenous communities shall also be eligible for funding from the Partnership Stream for the due diligence work required to assess and develop opportunities for participation with licensed transmitters, or entities seeking to become licensed, in those future transmission facilities that have been included in regional plans, bulk system plans or the Long Term Energy Plan and for which the Ministry has determined it is prudent to commence development work, including but not limited to the East-West Tie Expansion Line, the Transmission Line to Pickle Lake, the Northwest Bulk Transmission Line, Remote Community Connections, or others that may be conveyed to the IESO by the Minister in writing."
- Section 5 of the Support Programs Direction is amended by deleting the phrase "and Aboriginal Renewable Energy Network ("AREN") and deleting the phrase "and to provide a web-based resource for conservation and renewable energy development respectively" along with such other modifications as are necessary.
- Section 6 of the Support Programs Direction is amended by deleting the phrase "municipalities, public sector entities, and co-operatives".
- Section 7 of the Support Programs Direction is amended by deleting the acronym "AREN" in the second line.