
Support Ontario's Climate Change Strategy

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CONFIDENTIAL DRAFT

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Background

LTEP 2013 Commitments

- The Long-Term Energy Plan (LTEP), released in December 2013, set out a comprehensive direction for Ontario's energy future on all aspects of Ontario's electricity system, including conservation, generation, transmission, distribution and emerging technologies such as energy storage.

- The 2013 LTEP included 5 key principles:
 - Cost Effectiveness
 - Reliability
 - Clean energy
 - Community engagement
 - Conservation and demand management

Achievements since 2013 LTEP

- Since the release of the 2013 LTEP, Ontario has taken several steps to meet its commitment for providing clean energy.
 - Ontario has increased the share of renewable energy in the supply mix. Ontario currently has 16,000 MW of Wind, Solar, Bio and Hydro power online.
 - Ontario phased out coal generation in 2014. The elimination of coal-fired generation represents a 30 Mt reduction in greenhouse gas (GHG) emissions since 2003.
- Ontario's energy efficiency programs have continued to deliver strong results, resulting in significant energy and GHG emission savings.
 - Ontario's natural gas energy efficiency programs, delivered by Enbridge Gas Distribution and Union Gas, are Ontario's second largest GHG reduction initiative to date, after coal phase-out.
 - Planned savings under the 2015-2020 natural gas energy efficiency framework alone will result in 2.5 Mt of GHG reductions in 2020.
 - Ontario's 2015-2020 Conservation First Framework and Industrial Accelerator Program, governing electricity conservation programs, are expected to result in 1.3 Mt of GHG emissions in 2020.

Current Context

- Following the closure of the last coal plant in 2014, electricity generated in Ontario in 2015 was approximately 90% emissions free.
- Following the significant reduction of Greenhouse Gas (GHG) emissions within the electricity sector, the largest remaining contributors of GHG emissions are the transportation, industrial and building sectors. It is in these sectors that Ontario can take action to achieve further GHG reductions, by introducing new low-carbon alternative fuels, promoting fuel-switching to cleaner energy sources and increasing energy conservation.
- Additional emissions reductions in the electricity sector would come at a much higher cost than in other sectors as natural gas plays a critical role in ensuring the reliability and operability of the electricity system.
- On September 1, 2016, the Independent Electricity System Operator (IESO) released the Ontario Planning Outlook (OPO), and on September 30, 2016 ENERGY released Navigant's Fuels Technical Report (FTR):
 - The OPO includes a range of four demand outlooks driven by varying degrees of electrification.
 - The FTR includes three OPO outlooks with increased electrification and adds two outlooks with further conservation and fuel-switching.

Current Context

- Should Ontario experience higher levels of electrification resulting from climate change policies Ontario would require more electricity resources than it has today.
- According to the OPO and the FTR the energy demand under Outlook C and D (or “higher demand outlooks”) by 2035 would be approximately 30 TWh and 50 TWh, respectively, higher than today.
 - Some stakeholders have claimed that IESO has underestimated the impact of increasing electrification.
- In June 2016, Ontario released its 5-year Climate Change Action Plan (CCAP) that sets out Ontario’s vision and objectives for meeting its greenhouse gas emission reduction targets and pursuing a prosperous low-carbon economy. The CCAP came into effect on January 1, 2017.
- CCAP requires Ontario to cut GHG emissions to;
 - 15 per cent below 1990 levels by 2020;
 - 37 per cent by 2030 and
 - 80 per cent by 2050.
- Ontario has already achieved several key milestones in addressing climate change, however further initiatives are required to meet Ontario’s GHG reduction targets. The electricity sector will continue to play an key role to help the province meet its targets.

Stakeholder Consultation Feedback

- In 2016, the government held province-wide 2017 LTEP stakeholder, public and indigenous engagement sessions.
- Overall related to cap and trade the most common theme discussed were:
 - **Conservation:** Integrate CCAP initiatives with existing CDM/DSM.
 - **Modernisation/ Innovation:** Facilitate the integration of new technologies.
 - **Electrification:** Enable the electricity sector to support the decarbonisation of Ontario's infrastructure.
- A number of stakeholders also raised concerns about stranded natural gas assets and the cost of heating homes with natural gas compared to electricity.

Climate Change Adaptation

1. Recommendation

The Ministry will consider climate change adaptation in energy planning as part of the 2017 LTEP:

The Ministry will:

- **Item 1: Profile current activities:** Profile the extensive adaptation and resilience activities continuing, underway and completed by Ontario energy agencies and market participants.
- **Item 2: New Initiatives:** Further enhance adaptation capacity across the sector.

1. Recommendation – Item 1: Profile of Current Activities

- The Ministry of Energy **monitors** climate change adaptation actions across the sector and encourages information sharing to ensure that the sector is prepared for a changing climate, including more frequent and severe weather events and that insights from adaptation research are integrated into long-term planning across the sector.
- Previous severe weather events, such as ice storms, and the 2003 Northeast blackout focussed the industry on improving system resilience. Generation, transmission and distribution companies have since invested significant resources to **harden assets**.
 - Some organizations, such as the IESO and Toronto Hydro are seen as **Canadian leaders in adaptation research and risk management**.
 - Other initiatives, including conservation, remote connections and smart grid provide **important adaptation co-benefits**.

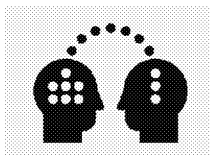
Need for additional action:

- Current research in the field indicates that there is need for a more **systematic integration** of adaptation into energy planning. The **electricity distribution sector** should be the focus of coordinated adaptation activity. Small and medium size utilities, in particular, tend to lack the capacity to integrate climate change into their planning activities.
 - The Auditor General (2016 report, with reference to electricity distribution), the Environmental Commissioner (2017) and others have similarly called for systematic action on adaptation.

1. Recommendation – Item 2: Enhance Adaptation Capacity

LTEP 2017 presents an opportunity to enable the sector to prepare for a changing climate while balancing costs. The following recommended actions are designed to:

- Build adaptation capacity in utilities and agencies through research and knowledge sharing
- Provide utilities with certainty about the role of adaptation in rate applications.



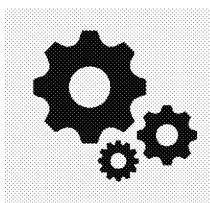
2. a. Knowledge Sharing Platform for Utilities

- Promote best practices, capacity building and sharing of lessons
- Ministry to lead
- To include electricity, fuels, municipalities, private sector



2. b. Sector-wide Vulnerability Assessment

- Complements the 2015 transmission system assessment
- Ministry to collaborate with agencies
- Examine potential integration of regional planning efforts



2. c. Integrate Adaptation into Regulatory Framework

- OEB to develop new framework to integrate sound evidence on climate change into rate filings and regional planning processes
- IESO to ensure adaptation is considered within ORTAC, regional planning and bulk system planning

2. Implementation Strategy and Timelines for Item 2

Milestone Date	Milestone Activity
Ongoing	Item 2 a. - Develop an adaptation knowledge platform to promote the sharing of adaptation lessons learned, capacity-building, and improved practices among utilities and other stakeholders (e.g., municipalities) <u>Proposed OEB Directive</u>: Support the development of an adaptation knowledge platform in collaboration with the Ministry and other stakeholders
2017 (RFP for consultant) 2018 (Report published)	Item 2 b. - Sector-wide Distribution Vulnerability Assessment – in collaboration with agencies, consultants and other stakeholders (lead to be determined in working groups). <u>Proposed OEB Directive</u>: Support development of sector-wide distribution vulnerability assessment in collaboration with the Ministry and other stakeholders
Will be part of the OEB and IESO implementation plans	Item 2c. <u>Proposed OEB Directive</u>: Develop an adaptation framework for utilities to support the integration of sound evidence on climate change into transmission and distribution rate applications and regional planning processes to balance the need for system resilience with system costs <u>Proposed IESO Directive</u>: Ensure system vulnerabilities and options for improving resilience are considered and integrated within planning processes and guidelines, such as ORTAC*, regional planning (IRRPs) and bulk system planning.

*Ontario Resource and Transmission Assessment Criteria

3. Collaborators and Cost

Collaborators:

Across all three proposed initiatives, the Ministry will collaborate with the OEB, external consultants, utilities, the IESO, municipalities and other stakeholders as appropriate.

Costs - Anticipated to be managed internally by ministry and agencies with caveats as noted

	2017-2018	2018-2019	2019-2020	2021-2022	TOTAL
2a: Knowledge Platform	Costs to facilitate knowledge sharing are expected to be minimal and covered by Ministry allocation				
2b: Sector-Wide Distribution Vulnerability Assessment*	TBD Cost depends largely on scope and the level of detail required				
2c: Adaptation Framework	Costs are to be covered by OEB and IESO				

4. Risks and Considerations

Risk/Consideration	Strategy
Ontario's Climate Change Strategy commits the province to "integrate climate change mitigation and adaptation considerations into government decision-making and infrastructure planning." • MOECC's upcoming Adaptation Action Plan seeks to profile new initiatives that are adaptation-focussed and have measurable outcomes.	• Proposed LTEP actions fit well with Ontario's adaptation mandate and builds on the extensive work already undertaken. • LTEP actions on adaptation can also be profiled in Ontario's Adaptation Action Plan.
Public scrutiny of preparedness in the sector (Auditor General, ECO, stakeholders) • MOECC has indicated that the Auditor General in 2018 will undertake a follow-up audit on adaptation.	• Proposed LTEP actions respond directly to criticism of Ministry's monitoring of climate change preparedness at the distribution level.
Uncertainty/ Access to regional climate change data prevents sound investment decisions	• The knowledge sharing platform will aim to mitigate this risk by providing access to any new data sets and best practices. For example, both the province (led by MOECC) and the federal government are developing solutions for access to climate data and applications
Promotion of adaptation awareness and OEB framework could be perceived by utilities as additional regulatory burdens	• Ministry and OEB actions can be framed as guidance enabling utilities to integrate adaptation into business planning, thereby increasing certainty and reducing cost • Adaptation framework could be integrated into the broader regulatory refresh also anticipated for 2019 rate filing requirements.

5. Alignment with Legislative Objectives and Preliminary LTEP Themes

Legislative Objectives for all future LTEPs	• <i>Cost-effectiveness</i> Sound vulnerability assessments that consider regional climate change impacts allow for the selection of the most cost-effective long-term options. • <i>Reliability</i> Evidence-based adaptation actions are crucial to ensure long-term reliability. • <i>Community and indigenous engagement</i> The Ministry is committed to work with local actors, including municipalities and indigenous communities to ensure adaptation actions meet local needs
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Focus on the Consumer

Enabling utilities to better understand local climate change impacts in their specific circumstances and integrate considerations into business planning contributes to a more nimble and customer-centric approach.



Maximise Efficiency and Value

The OEB Framework will enable utilities to base rate applications on sound science and select the most cost-effective long-term option. Financially appropriate adaptation actions, backed up by sound climate science and economic cost-benefit analysis ensure that long-term costs are distributed fairly.



Encourage Flexibility for the Future

Preparing for climate change impacts prepares the province for the future and increases resilience to a diversity of potential disruptions.

Actions under the Climate Change Action Plan

Actions under the Climate Change Action Plan

Initiative

1. The Climate Change Action Plan (CCAP) cabinet minute stipulates that ENERGY is responsible for work on 21 actions, which includes:
 - Leading reviews and report backs on 11 proposed CCAP actions; and
 - Supporting reviews and report backs on 14 proposed CCAP actions.

Implementation Date	Action Plan Minute Item	LTEP Theme Deck Containing Additional Details
2017/2018	Actions to support electric vehicles (EV)	Innovation
	Proceeds recycling to electricity sector ratepayers (under discussion)	Promoting Equitable Energy Access and Affordability
	Community energy planning	Regional Planning/Issues
	Microgrids and renewable energy in remote First Nations	Renewable Energy
	Development of 'Green Bank' [name under regulation: 'Ontario Climate Change Solutions Deployment Corporation'(OCCSDC), public facing name: "GreenON"]	- Increasing Customer Choice - Enhancing our Commitment to Conservation
	Green Button	Enhancing our Commitment to Conservation
Post-2017/2018	Low-Carbon Fuels Policy/Programs	Promoting Equitable Energy Access and Affordability
	Home Energy Rating and Disclosure (HER&D)	Enhancing our Commitment to Conservation
	Single Portal for Social Benchmarking Programs	N/A
	Efficiency standards for equipment in waste water and drinking water treatment plants	Enhancing our Commitment to Conservation

Next Steps

Next Steps

- LTEP should include explicit references to addressing the challenge of climate change and highlight the integration of our energy sector into the cap and trade system, and the goals of innovation, sustainability and conservation.
 - The LTEP should also explicitly state that it is a planning document and should not be interpreted as forecasting an emission outcome for the whole of the Ontario economy but should instead highlight the role of the cap and trade market to meet our emissions targets while still focusing on innovation in the energy sector as a key driver of reducing emissions.
- To further support the development of Climate Change Adaptation content, Ministry staff will:
 - Assess the current set of adaptation-related initiatives in the energy sector to determine which would be most appropriate to profile in LTEP.
 - To supplement recent Canadian 'state of adaptation' research on the energy sector, conduct further inter-jurisdictional research on best practices for the proposed new initiatives, including the use of distribution-level vulnerability assessments and how regulators assess adaptation-related expenditures.
 - Develop a work plan for engaging relevant stakeholders on the proposed knowledge sharing platform, vulnerability assessment, as well as regulatory and planning instruments.

Appendix

Tranche 1 – CCAP Initiatives

Initiative	Current Status
Actions to support electric vehicles (EV)	Executive level coordination of CCAP commitments has resulted in four different categories of low emission transportation initiatives. ENERGY is leading overnight charging, which falls under "Incentives" with 3 other commitments led by MTO and MOECC (purchase incentives, charging stations, and vehicle scrappage). Targeted stakeholder consultation (LDCs, industry, agencies, non-government organizations including Plug'n Drive) began in July and is ongoing. The Ministry is also responsible for developing a "Vehicle-to-Grid Roadmap".
Proceeds recycling to electricity sector ratepayers (under discussion)	The CCAP stated the objective to "keep electricity rates affordable" through the use of up to \$1.3 billion in GGRA proceeds to offset the cost of emission reduction initiatives currently funded by electricity consumers through their bills over the first compliance period (2017-2020). In September 2016, Ontario committed that non-residential consumers will receive a benefit via the GGRA as part of the CCAP.
Community energy planning	ENERGY is working to convene a director-level inter-ministry working group with MOECC and MMA to begin to develop proposed program details.
Microgrids and renewable energy in remote First Nations	ENERGY is in the process of researching the technical and logistical context for implementing this type of program, as well as conducting an environmental scan of existing projects and programs. ENERGY has reached out to MIRR and MOECC to discuss program design options.

Tranche 1 & 2

Tranche 1	
Development of Low-Carbon Deployment Entity	ENERGY to continue to provide input into Ontario's Low-Carbon Deployment Entity (LCDE) GreenON decisions, as part of MOECC's Inter-Ministerial Green Bank Working Group. MOECC is planning to seek LRC approval of regulation establishing LCDE in February/March 2017, with LCDE GreenON website anticipated to launch May 2017 with information and access to existing conservation and renewable energy programs in Ontario; the first new GreenON programs are proposed to roll out initial programs in Fall 2017.
Tranche 2	
Initiative	Current Status
Low-Carbon Fuels Policy/Programs	The CCAP commits to introducing a renewable content requirement for natural gas and allocates up to \$100 million in funding to support this action. The CCAP indicates this action is intended to start in 2017.
Home Energy Rating and Disclosure (HER&D)	Stakeholder Working Group (comprised of representatives from the real estate, financial, building and retrofit sectors, and government ministries/agencies) continues to meet to develop inform program design.
Other	
Green Button	CCAP commits ENERGY to develop a proposed approach for a province-wide implementation of the Green Button program in 2017, and report back to Cabinet in 2017.
Single Portal for Energy-Related Social Benchmarking Programs	CCAP commits ENERGY to develop a single portal for energy-related social benchmarking program for natural gas and electricity, with recognition of the additional energy requirements of homes with electric vehicles, and report back to Cabinet in 2017.
Efficiency standards for equipment in waste water and drinking water treatment plants	ENERGY continues to update its energy efficiency regulation with new and enhanced standards including efficiency standards for equipment found in waste water and drinking water treatment plants. The CCAP minute requires ENERGY to report back to Cabinet in 2017 with a proposed approach for implementation in 2018.

CCAP Roles and Responsibilities

- The CCAP cabinet minute stipulates that ministries are to report back to Cabinet/TB throughout late 2016-2017 with recommended approaches for delivering various CCAP actions:
 - There are over 90 minuted CCAP actions for implementation over the first compliance period;
 - 65 actions require report back to Cabinet for broader policy approval and 45 actions require both policy approval and TB approval; and
 - The CCAP minute provides the following government-wide report back schedule:
 - 25 actions to report back in 2016;
 - 16 actions to report back in 2017; and
 - 35 actions do not have a report back time.
- MOECC advises that ministries will lead the development/implementation of their respective CCAP actions.
- MOECC has also advised that it will:
 - Coordinate inter-ministerial policy and implementation work through existing government-wide ADM/DM committees (e.g., PERL, Business Climate, etc);
 - Coordinate policy approval with Cabinet Office;
 - Provide specialized support for ministries;
 - Develop and coordinate process for requesting cap and trade proceeds funding (under discussion); and
 - Manage annual reporting.

Critical Timelines – CCAP / Cap and Trade

