

Achievable Potential Study: FAQs for LDCs

November 25, 2016

1. What is the Achievable Potential Study

The IESO is required, through direction from the Minister of Energy, to conduct an Achievable Potential Study (APS) every three years, with the first study in the 2015-2020 Conservation First Framework to be completed by June 30, 2016.¹ The purpose of the APS is twofold:

- To provide an updated estimate of the short-term electricity conservation potential that is achievable in the Conservation First Framework time frame (2015-2020) for the whole province and for each electricity distributor. This is referred to as the short-term analysis.
- To estimate the long-term electricity conservation potential over a 20-year horizon (2015- 2035). This is referred to as the long-term analysis.

The APS consists of two parallel studies: an energy-efficiency study, and a behind-the-meter generation (BMG) study.

2. Who performed this study?

The Achievable Potential Study (APS) consists of two parallel studies: one on energy efficiency, and another on behind-the-meter generation (BMG). Third-party consultants were retained for each of these studies through a competitive procurement process in which proposals were developed by proponents and evaluated by both the IESO and members of the APS Working Group. Through this process, Nexant was selected to conduct the energy- efficiency APS, and Navigant was selected to conduct the BMG APS. As a supplement to the BMG APS, Navigant was also tasked with investigating the impacts of cap and trade on the achievable potential of BMG. Nexant and Navigant coordinated the integration of the results of their respective studies. These studies, and their integration, were conducted with the oversight of the IESO and the APS Working Group.

The IESO also sought advice from an independent, third-party panel of experts consisting of three professionals from outside of Ontario with significant experience with similar studies in other jurisdictions.

¹ The study was originally to be completed by June 1, 2016, but a 30-day extension was granted to allow the IESO to incorporate the 2015 verified conservation results.

3. How is this APS different from the last one?

The last APS (completed in early 2014) did not incorporate LDC-level granularity, or produce LDC-specific results. The previous study also calculated achievable potential based on measures that yielded either a one-year (upper achievable potential) or a two-year (lower achievable potential) customer payback. The new APS made improvements in both underlying data and methodology, including:

- Unique energy use profiles developed for each LDC based on LDC input (i.e., a bottom-up approach)
- Analysis of potential electricity savings that were modelled and determined at the LDC level
- Potential savings determined and modelled at the program-level
- Potential savings estimated for each LDC under a budget-constrained and an unconstrained achievable potential scenario
- Energy-efficiency measure uptake model based on historic participation.

As a further improvement to the previous study, this new study involved extensive collaboration between the IESO and an LDC Working Group. This Working Group provided valuable input into the scope, methodology, and execution of the study – meeting regularly with the IESO throughout the course of the study.

4. What input have LDCs had into this APS?

An APS Working Group was established in March 2015 to ensure that LDCs had meaningful and actionable input into the results of the 2016 Achievable Potential Study. Members include representatives from Toronto Hydro, Hydro One and the following LDCs that have service areas in different planning regions: Thunder Bay Hydro, Hydro Ottawa, Utilities Kingston, Peterborough Utilities, Guelph Hydro, London Hydro, Enersource, Veridian, London Hydro, Greater Sudbury Hydro and Niagara Peninsula Energy.

Representatives from the Ministry of Energy, the Ontario Energy Board (OEB), the Environmental Commissioner of Ontario (ECO) and the Electricity Distributors Association (EDA) participated as observers throughout the study development process.

In addition to LDC participation through the APS Working Group, data was formally requested from all LDCs in Ontario so that a more accurate bottom-up estimation of each LDC's achievable potential could be obtained. Both primary and secondary data were used to develop the sector and subsector energy load profiles for each LDC. Of the 75 LDCs, 32 LDCs submitted primary data to inform the 2014 energy consumption profiles by rate class, and 20 LDCs submitted segmentation data by NAICS code. Secondary data were used where LDCs had not submitted data.

The draft profiles were submitted to the LDCs for review and to obtain additional input and/or data. During the review process, 45 LDCs participated in meetings and/or conference calls and 64 LDCs provided feedback that included comments or revised data.

5. How was LDC input considered in the results of the study?

LDCs provided many recommendations that were carefully considered and implemented, including revisions to measure savings assumptions and applicability, program design elements, customer adoption rates, budgets, measures, and other program-specific elements that would directly impact the results of the study. Where there were differing perspectives regarding methodology and assumptions, the IESO looked to the advice of the independent expert panel and third-party consultants for guidance. This inclusive and collaborative process brought greater transparency to the design, methodology and assumptions that were used for this study. As an example of the effect of LDC input on study results, the energy-efficiency component of the achievable potential was reduced from 6.7 TWh to 6.4 between the draft and final results.

6. What are the results of the study?

With respect to Ontario's short-term conservation goals, the study concludes that Ontario's LDCs can collectively meet and exceed the 7 TWh savings target for 2020 set out by the province. Through both energy-efficiency measures and behind-the-meter generation, the province's distributors have an achievable electricity savings potential of approximately 7.4 TWh based on the existing funding allocation.

More detailed results are available in the three component studies that make up the overall achievable potential study:

A behind-the-meter generation (BMG) study estimated system-wide electricity savings from combined heat and power and waste energy recovery projects, at the distribution and transmission level, between 2015 and 2025. The results of this study were used as an input to the short- and long-term energy efficiency studies. This study found an achievable potential of approximately 1 TWh of distribution-level electricity savings by 2020. As a supplement, this study included an analysis on the impacts of cap and trade on BMG uptake, which was found to reduce overall BMG potential by ~20% below the 1 TWh compared to an absence of cap and trade.

A short-term energy-efficiency study estimated the distribution-level electricity conservation potential available in the CFF time frame and budget. This study found an achievable potential of approximately 6.4 TWh of persistent distribution-level savings by 2020 through energy-efficiency measures alone. When combined with the BMG results, persistent savings of approximately 7.4 TWh were determined to be achievable in the available CFF time frame and funding.

A long-term energy-efficiency study estimated the electricity conservation potential from 2015 to 2035 by IESO Zone. Based on incentive levels in-line with the existing CFF framework, this study found a system-wide achievable potential of 18 TWh of persistent electricity savings by 2035. An addendum to this study was subsequently published, which investigated a market achievable potential scenario whereby spending constraints and incentive level caps were removed. This market achievable potential scenario revealed a cost-effective savings opportunity of 29 TWh by 2035.

7. Where can LDCs see their own results?

Each LDC has been provided their short-term LDC-specific results in the form of two MS Excel worksheets. There is one worksheet for the behind-the-meter generation results, and one worksheet for the energy-efficiency results. These worksheets have been uploaded to the LDC Extranet in the Conservation Officer Community section via:

LDC folder>>documents>>Achievable Potential Study.

These worksheets can be used as a valuable resource for the identification of opportunities in an LDC's service territory, and to help with the design and delivery of energy-efficiency programming.

8. How will the APS affect LDCs' Conservation and Demand Management (CDM) targets?

In accordance with the Energy Conservation Agreement (ECA) between the IESO and each LDC, the LDCs' potential mid-term financial incentive is based on the LDCs' achievement of the lesser of 50% of their CFF target or 50% of the achievable potential in their service area per the APS. The insights, analysis and results of the APS will be used to inform the following activities:

- The mid-term review of the Conservation First Framework (the scope of which includes, but is not limited to, a review of the allocation of budgets and distributor CDM targets)
- Short-term program design and planning
- Long-term system planning
- Regional planning.

9. What is the mid-term review?

As per the Minister's direction issued on March 31, 2014, the IESO must complete a mid-term review of the following, with input from the Ministry of Energy and distributors, no later than June 1, 2018:

- the 7-TWh target and the overall budget for achieving that target
- allocation of budgets and distributor CDM targets

- lessons learned on cost recovery and performance incentive mechanisms
- CDM contribution to regional planning.

It will factor in:

- the electricity APS in coordination with the natural gas APS
- system planning projections based on a revised Long-Term Energy Plan (LTEP)
- lessons learned from enhanced regional evaluation, measurement, and verification
- input from customers and channel partners on program design and delivery, including any impediments to program achievements
- lessons learned from the application of the cost recovery and performance incentive mechanisms
- examination of other factors facilitating or impeding conservation success.

10. How will the APS affect an LDC's individual budget?

LDC CDM budgets and targets will be reviewed as part of the mid-term review. The insights, analysis and results of the APS will be one of several inputs that inform the mid-term review.

11. Why weren't LDCs able to review their results before they were finalized?

Due to the volume of LDCs and the data sizes associated with APS results, the iterative distribution of draft results to all LDCs was not feasible. The Achievable Potential Study LDC Working Group was delegated to review its own draft results for the energy-efficiency component of the APS on behalf of all LDCs, in order to identify errors or anomalies in the methodology, the model itself, or the outputs – which could then be rectified before the model was run for all LDCs.

Based on feedback from LDCs and quality checks by the technical consultants, the model, data and assumptions were adjusted and the results were run once again for two LDCs for testing purposes. These results were reviewed by a methodology sub-working group consisting of four LDCs, which then had an additional opportunity to suggest changes to the model.

LDCs provided many recommendations that were carefully considered and implemented, including revisions to measure savings assumptions and applicability, program design elements, customer adoption rates, budgets, measures, and other program-specific elements that would directly impact the results of the study. Where there were differing perspectives amongst LDCs or between IESO and LDCs regarding methodology and assumptions, the IESO looked to the advice of the independent expert panel and third-party consultants for guidance.

As an example of the effect of LDC input on study results, the energy-efficiency component of the achievable potential was reduced from 6.7 TWh to 6.4 TWh between the draft and final results.

12. An LDC has behind-the-meter generation in its service territory. How is that being factored in?

The APS consists of two parallel studies: an energy-efficiency study and a separate behind-the-meter generation (BMG) study. Due to the specialized nature of BMG potential in Ontario, the IESO procured the services of Navigant Consulting to conduct the study under the guidance of the Behind-the-Meter Generation Sub-Working Group and the IESO.

Navigant's scope of work included determining the achievable potential for Conservation Combined Heat and Power (CCHP) and Waste Energy Recovery (WER), factoring in existing BMG projects that are in service or planned, economic factors, non-financial considerations, and physical constraints of the province's electricity grid.

The BMG achievable potential will, along with the energy-efficiency achievable potential, be part of each LDC's total achievable potential.