Hydro One Networks Inc.

EB-2019-0082

CME COMPENDIUM – WITNESS PANEL #3

October 29, 2019

1.3.3 (5.2.2 A) CUSTOMER SATISFACTION SURVEYS AND RESEARCH

In addition to Hydro One's customer engagement surveys, Hydro One regularly solicits feedback from customers through a variety of channels to be leveraged throughout Hydro One's planning process.

1.3.3.1 CUSTOMER SATISFACTION SURVEYS

Since 1999, Hydro One has been collecting feedback from transmission customers through an annual customer satisfaction research process. The customers surveyed are critical to the success of Hydro One's business, and are also critical to the communities in which they operate. The trending of results over time assists Hydro One in identifying areas to improve transmission customer satisfaction. Hydro One uses this data to inform and improve business practices and stay informed about the trends that matter most to transmission customers. Customer Satisfaction scores are also included in Hydro One's Corporate Team Scorecard (Exhibit F, Tab 4, Schedule 1, Attachment 4) and Hydro One's proposed Transmission Scorecard (as described in Section 1.5 of the TSP).

This research is conducted by independent expert customer research firms. The most recent iteration of this research was carried out and reported on by Innovative Research Group in 2018 and is described in Section 1.5 of the TSP.

The objectives of the Large Transmission Customer survey are to measure the level of customer satisfaction, and to monitor Hydro One's performance in four dimensions of satisfaction among customers: Price, Customer Service, Product Quality/Reliability and Relationship. The survey measures customer perceptions of the Company (whether they have interacted with Hydro One recently or not), with a specific focus on how well the Company meets expectations and delivers on critical success factors. The survey is administered to transmission-connected Generators, End Users and all LDCs. The

customer survey research is used to evaluate the overall satisfaction levels of these customers groups, and to better understand their perceptions of Hydro One.

Figure 3 illustrates the trend of the overall satisfaction results. In 2018, Overall Satisfaction was at the highest point in the past seven years at 90%, which is a 12% increase since 2016. The increase in overall satisfaction can be attributed to LDCs and generation customers. The main driver identified through analysis for higher customer satisfaction was customer communication and key account managers. The identified driver correlated with lower satisfaction was the ability to recall a planned outage. Additional information can be found in TSP Section 1.5 and the complete 2018 survey results can be found in Attachment 5 to this exhibit. The greatest dimension of high customer satisfaction was customer service, with 93% satisfaction with communications methods, 93% satisfaction with customer service overall and 90% satisfaction with key account services from account executives. A majority, 60%, are satisfied with Hydro One's product. Some dimensions with lower product satisfaction include number of unplanned outages, a dimension 50% of customers are dissatisfied with.

2018 Team Scorecard

As disclosed in most recent Management Information Circular.

Component	Measure	Performance Levels and Actual Achievement (◆ represents Hydro One 2018 Achievement)	Weighting	Percentage Achievement	Contribution to Team Scorecard
Health & Safety					
Recordable Incidents	Recordable Incidents per 200,000 hours	Threshold: 1.30 — Target: 1.10 — Max: 1.00 — ◆ 1.11	10.00%	93.85%	9.39%
Work Program					
Tx Reliability	Minutes per Delivery Point (SAIDI)	Thresh.: 9.20 — Target: 7.60 — Max: 5.40 — ◆ 15.37	6.25%	0.00%	0.00%
Dx Reliability	Hours per Customer (SAIDI)	Threshold: 7.50 — Target: 7.00 — Max: 6.80 — ◆ 6.82	6.25%	190.00%	11.88%
Tx In Service Capital	Variance (%) to approved budget of $1,174M	Thresh.: +/-6.00% — Target: +/-4.00% — Max: +/-1.00% — ◆ -1.16%	6.25%	194.65%	12.17%
Dx In Service Capital	Variance (%) to approved budget of $641M	Thresh.: +/-5.00% — Target: +/-3.00% — Max: +/-1.00% — ◆ -4.23%	6.25%	83.99%	5.25%
Financials					
Net Income	Net Income to Common Shareholders - $M	Threshold: 660.71 — Target: 705.79 — Max: 756.71 — ◆ 806.67	30.00%	200.00%	60.00%
Productivity					
Productivity Savings	Productivity Savings - $M	Threshold: 103.10 — Target: 114.50 — Max: 140.00 — ◆ 135.51	10.00%	182.40%	18.24%
Customer Service					
Dx Satisfaction: Small & Residential Customers	Dx Customer Satisfaction (SMB & Res.)	Thresh.: 71.00% — Target: 73.00% — Max: 76.00% — ◆ 76.00%	12.50%	200.00%	25.00%
Tx Satisfaction: Large Customers	Tx Customer Satisfaction (Large Cust.)	Thresh.: 84.00% — Target: 86.00% — Max: 90.00% — ◆ 90.00%	12.50%	200.00%	25.00%
Total					166.91%

1.3.6 (5.2.2 A) INCORPORATING CUSTOMER NEEDS INTO THE PLAN

Insights from recent surveys reveal customers are seeking improvements in the following areas:

- Safety, reliability, and outage restoration are customers' top prioritized outcomes;
- All customer segments prefer to see investments evenly spread out over the long term;
- Reducing the frequency of outages is more important that reducing the duration of outages. However, the most important issue is to reduce the number of day-to-day interruptions;
- The majority of customers prefer to maintain levels of investment in line with the proposal filed in Hydro One's last transmission rate application (EB-2016-0160), rather than to increase or decrease investment levels;[2]
- End user participants rate power quality as an "extremely important" outcome;
- Reliability metrics used by Hydro One do not adequately capture events on the network that may actually be associated with power quality;
- Customers would like to have more assistance investigating power quality events;
- Customers would like reduced timelines for connection estimates;
- Customers would like lower connection costs;
- Customers desire improved communication and transparency; and
- Customers believe Hydro One should be easier to do business with.

Hydro One's full spectrum of customer engagement initiatives is leveraged to increase its understanding of customers' needs and preferences; enhance Hydro One's ability to provide the expected level of service; produce outcomes that are valued by customers;

[2] Customer preferences are set out in Attachment 1 of Section 1.3 of the TSP.

and result in an improvement to customers' overall satisfaction with Hydro One's Transmission business.

As part of the multi-step investment planning process described in TSP Section 2.1, planners develop a set of candidate investments that are designed to address the relevant asset needs and risks, and incorporate transmission customers' needs, preferences and feedback to inform the capital expenditure plan.

1.3.6.1 IDENTIFYING TRENDS

Cross functional sessions are held to review all customer engagement results, identify broad trends and specific customer needs and preferences. This review provides a basis to capture customer needs and preferences in the investment planning process and improve alignment between individual candidate investments identified by planners and the outcomes of the customer engagement activities.

1.3.6.2 INVESTMENT ASSESSMENT

Since the last transmission rate application, Hydro One has introduced investment planning process improvements, including a revised scoring process and a formalized flagging framework as described in TSP Section 2.1.4. The feedback provided through the customer engagement process informed the enhanced risk and scoring framework. In particular, the revised scoring process focuses on assessing risk related to safety, reliability and environmental considerations. These three outcomes are among the top customer priorities identified and validated through Hydro One's customer engagement. As risk scoring is the dominant evaluation method for candidate investments, customer needs and preference are reflected in all risk-scored investments.

In addition to investment scoring for safety, reliability and environmental risk, investments are flagged for factors including customer needs and preferences identified through the engagement process. A full list of flags is included in TSP Section 2.1.4.2.

Examples of customer needs and preferences that were identified through customer engagement and flagged include:

- Concerns expressed with delivery point performance as a result of nuisance wildlife or equipment configuration;
- Coordination of asset maintenance and replacement activities with generator customers during planned outages to minimize disruptions to operations;
- Concerns expressed with power quality; and
- Addressing worst performing delivery points (outliers).

1.3.6.3 CALIBRATION SESSIONS

Following the development of investment candidates and risk scoring, structured calibration sessions are held to ensure that scoring and the application of flags is consistently applied across the organization. Based upon business knowledge gathered through customer-facing efforts described earlier and results obtained through the Transmission Customer Engagement Survey, management validates that the investments are responsive to customer needs and preferences by comparing the description of the need/preference with the high level themes identified through the customer engagement results.

1.3.6.4 OVERALL FUNDING ENVELOPE

The feedback received through the customer engagement process influenced the company's decisions around the overall funding envelope. As part of the customer engagement survey, respondents were provided with descriptions of four illustrative investment scenarios. They were then provided with a line of data points that started at zero and extended beyond all four of the illustrative investment scenarios. Customers were asked to select any point along that continuum that reflected what they believed to be the best and most appropriate balance between rates impacts and outcomes:

- Scenario A was based on limited investment;
- Scenario B involved a decrease in the current level of investment;

- Scenario C would maintain the current level of investment; and
- Scenario D would increase beyond the current level of investment.

Scenario C, which maintains the current level of investment proposed in EB-2016-0160, reduces reliability risk, improves long-term reliability performance and offers level future rate increases, was strongly favored over the other three scenarios with 24% of respondents selecting this scenario. Respondents indicated their preference through the selection of a point along a line showing the spectrum of scenarios; 21% chose a point between Scenario B and Scenario C and 17% chose a point between Scenario C and Scenario D. This clustering informed the initial funding envelope.

1.3.6.5 PRIORITIZATION, OPTIMIZATION, ENTERPRISE ENGAGEMENT AND MANAGEMENT REVIEW AND APPROVAL

Following review and calibration, all candidate investments were aggregated into a consolidated portfolio for prioritization with a view to reflecting the level of investment most preferred by customers in the customer engagement exercise. While the initial prioritization and optimization is risk based, subsequent structured and facilitated trade-off discussions identify projects on the margin and determine allocation of funding based on consideration of investment merits from both risk and non-risk perspectives, such as the appropriate incorporation of customer needs and preferences.

Ultimately, Hydro One determines a funding envelope that balances identified transmission customer needs and preferences with rate impacts and asset/system needs. These considerations are integral in the review and final approval of the Business Plan by the Executive Leadership Team and Board of Directors.

The manner in which the proposed capital expenditure plan reflects the aforementioned transmission customer engagement initiatives, including in particular the 2017 Transmission Customer Engagement Survey process, is discussed in TSP Section 3.2.2.

Witness: Spencer Gill/Bruno Jesus

APPENDIX 1: CUSTOMER ENGAGEMENT PROCESS AND TIMING

Managers and Executives from Hydro One's Customer Service, Planning and Regulatory groups met in February 2017 to plan and prepare for the 2017 Transmission Customer Engagement Survey process, with a view to using the results of this initiative to guide and inform the investment planning process as part of this Application.

Hydro One determined that all of its transmission-connected customers would be invited to participate in this process and that, given the discrete number of transmission customers (in comparison to the number of customers that need to be engaged with to support preparation of a Distribution System Plan), this effort would be qualitative rather than quantitative (i.e., it would provide guidance directionally, but not statistically, due to the limited population size of the transmission customer base). The survey was also developed based on the engagement sessions with stakeholders from the 2017/2018 application.

The 2017 Transmission Customer Engagement Survey process was implemented based on the following schedule.

Description	Date
Final Survey Submitted	03-May-17
Survey In Field	11-May-17 – 15-Jun-17
Interim Report	31-May-17
Survey Concluded	09-Jun-17
Final Report	02-Jul-17

Findings were used to inform the plan as it was iteratively developed through the planning and feedback process.

Detailed results of the 2017 process are set out in the IRG Customer Engagement Report provided in Attachment 1.

Witness: Spencer Gill/Bruno Jesus

APPENDIX 2: INCORPORATING FEEDBACK INTO THE CUSTOMER ENGAGEMENT SURVEY

Hydro One's approach to engaging transmission customers has evolved, and continues to evolve, in response to the OEB's recommended areas for improvement as set out in its September 28, 2017 Decision and Order in proceeding EB-2016-0160. In particular, the OEB found that Hydro One should (i) begin its customer engagement process sufficiently in advance of filing the application to allow for timely input to be incorporated in a meaningful way and to improve the level of customer attendance; (ii) include LDCs so as to determine practical ways to seek some input from their end users; (iii) incorporate timely and meaningful input from First Nations representatives; (iv) ensure that information presented to customers is unambiguous and easy to understand.[3]

The 2017 Transmission Customer Engagement Survey was designed to be responsive to feedback heard from OEB staff and intervenors in the EB-2016-0160 proceeding and is consistent with the Board's findings in its Decision and Order. Hydro One made a number of improvements that address the Board's findings.

FINDING 1: TIMING OF CUSTOMER ENGAGEMENT SURVEY

The 2017 engagement survey was completed prior to the Investment Planning Context phase of the Investment Planning Process outlined in Section 2.1 of Transmission System Plan.

FINDING 2: INCLUDE FEEDBACK FROM LDC END-USERS

Hydro One's transmission system is the upstream supplier of electricity to LDCs across the Province of Ontario. Electricity is transmitted over the Hydro One transmission system to Delivery Points ("DPs") with the LDCs. DPs are boundaries between the electricity systems of Hydro One and the LDCs. Each LDC has significant power

[3] See OEB, Decision and Order in EB-2016-0160, September 28, 2017, pp. 24 and 117.

requirements, unique needs, a diverse group of end-use customers, and most importantly, distribution systems designed to meet their requirements and needs, to service their end-use customers. There is no direct link between the Hydro One transmission system and the LDC's end-use customers.

In Hydro One's 2017 Transmission Customer Engagement Survey, Hydro One asked LDCs to identify whether their responses to the survey were informed by their own customer engagement activities for the purposes of their own rate applications, or by any other customer research. Of the 28 respondents, 11 answered "yes" to this question. Additionally, Hydro One's Account Executives interact with the LDCs, and engage the LDCs in discussion regarding the needs of their ultimate end-use customers, as described above. Results from these inputs were considered by Hydro One during its investment planning process. In addition, Hydro One noted that in customer surveys conducted by other LDCs, residential customers, small business customers (general service<50 kW), and mid-market customers (general service>50 kW) consider price their number one priority and reliability their number two priority whereas larger demand key accounts prioritize reliability over price. These results demonstrate the importance of keeping costs as low as possible while maintaining system integrity to ensure reliable service to businesses in the province.

Subsequent to the issuance of the OEB's decision, Hydro One contacted some LDCs to solicit further approaches it could use to solicit feedback from LDC end-users, in the future. The feedback from LDCs included: (i) suggestions to continue using the account executive model to serve the needs of LDC customers, a program Hydro One has expanded as described above; (ii) that Hydro One meet with the large industrial customers of other LDCs, with Hydro One executives responding to customer concerns. Hydro One executed this suggestion and will facilitate future meetings as requested by LDCs; and (iii) that Hydro One may review LDC survey information. As indicated

above, Hydro One considered the results of other LDCs customer surveys during its investment planning process.

FINDING 3: INCORPORATE INPUT FROM FIRST NATION REPRESENTATIVES

As noted, one message that Hydro One heard in the last transmission rate proceeding was that First Nations customers were not effectively represented in Hydro One's transmission customer engagement process, nor was any particular process in place to specifically engage with these customers. To respond to this concern, Hydro One asked LDC customers who serve First Nations communities whether there was anything in particular they felt Hydro One could do to better serve the specific needs of First Nations and Métis communities. Hydro One also leveraged its ongoing engagement activities with First Nations and Metis communities to identify customer needs and preferences for these customers. Details of Hydro One's ongoing initiatives can be found in Exhibit A, Tab 7, Schedule 2.

FINDING 4: ENSURE INFORMATION PRESENTED TO CUSTOMERS IS EASY TO UNDERSTAND

Finally, the design of the 2017 engagement survey included information that was purposefully written to ensure the content was unambiguous, sufficiently informative for customers to respond to, and easy for customers to understand. To gauge the quality and clarity of the information, the survey included a post-survey question asking "Did Hydro One provide too much information, not enough or just the right amount?" The result was that 76% of respondents believed the survey contained just the right amount of information.

Stakeholder Session

A stakeholder session, which included OEB staff and interveners who participated in prior Hydro One transmission rate proceedings, was held on March 22, 2017. The

session aimed at gathering thoughts and insights from stakeholders on Hydro One's prior customer engagement activities. The feedback provided during this session was addressed as part of the 2017 Transmission Customer Engagement Survey process, as summarized in Table 1 below.

Table 1 - Summary of Feedback Received by OEB Staff and Interveners and Hydro One's Actions Taken

Feedback Received	Action Taken
Consultation did not take place early enough to have impacted business decisions.	The 2017 Transmission Customer Engagement report was released to Hydro One planners in 2017 and was incorporated into the iterative planning process undertaking in 2018.
Participation rates were low in the 2016 Transmission Customer Engagement effort, and did not represent the ones who will feel the impact of an increase (i.e., end-users of LDCs).	Hydro One invited all transmission customers to participate in the survey via a variety of channels. For the 2017 survey, 103 of 153 customers, or 66% of Hydro One transmission-connected customers, participated in the survey including a large number of LDCs.
A subset of the majority of attendees does not pay transmission rates directly and, therefore, Hydro One addressed the wrong audience.	A section for LDCs was added to the survey to address this concern, asking for the LDC's feedback to be provided on behalf of their customer base.
The costs of improved reliability and top quartile status were not fully explained to participants, impacting customer perception and whether they were willing to approve increased spending approvals.	A broader spectrum of options and enhanced details about each option were provided as part of investment outcomes.
There was a perceived endorsement of the middle investment scenario option and survey participants did not have enough options with 3 scenarios presented.	Customers were provided 4 detailed scenarios (as referenced in Attachment 1) and, when indicating their preference, were not constrained to choose one of the four scenarios, but rather respondents were asked to choose a point on a continuum (a total of 17 possible responses).
There was a perception that risks were exaggerated impacting customer perception to approve increased spending	IRG was asked to correct any wording used as part of the survey that could be perceived as 'leading' and additional information was provided in supplementary

Feedback Received	Action Taken
approvals, and that the risk model was not mature or predictive.	materials to better explain how and when the Hydro One Reliability Risk Model[4] is used. A broader spectrum of outcomes beyond reliability risk was provided to customers for each investment scenario to allow for more informed selections.
First Nations Customers were not represented and no consultation process was in place.	Hydro One engages with First Nation customers on a regular basis through a variety of channels (as outlined in Exhibit A, Tab 7, Schedule 2). Although Hydro One has no First Nation transmission customers, LDCs who serve First Nations and Métis Nation customers were asked specifically to provide feedback on how Hydro One could improve service to these customer segments. Of the LDC customers served by Hydro One who self-identified as serving First Nations and Métis communities, two provided a response. One indicated that Hydro One did not need to do anything else. The other stated that, "The northern single circuit communities deserve more attention as they are more vulnerable in terms of supply and outage response." This feedback was considered when assessing the overall pool of investments addressing lower performing sections of the transmission system. Hydro One actively monitors all customer delivery point performance and invests in the system to address customer power quality concerns. Significant investment is planned in wood pole replacements, where the majority of the asset population is located in northern Ontario, along with transmission line refurbishments to address poor condition assets that pose a high risk to customer reliability.
Customers may not have fully understood what was being asked of them.	Links were included in the survey that took customers to a second document with more contextual information and definitions of terms used in support of the survey.
Confusing terms were used by Hydro One as part of the survey with terms used interchangeably, confusing customers (outage, interruption, end of useful life, expected service life, etc.).	The survey was carefully developed to be consistent with the use of terms throughout the survey process. Clarity on terms was provided in the supporting materials described above.

[4] Further details regarding the reliability risk model are provided in Attachment 4.

An additional discussion on end-user customers is presented in TSP Section 1.5.2, *Responses to OEB Directions from EB-2016-0160, LCD End-User Satisfaction.*

The presentation slides and summary notes from this stakeholder session are provided as Attachments 2 and 3 to this section of the TSP.

Witness: Spencer Gill/Bruno Jesus

SEC INTERROGATORY #7

Reference:

EB-2016-0160, J8.1, Attachment 1-2

Interrogatory:

Please provide a detailed chronology of material events in Hydro One's transmission planning process for the capital plan included in this application similar as to provide in Undertaking J8.1 in EB-2016-0160.

Response:

The timeline below includes material events in Hydro One Transmission's Investment and Business Planning processes.

Date	Activity Category	Activity
Feb 9/10, 2017	Customer Engagement	Customer engagement with 88 First Nations communities
Spring 2017	Customer Engagement	Customer engagement content developed
May 3, 2017	Customer Engagement	Final customer engagement survey submitted
May 11 – June 15, 2017	Customer Engagement	Customer engagement field survey
May 13, 2017	Customer Engagement	Customer engagement with 29 Metis Councils
May 31, 2017	Customer Engagement	Interim customer engagement report
June 9, 2017	Customer Engagement	Customer engagement survey concluded
July 2, 2017	Customer Engagement	Final customer engagement report
Summer 2017	Investment Planning	Initial enhancements made to investment planning process
December 8, 2017	Strategic Decision	Hydro One Board approved 2018-23 Business Plan
February 12, 2018	Strategic Decision	Discussion with Hydro One Board on filing of a 5-year Tx application for the 2019-23 period in late April 2018
February 21, 2018	Customer Engagement	Customer engagement with 88 First Nations communities
December 2017 – May 2018	Benchmarking	Special studies and benchmarking results: - Asset hazard curves / degradation rates - Asset replacement practices / expected service life - Investment planning process - Asset analytics and reliability risk modeling

Witness: Bruno Jesus, Joel Jodoin

February 2018	Strategic Decision	2018 Corporate Priorities announced
March 16, 2018	Strategic Decision	OEB letter regarding expectation to file a joint Tx/Dx application for 2023-27 period, requiring a change to planned regulatory filing
Spring 2018	Investment Planning	Enhancements to investment planning process, incorporating findings from investment planning process review
April 2018	Investment Planning	Investment Planning Context Setting phase initiated
May-June 2018	Investment Planning	Planners input candidate investments into AIP tool
June 28, 2018	Business Planning/ Investment Planning	Executive Leadership Team review of initial envelopes
Late June	Investment Planning	Management review of individual candidate investment proposals
Early July 2018	Investment Planning	Investment Calibration
August 14, 2018	Strategic Decision	New Board of Directors announced
August – September 2018	Investment Planning	Prioritization and risk optimization of candidate investments and challenge trade-off sessions
October 1, 2018	Transmission Application	Discussion with new Hydro One Board on filing 1-year inflationary increase for 2019 rates followed by a 3-year Custom Incentive Rate application.
October 2018	Investment Planning	Operational stakeholder (“enterprise”) engagement on preliminary list of prioritized investments.
Late October – early November	Business Planning/ Investment Planning	Final review of investment plan
October 26, 2018	Transmission Application	Hydro One files rate application for 2019 revenue requirement (EB-2018-0130)
September-November 2018	Business Planning	2019-24 Business Plan developed, using the Investment Plan, overhead information, and productivity targets, to finalize plan figures (revenue requirement).
November 30, 2018	Business Planning	Executive Leadership Team approval of 2019-24 business plan
December 14, 2018	Business Planning	Hydro One Board of Directors approval of 2019-24 business plan
March 21, 2019	Transmission Application	Hydro One files rate the Application

Hydro One Networks Inc.
2019-2023 Transmission Rate Application

Transmission Customer Engagement Stakeholder Session

Summary Report

Delta Chelsea Hotel
Toronto, Ontario

March 29, 2017

Session Overview

The session began with an introduction provided by Jody McEachran, Regulatory Affairs, Hydro One. Mr. McEachran highlighted that the purpose of the session is to engage stakeholders in an interactive discussion about the upcoming Transmission Customer Engagement Process being planned in preparation for the 2019-2013 Transmission Rate Application.

An overview of the agenda was then provided by the session facilitator Tracey Ehl, Ehl Harrison Consulting Inc. All stakeholders introduced themselves, including their names, organization and position. Introductions were followed by a presentation by Oded Hubert, Vice President, Regulatory Affairs, Hydro One Networks.

Participants were encouraged to ask questions and provide feedback throughout the delivery of Mr. Hubert's presentation. This report is a synthesis of the discussion from the session, organized by key question. In each section, stakeholder comments are numbered, with the responses, by either participants or staff, directly following. Comments and questions received after the session are not reflected in this report.

A list of participants can be found in Appendix A.

Stakeholder Discussions

A. Transmission Customer Engagement (Oded Hubert)

Summary: Mr. Hubert highlighted the importance of the customer engagement component of the upcoming Transmission Rate Application and emphasized that the session was aimed at gathering the thoughts and insights of stakeholders on the form and substance of the engagement activities. Mr. Hubert recapped that Hydro One has conducted two full customer engagement processes to support recent applications. He reviewed key process-related challenges from these two processes and sought input and discussion about approaches to addressing them. Key topics included scenarios, outcome measures, engagement with distribution-connected end-use customers, First Nation and Métis engagement, information confusion, and other issues.

There were a number of key discussion themes that arose from the conversation, as follows.

- *It is important to identify the purpose of the engagement (build plan or tweak plan) and then identify the approach.*
- *Stakeholders felt strongly that the OEB's decision regarding the current (2017-2018 Transmission) application that is before the Board would be important context to this engagement process, and proceeding prior to the decision is not ideal.*
- *The scenarios may not be the most effective starting point for the engagement, because this quickly narrows stakeholder focus, away from system considerations of the application.*
- *The schedule, as presented, is very aggressive. There may be some benefit to continuing the engagement process while the application preparation is ongoing.*
- *Additional (local/granular) information and context (including about past spending and performance trends) should be provided to customers in order to engage in more meaningful feedback/dialogue. The story has to be linked to customer experience outcomes.*

- *There would be great benefit for this and future applications if focus was given to educating/explaining key terms and business practices.*
- *Any engagement approach has to be balanced with the potential for consultation fatigue.*
- *With respect to understanding the needs and preferences of LDC customers, while it is possible to learn from engagement done by LDCs (through data mining), it is still important that Hydro One conduct an engagement processes to hear from end users.*
- *Industry best practices are not readily available. To overcome this, one approach may be to seek the input of a small sample of customers about the engagement process. This may provide valuable input to how process design could support their engagement and more effectively meet Hydro One's application needs.*

General discussion:

1. Is proposed Rate Application expected to be aligned with the Transmission System Plan that was filed with the 2017-2018 Application?
    - Yes.

2. What was the participation rate of LDCs in the last Tx Engagement? The reason for this question is to discern whether the LDCs represent the interests of their customers.
    - Participation rates are not available at this time.

3. Customers need to understand how reliability is affected by Transmission and Distribution. Where (in which system) should the investment be?
    - This was not explored in the previous engagement efforts.

4. Slide 6, what we heard, should include mention of the feedback related to the difference between multi circuit and single circuit systems.

5. Hydro One should wait for the OEB decision before talking to customers again.
    - This will assist in defining parameters and scenario building.
    - Results from Board decision will provide direction that may point you in a different direction.

6. "I'm not sure how you can go to your customers until the decision is known."

7. It is premature to start working on scenarios at this point. Hydro One should focus on designing the process and this will inform how the scenarios are developed.

8. Hydro One should also seek feedback on the incentive regime.

9. Providing customers with an understanding the historic investment strategy and spending will help to inform a good discussion about the future.
    - An educational component will be very important.

How many scenarios should be utilized? Is this the right approach?

1. While scenarios are important, Hydro One may want to consider a more organic process.

2. I have an issue with scenarios. Customers pick the scenario that will benefit them.

- (Hydro One staff) When we talk to customers, they all bring their own issues and preferences which are focused on the individual customer.
- Responses are diverse among customers.
- Scenarios outcomes should be refined by customer.

3. During the previous engagement, was data presented on different types of circuits?
   - (Hydro One staff) Data was presented at a network level. Greater granularity may be of assistance. We have 10 geographic areas across the province. This will provide information relevant to specific groups. This information base could help inform the engagement process

4. Momentary interruptions are a big issue for some industrial customers.
   - (Hydro One staff) Power quality is a 'fuzzy' issue but we had great feedback from our customers on this. As a result, we are focusing more on this in our business plan.

5. People (customers) want to better understand what investment is being done on 'my network' on 'my supply'.

6. Scenarios should show customers what the outcome is for different levels of spending and for spending the same amount (i.e. the middle scenarios). For the middle scenarios, there are different outcomes depending on where the spending is done. Outcomes need to be refined to demonstrate impact and delineated by region.

7. It is not clear to me how Hydro One incorporates a five-year plan (into two-year scenario) and is able to incorporate the outliers? My sense is that there should be more latitude to respond to outliers. Scenarios are 'grab-bags' with a certain amount of latitude for the opportunity to discuss the trade-offs

8. Customers need to understand the base scenarios (and performance trends over time). Under Scenario 1, customers need to see why a continued level of spending is not adequate given past performance. Why is a further increase needed? Under Scenarios 2 and 3, understanding performance trends historically and the impact moving forward with the spending is important for customers to understand. Consider what a rate reduction scenario (and the associated performance trends) looks like.

9. More clarity on outcomes is needed. Information should be provided about what is needed for a local area vs. system wide needs.
   - Take it to a level that we can see reliability risk.
   - Scenarios 2 and 3 will quickly become the focus.

10. The way that the issue is framed will change the feedback/outcome from stakeholders.
    - Reliability risk is not well understood.

11. Hydro One should start with consideration of who the customers are and what are the outputs that are important to them. This should inform the design of a survey that is most appropriate for them.

12. It is important to start with scenario 1 and to include explanation of the details that are contained within it, such as whether it is based on last five year system wide performance or whether it is disaggregated.

- What are you going to project for end of life assets? This is an important part of the baseline.
- More clarity is needed about where we are starting from.

13. There is concern about providing customer with end of life metrics, which can be misleading or misunderstood.

14. Are you still continuing with reliability risk model?
    - Yes, Hydro One is continuing to develop the tool, along with exploring its role. It was developed as an outcome measure.

15. Hydro One should still be using a reliability risk model.

16. What I heard about the last engagement process was that there is a need to understand performance in the past, what spending has been done, and why you need the extra funding. This data/information will help get support.
    - Why don't you demonstrate to customers what a reduction in rate would result in? Customers could then understand outcome.

What outcome measures are appropriate?

1. How can we differentiate reliability? How can we better understand the customer perspective?
    - During consultations, it was suggested more granular information was preferred.
    - Aren't there meetings throughout the year with large customers to discuss the key issues? Do customers want to get additional details?
    - (Hydro One staff) When meetings happen on a monthly basis or ad hoc, the focus of meetings is often about specific events at the customer level, with less focus (if any) at the system level. Customers appreciate understanding the network but then close in on their specific context.

2. Outcome measures that speak to equipment performance, number of customer interruptions, number of customer interruption hours are important and understandable.
    - T-SAIDI and T-SAIFI are not necessarily the most accessible measures to understand in a meaningful way.

3. There were outcome measures discussed (at hearing) that are worth considering, including: Power quality; Number of customer interruption hours/year; Equipment unavailability, failures; Outage versus interruption.

4. The measure should be T-SAIDI and T-SAIFI, but explained in a different way.

5. With respect to geography, what do you do with this information? Will it be used to direct funding? Data on reliability in each geographic area would be very good data to have.
    - (Hydro One Staff) It is a good idea to provide detailed, localized data.

6. Equipment unavailability is an important metric to convey information about equipment failure, how long it is unavailable for and why.

7. When I think of (engagement) slides from last time, slides on T-SAIDI and T-SAIFI showed an average over the last five years. It would have been interesting for customers to see the historic trends, along with looking at five years into the future. This is how you can build up the story for the scenarios.

8. Concern was expressed about showing percentage of outages. There should be an absolute number.

9. If the reliability risk model is not being used to make decisions, it is not that valuable to customers.
    - (Hydro One staff) Hydro One still views Reliability Risk as a meaningful outcome metric.

10. What are the metrics that Hydro One is watching when developing programs? These should be the ones that are also the focus of customer engagement.

11. Hydro One should start by looking at the experience with its own LDC and share this information.

12. It would be very helpful to ask customers to identify meaningful metrics to them. They will ultimately want to understand what they will experience.

How can Hydro One capture needs and preferences of Distribution-connected end-use customers?

1. First, the purpose has to be well understood. Is it to drive the plan development, or to tweak it after the plan has been developed? (Hydro One staff explained that it is the former.) Engage customers where there is material consideration.

2. Concern was expressed about LDCs representing their end-use customers in this type of engagement scenario.
    - They have their own incentives, so care has to be exercised.
    - Mining data from LDCs is challenging, and may not yield useful information for the purpose.
    - Surveying customers directly may be a better approach, however it may lead to confusion.

3. There is a large information gap related to Hydro One business terms and concepts. For example, what is a major event?
    - It is important to get higher level information from customers.
    - You do need to talk to end users but don't ask how money should be spent.
    - Need to think about what we want to know from end users.

4. If you talk to customers about reliability and rates, input will be contextualized by local inputs/outcomes. This could assist to get sense of the level of satisfaction and then this can inform planning.

5. The customer data collection by LDCs has been fairly rudimentary and self-serving.
    - It is important to understand what the LDCs are saying and their perceptions of inputs.
    - As we move forward, discussion should be more organic.

6. Depending on who you talk to you, there will be different perspectives.

7. What do you want to do with the customer data? If it is to drive the plan we have an issue because we are not talking to the right people. If it is to tweak then maybe it is not as big of an issue
    - Not sure where the Board is going with engagement, as they seem to want engagement but it doesn't seem to impact decisions.
    - (Hydro One staff) For clarification, the purpose of engagement is to inform the plan prior to its development.
8. What is the different between informing and tweaking
    - (Hydro One staff) "Tweaking" is presenting the plan to customers and gathering feedback. Informing is to get input into the development of the Plan

How can Hydro One effectively engage First Nation and Métis?

1. Why does Hydro One not use process defined in the 2007/2008 hearing? That was a robust process and should be utilized again.
    - (Hydro One staff) Hydro One did engage with First Nation and Metis at that time. That was a very large development plan for the entire province with impact on both t on and off-reserve land, but now we are in a sustainment' approach, so a different engagement approach was taken.

2. What do you think would be different in this customer group?
    - (Hydro One staff) Issues are wide ranging. Reliability is important, as are land rights, arrears, affordability, the proposed First Nation rate, past grievances, and past issues with Hydro One.
    - Other than these issues, what would inform a transmission plan in particular for this customer group?
    - (Hydro One staff) Hydro One would need to be clear on what the scope is of a Transmission-focused First Nations and Metis engagement.
    - Certain types of spending already involve engagement with these communities (i.e. Section 92).
    - (Hydro One staff) If we included First Nations in the Customer Engagement, this would not be the only forum, but we would be adding another level of discussion with First Nations.
    - How are First Nations and Métis engaged in regional planning? The IESO has set up local advisory committees for regional planning.
    -
3. This customer group should be engaged differently, through a lens of developing economic and social opportunity through the power system.

4. Best practices have been previously shared at a hearing and should be implemented here as well.

How can information confusion be addressed?

1. There needs to be an information/educational component to this engagement process, if the discussion is to be meaningful. For example, people don't understand the difference between end of life and expected service life.

2. The difference between service interruption and outage is confusing. Hydro One may not even need to speak about outages. Customers are most interested in service interruptions.
    - (Hydro One staff) When we talked to transmission customers, they do seem to understand this difference, as they interact with Hydro One on both equipment outages and interruptions.

3. Whatever information you convey to tell the story should include outcomes. The story has to flow into the outcomes.
    - (Hydro One staff) We are planning on informing the customer engagement process with new data but not any new concepts, such as reliability risk, which was introduced in the last engagement process.

Timing

1. Participants emphasized the importance of waiting for the (Board) decision before starting this engagement process, as one will inform the other.

2. Has the engagement consultant already been chosen?
    - (Hydro One staff) A vendor has not been chosen. It is anticipated that the engagement will include a number of channels, giving choice to customers on how they can provide their input.

3. A market research approach is more appropriate than opinion polling for this process.

4. How does the information that is collected get blended together?
    - (Hydro One staff) This is a real challenge. Education/framing is a huge undertaking, requiring time spent with customers. How much time can we actually get people to spend with us?
    - (Hydro One staff) We will be thinking about how can we segment our customers and provide the information that they need so they can provide input to better inform our plan.

5. Won't the anticipated decision impact plan going forward?
    - (Hydro One staff) Definitely. Customer Engagement is to inform the plan but we will also be informed by the Board Decision. There is a risk both to engaging early and to waiting.

6. (Hydro One staff) Should we continue engagement process into plan development phase?
    - An iterative process would be great, as long as all of the information gathered is incorporated back into the plan. An end date will be needed in this regard. Consider June timing or after the changes from the Fair Hydro Plan.

Participation Rates

1. The consultant hired will be able to assist with identifying and achieving good participation rates.

Purpose

1. Whatever you do will be more meaningful if you are able to provide them more information.

2. How are you framing the purpose? Inform plan or define spending?
    - (Hydro One staff) This engagement will inform the development of the plan.

What other issues should we be mindful of? What other advice do you have?

1. Is it Hydro One's position that you have to do a five-year application?
    - (OEB staff) Yes, this is the minimum period for a Custom IR.

2. Does anyone in North America do Transmission Customer Engagement? Can we look at best practices?
    - Staff and participants were not aware of current best practices. It was indicated by a participant that a lot of research was carried out in the past prior to the break-up of Ontario Hydro.

3. Make sure the engagement is meaningful to Hydro One and to customers.

4. What future Stakeholder engagement activities do you anticipate for this Application?
    - (Hydro One staff) This is still in planning stages, but information will be sent to you once it is known.

5. Is there an opportunity for Hydro One to meet with a small number of large industrial customers, LDCs and explore what approach to engagement might be meaningful to them?
    - (Hydro One staff) Yes. Also, LDCs were included in the invitation to participate in today's discussion, but due to schedule conflicts, none were able to attend.

Session Wrap-up

All stakeholders were thanked for their participation. Additional questions and/or comments were invited following the session.

Appendix A: List of Participants

Andrew Blair – Power Workers' Union
Bill Harper – VECC
Bohdan Dumka – SEP
Cary Ferguson – Anwaatin Inc.
Chris Codd – OEB Staff
Frederick Belanger – HQEM
Hanna Smith – IESO
Harold Thiessen – OEB Staff
Julie Girvan - CCC
Marion Fraser - BOMA
Mark Rubenstien - SEC
Megan Lunh - IESO
Roger Higgin – Energy Probe
Shelley Grice – AMPCO
Vicki Power – SEP

Hydro One
CK Ng – (Planning) Hydro One Networks
Erin Henderson – (Regulatory Affairs) Hydro One Networks
Jeffrey Smith – (Planning) Hydro One Networks
Jody McEachran – (Regulatory Affairs) Hydro One Networks
Oded Hubert – (Regulatory Affairs) Hydro One Networks
Scott McLachlan – (Planning) Hydro One Networks
Spencer Gill – (Customer Service) Hydro One Networks
Steven Vetsis – (Regulatory Affairs) Hydro One Networks
Warren Lister – (Customer Service) Hydro One Networks

Tracey Ehl – Facilitator
Jodi Ball – Note taker

CME INTERROGATORY #12

Reference:

TSP-01-03-01

Interrogatory:

a) Please provide Innovative Research Group's terms of reference or work plan.

b) Please provide Innovative Research Group's retainer agreement with respect to the scope of work completed in this application.

Response:

The requested documents are being provided pursuant to the Board's Practice Direction on Confidential Filings, due to the commercially sensitive nature and third party data being requested. Please refer to Attachment 1 of this interrogatory response.

Witness: Spencer Gill

Prepared for:

TRANSMISSION CUSTOMER ENGAGEMENT

June 1, 2017

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Hydro One - Statement of Work for Transmission Customer Engagement

This Statement of Work ("SOW") provides details for the tasks to be completed by Innovative Research Group, Inc. ("INNOVATIVE") for the Transmission Customer Engagement and selected by Hydro One Networks Inc. ("Hydro One"). This SOW is entered into pursuant to the terms and conditions of the Contract Standard - General Services Agreement, Nov. 2016 ("CS-GSA") Master Services Agreement ("MSA") for Project Delivery dated August 19, 2016, by and between Hydro One and Innovative. Any term not defined herein shall have the meaning ascribed in the Agreement.

Innovative Research Group, Inc. ("INNOVATIVE") is pleased to provide Hydro One Networks Inc. ("Hydro One") with its proposed method on how best to engage with Transmission ("Tx") rate class customers. Now that we have had some discussions about this work and time to think about it, we can share with you our revised thoughts on how best to approach this customer group.

One thing we know for sure about these individuals is that they are busy and sophisticated customers, making them poorly suited to Town Halls or focus groups. Our goal will be to attempt a census of your Tx customers by making it as easy as possible for them to participate in the consultation. While we cannot guarantee a census, we will make every attempt to maximize the final number of completed surveys.

To that extent, three (3) options for input will be provided:

1) an **online** survey,
2) a **telephone** survey, and
3) an **in-person** interview.

INNOVATIVE will work closely with Hydro One to determine how best to approach these customers, but at this point we envision the following strategy:

Step 1: Hydro One will develop a complete contact database for all Tx customers and provide an electronic copy to INNOVATIVE. The list will be reviewed internally and each contact will be assigned an account executive or other senior management individual to establish initial contact regarding the customer engagement survey.

This initial contact will take the form of a phone call to inform customers of the purpose of the research and to encourage them to participate. Immediately upon securing an interested participant, the Hydro One representative will send an email notification to INNOVATIVE.

INNOVATIVE will maintain a database in which each customer has been assigned a unique survey URL. Once Hydro One informs INNOVATIVE that a customer is interested in taking part in the engagement, INNOVATIVE will shortly thereafter send out an email invitation including a unique URL directly to the Tx customer contact. Should a customer opt for an in-person or telephone interview, INNOVATIVE will make the necessary arrangements to conduct the interview.

Step 2: After about one (1) week, INNOVATIVE will start to issue reminder emails to all who have received a survey invitation. The Contact List will be reviewed to ensure that all customers who should receive an introductory phone call have received one. Where they haven't, the list will be reviewed to determine if an introductory phone call should be made by Hydro One or by INNOVATIVE.

Step 3: A "cold" invitation email will then be issued by INNOVATIVE to all customers who have not yet been contacted. Reminder emails will continue on a weekly basis until all Hydro One closes the survey on / or before June 9th, 2017.

Ontario Energy Board
Commission de l'énergie de l'Ontario

DECISION AND ORDER

EB-2016-0160

HYDRO ONE NETWORKS INC.

Application for electricity transmission revenue requirement and related changes to the Uniform Transmission Rates beginning January 1, 2017 and January 1, 2018

BEFORE: Ken Quesnelle
Vice Chair and Presiding Member

Emad Elsayed
Member

Peter C. P. Thompson, Q.C.
Member

September 28, 2017

Revised: October 11, 2017

will resonate with customers. However, staff submitted that the RRM does not achieve this goal.

Most parties stated that the reliability risk model had several flaws beyond those conceded by Hydro One. Some parties supported the approach but stated that the model requires additional work to provide meaningful results.

A number of parties also pointed out that the conclusions drawn by Ipsos Reid did not appear to be supported by the data presented in its report, in particular the customer preference for an outcome between Scenarios 2 and 3.

Most parties concluded that there was not sufficient information from the engagement and the reliability risk model to clearly establish customer needs and preferences as a justification for Hydro One's capital expenditures.

Findings

Although Hydro One made a good effort to engage its customers prior to filing its application, the customer engagement process was started only two months before the application was filed. In fact, the final Ipsos Reid report was submitted about one month before the application was filed. Little change was made to Hydro One's TSP as a result of these customer consultations. Given the complexity of the TSP, the OEB does not agree with Hydro One's assertion in its reply submission that such a very short elapsed time did not detract from the quality of the TSP evidence.

In addition, given the practical limitations of the RRM described below, it is not obvious that the customers were able to relate the various levels of capital investment to actual system reliability since that relationship does not exist. All they would have been able to learn from this exercise is that the higher the level of capital investment, the lower the system reliability risk (not actual reliability).

The OEB agrees with some of the submissions that some of the information presented to the participants may have been misleading (e.g. not making a distinction between planned and unplanned outages[30], not clearly communicating the historical improvements in actual system reliability[31], and using the "without investment" scenario as a base case.[32])

[30] AMPCO submission, p. 33 and BOMA submission, p. 14
[31] AMPCO submission, p.34
[32] AMPCO submission, p. 28

The selection of the participants was a topic of discussion throughout this proceeding, particularly the lack of input from First Nations as well as direct or indirect input from customers of LDC representatives. Regarding First Nations' input, Hydro One indicated that since a number of First Nations did participate in the current proceeding (the Anwaatin First Nations), First Nations would be invited to participate in future customer engagement processes. Regarding LDC end-use customers, who represent 92% of Hydro One's revenue, a number of suggestions were made to get their feedback in a practical fashion since direct involvement of all those customers in Hydro One's engagement process is obviously impractical and does not fall within Hydro One's direct accountability. Suggestions included Hydro One seeking input from LDC participants about the relevant outcome of their own customer engagement exercises.

The RRM is a new tool that Hydro One started using in early 2016. Although the model is not used to develop Hydro One's investment program, it is used to demonstrate, on a relative or directional basis, the change in system reliability risk as a result of a certain incremental level of investment. The model uses hazard curves which are based on asset demographics, not condition, and focuses on three investment categories; lines, transformers and breakers. As described above, the model results were a key focus in Hydro One's communication with its customers to demonstrate the benefits of its proposed investments.

There was considerable discussion during the oral hearing about the use of the model results. Hydro One explained that the model cannot be "back-tested" or calibrated using historical system reliability data, even if this data is weather-normalized. As a result, according to Hydro One, the model results cannot be expressed in terms of impact on actual system reliability.

In its Reply Argument, Hydro One stated that "The fact that this tool is not used to specifically pick and choose investments, but only provides a way to communicate relative outcomes does not mean that the tool does not have a valid purpose."[33]
The OEB agrees with this statement in that the model provides an estimate of the percentage reduction in reliability risk which corresponds to a certain incremental amount of capital investment. What the model does not tell us is whether this percentage reduction in reliability risk is worth the incremental capital investment. As a hypothetical example, would spending an incremental $100 million to achieve a 1% reduction in reliability risk be a good business proposition, particularly given that this 1% reduction in reliability risk cannot be translated into any measurable result such as

[33] Hydro One Reply Argument, p. 49

system reliability? According to Hydro One, establishing a relationship between reliability risk and actual reliability performance is not possible because actual reliability performance is also influenced by other external factors such as weather conditions.[34]

In summary, without some form of correlation between the model results and actual system reliability, it would be impossible to determine whether a certain reduction in reliability risk is worth a certain level of capital investment. The model may be used to directionally compare investment scenarios, but it cannot be used to predict the benefit of any given scenario in terms of reliability.

The OEB finds that Hydro One's customer engagement process was adequate in general. However, some improvements can be made in the following areas:

- The process should be started sufficiently in advance of filing the application to allow for timely input to be incorporated in a meaningful way and to improve the level of customer attendance.
- Hydro One should have discussions with LDCs to determine practical ways to seek some input from their end users to inform Hydro One's application.
- Hydro One should seek timely and meaningful input from First Nations representatives.
- The information presented to the customers should be unambiguous and easy to understand.

Regarding the RRM, the OEB finds that the model needs further refinement and testing if it is to be used to convey to customers information about the value of capital investments in terms of system reliability. As expected, the Ipsos Reid report indicated that customers expect to see an improvement in actual reliability performance, not necessarily only a reduced reliability risk for the proposed level of investment.

Based on the above-noted shortcomings of both the customer engagement process and the RRM, the OEB does not place significant weight on the evidence associated with these elements and, therefore, will not rely on the outcome as reported by Hydro One as compelling evidence of customer support for the proposed level of capital expenditures.

[34] TR Vol. 5, p. 128

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Filed: 2019-03-21
EB-2019-0082
Exhibit B-1-1
Section 1.3
Attachment 1
Page 1 of 144

Hydro One

Transmission Customer Engagement

JULY 2017 | REPORT

STRICTLY PRIVILEGED AND CONFIDENTIAL

Table of Contents

Survey Methodology

Overview:
Innovative Research Group (INNOVATIVE) was commissioned by Hydro One to conduct a customer engagement survey with its 156 transmission customers. INNOVATIVE worked closely with Hydro One to ensure that the survey structure and all questions were methodologically sound and that all data was collected in a private and secure manner. The results of the survey will be used as input for Hydro One's 2019 to 2023 business plan.

Sample Frame:
Hydro One and INNOVATIVE made efforts to contact all 156 Hydro One transmission customers to participate in this engagement (see details below). From a list of 156 customers, a total of 103 completed the survey.

Methodology:
In order to meet the needs of senior executives, customers were given the option of participating online on a custom site created and hosted by INNOVATIVE, or through an in-person or telephone interview with a senior INNOVATIVE consultant. While most customers chose to use the online tools, one customer requested an in-person interview and three opted for a telephone interview.

The survey design kept the amount of background information to a minimum in recognition of the high level of electricity system knowledge of many participants. To assist customers who are less engaged in the system, additional information (see Appendix 1.3) was made available to all survey participants, either with "click to access" buttons throughout the online survey, or in a standalone document for those who completed an in-person or telephone interview.

Where possible, invitations were initially extended through a phone call from Hydro One account executives and INNOVATIVE researchers. Most (n=142) customers were successfully contacted by phone and all but nine of this group (who stated they were not interested) were subsequently sent an email from INNOVATIVE which contained an individual URL for the survey site. Twelve customers who were not reached by phone were sent an email invitation which included a direct link to the online survey, along with contact details for an INNOVATIVE consultant should they wish to do an in-person or telephone interview. There were only two customers who could not be reached by email or by telephone.

Field Dates:
May 11th to June 15th, 2017

Executive Summary (1)

Response to the Customer Engagement

Of Hydro One's 156 transmission customers, a total of 103 participated in this customer engagement – a response rate of 66%. Every customer who started the survey reached the end of the survey, where they were asked to provide feedback on the engagement itself. Participant response was overall positive and most felt that "just the right amount" of information was provided for the engagement.

Current Performance

In preparation for an open-ended probe designed to address their overall needs, customers were asked how satisfied they are with Hydro One's overall performance. As in other research, most transmission customers are satisfied in this regard.

In response to an open-ended question to identify any needs that Hydro One may not be meeting, many customers did not provide any suggestions. However, those who did suggested Hydro One could improve in the areas of customer service, reliability and infrastructure. All suggested areas for improvement are included in Appendix 1.1.

Customer Outcomes

Hydro One and INNOVATIVE reviewed previously available documents and talked to customer-facing Hydro One staff in order to develop a list of customer outcomes that was included in the survey. Prior to being exposed to this list, an open-ended question designed to elicit outcomes in customers' own words was asked. In response to this open-ended question, transmission customers said they know Hydro One is doing a good job for their business based on reliability, and customer service/communication (both of which were included in the list of outcomes developed for the survey). All outcomes suggested by transmission customers are included in Appendix 1.1.

Rating the provided list of seven customer outcomes on a scale of importance from 0 to 10 revealed that safety and reliability are top outcomes in terms of importance. When ranking in terms of what should be Hydro One's first priority, safety and reliability once again appear at the top of the list. However, through the lens of a combined ranking (first, second, and third), reliability becomes the top priority followed by safety and outage restoration.

Pace of Investment

All business segments, particularly LDCs, prefer that investments be spread out over time, along with stable rate increases. This preference is due primarily to perceived affordability for ratepayers and the ability to plan ahead.

Executive Summary (2)

Reliability

In their own words, transmission customers define reliability using phrases like “lack of outages”, “stable power supply”, and “quality of power”. They also note that outages are not only a safety hazard, but also a financial concern affecting their business/production.

Reducing the frequency of power interruptions is more important than reducing the duration. Most important is reducing the number of day-to-day interruptions.

Illustrative Investment Scenarios

By a wide margin, maintaining the current level of investment (Scenario C) is the most popular choice over the other three scenarios. It is seen as reflective of the current approach which has the advantage of familiarity, and a less risky option. Second choice falls somewhere in between a decrease in investment (Scenario B) and maintaining the current level.

Differences Across Business Segments

Local Distribution Company (LDC) participants are less likely than End Users or Generators to consider reliability “extremely important”. Environmental stewardship is also less important among LDC customers than it is among the other Business Segments. On pace of investment, LDC customers show the strongest preference for spread-out investments and stable increases. Seventeen of 28 LDC customers prefer illustrative investment Scenario C (n=6) or an option one (n=6) or two (n=5) points lower along the spectrum (towards Scenario B).

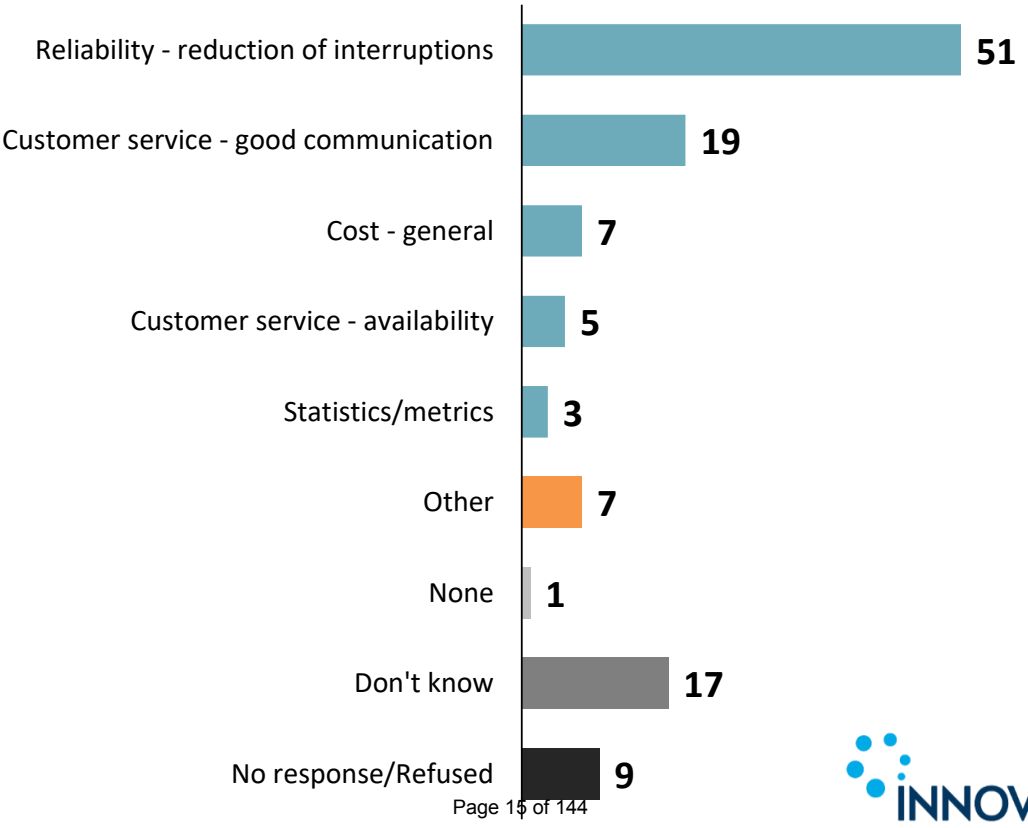
About half of **End User** participants (19 of 38) rate power quality an “extremely important” outcome – a higher proportion than either LDC or Generator customers. End Users also consider productivity more important than the other business segments. While most (n=11) End Users selected illustrative investment Scenario C, they are also more likely than other business segments to have selected Scenario B (n=5).

Generator participants are most likely to consider safety an important outcome, with 30 of 35 rating it “extremely important”. This business segment also considers customer service to be more important than the other two business segments with about half rating it “extremely important”. Only among Generators does the level of support for illustrative investment Scenario D (n=6) approach the level of support for Scenario C (n=8).

Performance Criteria:

Reduction in outages and interruptions, power supply, and customer service in terms of communication are top mentions for performance metrics

How do you know if Hydro One is doing a good job for your business?
[asked of all respondents, n=103]



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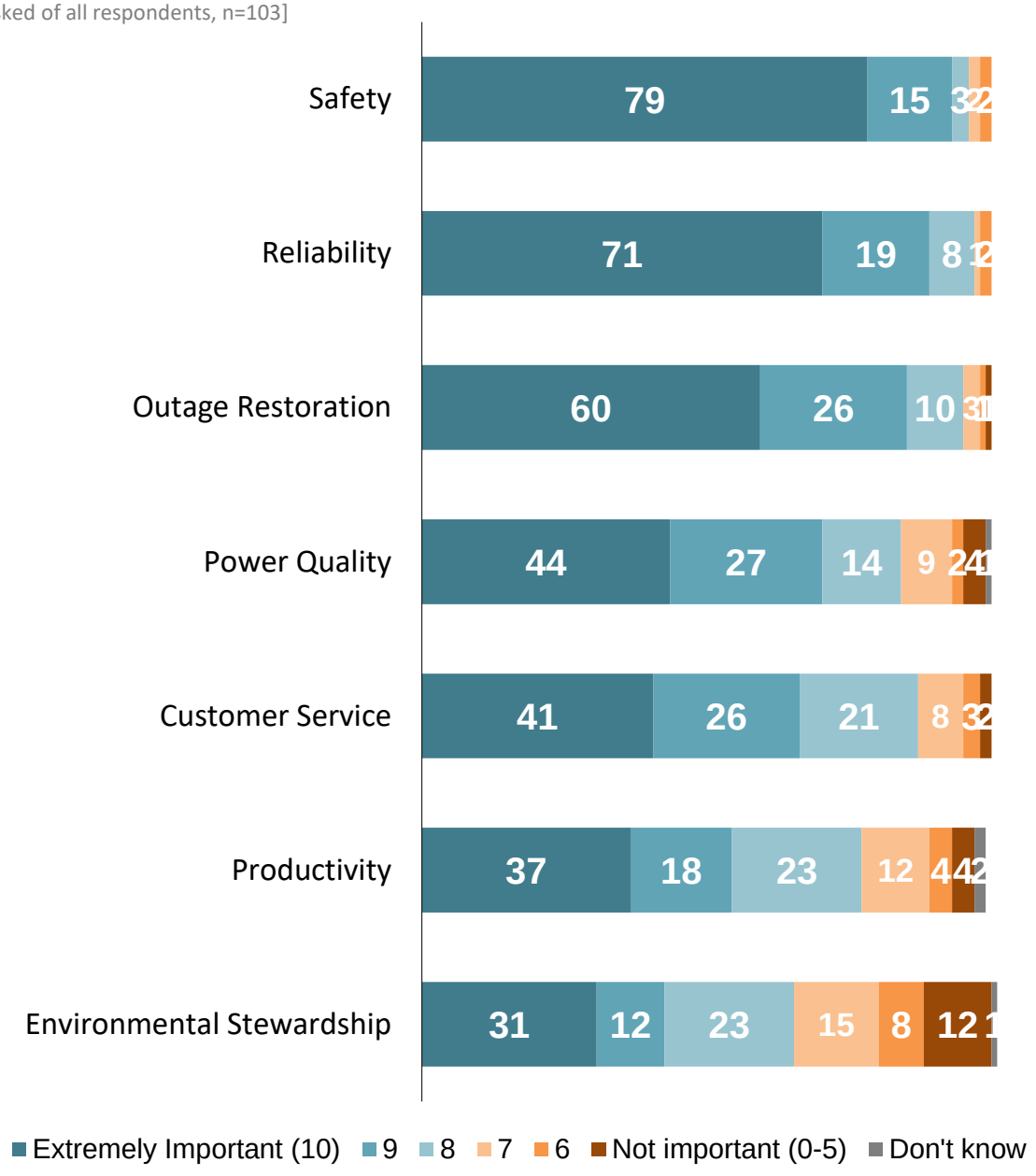
NOTE: Total is greater than 103 due to responses being coded into multiple categories

Customer Outcomes:

Safety, reliability, and outage restoration are ranked as most important

How important an outcome is…
[asked of all respondents, n=103]



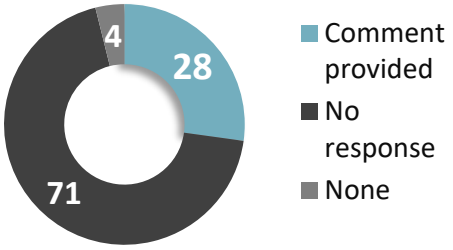
NOTE: No response (n-size varies from 1 to 3) not shown

Additional Outcomes (1):

Majority of respondents had nothing to offer on missed outcomes; among those who did, cost and capacity/expansion are top mentions

Q Are there any outcomes we missed? Please use the boxes below to add them, and then the slider to rate their importance.

[asked of all respondents, n=103]



System capacity - Have a transmission system with the capacity to meet the needs of our customers.

New connections and upgrades built and energized on a timely basis.

Price or cost - what is the value for money.

Costs; You will say its inferred in productivity and others. This is the reason we are in a mess.

Reduction on cost of GA.

Grid Capacity Expansion.

Response from local Hydro One team to respond to emergencies related to un-expected site power outage.

General communication about direction of HONI certainly helps me as a customer understand ramifications.

Responsiveness and personal assignment of a customer service representative for major customers.

Streamline the customer service experience to be able to reach appreciate parties efficiently.

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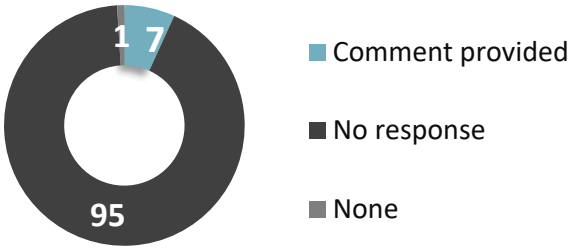
Additional Outcomes (2):
Very few were able to suggest a second additional outcome

Q Are there any outcomes we missed? Please use the boxes below to add them, and then the slider to rate their importance.
[asked of all respondents, n=103]



Reasonable cost and timeliness to provide services such as connections, transfer trips, CIAs.

Power Distribution costs go down.

Accountability and transparency - Most people can't understand their bills and costs are fixed.

Drive for Delivery - accountable to deliver and action oriented.

Communication.

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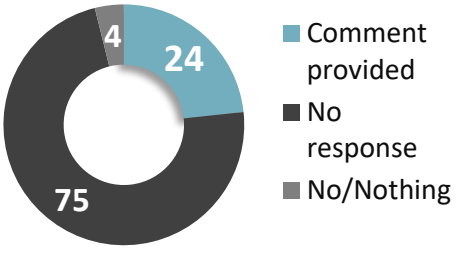
Comments:

Comments regarding customer outcomes touch on a wide variety of topics including safety, reliability, and cost

Q Do you have any specific comments or suggestions regarding any of the seven outcomes that you just rated or any additional outcomes you added?
Please fill in your response below.
[asked of all respondents, n=103]



Cost reductions should be a top priority and given serious consideration and not just lip service.

Cost estimates for work to be performed by Hydro One are extremely high. While part of the issue is the class C estimate contingency, those costs cause a lot of concern for customers considering connections for generators.

All outcomes are equally important. It is hard to have one and not the other. Ultimately we do not see the environmental stewardship piece directly at the mill site.

I like when you mention safety, the industry is very high risk and nice to see HONI as a leader.

The main outcome should be to provide reliable power at the best possible cost which should be benchmarked to a world standard to remain competitive and to make it so people don't have to choose between eating and having access to power.

As a generator it also extremely important that HONI is available to take the power and transmit it reliably.

Power Quality is an integral part of Reliability.

Ensure that there is regular communications and dialogue.

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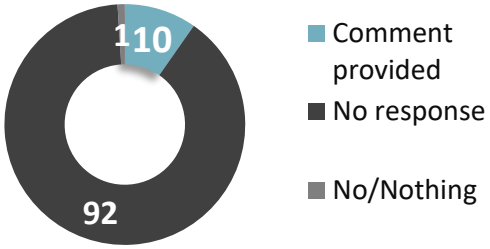
Comments:

Most did not provide any additional comments following the customer outcome priority ranking exercise

Q Comments in response to ranking customer outcome priorities:
[asked of all respondents, n=103]



Customer Service is affected by not only the customer service through communications and follow up but it is driven by the quality and reliability of the service of supplying electricity.

The focus on environmental steward ship and the solar and wind ventures it generated where ill conceived and poorly planned and have costs significant hardship on the citizens of Ontario . Although important it was very badly managed.

Note that although power quality is on the bottom it is also extremely important.

Safety and Environmental stewardship are not my interests but your employees and the governments interests respectively - as a customer I need performance improvement in all other areas and results now and need to know and trust that you have it and are going to do something on it.

As a customer, reliability and outage restoration are important outcomes. I should be able to rank those at the top without sacrificing Safety or the Environment. This survey does not give that choice.

Number one for my customers is rates. Productivity is not a direct reflection of that, but is similar.

This ranking is predicated on Hydro 1 executing these priorities - if power quality and reliability are not improved, then customer service becomes much more important.

This is difficult as they are all important.

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Pace of Investment

Pace of Investment: Summary

Customers indicate a strong preference for stable rate increases and investments spread out over time, with 74 out of 103 choosing this option over investing now (with higher rates in short term and lower future increases) or delaying investments (with lower rates in the short term and higher future increases).

LDCs show the strongest preference for spreading out investments, with all but a handful choosing this option.

Asked why they prefer this option over others, customers mention affordability and aligning rate increases with inflation. The perceived affordability of this option is viewed both from the perspective of being a business transmission customer ("Easier to forecast for business plan with stable increases"), as well as the end customer of LDCs ("This is the philosophy we have taken as a distributor ... affordability needs to be considered").

Ten respondents were not able to make a choice on the pace of investment options presented to them. Some of these customers use phrases like "Show some flexibility" and "revisit and optimize costs" to describe what the decision depends on. Others wanted more detail about the investments and the magnitude of rate increases.

Pace of Investment:
Preamble and Survey Question

Before being asked the question about the pact of investment, respondents were provided with the following preamble:

When Hydro One replaces equipment in declining health, it has some flexibility in its pacing. We would like to understand your general views on the appropriate pacing of Hydro One's investments over the next 15 – 20 years. Hydro One can front load its capital investments, it can spread them evenly over time, or it can delay its investments.

Front-loading investments would provide some benefits in terms of more connection capacity, decreased equipment failures, increased reliability, and improved productivity and quality. This would mean higher rate increases now but lower rate increases in the future. Spreading evenly over time means some benefits are delayed but some long term savings are secured and it is more efficient in terms of staffing. Rate increases would increase at a stable level. Asset deployment costs would likely be lower using this more stable pacing philosophy.

Given the current health and demographics of the system, Hydro One can delay investments further until declining equipment conditions threaten Hydro One's ability to meet power reliability requirements. Reliability would still meet minimum standards but customers would likely experience more interruptions than today. Rates increases would be relatively low for several years but increase at a steeper rate in the future.

Following the preamble, respondents were asked the following question:

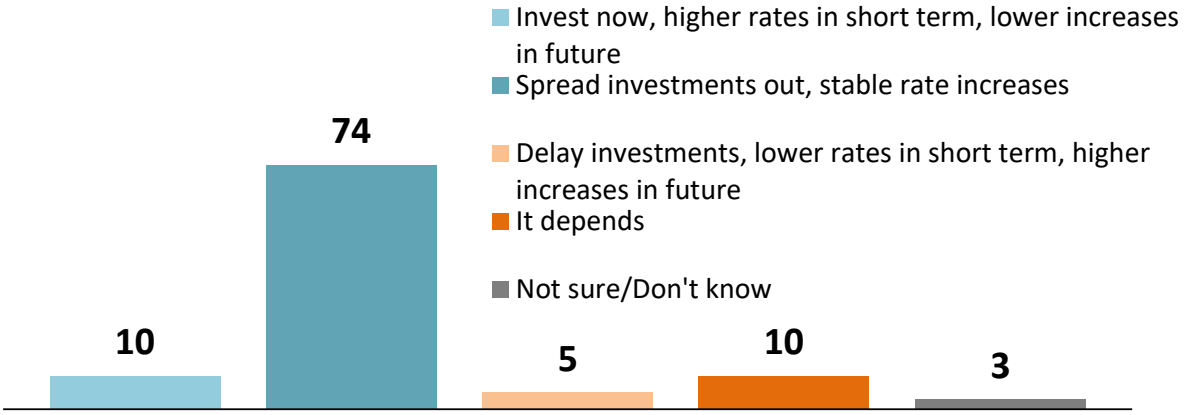
Bearing in mind the trade off between immediate rate impact, long term rate impacts and system benefits, which approach best reflects how you feel Hydro One should pace the work required to renew the system over the next 15-20 years?

Pace of Investment:

Strong preference for spread-out investments and stable increases; highest in 'Rest of Ontario' region and among Single Circuit customers

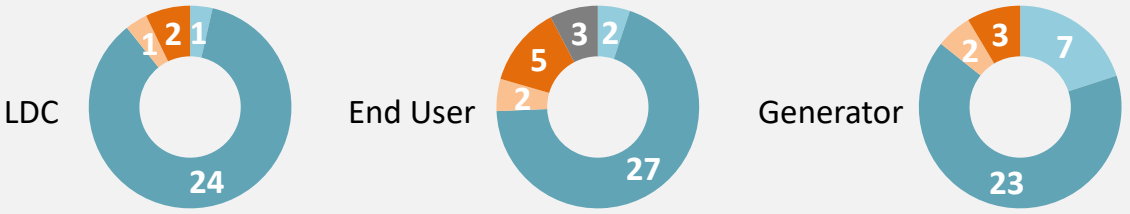
Q Bearing in mind the trade off between immediate rate impact, long term rate impacts and system benefits, which approach best reflects how you feel Hydro One should pace the work required to renew the system over the next 15-20 years?

[asked of all respondents, n=103]

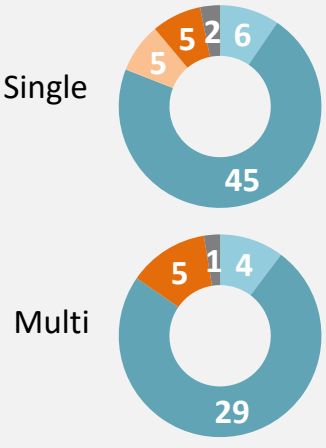


NOTE: No response (n=1) not shown

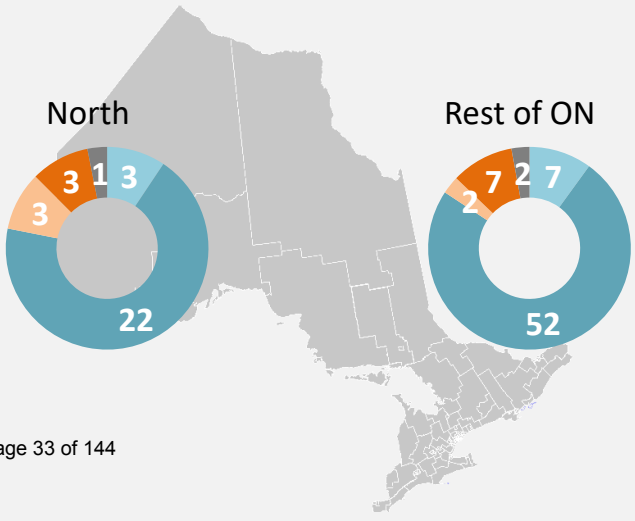
Business Segment



Single vs. Multi Circuit



Region



Invest Now:

Those who prefer to invest now appear to be motivated by the reliability risks associated with aging infrastructure

Q Why do you prefer the scenario you chose over the other two scenarios?
[asked of all respondents, n=103]

Invest now, higher rates in short term, lower increases in future…

Decrease in system reliability or increases in equipment failures negatively impacts our facilities operations and earnings.

Locally many assets are getting aged and reliability is already at risk. Higher capital investment now along with a push for higher productivity and lower internal cost would be the preferred approach to reduce rate impacts.

Infrastructure drives reliability.

Current state of equipment.

To increase capacity in the short term to be able to add more renewable energy to replace fossil and nuclear generation.

I say this but a change is an election away. We need the long term vision and goal the strive for.

Price only will go up if waiting.

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Spread Investments Out:

Preferences for spreading out investments seem to stem from themes of affordability and reducing financial impact for both rate payers and businesses

Q Why do you prefer the scenario you chose over the other two scenarios?
[asked of all respondents, n=103]

Spread investments out, stable rate increases…

Good balance.

Balanced investments so rate increases are aligned with inflation. Electricity in Ontario is extremely expensive and has put Ontario business at a significant disadvantage. While investments are necessary so are ensuring competitive costs.

Most cannot afford higher rates, and delaying will just cause future generations to deal with legacy issues.

This is the philosophy we have taken as a distributor. At some point affordability needs to be considered in capital expenditure levels year over year.

Would prefer option on invest now, but the cost may be too high, so spreading costs may be better.

Manageable to ratepayers while insuring reliability.

A spread of investments avoids putting costs to ratepayers in the future and avoids the risk that future ratepayers may be in a worse position to pay the increased rates. It also avoids the cost of frontloading the costs when there is currently much customer concern over their ability to pay. This middle alternative seems to provide a reasonable cost balance while somewhat increasing reliability risk.

Given that the current electricity rate in Ontario is among the highest in North America.

Financial impact.

Hydro is too expensive.

As a customer ourselves managing the rate increases so infrastructure investments are financed at a reasonable pace i.e. inflation plus 2%.

Less impact on cashflow for companies.

Easier to forecast for business plan with stable rate increases.

Produces more certainty in planning and rate increases.

Stable investments assuming reliability and PQ are held constant.

Over the long-term this provides the best return on investment.

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Spread Investments Out (2):
Spreading out investments can allow for reliability to be maintained while reducing financial impact

Q Why do you prefer the scenario you chose over the other two scenarios?
[asked of all respondents, n=103]

Spread investments out, stable rate increases…

It is unlikely that rates would ever decrease. Good practice would be to manage assets without too much of an impact on the customer and rates.

Spreading out investments allows you to prioritize as needed at a sustainable run rate, in addition to evening out the rate impact as much as possible.

I believe it's the best thing for the ratepayer. No shocks. I understand why Hydro One may see it differently, but the goal is to provide power with as much consistency in price as we can. Quick raises in price is not looked upon favourably.

Ontario residents are already suffering high energy costs.

Over half a century old, it's easier on the elderly population which is increasing to financially handle any smaller increases because of fixed income.

1) Predictability in pricing 2) Not letting the system fail

It is a reasonable approach between responding to excessive failures (by deferring investments) vs the additional cost (spreading the investment).

Preference is to have stable rate increases for financial planning provided that reliability is not compromised.

I believe that Hydro One can find internal efficiencies to help offset rates while continuing to improve reliability.

I don't believe delaying the investment would be prudent and we would feel that in the future with reliability and outage issues. I don't see our business expanding too much in the near future so I would prefer to spread it out evenly.

We cannot defer our costs to make the next generation can pay.

Its unfortunate the state of power in Ontario. Hydro One should reflect on their performance vs other provinces and states. What are we doing wrong when it costs so much to produce power vs other areas?

It's pragmatic.

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Delay Investments:
Finding internal efficiencies first is mentioned as rationale for delaying investments

Q Why do you prefer the scenario you chose over the other two scenarios?
[asked of all respondents, n=103]

Delay investments, lower rates in short term, higher increases in future…

Because I believe that internal productivity increases within Hydro One should be the first priority.

CUT COSTS NOW e.g. salaries by 15% to 30% for sunshine employees.

Hydro One needs to get their internal house in order before it inefficiency spends any more ratepayer dollars.

I don't agree it will mean higher increases in the future . AT least it may eliminate investments that are needed. We have made a lot of investments in the past we don't need. This will prevent that.

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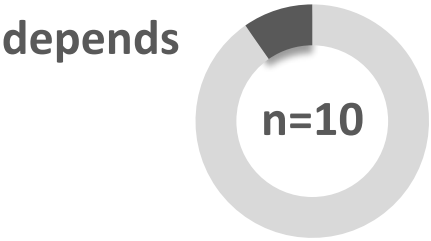
Pace of Investment (3):
Among those who say “It depends”, having flexibility in investment planning is a top concern

Q What does it depend on?
[asked of of those who said “it depends” when asked of about preferred paceof investment, n=10]



Customer connection requirements and timing of those. Show some flexibility! just because a new customer connection falls a year outside the Hydro One plan should not necessarily require the customer to pay the full advancement cost.

Plan the requirements, allow for the unexpected (which will be minimal if planned properly). Capital programs are inherently lumpy!

Safety, reliability, growth regions, new technology, innovation - it shouldn't just be an all or nothing approach.

It would have been useful if you could have quantified the magnitude of rate increases and not just higher or lower. Are you talking about 1 verses 2% or are you talking about 1 verses 10% It is hard to make a good decision until the impact is known.

Not knowing exactly what the investments are made to achieve/address and their impact/cost this question is difficult to answer in general.

I think you need to do some investments, spread payments over time, but revisit and optimize costs...ALWAYS be more productive, look for economies of scale, look to streamline and cut where people or assets are not productive and a drag on the system, literally and figuratively...have yet to see HONI do this.

A management plan that gets the most out of the team it has - I don't believe you have that yet.

Getting what you really need right (nowhere close to that yet), getting your operating costs in line (lots to do there), what your financing charges are compared to ours (we have to borrow to pay for you guys, and your rates are likely lower than ours), setting priorities that provide a level of priority for economic health of your jurisdiction vs convenience.

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Investment Scenarios

Investment Scenarios: Summary

Respondents were provided with detailed descriptions of four illustrative investment scenarios. These scenarios were then plotted as reference points along a line of 17 points, and respondents were asked to choose a point along that line which best represented their preferred approach for Hydro One's investments (see page 22 of Appendix 1.2). Scenario A was based on limited investment, Scenario B involved a decrease in the current level of investment, Scenario C would maintain the current level of investment, and Scenario D would increase beyond the current level of investment. Each scenario impacts reliability risk, long-term reliability and future rates.

Scenario C, which maintains current investment, decreases reliability risk, increases long-term reliability and offers level future rate increases was the single most popular choice with 25 out of 103 survey respondents selecting this option. Having the ability to choose one of 17 points along a line, 22 chose a point between Scenario B and Scenario C, and 18 chose a point between Scenario C and Scenario D. This clustering of points around Scenario C reinforces the earlier stated preference for a pace of investment which would spread investments out over time with stable rate increases.

This pattern of "clustering" on or near the point along the line representing Scenario C was common across all business segments. Generators are the only business segment where the level of support for Scenario D (n=6) approaches the level of support for Scenario C (n=8).

All respondents were asked to describe why they chose the point along the line that they did. Those who chose Scenario C used phrases like "reduces risk", "maintaining status quo would seem appropriate", "balanced and consistent", and "same health level as it is today".

Illustrative Scenarios:
Information for Participants

A preamble provided background on four illustrative investment scenarios. Each scenario was then described in detail, and a summary table (below) provided a comparative overview of all four scenarios. The descriptions of the illustrative investment scenarios can be found on pages 18 to 22 of Appendix 1.2, and a slightly more detailed summary table was available to survey participants on page 18 of Appendix 1.3.

	Illustrative Scenarios			
	A: Limited investment	**B: Decrease in current level of investment**	**C: Maintain current level of investment**	**D: Increase beyond the current level of investment**
5 Year Capital Investment	$1.8 B	$4.3 B	$6.6 B	$7.4 B
Reliability Risk	Increase in risk ~30%	Increase in risk ~10%	Decrease in risk ~10%	Decrease in risk ~15%
Long-term Reliability Impact	↓	↓	↑	↑*
Average Percentage of Key Assets Beyond Expected Service Life by end of 2023 (21% in 2019)	29%	26%	19%	17%
Impact on Future rates	Significantly higher future rate increases	Higher future rate increases	Level future rate increases.	Slightly lower future rate increases.
Average Annual Total Bill Impact – Transmission Connected Customer	0.11%	0.27%	0.42%	0.46%
Average Annual Transmission Rate Increase	1.30%	3.30%	5.10%	5.60%

* Improvement in overall long term reliability and significant performance improvement for small number of customers connected to the worst performing circuits.

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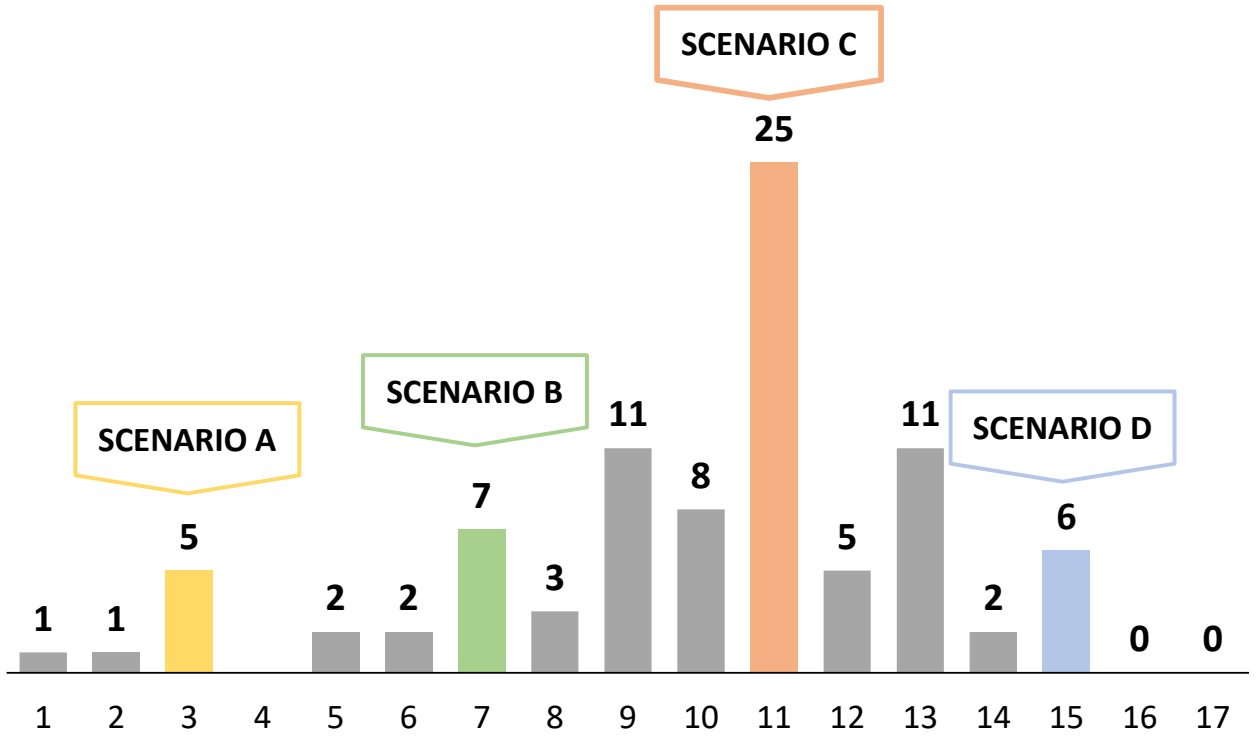
Illustrative Scenarios:

Maintaining current level of investment ("Scenario C") is the most popular scenario

Q Thinking of all the considerations outlined, please choose a point along the line below that you believe strikes the right balance between rates and outcomes. (Remember that you can choose a point between scenarios or directly aligned with one of them).

[asked of all respondents, n=103]



Lower increases now
Higher future increases
Lower reliability

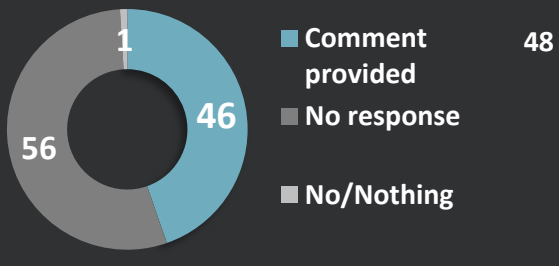
Higher increases now
Lower future increases
Higher reliability

NOTE: "Don't know" (n=7), No response (n=7) not shown.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
LDC		1	1		1	1			5	6	6	1	3				
End-User			2		1		5	1	3	2	11	2	4				
Generator	1		2			1	2	2	3		8	2	4	2	6		

Comments:

Point 3 - “Scenario A” preferred by those who want to limit rate increases



Q Please use this space to tell us why you chose the point you did.
[asked of all respondents, n=103]

Point 1

Clever OEB type presentation Ontario in very fragile economic condition Just focus on cutting cost There is not as you imply direct correlation between cost reduction and reliability.

Point 2

1) Hydro One is inefficient and needs to sort out their internal processes and find greater efficiency. 2) There is nothing in this plan for innovation. Why would they invest in Tx infrastructure without a plan to manage the two-way flow of electricity that distributed generation will bring in 10-15 years. The last thing anyone wants is billions of $ in distressed.

Point 3 – “Scenario A”

I am prepared to take on more risk as we get the cost envelope sorted out and I am not willing to accept that rates would only change from .11% to .46% between scenario's when costs to the public have been going up by double digits per year for many years. In addition I am not prepared to accept that managing the rate of investment now will necessarily result in significantly higher future rates. The whole system has to take responsibility for the costs the public is struggling with NOW!

Scenario A seems the most favourable at this time; companies are very cost focussed and margins are currently very tight.

Low rates a priority and managed risks - information is imperfect and so the best investment is to get better data/information while you have the time to drive better investment outcomes while living within a cost affordability index. Are you getting the right bang for your investment today? That data was not made available - can you assume you will get more for the money you are investing?

Point 4 – No comments

Point 5

Keep increases at inflation.

Point 6

You should manage your business to be at or below the annual Canadian index price increase and still be reliable. Actual rates are already very high. We pay anywhere between $120-150/MW which is too high.

I recognize HONI has very difficult choices to make. However, it is very difficult to support a transmission rate increase that is greater than 1.5 times CPI

Comments (2):

Point 7 – “Scenario B” preferred by those who acknowledge the current state of rates

Q Please use this space to tell us why you chose the point you did.
[asked of all respondents, n=103]

Point 7 – “Scenario B”

Hydro One is unfortunately operating in one of the highest rate markets in North America. Normally higher increases could be tolerated, however with the current state of the electricity market reasonable rate increase are expected, even if it comes at the cost of degraded reliability. This is ultimately due to current and previous provincial governments however Hydro One is forced to take this under consideration.

We're on unreliable lines so we'd like some investment in those lines under any scenario. some is more than what we've seen in recent years. with upward pressure on rates, we'd be hard pressed to call for much more reinvestment than B. I'm wondering about the capital estimates and whether or not there is any room for efficiencies within?

Balance the annual rate increase based on risk.

Point 8

Transmission costs are already too high. More needs to be done to ensure the investment $$ are being spent wisely.

Comments (3):

Point 9 preferred by those who are looking for a balance between improving reliability and the cost of doing so

Q Please use this space to tell us why you chose the point you did.
[asked of all respondents, n=103]

Point 9

Best balance of costs vs benefits.

Chose the middle, trying to find a happy medium, so that we try to fix the mess we are in efficiently and cost affective as possible. However the rate increases is to high but we can't keep delaying either creating a bigger problem for future etc.

Reliability needs to improve but rate increases need to be balanced as it effects our operating costs.

We want a decrease in reliability risk and not too much increase in rates.

I do not agree with Hydro One's premise that there should be increases in Hydro rates amongst all the options. Like any other business; Hydro One needs to improve how it runs its business; how it seeks innovative answers; how it can deliver the same or better service for less money. I fundamentally disagree with all the options above; Hydro One has to stop acting in a way that it think it is entitled to more money or else the lights go out; Hydro One needs to start thinking like all other businesses; get lean; lower costs; meet customer expectations. The people and businesses of Ontario shouldn't have to keep paying for Hydro One's excesses. Rates should be kept constant; and the service should improve for that cost moving forward.

Preference would be investment close to scenario C but at lower transmission rate increase. i.e. Hydro One should look into improving its own efficiencies or finding ways to obtain the required funds to achieve scenario D or at minimum Scenario C's goals without significant increases to the transmission rates.

Significant investments have been made over the last five years to allow for DG resources to be connected. My expectation is that the rate of investment can now be curtailed back some.

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Comments (4):

Point 11 - “Scenario C” as a reference point is the most popular choice

Q Please use this space to tell us why you chose the point you did.
[asked of all respondents, n=103]

Point 10

The costs are a major input into these evaluations. A TS decommissioning was quoted at over $10M, transfer trip for a DG a few years ago was $180k is now being quoted at $400k, rebuilding a TS is being quoted at $38M. The choice is really C with an A rate increase.

Internal savings and efficiencies must be considered (salaries) to minimize rate increases. Increases in the 2 to 3% range combined with internal savings should net to Scenario C. This should be the goal.

This rate should still enable you to decrease the risk without a significant short term rate increase.

Maintains the average percentage of key assets beyond expected service life constant.

Point 11 – “Scenario C”

Do not want to see any service supply or reliability deteriorate from the current state.

Increased reliability, levelled rates.

It combines all four scenarios into one with moderate rate increase, high reliability and moderature future increases.

It meets many of the things and it's a substantial capital investment, but it has a lot of things moving in the right way. Decrease in reliability risk, improvement in long-term reliability. Fairly level future rate increase.

Maintaining the current level of investments will provide the planning and necessary funds for equipment is replace/upgrade as required to ensure reliability of power supply

Reduces risk, reduces the number of assets beyond expected life, cost increase is high, moving to Scenario D does not reduce the risks that much more based to cost. Selecting Scenario A or B will put our distribution system at to high a risk.

Decrease on reliability risk while levelling future rate increases.

The current level of reliability is acceptable therefore maintaining the status quo would seem appropriate.

The current situation is in part the result of a deliberate reduction in re-investment in the mid 1990's to mid 2000's which has resulted in equipment beyond service life. If reliability levels are to be maintained or improved, then a balanced and consistent approach is required.

Comments (5):

Point 11 – “Scenario C” preferred by those are focused on reducing reliability risk and improving the long-term health of the system

Q Please use this space to tell us why you chose the point you did.
[asked of all respondents, n=103]

Point 11 – “Scenario C” (Cont’d)

This scenario keeps the transmission system at about the same health level as it is today and while the transmission rate increase is moderate, the overall bill impact is small and likely tolerable by most customers.

To maintain a consistent cost (although increased) with a higher reliability.

There is a lot of old components that need replacing already. reducing spent $'s will not enhance current performance.

Point 12

The system already has a health percentage of aged equipment and with the increasing reliance on the transmission system to achieve the government's environmental goals, reliability will only become more important.

Point 13

Ideally, the rate increase would be inflation plus some nominal percentage. However, if 3.3% results in a material decrease in service capability, this new information suggests that the next highest level of investment is appropriate, thereby putting this somewhere in between Scenarios C and D.

Point 15

Best choice overall from reliability and long term cost perspective

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Questions for LDCs

Questions for LDCs: Summary

Local Distribution Company (LDC) customers (n=28) were asked a series of supplementary questions in order to provide them an opportunity to respond with consideration to the needs of their customers.

In response to an open-ended question, LDC survey participants identified costs and local support as the primary areas where they feel Hydro One can do more to help them meet the needs of their customers.

One LDC respondent, whose company provides electricity to First Nations and/or Métis communities, expressed their opinion that northern communities deserve more attention as the single-circuit connections result in vulnerabilities regarding power supply and interruption.

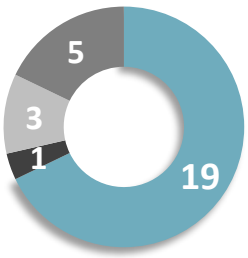
Eleven of the 28 LDC survey participants reported that their responses to Hydro One's transmission customer engagement survey were informed by their own customer engagement activities or other customer research.

Questions for LDCs:

Reduced costs and local support are where LDCs would like improvement

Q Is there anything in particular you feel Hydro One can do better to help you meet your customers' needs?

[asked of all LDC respondents, n=28]



- Comment provided
- No response
- No/Nothing
- Don't know

It would be helpful if Hydro One were able to provide more reasonable cost estimates for their work. In past years, Hydro One was known for high costs of work and had an active program to reduce their costs of doing business. That effort seems to have waned now and costs have gone back to levels that many customers feel are too high.

Improve reliability in smaller rural communities, reduce engineering costs for distributed generation projects. Reduce operating, maintenance and administrative costs as a whole and pass the savings onto the customer base.

Consider both the financial and reliability impact of your actions on our customers.

Increased pre-planning for joint investments with the LDCs. Improve project management to achieve project milestones on time. Better transparency of costs associated to projects requested by the LDC for Hydro One to complete.

Communication and coordination of TS work requires significant improvement.

Better planning of maintenance outage notifications. Costs need to stabilize while at the same time allow for development of new loads in rural areas at costs that are reasonable and not prohibitive. Don't try and push normal maintenance and replacement costs onto new customers.

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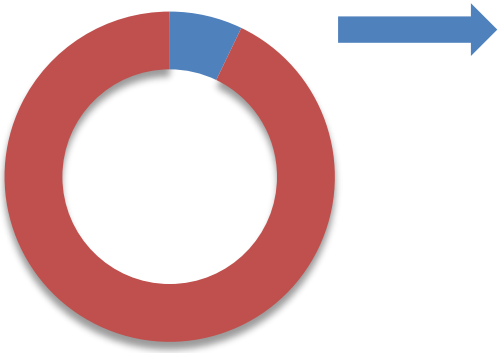
Questions for LDCs (2):

About a third report that their responses were informed by prior research

Q Does your company provide electricity to First Nations and/or Métis communities?
[asked of all LDC respondents, n=28]

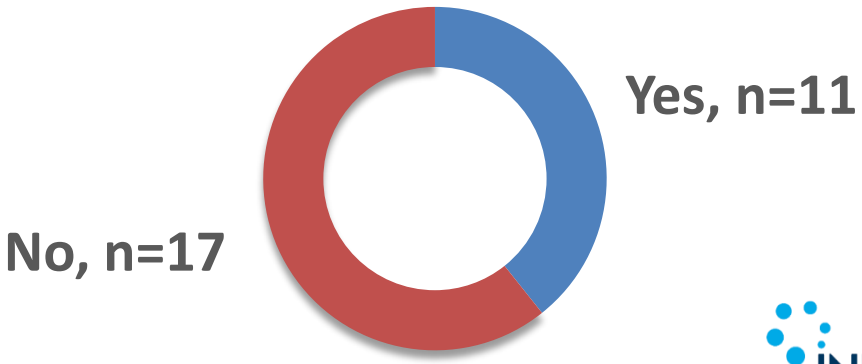


Q Is there anything in particular you feel Hydro One can do to better serve the specific needs of First Nations and/or Métis communities?
[asked of all LDC respondents who serve First Nations and/or Metis communities, n=2]

No.

The northern single circuit communities deserve more attention as they are more vulnerable in terms of supply and outage response.

Q Were your responses to this survey informed by your own customer engagement activities for the purposes of a rate application, or by any other customer research?
[asked of all respondents, n=28]



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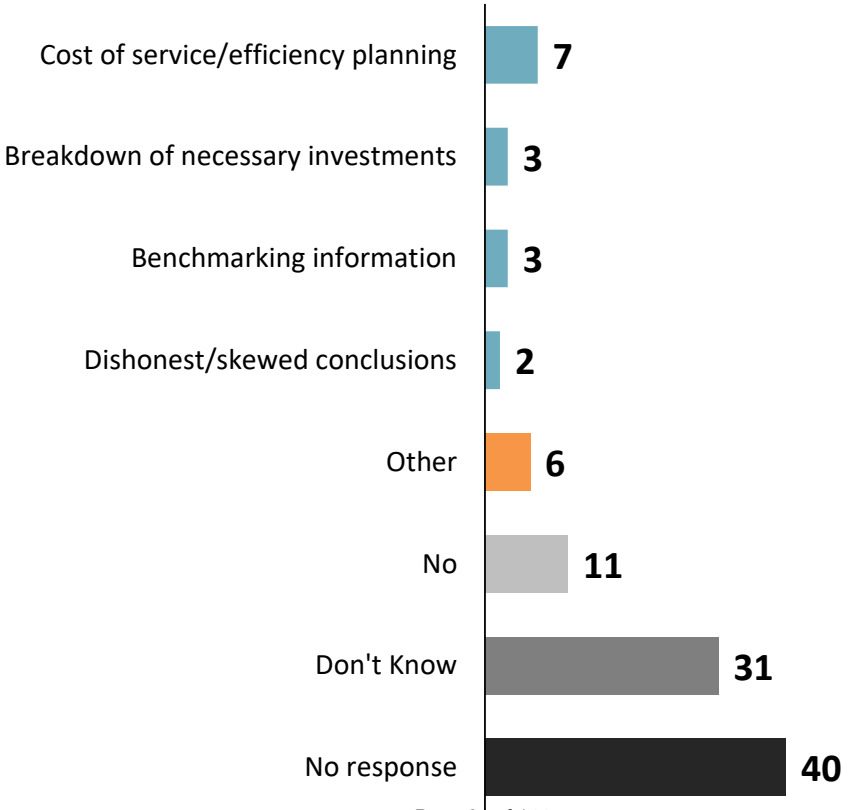
Content Covered:

Very few comments; top comments related to cost of service

Q Was there any content missing that you would have liked to have seen included?
[asked of all respondents, n=103]



Outstanding Questions:
A few comments on reliability, cost savings, and communication

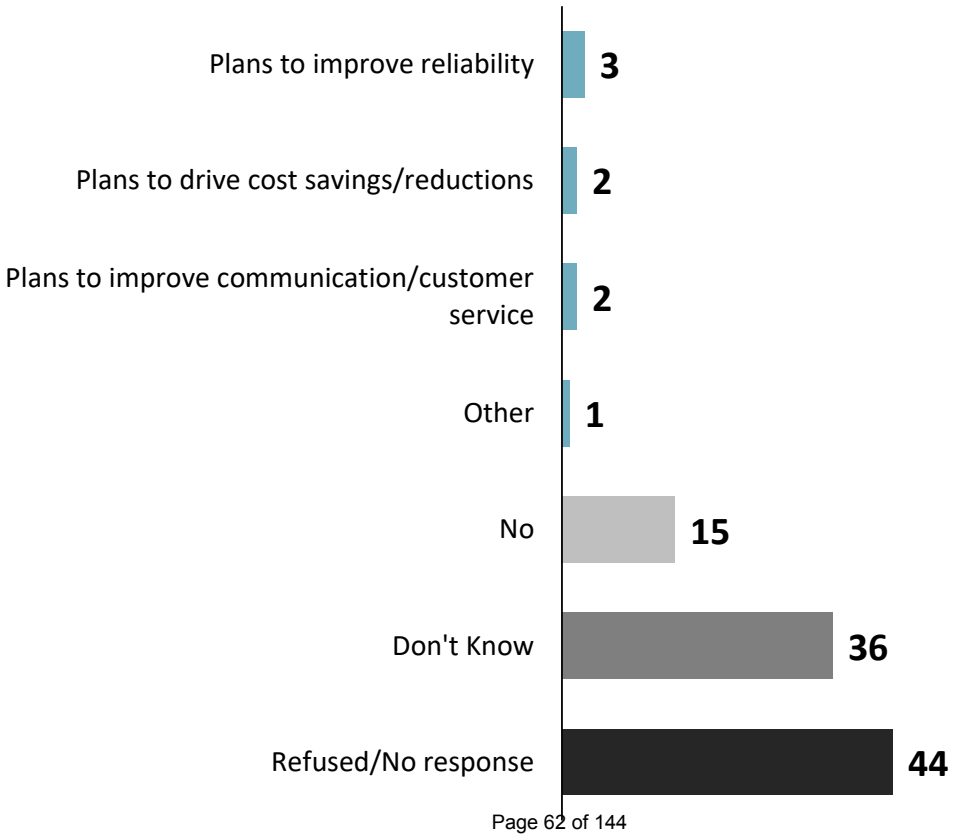
Q Is there anything that you would still like answered?
[asked of all respondents, n=103]

I would like to be able to review and understand the Hydro outage summary. Why is it so cryptic, it should be very transparent and not require an interpreter.

Please ensure to pass on the current level and expectations of customer focus to new employees of HONI; communications is key and appreciation of the cost to customers when the grid is not available.

When are you releasing the plans? Will there be any dialogue on rates and where will we get a chance to review those comments?

Innovation and lean management of Hydro One to drive cost savings and improve performance.



Suggested Additional Outcomes

Q Are there any outcomes we missed?
[asked of all respondents, n=103]

LDCs

- Timely delivery of project milestones.
- no
- Communication - transparency and timliness
- Price or cost- what is the value for money
- Costing allocations should either be socialized on the whole rate base or significant lead time to
- Easy to deal with.
- System capacity - Have a transmission system with the capacity to meet the needs of our customers.
- affordability - lower rates

End Users

- Weather risk mitigation - system hardening
- Flexibility of planned outages schedule to accommodate Customer restrictions
- Costs ; You will say its inferred in productivity and others. This is the reason we are in a mess.
- Inclusion of major customers like Dofasco in communication of future local investments
- Reduction on cost of GA
- So far none
- The slider above does not work in my browsers.
- New connections and upgrades built and energized on a timely basis.
- Responsiveness and personal assignment of a customer service representative for major customers
- Outage co-ordination with plant outages minimizing single line exposure.
- Your wages reflect those in industry, so that we don't keep losing our best people to you
- something about 'managing and accommodating growth and expansion with IESO through SIAs / CIAs'
- Response from local Hydro One team to respond to emergencies related to un-expected site power outage

Generators

- Predictable schedule preparation and execution
- no
- Grid Capacity Expansion
- COST COST
- Communication within IESO and HONI
- Efficiency of operations - reducing the bureaucracy, having decisions at lowest reasonable level
- general communication about direction of HONI certainly helps me as a customer understand ramification
- Streamline the customer service experience to be able to reach appreciate parties efficiently.
- Technology/Standard requirement
- Respect for other people's property - eg talking with property owners before accessing

Comments on Customer Outcomes (1)

Q Do you have any specific comments or suggestions regarding any of the seven outcomes that you just rated or any additional outcomes you added?

[asked of all respondents, n=103]

LDCs

- ensure that there is regular communications and dialogue
- None
- More timely response for communications and delivery of project milestones. Safety has been a concern when Hydro One crews have been working on shared ownership sites without engineered drawings under regulation O.22/04.
- Hydro One needs to fix its business processes and find productivity. I don't believe senior management in Toronto has the tools or workflow processes to manage or monitor projects efficiently in Northern Ontario. Until they sort out their internal workings, they don't deserve any rate increases.
- no
- You can do more with less on all of this - its not a trade off between money and results - we need the results described and we need it at a more affordable rate.
- Only proceeding on productivity projects that will guarantee a financial payback and reduce rates for all customers. Tried to provide feed back in suggested outcome 1 box but was limited to one line of text. Frequency of outages is a higher priority than duration when dealing with the general public
- Cost estimates for work to be performed by Hydro One are extremely high. While part of the issue is the class C estimate contingency, those costs cause a lot of concern for customers considering connections for generators.
- Cost reductions should be a top priority and given serious consideration and not just lip service.

Comments on Customer Outcomes (2)

Q Do you have any specific comments or suggestions regarding any of the seven outcomes that you just rated or any additional outcomes you added?
[asked of all respondents, n=103]

End Users

- Safety and Environmental Stewardship are "table stakes". If they can't delivery these 2 outcomes, they have no business operating a transmission system.
- The main outcome should be to provide reliable power at the best possible cost which should be benchmarked to a world standard to remain competitive and to make it so people don't have to choose between eating and having access to power.
- The "extremely important" responses for my organization are related to our activities which are primarily linked to [removed for privacy]. Were we primarily an office accommodation portfolio, the responses would have been less important.
- We have observed improvements in overall customer service.
- Productivity should be a key focus at Hydro One. There is little evidence that this is a consideration at any level in the organization
- Power Quality is an integral part of Reliability.
- Some of these question miss the mark 1.I don't care about productivity; I care about costs going down; 2. If power didn't keep going off, then I would not care about customer service 3. Safety and environment and politically correct questions - don't kill anyone and don't poison the planet; otherwise, get on with the job (do not use these answers as a license for expanding PC topic bureaucracy) 4. Once we are out, restart takes hours anyways; we are more concerned with not going out, then with outage length - based on past performance, we have had to install all kinds of back up generation already (costs are sunk - back to the 73 Chevy)
- Customer service should be accomplished through culture and not cost the rate payer anything. in fact, would mean savings to the rate payer. the rate payer has paid significantly for reduced emissions. outage restoration - we are on the longest radial line at [location] and incur 25 outages / year. this is unacceptable and costs us an estimated $6 M/year.
- All outcomes are equally important. It is hard to have one and not the other. Ultimately we do not see the environmental stewardship piece directly at the mill site.
- We have a good relationship with Hydro One

Comments on Customer Outcomes (3)

Q Do you have any specific comments or suggestions regarding any of the seven outcomes that you just rated or any additional outcomes you added?

[asked of all respondents, n=103]

Generators

- basically each and every item is extremely important, some of these are important to us as end users or generators and others are important to Hydro One as the service provider. Not sure if the questions wanted us to rank them which I thought would be more informative
- no
- Grid Capacity Expansion
- As a generator it also extremely important that HONI is available to take the power and transmit it reliably.
- Customer service & reliability is very important and your area or customer representatives have done an excellent job conveying this message to us.
- YOU MISSED COST OF EVERY ACTIVITY UNDERTAKEN BY HYDRO ONE
- No
- i like when you mention safety, the industry is very high risk and nice to see HONI as a leader
- There are still some old requirement that would need to be updated to reflect the new reallity, mainly in communication media for teleprotection.

Pace of Investment (3)

Q Why do you prefer the scenario you chose over the other two scenarios?
[asked of all respondents, n=103]

Generators

- Current state of equipment
- I believe it's the best thing for the ratepayer. No shocks. I understand why Hydro One may see it differently, but the goal is to provide power with as much consistency in price as we can. Quick raises in price is not looked upon favourably.
- infrastructure drives reliability
- it's pragmatic
- Ontario residents are already suffering high energy costs.
- Decrease in system reliability or increases in equipment failures negatively impacts our facilities operations and earnings.
- Price only will go up if waiting.
- I dont believe delaying the investment would be prudent and we would feel that in the future with reliability and outage issues. I dont see our business expanding too much in the near future so i would prefer to spread it out evenly,
- less impact on cashflow for companies
- CUT COSTS NOW e.g salaries by 15% to 30% for sunshine employees
- It's real
- Because I believe that internal productivity increases within Hydro One should be the first priority
- Plan the requirements, allow for the unexpected (which will be minimal if planned properly). Capital programs are inherently lumpy!
- i say this but a change is an election away. We need the long term vision and goal the strive for.
- To increase capacity in the short term to be able to add more renwable energy to replace fossil and nuclear generation.
- Easier to forecast for business plan with stable rate increases;
- manageable to ratepayers while insuring reliability
- It isn't as simple as a broad answer above. Some items are more critical and should be completed upfront. Other assets should be sweated and delayed. New technologies and options should be considered for some investments

Q What does it depend on?
[asked of those who answered “it depends” to previous question]

- Customer connection requirements and timing of those. Show some flexibility! just because a new customer connection falls a year outside the Hydro one plan should not necessarily require the customer to pay the full advancement cost.
- I think you need to do some investments, spread payments over time, but revisit and optimize costs...ALWAYS be more productive, look for economies of scale, look to streamline and cut where people or assets are not productive and a drag on the system, literally and figuratively...have yet to see HONI do this
- Safety, reliability, growth regions, new technology, innovation - it shouldn't just be an all or nothing approach.

Pace of Investment (2)

Q Why do you prefer the scenario you chose over the other two scenarios?
[asked of all respondents, n=103]

End Users

- Most can not afford higher rates, and delaying will just cause future generations to deal with legacy issues
- 1) Predictability in pricing2) Not letting the system fail
- Good balance
- I don't agree it will mean higher increases in the future . AT least it may eliminate investments that are needed. We have made a lot of investments in the past we don't need. This will prevent that.
- This scenario depends on the specifics of investments, their value and benefits.
- Hydro is too expensive.
- Given that the current electricity rate in Ontario is among the highest in North America.
- ontario pay more for hydro then anybode around. How we can stay in business and compete
- Financial impact,
- Balanced investments so rate increases are aligned with inflation. Electricity in Ontario is extremely expensive and has put Ontario business at a significant disadvantage. While investments are necessary so are ensuring competitive costs.
- Prioritize, plan and execute.
- HO should look for internal savings/efficiencies before rate increases to fund not only growth but reliability and maintenance projects. This is how industry operates, we would expect the same from HO.
- Preference is to have stable rate increases for financial planning provided that reliability is not compromised.
- Folks - start doing root cause and figure out your problems - you have bought crap breakers and are now replacing them, crap ceramic insulators and are now replacing them, and crap transformers that have fried equipment vital to our operations (I'm assuming that these problems are not caused by poor maintenance done by your very lucratively paid employees). Let's figure out how much money you are wasting, and fix that first. What is your ROI on the vaunted IT system - are you there yet? You need an industry culture and an industry style focus - once we see that and its results, you will find that you don't need anywhere near the stuff you think you do - and this is assuming that you are not trying to pad the asset base to maximize regulatory returns to your new shareholders - big assumption.
- Invest now (in the north!), where there has been no investment in decades. we are at the end of long, inefficient lines at [location] and [location]. we were forced to invest in a transmission line in red lake b/c hydro was reluctant to do so.
- Its unfortunate the state of power in Ontario. Hydro One should reflect on their performance vs other provinces and states. What are we doing wrong when it costs so much to produce power vs other areas?
- Would prefer option on invest now, but the cost may be too high, so spreading costs may be better

Q What does it depend on?
[asked of those who answered “it depends” to previous question]

- Not knowing exactly what the investments are made to achieve/address and their impact/cost this question is difficult to answer in general.
- Rate increases vs internal savings. Demonstrating internal efficiencies and cost cutting (salaries) eases the impact of continuous rate increases.
- Getting what you really need right (nowhere close to that yet), getting your operating costs in line (lot's to do there), what your financing charges are compared to ours (we have to borrow to pay for you guys, and your rates are likely lower than ours), setting priorities that provide a level of priority for economic health of your jurisdiction vs convenience.

Investment Scenarios (1)

Q Please use this space to tell us why you placed the slider where you did
[asked of all respondents, n=103]

LDCs

- best balance of costs vs benefits
- This rate should still enable you to decrease the risk without a significant short term rate increase.
- I recognize HONI has very difficult choices to make. However, it is very difficult to support a transmission rate increase that is greater than 1.5 times CPI
- It combines all four scenarios into one with moderate rate increase, high reliability and moderature future increases.
- Ideally, the rate increase would be inflation plus some nominal percentage. However, if 3.3% results in a material decrease in service capability, this new information suggests that the next highest level of investment is appropriate, thereby putting this somewhere in between Scenarios C and D.
- decrease on reliability risk while levelling future rate increases.
- 1) Hydro One is inefficient and needs to sort out their internal processes and find greater efficiency.2) There is nothing in this plan for innovation. Why would they invest in Tx infrastructure without a plan to manage the two-way flow of electricity that distributed generation will bring in 10-15 years. The last thing anyone wants is billions of $ in distressed transmission assets.
- Low rates a priority and managed risks - information is imperfect and so the best investment is to get better data/information while you have the time to drive better investment outcomes while living within a cost affordability index. Are you getting the right bang for your investment today? That data was not made available - can you assume you will get more for the money you are investing?
- I would consider a point midway between scenario B and C, the point where risk is neither increasing or decreasing..
- Under your maintain current level you are showing a reduction in average percentage of key assets beyond normal life expectancy. how is this maintain? In addition, you are suggesting that to maintain current levels of expenditures you need a 5.1 % annual increase in rates. Why is it not at or below inflation? These various senerios don't seem to make sense when looking at the rates or risks shown
- This scenario keeps the transmission system at about the same health level as it is today and while the transmission rate increase is moderate, the overall bill impact is small and likely tolerable by most customers.
- Significant investments have been made over the last five years to allow for DG resources to be connected. My expectation is that the rate of investment can now be curtailed back some.
- The costs are a major input into these evaluations. A TS decommisioning was quoted at over $10M, transfer trip for a DG a few years ago was $180k is now being quoted at $400k, rebuilding a TS is being quoted at $38M. The choice is really C with an A rate increase.
- The system already has a health percentage of aged equipment and with the increasing reliance on the transmission system to achieve the government's environmental goals, reliability will only become more important.
- No choice made. Analysis simplistic. Need to look for alternative savings (OM&A) to offset cost of increased asset investments.
- Keep increases at inflation.

Investment Scenarios (2)

Q Please use this space to tell us why you placed the slider where you did
[asked of all respondents, n=103]

End Users

- Chose the middle, trying to find a happy medium, so that we try to fix the mess we are in efficiently and cost affective as possible. However the rate increases is to high but we can't keep delaying either creating a bigger problem for future etc
- maintaining the current level of investments will provide the planning and necessary funds for equipment is replace/upgrade as required to ensure reliability of power supply
- Good balance
- Reliability needs to improve but rate increases need to be balanced as it effects our operating costs
- To maintain a consistent cost(although increased) with a higher reliability.
- I am prepared to take on more risk as we get the cost envelop sorted out and I am not willing to accept that rates would only change from .11% to .46% between scenario's when costs to the public have been going up by double digits per year for many years. IN addition I am not prepared to accept that managing the rate of investment now will necessarily result in significantly higher future rates. The whole system has to take responsibility for the costs the public is struggling with NOW !
- Maintains the average percentage of key assets beyond expected service life constant.
- Preference would be investment close to scenario C but at lower transmission rate increase. i.e. Hydro One should look into improving its own efficiencies or finding ways to obtain the required funds to achieve scenario D or at minimum Scenario C's goals without significant increases to the transmission rates.
- The current level of reliability is acceptable therefore maintaining the status quo would seem appropriate.
- Reduces risk, reduces the number of assets beyond expected life, cost increase is high, moving to Scenario D does not reduce the risks that much more based to cost. Selecting Scenario A or B will put our distribution system at to high a risk.
- Transmission costs are already too high. More needs to be done to ensure the investment $$ are being spent wisely.
- Hydro One is unfortunately operating in one of the highest rate markets in North America. Normally higher increases could be tolerated, however with the current state of the electricity market reasonable rate increase are expected, even if it comes at the cost of degraded reliability. This is ultimately due to current and previous provincial governments however Hydro One is forced to take this under consideration.
- Internal savings and efficiencies must be considered (salaries) to minimize rate increases. Increases in the 2 to 3% range combined with internal savings should net to Scenario C. This should be the goal.
- It would appear that the infrastructure has not been maintained at the correct pace. A reduction now would jeopardize future reliability.
- Your reliability assessments are not credible - on the single circuit SAIDI you do not even know why the majority of the interruptions occurred - so how can you model accurate reliability assessments? Your question is the equivalent of asking "if I fall out of a boat, should I wait for help or try and swim for shore? Why not just climb back into the boat?" You are missing the third option. Ex: instead of flying helicopters to check lines, why not use drones whose flight controls are tied to a carrier signal on the power line itself - get creative with the regulatory guys and find a way to reduce the costs - this is what industry does ....How big a transformer can you put on a flatbed - can several (already on flat beds) be used for multi circuit reliability and in case of an emergency, pulled out to use elsewhere ..... what about a system (used in Europe) where if one phase goes out, the other two are (downstream) reconfigured to power all three lines - just with a reduced capacity, until repairs are made. etc - etc
- we're on unreliable lines so we'd like some investment in those lines under any scenario. some is more than what we've seen in recent years. with upward pressure on rates, we'd be hard pressed to call for much more reinvestment than B. I'm wondering about the capital estimates and whether or not there is any room for efficiencies within?
- Please lean on successful areas (provinces/states) that face the same pressure and show a marked improvement in Reliability and Quality and use that as a benchmark.
- Do not want to see any service supply or reliability deteriorate from the current state

Investment Scenarios (3)

Q Please use this space to tell us why you placed the slider where you did
[asked of all respondents, n=103]

Generators

- It meets many of the things and it's a subtantial capital investment, but it has a lot of things moving in the right way. Decrease in reliability risk, improvement in long-term reliability. Fairly level future rate increase.
- You should manage your business to be at or below the annual Canadian index price increase and still be reliable. Actual rates are already very high. We pay anywhere between $120-150/MW which is too high.
- Balance the annual rate increase based on risk.
- Scenario A seems the most favourable at this time; companies are very cost focus and margins are currently very tight.
- increased reliability, levelled rates
- Clever OEB type presentation Ontario in very fragile economic condition Just focus on cutting cost There is not as you imply direct correlation between cost reduction and reliability
- The reality is we have taken the cheap route and now the system needs to be upgraded and repaired. Best to pay and be done with it.
- The current situation is in part the result of a deliberate reduction in re-investment in the mid 1990's to mid 2000's which has resulted in equipment beyond service life. If reliability levels are to be maintained or improved, then a balanced and consistent approach is required.
- there is a lot of old components that need replacing already. reducing spent $'s will not enhance current performance
- We want a decrease in reliability risk and not too much increase in rates;
- I do not agree with Hydro One's premise that there should be increases in Hydro rates amongst all the options. Like any other business; Hydro One needs to improve how it runs its business; how it seeks innovative answers; how it can deliver the same or better service for less money. I fundamentally disagree with all the options above; Hydro One has to stop acting in a way that it think it is entitled to more money or else the lights go out; Hydro One needs to start thinking like all other businesses; get lean; lower costs; meet customer expectations. The people and businesses of Ontario shouldn't have to keep paying for Hydro One's excesses. Rates should be kept constant; and the service should improve for that cost moving forward.
- Best choice overall from reliability and long term cost perspective

Questions for LDCs (1)

Q Is there anything in particular you feel Hydro One can do better to help you meet your customers' needs?

[asked of all LDC respondents, n=28]

LDCs

- Improved Communication to LDC's on reliability issues
- more regular updates
- Mitigate short circuit constraints for generation connections.
- Harden the single circuit 115 kV D10H circuit that supplys Elmira TS. We have lost this supply twice in recent years during ice storm events.
- Nothing. They are doing a fine job at this point with regards to transmission
- Not really
- Invest strategically in infrastructure. Cap top 5 salaries of Hydro One staff (ie: CEO, CFO, etc.) for letting the system deteriorate to the point where it is right now.
- Increased pre-planning for joint investments with the LDCs. Improve project management to achieve project milestones on time. Better transparency of costs associated to projects requested by the LDC for Hydro One to complete.
- Improve its brand/reputation. When Hydro One "screws-up", it bring the reputation of the entire Ontario electricity sector down. This make working with my LDC's customers more difficult.
- no I currently do not have any issues especially with the people that I deal with
- Treat me like a customer - provide me with the level of data needed to manage my customers - often you will react to my customers who are mine and provide better information to them (cause of outage, expected duration, etc) than you do for me. Better collaboration between control centres - I bet you dont treat your Hydro OGCC the same way you treat other utility control centres.
- Assist with Power quality investigations.
- Better support at local level
- communication and coordination of TS work requires significant improvement
- Better planning of maintenance outage notifications. Costs need to stabilize while at the same time allow for development of new loads in rural areas at costs that are reasonable and not prohibitive. Don't try and push normal maintenance and replacement costs onto new customers.
- It would be helpful if Hydro One were able to provide more reasonable cost estimates for their work. In past years, Hydro One was know for high costs of work and had an active program to reduce their costs of doing business. That effort seems to have waned now and costs have gone back to levels that many customers feel are too high.
- LDC's and Hydro One need to be working in partnership not as competitors allowing for further cooperation and to paticipate in early consultation
- improve reliability in smaller rural communities, reduce engineering costs for distributed generation projects. reduce operating, maintenance and administrative costs as a whole and pass the saving onto the customer base.
- See the opening comments.
- Consider both the financial and reliability impact of your actions on our customers.
- regulate voltage better
- lower rates

Questions for LDCs (2)

Q Is there anything in particular you feel Hydro One can do better to serve the specific needs of First Nations and/or Métis communities?

[asked of all LDC respondents who serve First Nations and/or Metis communities, n=2]

LDCs

- No.
- The northern single circuit communities deserve more attention as they are more vulnerable in terms of supply and outage response.

INNOVATIVE RESEARCH GROUP

Appendix 1.2
The Survey

Welcome to Hydro One's transmission customer engagement survey.

Why are we here?

Hydro One is starting its planning process for the 2019-2023 plan. As you may be aware, Hydro One currently has an application before the Ontario Energy Board to cover the 2017-2018 period. However, transmission systems have long planning horizons and Hydro One needs to start now to prepare the business plan for 2019-2023. For the purpose of getting your views on the outcomes and priorities that matter to you, Hydro One has used this 2017-2018 application as its starting-point. **See the "Additional Information" document for more information about Hydro One's planning process.**

Hydro One engages with its transmission customers through key account mangers, regular surveys, and various planning processes. Now, Hydro One needs to hear from you about the outcomes you care about, as well as the pace and mix of investments that you would like to see included in the plan. Your views are a key input as Hydro One sets priority outcomes in its 2019-2023 business plan and makes choices about the investments that will be included in that plan.

Your privacy will be protected.
Hydro One has engaged an independent research firm, Innovative Research Group, to document your views. All individual responses will be confidential. Your results will be combined with others in any reports. **See the "Additional Information" document to read our privacy policy.**
Throughout this survey, you will see the following: 🕮
This is an indication that a word or phrase appears in the glossary at the end of this document.

WE APPRECIATE YOUR PARTICIPATION IN THIS SURVEY, AS THE RESULTS MAY IMPACT YOUR RATES AND THE EXPECTED RELIABILITY OF THE TRANSMISSION SYSTEM.

[LDCs only]
As a distributor, please respond to the questions in this survey with your customers in mind. Your feedback should be made with consideration to your customers' needs.

What we are consulting about?

The Hydro One planning process generates a number of potential capital investments📖. Some of these investments are required to comply with the various standards and regulations that apply to Hydro One's business. But many investments have a discretionary factor, at least in terms of timing.

There are three key questions about Hydro One's potential capital investments at the core of this customer engagement:

- **What outcomes should Hydro One focus on as it decides which investments come first?**
- **How should Hydro One pace its investments in the transmission system over the long run?**
- **What is the preferred balance between reliability and the amount customers are willing to pay?**

When the plan is submitted, Hydro One will share with you both a summary of what customers said in this survey and how Hydro One responded to that input.

SURVEY RESPONSE OPTIONS:

This survey takes about 20 minutes to complete.

You can complete the survey online or, if you prefer, we can schedule a one-on-one interview either in person or by phone. If you prefer a live interview, please contact Susan Oakes at (416) 642-6341 or soakes@innovativeresearch.ca to arrange a time that is convenient for you.

To ensure your comments are considered in the planning process we need your responses by June 9, 2017.

How well is Hydro One meeting your needs?

Hydro One Inc. owns and operates a 30,000 circuit 🕮 km high-voltage 🕮 transmission network that includes 306 transmission stations and transmits 98 percent of Ontario's electric capacity.

For more information about Hydro One's transmission system, the standards it must meet, its activities, and reliability statistics, See the "Additional Information" document.

Questions

1. **How satisfied are you with the overall performance of Hydro One in providing your business with electricity?**
   - ❍ Very satisfied
   - ❍ Somewhat satisfied
   - ❍ Somewhat dissatisfied
   - ❍ Very dissatisfied
   - ❍ Not sure / Don't know

2. **Is there anything in particular you feel Hydro One can do better?**
   Please fill in your response below

   ❍ Not sure / Don't know

3. **How do you know if Hydro One is doing a good job for your business?**
   Please fill in your response below

   ❍ Not sure / Don't know

Customer Outcomes

Hydro One has to make choices in its planning, and it needs to know what is most important to you. Hydro One is responsible to the Ontario Energy Board to show how its plans provide the cost effective delivery of outcomes that customers value. **To learn more about the customer engagement process and the Ontario Energy Board's requirements, See the "Additional Information" document.**

In reviewing its previous customer engagement research and in discussions with customer-facing Hydro One staff including its Key Account Managers, Hydro One has developed a tentative list of outcomes for your review. This survey is going to ask you if anything is missing from that list, how important each outcome is to you, and which outcomes are most important compared to the others.

This section will ask you to rate how important the outcomes are to you and to share your thoughts on how Hydro One could do better. You will also have an opportunity to add any outcomes you feel are missing.

We will be asking you about the following seven outcomes:

- Customer Service
- Environmental Stewardship
- Outage Restoration
- Power Quality
- Productivity
- Reliability
- Safety

To rate the importance of an outcome, please select a point on the slider below each description. If there are areas that you don't have an opinion on, please select the "don't know" option.

Safety

Eliminating and mitigating risk to public and employee safety in the operation of the transmission system. **For additional information on Hydro One's performance to date, See the "Additional Information" document.**

4. How important an outcome is safety?

Not at all important — Extremely important

0 ——— 10

❍ Not sure / Don't know

Productivity

Implementation of new technologies and processes to enable operational efficiencies in the planning and execution of work programs aimed at reducing costs and more efficient use of resources. Hydro One understands that customers expect it to look first for internal savings before asking for any additional rates.

5. How important an outcome is productivity?

Not at all important — Extremely important

0 ——— 10

❍ Not sure / Don't know

Reliability

Maintaining the uninterrupted operation of the transmission system for all customers by sustaining the existing assets, replacing assets that are in poor condition and addressing transmission system performance outliers 🕮. **For additional information on Hydro One's performance to date, See the "Additional Information" document.**

6. How important an outcome is reliability?

Not at all important — Extremely important

0 ——— 10

❍ Not sure / Don't know

Outage Restoration

Provisions to ensure timely and efficient response to failures, unplanned outages 🕮, or imminent risks to the transmission system to minimize customer interruption and prompt restoration to normal operating conditions.

7. How important an outcome is outage restoration?

Not at all important — Extremely important
0 — 10

❍ Not sure / Don't know

Power Quality

Delivering electricity within established voltage and frequency tolerances with a smooth voltage curve waveform 🕮. Assessing customer concerns and implementing mitigation plans to address and rectify power quality issues for transmission connected customers.

8. How important an outcome is power quality?

Not at all important — Extremely important
0 — 10

❍ Not sure / Don't know

Customer Service

Enhancements to the transmission customer experience such as outage planning and operational communications, timely estimates and project execution for transmission connected customers. **For additional information on Hydro One's performance to date, See the "Additional Information" document.**

9. How important an outcome is customer service?

Not at all important — Extremely important
0 — 10

❍ Not sure / Don't know

Environmental Stewardship

Identifying potential risks to the environment as a result of emissions from Hydro One's own operations, and investing in mitigation strategies to ensure compliance with all applicable environmental regulations consistent with the Government of Ontario and the Government of Canada.

10. How important an outcome is environmental stewardship?

Not at all important — Extremely important
0 — 10

❍ Not sure / Don't know

Additional Outcomes

Are there any outcomes we missed? Please use the boxes below to add them, and then the slider to rate their importance.

11a. Suggested Outcome 1:

11b. How important is this outcome to you?

Not at all important — Extremely important
0 — 10

❍ Not sure / Don't know

12a. Suggested Outcome 2:

12b. How important is this outcome to you?

Not at all important — Extremely important
0 — 10

❍ Not sure / Don't know

Comments

13. Do you have any specific comments or suggestions regarding any of the seven outcomes that you just rated or any additional outcomes you added?

- Customer Service
- Environmental Stewardship
- Outage Restoration
- Power Quality
- Productivity
- Reliability
- Safety

Please fill in your response below:

Customer Outcomes

Top Priorities

While all the outcomes listed are important to many customers, planners set priorities among different outcomes. The purpose of this section is to help Hydro One set priorities as it prepares its business plan. Which priorities should they focus on first?

For a list of outcome definitions, See the "Additional Information" document

Please rank your top priorities from the list below.

Drag and drop the priorities in order, starting with the priority most important to you, followed by the second most important, then the third most important, and so on. Please try to rank all listed priorities:

Priorities	Top Priorities
Safety	
Productivity	
Reliability	
Outage Restoration	
Power Quality	
Customer Service	
Environmental Stewardship	

Comments:

Making Choices: Pace of Investment

When Hydro One replaces equipment in declining health, it has some flexibility in its pacing. **For more information on the health of Hydro One's assets, See the "Additional Information" document**

We would like to understand your general views on the appropriate pacing of Hydro One's investments over the next 15 – 20 years. Hydro One can front load its capital investments, it can spread them evenly over time, or it can delay its investments.

Front-loading investments would provide some benefits in terms of more connection capacity 🕮, decreased equipment failures, increased reliability, and improved productivity and quality. This would mean higher rate increases now but lower rate increases in the future.

Spreading evenly over time means some benefits are delayed but some long term savings are secured and it is more efficient in terms of staffing. Rate increases would increase at a stable level. Asset deployment costs would likely be lower using this more stable pacing philosophy.

Given the current health and demographics of the system, Hydro One can delay investments further until declining equipment conditions threaten Hydro One's ability to meet power reliability requirements. Reliability would still meet minimum standards but customers would likely experience more interruptions 🕮 than today. Rates increases would be relatively low for several years but increase at a steeper rate in the future.

Bearing in mind the trade off between immediate rate impact, long term rate impacts and system benefits, which approach best reflects how you feel Hydro One should pace the work required to renew the system over the next 15-20 years?

- ❍ Invest now, higher rates in short term, lower increases in future
- ❍ Spread investments out, stable rate increases
- ❍ Delay investments, lower rates in short term, higher increases in future
- ❍ It depends
- ❍ Not sure / Don't know

Why do you prefer the scenario you chose over the other two scenarios?

What does it depend on?

Reliability

We are now going to move on to the topic of reliability. The term “reliability” means different things to different people, so before we move on, please describe what reliability means to your organization.

When you are talking about transmission reliability, what does that mean to your organization?

Making Choices: Reliability

Reliability has a specific meaning in electricity, but often when customers talk about reliability, they are also talking about power quality (defined as delivering electricity within established voltage and frequency tolerances with a smooth voltage curve waveform). Below is a list of five items that are often included when people talk about reliability. In addition to power quality, when people raise concerns about interruptions they often draw a distinction between interruptions that are experienced during normal day-to-day operations versus interruptions that occur during major events such as severe storms.

Please rank the following reliability items in order of which are most important to your organization.
Drag and drop the items in order, starting with the item most important to you, followed by the second most important, then the third most important, and so on. Please try to rank all items:

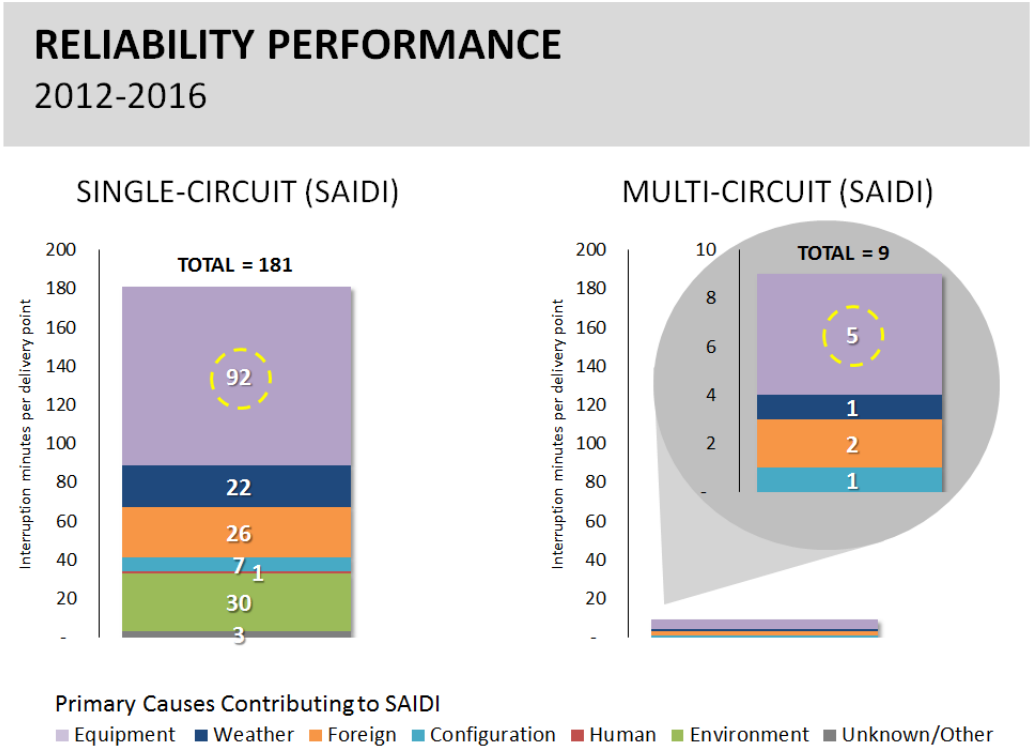
Reliability Items	Importance
Reducing the number of day-to-day interruptions	
Reducing the number of interruptions due to major events	
Reducing the duration of day-to-day interruptions	
Reducing the duration of interruptions due to major events	
Overall power quality	

Comments: Is there anything else you would like to add on the topic of reliability?

Making Choices: Reliability Trade-Offs

Understanding reliability is important when assessing the trade-offs facing Hydro One. To help understand the impact of investment decisions on reliability, Hydro One as developed a metric called “reliability risk”. No one knows for sure when a specific piece of equipment will fail, but we do know how likely asset failure is for groups of equipment in specific conditions. This means we can project a likely risk of failure for a given pool of assets.

When it comes to transmission reliability, Hydro One has performed well compared to Canadian peers. The key strategy employed to avoid customer interruption in the transmission system is redundancy 🕮. Most of the transmission system has been built with at least one redundant circuit for every operating circuit. The chart below shows the benefit of redundancy as customers on single circuit 🕮 systems experience much more time (shown below as System Average Interruption Duration Index or SAIDI) 🕮 without power than customers on multi-circuit systems 🕮.



See the "Additional Information" document to read the definitions of these categories

Delaying capital spending will, in time, result in more and more equipment failures. While redundancy often prevents these failures from leading to customer interruptions, equipment failures will leave multi-circuit customers at risk of the single-circuit reliability experience. Reliability risk provides a leading indicator of the expected impact of allowing the condition of equipment in the transmission system to decline.

Making Choices: Illustrative Scenarios

Now we would like to take one last look at the core trade-offs Hydro One must make as it begins its business planning for 2019 to 2023:

- the balance between the level of investment and system reliability, and
- the timing of those investments.

To help understand your priorities, Hydro One has developed four illustrative scenarios. The specific priority of investment items in these scenarios is based on the priorities used in Hydro One's proposal currently before the Ontario Energy Board. While those priorities may change based on your earlier feedback, these scenarios are illustrative of the impacts of various spending levels.

In considering these scenarios, please be advised that all figures are intended as approximate, and are not intended to be relied upon as exact.

These scenarios focus on the trade-offs between the pace of investment, reliability, and future rate increases. The higher the level of investment, the lower the reliability risk 🕮, and vice-versa. As you consider these illustrative scenarios, please bear in mind that your rates can also be impacted by changes in load forecast and electricity prices. All scenarios assume an Operations, Maintenance, and Administration (OM&A) expense percentage increase that is held to less than inflation.

By preparing and providing these illustrations, Hydro One makes no representation that it will select one as its plan before the Ontario Energy Board.

Transmission Customer Engagement

Please read each scenario to understand how different investment levels impact key outcomes. You can choose one of these scenarios, a point between these scenarios or a point above or below these scenarios. There is a follow-up question that allows you to discuss the factors that you considered in making your choice. Your comments will help us better understand the outcomes you value.

These descriptions refer to "key assets" 🕮 which are conductors 🕮, circuit breakers 🕮 and transformers 🕮, as their failure is most likely to impact system reliability.

Scenario A: Limited investment

- Capital investment 🕮 focused on regulatory requirements and customer demand projects, such as new connections
- Sustainment capital 🕮 limited to replacing assets subject to imminent failure; no proactive sustainment investment
- The percentage of key assets beyond Expected Service Life 🕮 will increase from 21% in 2019 to 29% in 2023, increasing expected future investment requirements
- Total 5 year Capital Investment Plan: $1.8 B
- Average Annual Transmission Rate Increase: 1.3%

Scenario B: Decrease in current level of investment

- Capital investment 🕮 reduced compared to plan filed with the Ontario Energy Board in May 2016
- Spending on sustainment 🕮 of key assets deferred to future years
- Contains lower levels of investment in productivity and fewer strategic investments designed to mitigate future rate impacts (e.g., tower coating)
- The percentage of key assets beyond Expected Service Life 🕮 increases from 21% in 2019 to 26% in 2023, increasing expected future investment requirements and expenses
- Additional capital in Scenario B as compared to Scenario A focuses on replacing assets in poorest condition, resulting in a significant reduction in reliability risk 🕮
- Total 5 year Capital Investment Plan: $4.3 B
- Average Annual Transmission Rate Increase: 3.3%

Scenario C: Maintain current level of investment

- Extends investment plan in rate application currently before the Ontario Energy Board to 2023
- Maintains current level of sustainment capital 🕮 investments affecting key assets
- Percentage of key assets beyond Expected Service Life 🕮 decreases from 21% in 2019 to 19% in 2023, decreasing expected future investment requirements
- Incorporates strategic investments that mitigate future rate impacts, such as tower coating
- Total 5 year Capital Investment 🕮 Plan: $6.6 B
- Average Annual Transmission Rate Increase: 5.1%

Scenario D: Increase beyond the current level of investment

This plan contains all investments in Scenario C, with addition of:

- Additional sustainment capital 🕮 focused on key assets
- As a result, the percentage of key assets beyond Expected Service Life 🕮 decreases from 21% in 2019 to 17% in 2023, decreasing expected future investment requirements
- While the above investments benefit all customers to some degree, this scenario also increases capital to add redundancy 🕮 to worst performing single circuits 🕮 in system, benefiting a very small portion of customers in a significant way
- Total 5 year Capital Investment 🕮 Plan: $7.4 B
- Average Annual Transmission Rate Increase: 5.6%

Exploring Trade-offs Using Illustrative Scenarios

Below is a chart summarizing all the scenarios from the previous page and their implications. As we mentioned these examples are meant to illustrate the impacts of different levels of investment on current and future rate increases and system reliability.

You will note that the two middle scenarios, B and C, offer a relatively small change in reliability risk, but moving from B to C offers significant improvements in long-term reliability. The key difference between B and C is that B has larger future increases, while C has level future rate increases. The big differences in reliability are in scenarios A and D. Moving from A to B creates a significant decline in reliability risk. Moving from scenario C to D generates both a long term reliability benefit and targeted reliability improvements for a small group of customers.

As noted earlier, by offering these illustrative scenarios, Hydro One is not committing to any of them; their purpose is to help Hydro One understand what you as a customer value. When Hydro One makes its Ontario Energy Board filing, Hydro One will incorporate feedback received through this process, but does not commit to pursuing any one of these illustrative scenarios.

Below the chart is a slider which represents the range of potential approaches Hydro One can take. On the far left is lower investment, lower short-term rates, lower reliability, and higher anticipated future increases. On the far right is higher investment, higher short-term rates, higher reliability, and lower anticipated future increases. Please use the slider to indicate what approach you think Hydro One should take. Hydro One will use the results of this exercise as a directional indicator of the route customers want to go.

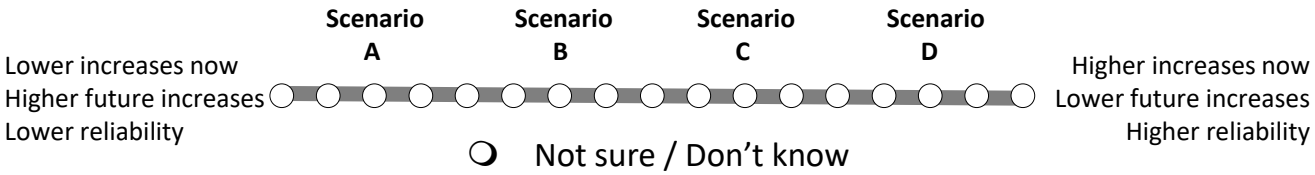
NB: The location on the slider does not correlate directly with potential rate increases. (For example, while the physical distance between scenarios B and C is the same as between C and D, the impact on reliability, rates and other outcomes is very different).

See the "Additional Information" document to view a larger and more detailed version of this table.

	Illustrative Scenarios			
	A: Limited investment	**B: Decrease in current level of investment**	**C: Maintain current level of investment**	**D: Increase beyond the current level of investment**
5 Year Capital Investment 🕮	$1.8 B	$4.3 B	$6.6 B	$7.4 B
Reliability Risk🕮	Increase in risk ~30%	Increase in risk ~10%	Decrease in risk ~10%	Decrease in risk ~15%
Long-term Reliability Impact	↓	↓	↑	↑*
Average Percentage of Key Assets Beyond Expected Service Life 🕮 by end of 2023 (21% in 2019)	29%	26%	19%	17%
Impact on Future rates	Significantly higher future rate increases	Higher future rate increases	Level future rate increases.	Slightly lower future rate increases.
Average Annual Total Bill Impact – Transmission Connected Customer	0.11%	0.27%	0.42%	0.46%
Average Annual Transmission Rate Increase	1.30%	3.30%	5.10%	5.60%

* Improvement in overall long term reliability and significant performance improvement for small number of customers connected to the worst performing circuits.

Thinking of all the considerations outlined, please choose a point along the line below that you believe strikes the right balance between rates and outcomes. (Remember you can choose a point located between scenarios or directly aligned with them).



❍ Not sure / Don't know

Comments: Please use this space to tell us why you placed the slider where you did.

Questions for LDCs

Local distribution companies have unique needs that often differ from other transmission customers. On this page we'll explore:

Is there anything in particular you feel Hydro One can do better to help you meet your customers' needs?

- ❍ Don't know / Not sure

Does your company provide electricity to First Nations and/or Métis communities?

- ❍ Yes
- ❍ No
- ❍ Don't know / Not sure

Is there anything in particular you feel Hydro One can do better to serve the specific needs of First Nations and/or Métis communities?

- ❍ Don't know / Not sure

Were your responses to this survey informed by your own customer engagement activities for the purposes of a rate application, or by any other customer research?

- ❍ Yes
- ❍ No
- ❍ Don't know / Not sure

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Appendix 1.3
Additional Information

Hydro One's Investment Planning Process

Hydro One must decide what comes first among specific investments. While Hydro One operates within standards that are dictated by various regulators, including the Ontario Energy Board and the North American Electric Reliability Corporation (NERC), Hydro One still has a range of choices in setting priorities among investments.

During Hydro One's planning process, candidate investments are identified by Hydro One's engineers and business planners. They take a variety of factors into account including asset needs, compliance, customer requests, regional needs, productivity and safety.

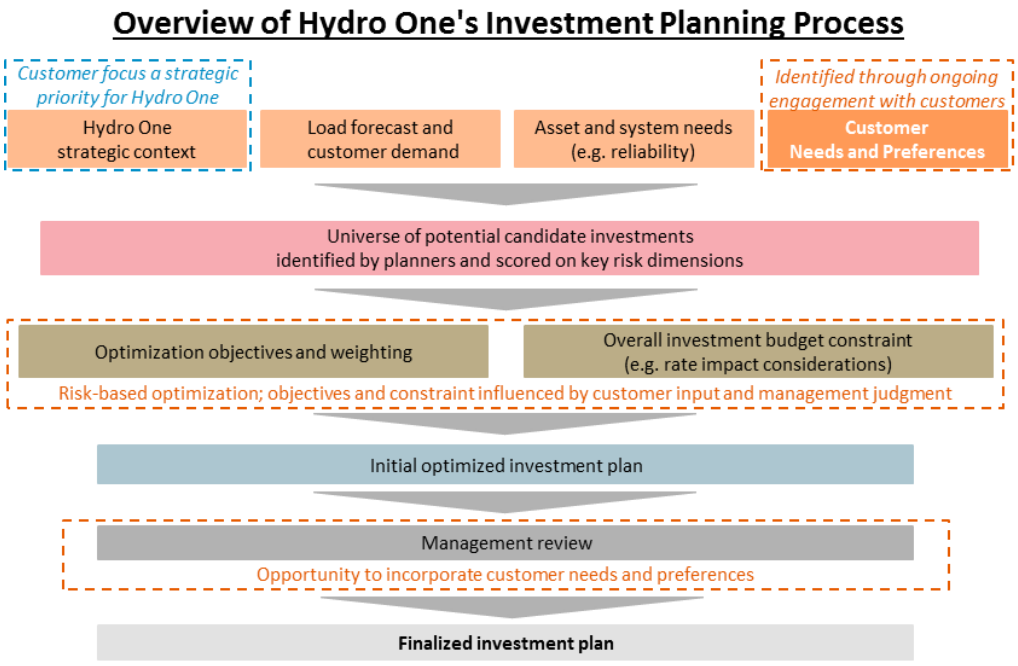
When submitted, each potential investment is scored according to a number of key criteria including the outcomes reviewed with you in this survey.

The total pool of candidate investments is then prioritized using an optimization tool that evaluates the scores assigned to all investments and compiled in to an initial investment plan.

This initial plan is then reviewed by management who evaluate the outcome of the optimization tool to ensure the plan is appropriately addressing the needs of Hydro One's assets along with the needs and preferences identified by Hydro One's customers, including the impact on rates.

Any concerns identified by this review are then incorporated in to the final plan that is approved for execution. The investment planning process is illustrated below.

Hydro One's has invested $4.3B in capital for its transmission system over the past 5 years (2012-2016).



How Hydro One's Rates Are Set

Hydro One is a rate-regulated company. Hydro One must apply to the Ontario Energy Board (OEB) for approval of its revenue requirement and the rates it charges customers. Rates are designed such that Hydro One recovers the costs allowed by the OEB and also allow Hydro One to earn a formula-based annual rate of return on its equity invested in the regulated businesses. This allowed Return on Equity is set by the OEB by applying a specified equity risk premium to forecasted interest rates on long-term bonds.

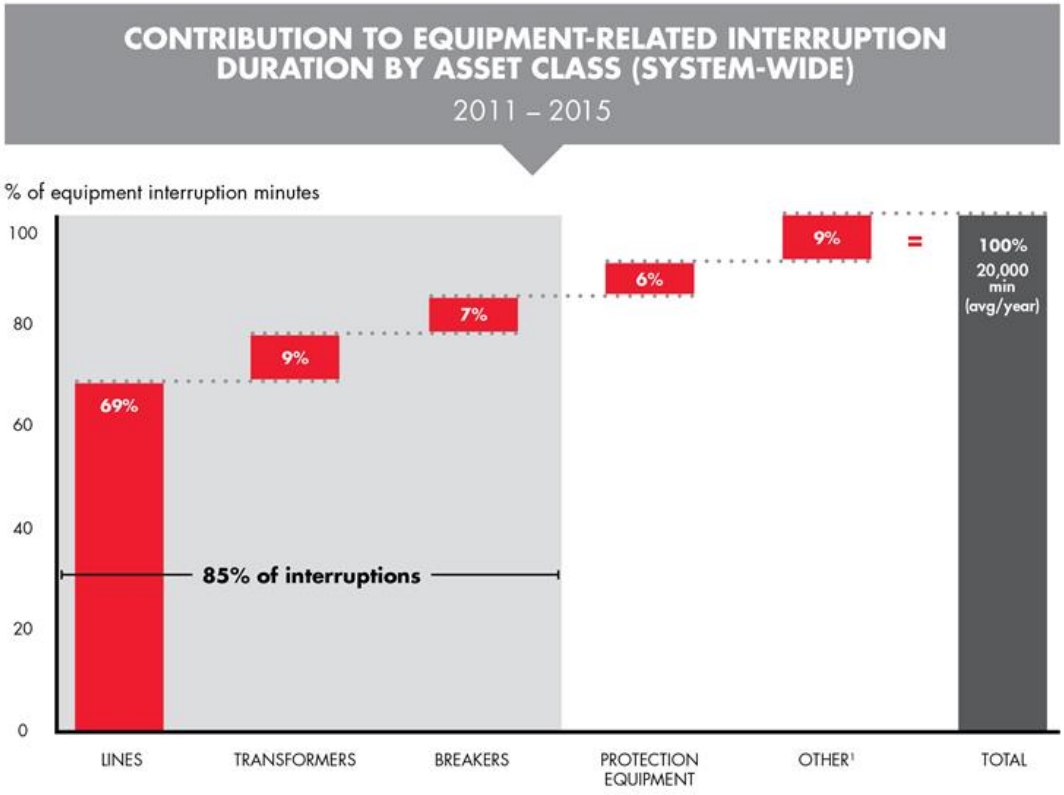
The table below summarizes the OEB-approved Transmission revenue requirement and the associated change over the prior year's revenue requirement for the 2012-2016 period.

	2012	2013	2014	2015	2016	5 Year Average
Revenue Requirement	1,418.4	1,437.7	1,535.3	1,527.2	1,567.6	
Change YoY (%)	5.1%	1.3%	6.4%	-0.5%	2.6%	3.0%

Hydro One System's Asset Health

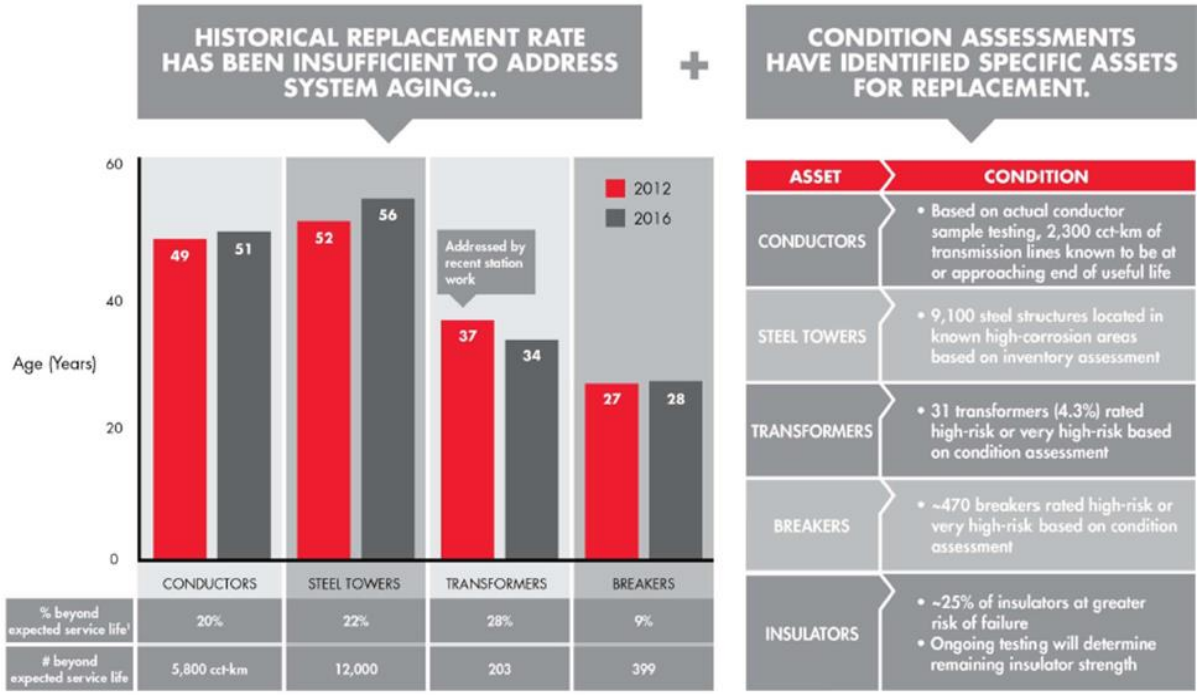
As the system ages, so do critical assets, resulting in equipment failures and sometimes in power interruptions.

While transmission lines are the primary cause of equipment-related interruptions, transmission lines, transformers and breakers combined accounted for 85% of system interruptions between 2011 and 2015.



1. Other includes switches, instrument transformers, surge arrestors, system auxiliaries

As of 2016, at least one-in-five conductors (19%), steel towers (22%) and transformers (28%) are beyond their expected service life. This translates into 5,800 circuit-kilometers of lines, 12,000 steel towers and 203 transformers. Many of these assets are already planned for replacement, but other assets continue to age beyond their expected service life.



1. The average time in years that an asset can be expected to operate under normal system conditions.

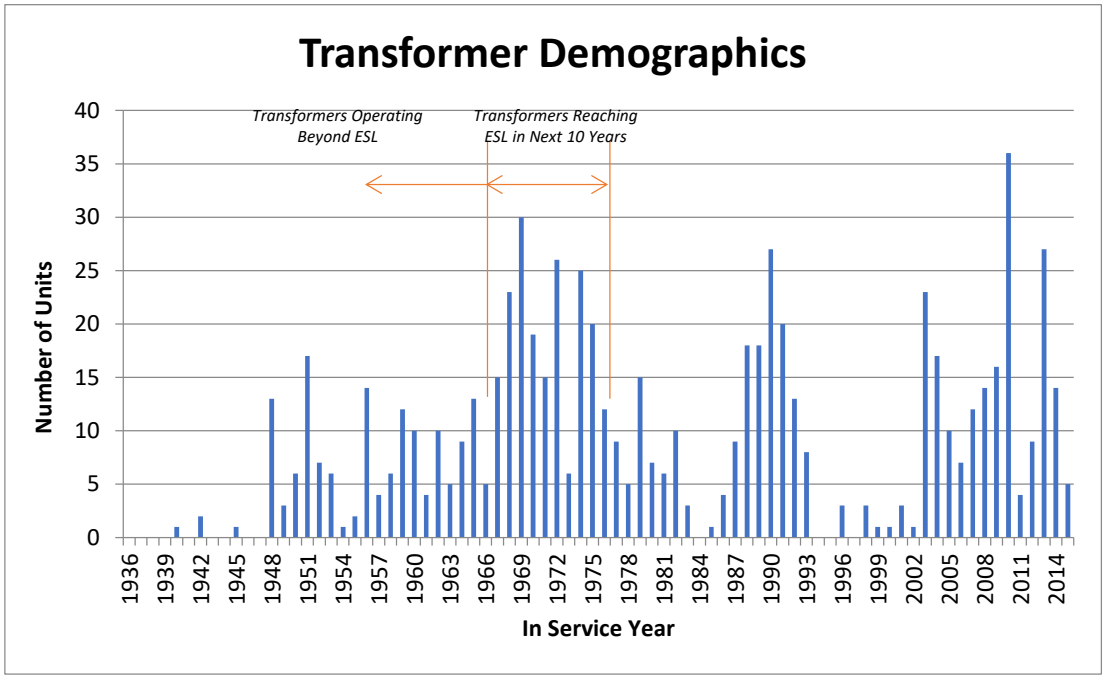
Asset Demographics

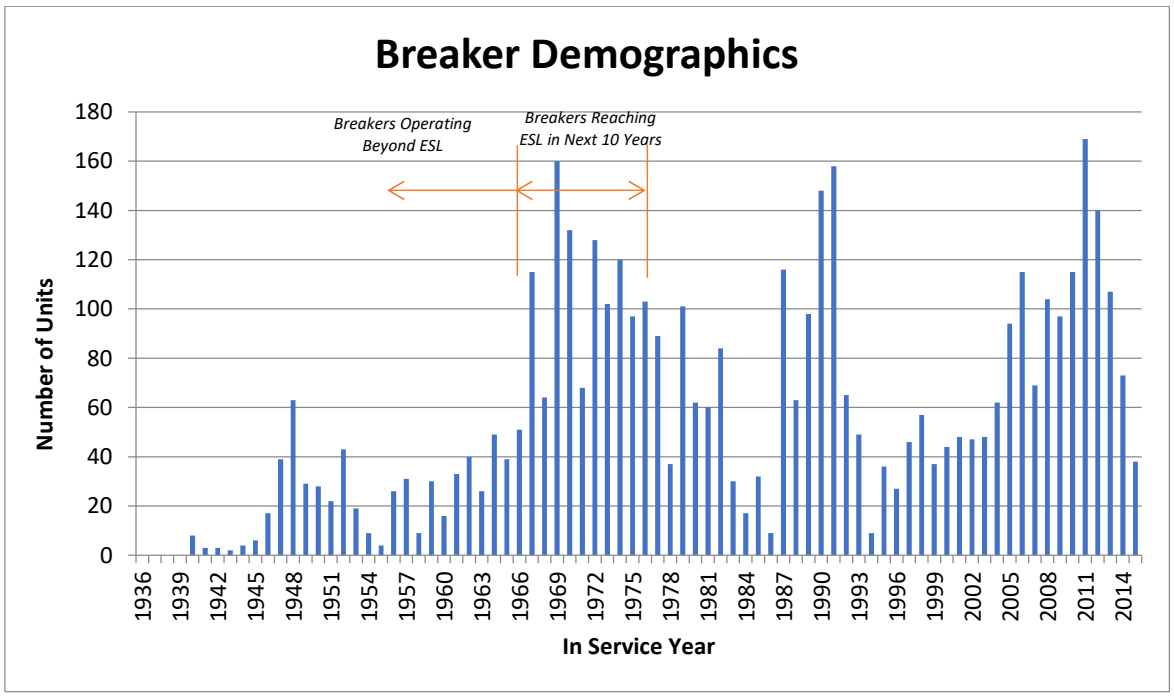
Hydro One only replaces assets that are in poor condition. The condition is determined through inspection and testing. However, a driving factor of equipment condition is age and equipment is more likely to require replacement as it ages.

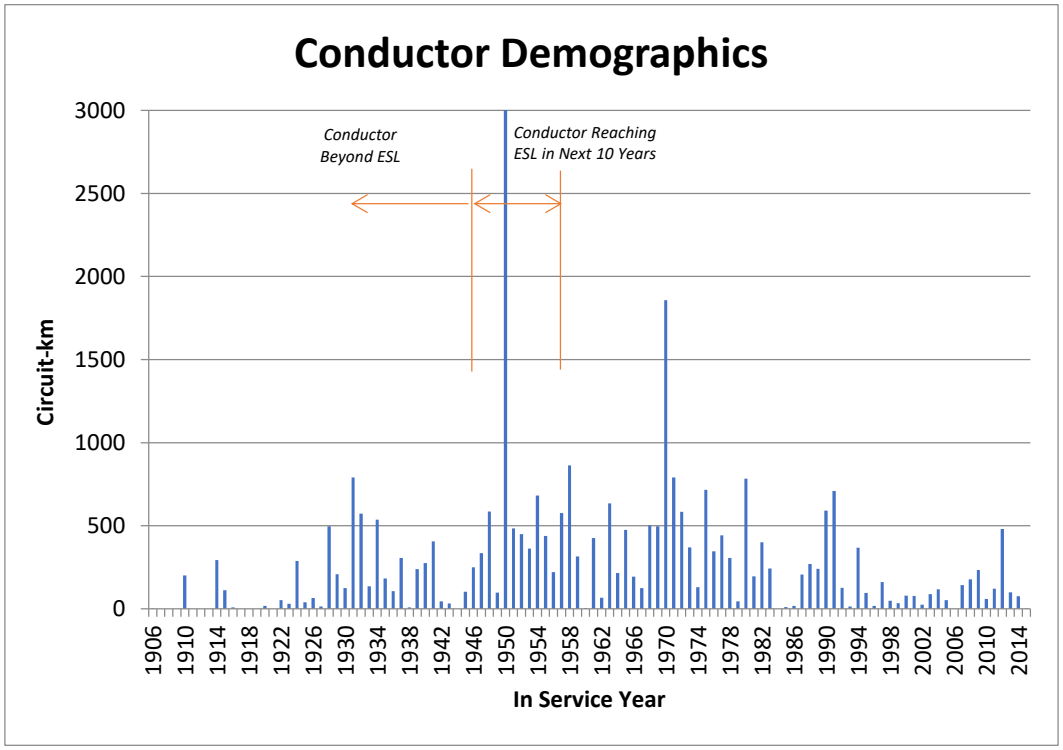
The figures below show the number of units of each key asset (transformers, breakers and conductors) that has been put in to service since the 1930s. The figures show that a large number of key assets were put in to service between the mid-60s through to the mid-70s. In the next 10 years, those assets, representing a significant portion of Hydro One's total assets, will likely require replacement.

A sizable portion of each critical asset class is operating beyond expected service life.

Specifically, 28% of transformers, 9% of breakers and 19% of conductors are currently operating beyond their normal expected service lives.


Transformer Demographics
Transformers Operating Beyond ESL
Transformers Reaching ESL in Next 10 Years
Number of Units
In Service Year


Breaker Demographics
Breakers Operating Beyond ESL
Breakers Reaching ESL in Next 10 Years
Number of Units
In Service Year


Conductor Demographics
Conductor Beyond ESL
Conductor Reaching ESL in Next 10 Years
Circuit-km
3000
2500
2000
1500
1000
500
0
1906
1910
1914
1918
1922
1926
1930
1934
1938
1942
1946
1950
1954
1958
1962
1966
1970
1974
1978
1982
1986
1990
1994
1998
2002
2006
2010
2014
In Service Year

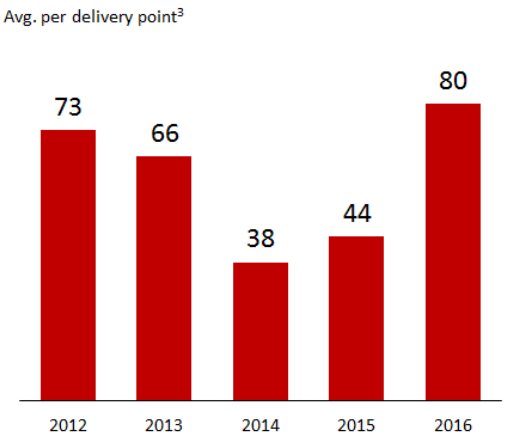
Reliability

Service reliability is typically measured by the average number, or frequency, of interruptions (SAIFI) and by the average duration of interruptions (SAIFI). The figures below show Hydro One's reliability performance from 2012-2016. The number of interruptions (SAIDI) was relatively stable over that period, with an improvement in 2016. The average length of interruptions showed some variability over the last five years but appears to be trending upwards in recent years.

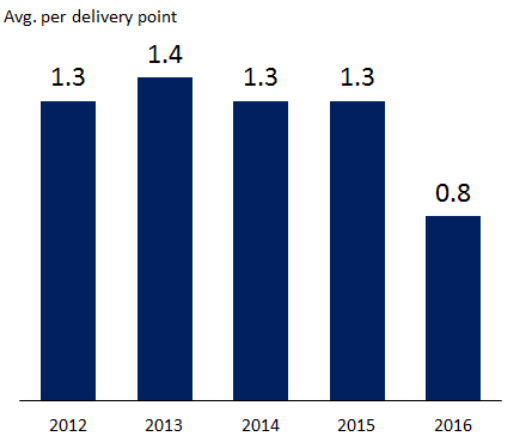
When it comes to Transmission reliability, Hydro One has performed well compared to its Canadian peers.

SAIDI & SAIFI
2012-2016

DURATION OF INTERRUPTIONS (SAIDI)[1]
2012- 2016



FREQUENCY OF INTERRUPTIONS (SAIFI)[2]
2012- 2016



Note: Includes both sustained and momentary interruptions. Excludes planned interruptions and interruptions due to customer activity. Excludes 2013 GTA flood (extreme Force Majeure event - a natural consequence of external forces that are beyond reasonable control).
1. System Average Interruption Duration Index
2. System Average Interruption Frequency Index
3. Interface between the Hydro One transmission system and its load customers. Delivery points consist of: (a) all Hydro One owned step-down transformer stations' low-voltage buses, and (b) stations owned by end-use transmission customers, including LDCs and other transmitters operating at 115kV or higher.

Reliability: Issues Driving Performance

A significant driver of the reliability performance experienced by a customer is whether or not that customer is connected to a circuit with redundancy. Customers on a circuit without redundancy experience 10x the average length of outages as those that are connected to delivery point with redundancy. About 30% of Hydro One's delivery points do not have redundancy.

Aside from redundancy, equipment performance is the largest controllable factor when it comes to system reliability, contributing 42% of system *interruption*[1] minutes. Asset continue to age (e.g., 19% of

conductors are now beyond *expected service life*[2] of 70 years) increasing the number of equipment related reliability issues.

Condition assessments have identified critical replacement needs, for example:

• 2,300 cct-km of conductors identified for priority replacement due to being at or near end of useful life[3].

• 9,100 steel towers at heightened failure risk due to depletion of their corrosion protection layer.

Hydro One continues to take action to mitigate reliability risk by:

• Managing equipment performance through robust, condition-based asset replacement programs.

• Reducing customer exposure to single-supply through improved planning and work processes.

1. Outages on the transmission system that interrupt the supply of energy to transmission customers.
2. The average time in years that an asset can be expected to operate under normal system conditions.
3. As asset-specific determination based on an asset's condition, criticality, performance, demographics, utilization and economics.

Reliability Risk Model

System reliability is often measured by the frequency and duration of power interruptions. These are historical measures or lagging indicators of performance because they are indicators of past asset investment decisions. While we can measure the historical contribution of equipment failures to system reliability, not every equipment failure leads to an interruption due to the redundancy of Hydro One's system. As a result, Hydro One cannot predict the impact of investments in equipment on SAIFI and SAIDI for the parts of its system that benefit from redundancy.

Reliability risk is a forward looking or leading indicator of system reliability performance. It is calculated using a model which forecasts the risk or probability of asset failure (or needed replacement), based on the historical relationship between asset age and retirement.

It is an outcome measure used to indicate the potential improvement or decline in system reliability as the result of an investment plan. This measure also serves as a directional indicator to inform the appropriate level of pacing of sustainment investments to avoid future decline in reliability. The reliability model is not used to identify specific asset needs and investments. Hydro One chooses the assets it replaces based on detailed assessments of their actual condition.

Delaying capital spending will, in time, result in more and more equipment outages. While redundancy ensures these outages do not immediately lead to customer interruptions, the outages will leave multi-circuit customers at risk of experiencing single-circuit reliability. Reliability risk helps to capture the expected risk customers face under these conditions.

Customer Outcomes: Performance

Reliability

Reliability performance is typically measured by the average number of outages experienced by its customers (SAIFI) and the average length of outages (SAIDI). Hydro One's SAIDI and SAIFI performance has been relatively steady of the 2012-2016 period, as shown in the Reliability section of this background material.

Safety

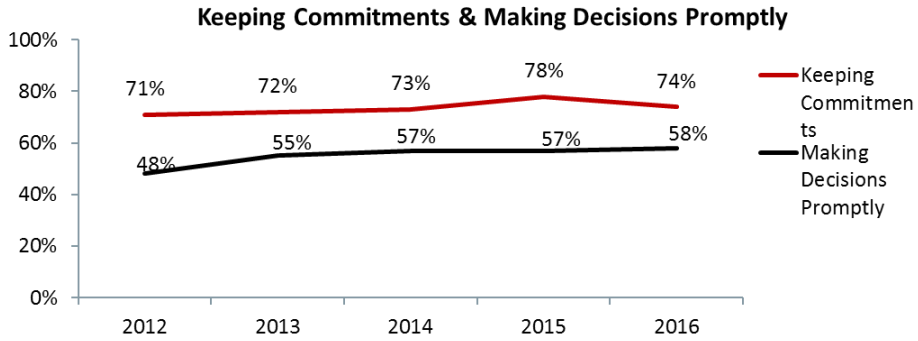
Public and employee safety are one of Hydro One's key strategic objectives. Hydro One's ultimate goal is strive towards zero safety-related incidents. The table below shows the number of serious work-related injuries/illnesses per 200,000 hours worked that have occurred from 2012-2016 along with the targets set by Hydro One. As shown in the table Hydro One has been outperforming its targets over the last five years.

Year	2012	2013	2014	2015	2016
Actual	2.3	2.5	1.8	1.7	1.1
Target	2.2	1.9	1.9	1.7	1.6

Customer Service

Every year, Hydro One conducts a survey of its large transmission customers. Among other things, Hydro One asks it's customers whether they feel Hydro One keeps its commitments to them and whether they feel Hydro One's staff makes decision promptly.

Results from 2012-2016 are shown below. The number of customers that believe Hydro One staff makes decisions promptly has increased by 10% over that period. The number of customers that believe Hydro One staff keeps its commitments has been consistent over that same period. Hydro One is committed to being more customer-focused and improving its customer service.



Detailed Scenario Summary

Illustrative Scenarios				
	A: Limited investment	**B: Decrease in current level of investment**	**C: Maintain current level of investment**	**D: Increase beyond the current level of investment**
5 Year Capital Investment	$1.8 B	$4.3 B	$6.6 B	$7.4 B
Reliability Risk	Increase in risk ~30%	Increase in risk ~10%	Decrease in risk ~10%	Decrease in risk ~15%
Long-term Reliability Impact	↓	↓	↑	↑*
Average Percentage of Key Assets Beyond Expected Service Life by end of 2023 (21% in 2019)	29%	26%	19%	17%
Number of Key Assets With a High Probability of Failure by end 2023 †				
Transformers (12 in 2019)	14	12	9	9
Breakers (121 in 2019)	174	144	125	121
Conductors (329 circuit-km in 2019)	419 circuit-km	362 circuit-km	285 circuit-km	273 circuit-km
Impact on Future rates	Significantly higher future rate increases	Higher future rate increases	Level future rate increases.	Slightly lower future rate increases.
Average Annual Total Bill Impact – Distribution Connected Customer	0.09%	0.23%	0.35%	0.38%
Average Annual Total Bill Impact – Transmission Connected Customer	0.11%	0.27%	0.42%	0.46%
Average Annual Transmission Rate Increase	1.30%	3.30%	5.10%	5.60%

* Improvement in overall long term reliability and significant performance improvement for small number of customers connected to the worst performing circuits

† As predicted by the reliability risk model. Hydro One only replaces assets in end of life condition, as determined by detailed asset condition assessments.

NOTE: Transmission charges assumed to represent 8.3% of total bill for Transmission connected customers and 6.8% for Distribution Connected customers.

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2018 Large Tx Customer Satisfaction

Understanding Dimensions of Satisfaction and Dissatisfaction

Hydro One
483 Bay Street
Toronto, ON M5G 2P5

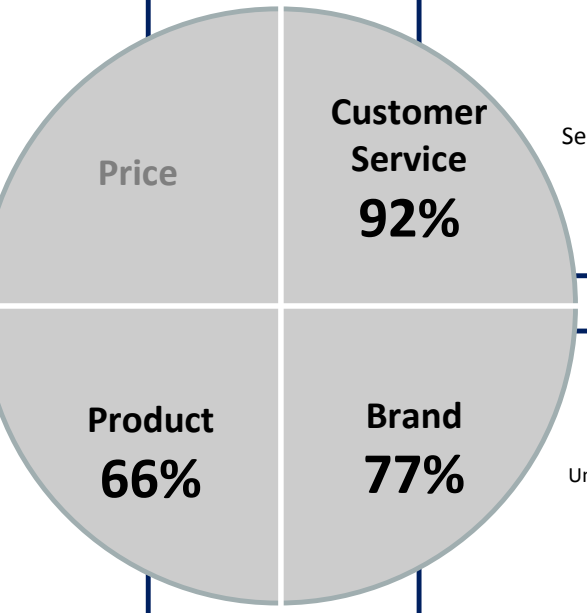
hydro one

October 2018 :: Review Draft

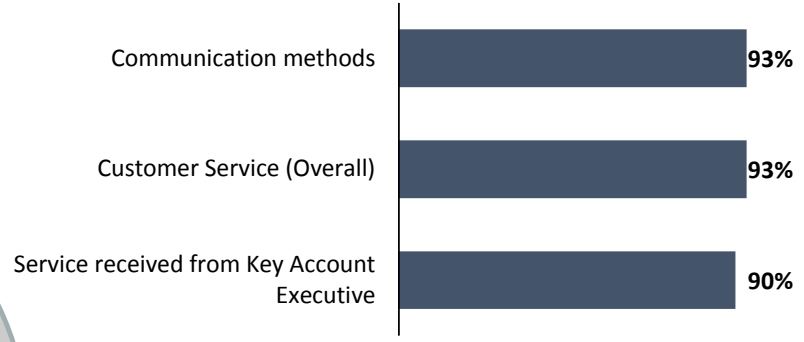
Survey Findings: Dimensions of Satisfaction (LTX – All Segments)

Price/Billing

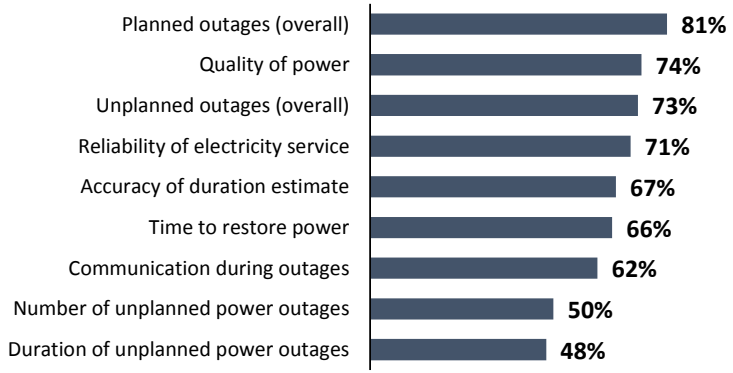
No price/billing questions pertaining to experience with Hydro One were asked of LTX customers



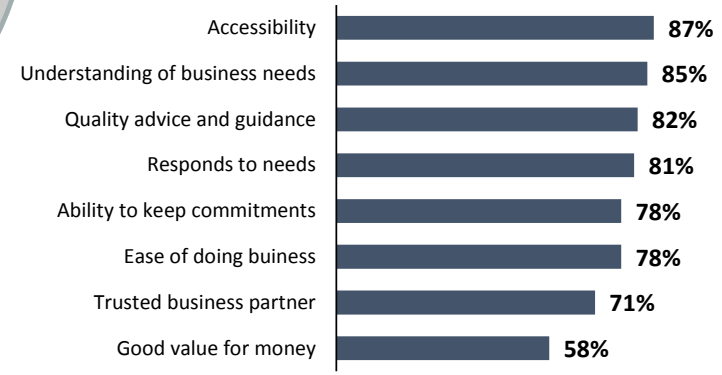
Customer Service



Product Quality/Reliability



Brand



NOTE: Percentages represent total satisfied (very and somewhat satisfied)
Response "Don't know" was included in this analysis.

CME INTERROGATORY #9

Reference:

TSP-01-03p. 29 of 33

Interrogatory:

At Exhibit B, Tab 1, Schedule 1, TSP Section 1.3, page 29, Hydro One states: "Hydro One asked LDCs to identify whether their responses to the survey were informed by their own customer engagement activities for the purposes of their own rate applications, or by any other customer research. Of the 28 respondents, 11 answered "yes" to this question."

a) How does Hydro One define a transmission customer?

b) Please confirm that the quoted paragraph means that a majority of LDCs (17 of 28) did not indicate that their answers were informed by customer engagement activities or by any other customer research.

c) In the same paragraph, Hydro One describes how price is the highest priority among residential customers, small business customers, and mid-market customers. How did this impact Hydro One's spending proposal? Please be as specific as possible regarding what choices/decisions regarding spending were made or not as the result of LDC end-user preference.

d) Please confirm that Hydro One chose not to directly solicit end-user preferences.

Response:

a) Transmission customers are considered to be LDCs, End-Use consumers of electricity and generators connected to the transmission system. See paragraph 1 of page 1 of Exhibit B-1-1, Section 1.3

b) Confirmed. The LDC responses are in Exhibit B-1-1, Section 1.3, Attachment 1, pages 53-56.

c) Hydro One developed a proposal that balances customer needs and preferences with rate impacts and asset/system needs. Hydro One has embedded substantial

Witness: Spencer Gill

productivity savings into its plans, which will enable Hydro One to deliver valued outcomes at a lower cost, as detailed in Exhibit B, Tab 1, Schedule 1, Section 1.6.

d) Hydro One asked End-Use customers connected to the transmission system to participate in the 2017 Transmission Customer Engagement survey.

CME INTERROGATORY #11

Reference:

TSP-01-03-01p. 46 of 144

Interrogatory:

At Exhibit B, Tab 1, Schedule 1, Section 1.3, Attachment 1, page 46, customers were provided will illustrative spending scenarios.

a) Why wasn't a scenario provided that had a net reliability risk of 0%, that is to say, neither increase risk nor decreasing risk?

b) Page 46 states that participants in the survey were provided with a preamble on the four illustrative investment scenarios. It then states that each scenario was described in detail, and the table at page 46 was provided.

   Please confirm whether any information other than that found at Appendix 1.2 and 1.3 were provided to participants. If so, please indicate the material's location in the evidence for EB-2019-0082. To the extent it has not yet been provided, please provide it.

Response:

a) Although there wasn't a specific scenario provided that had a net reliability risk of 0%, various scenarios were placed on a broad spectrum to allow for more optionality. The closest scenario to a net reliability risk of 0% is Scenario A: Limited Investment. Five of the 103 respondents selected Scenario A and two selected points on the spectrum below Scenario A.

b) No other information was provided to participants other than that found at Appendix 1.2 and 1.3.

Witness: Spencer Gill

SEC INTERROGATORY #19

Reference:
TSP-01-05 p.11

Interrogatory:
Please confirm that Hydro One did not develop a performance indicator that better reflected the satisfaction level of the ultimate end-use customer as directed by the Board in its EB-2016-0160 decision.

Response:
In its 2017 Transmission Customer Engagement Survey, Hydro One asked LDCs to identify whether or not their responses to the survey were informed by their own customer engagement activities for the purposes of their own rate applications. The LDC End-User Satisfaction section of TSP Section 1.5, pages 11, 12 and 13 also addresses the OEB's direction in EB-2016-0160.

Hydro One also contacted LDCs to solicit further approaches it could use to obtain feedback from LDC end-users, in the future. The feedback from LDCs included: (i) suggestions to continue using the account executive model to serve the needs of LDC customers, a program Hydro One has expanded as described above; (ii) that Hydro One meet with the large industrial customers of other LDCs, with Hydro One executives responding to customer concerns. Hydro One executed this suggestion and will facilitate future meetings as requested by LDCs; and (iii) that Hydro One may review LDC survey information, which it already takes into consideration during the course of its investment planning process. See TSP Section 1.3, pages 28 to 30.

Witness: Spencer Gill

SEC INTERROGATORY #12

Reference:
TSP-01-03

Interrogatory:
With respect to customer engagement:

a) What percentage of the proposed 2020-22 revenue requirement is expected to be recovered from, i) LDCs, ii) transmission connected end-use customers, iii) generators, iv) others.

b) The Board in its EB-2016-0160 Decision stated that "Hydro One should have discussions with LDCs to determine practical ways to seek some input from their end users to inform Hydro One's application." (p.24). Please explain how Hydro One has met this direction.

c) Please explain why Hydro One did not engage with non-transmission connect end-use customers (i.e. customers of LDCs).

Response:
a) Based on the charge determinants forecast by customer type, it is expected that 92% of the rates revenue requirement will be recovered from LDCs, 7% from transmission connected end-use customers and 1% from generators.

b) This information is summarized in Exhibit B-1-1, TSP Section 1.3 pages 28 to 30 under the heading: "Finding 2: Include Feedback from LDC End-Users".

c) There are two primary reasons why Hydro One did not directly engage further with customers of LDCs. First, we do not maintain customer information of other LDC's customers, and could not readily obtain it, without first seeking the consent of each individual customer. Second, Hydro One does not have a direct relationship with these customers, and it would likely be confusing to the customer. Our survey had supplementary questions that can be found in Exhibit B-1-1, TSP Section 1.3, Attachment 1, pages 54-56. These supplementary questions were viewed as an opportunity for LDCs to express the needs of their direct customers.

Witness: Henry Andre, Spencer Gill

SEC INTERROGATORY #2

Reference:

Interrogatory:
Please provide all materials provided to the Board of Directors for the approval of this application and the associated 2020-22 budgets.

Response:
The 2019-2024 Transmission Business plan was provided to the Hydro One Board of Directors on December 14, 2018 and may be found at Exhibit A, Tab 3, Schedule 1, Tab 1.

Attached please find the materials provided to the Hydro One Board of Directors dated January 23, 2019 for their review and approval of this Application.

Witness: Joel Jodoin

Filed: 2019-08-02
EB-2019-0082
Exhibit I-7-SEC-2
Attachment 1
Page 1 of 12

2020-2022 Transmission Rate Application

Board of Directors | January 23, 2019

hydro One

2. Communications Plan Summary

- The Communications Plan includes a briefing note, draft press release and infographic (See Appendix I)
- Key objectives of the plan are to:
  - minimize negative sentiment and the duration of coverage
  - achieve a neutral and balanced outcome in the regulatory process
- Hydro One's narrative will reframe the focus on rates to a larger conversation about investment and benefits
- Communications will be proactive, simple and engaging, using plain language, easy to understand visuals and compelling customer stories
- Hydro One's narrative will be shared through multiple channels including a press release, media interviews, social media, web content, etc.

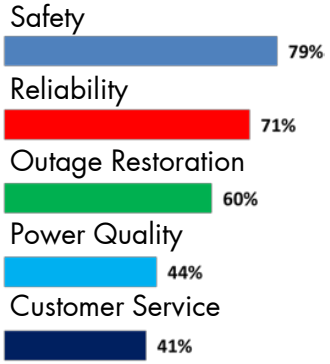
3iii. Customer Needs and Preferences

- The transmission plan integrates feedback from a customer engagement survey[1] completed in 2017 and feedback from ongoing engagement activities in 2018

- In the survey, customers'[2] preferred outcomes included:
  - Top priority was related to safety, as outages present a safety hazard to operations
  - Next priority was reliability and improvements to outage restoration, especially SAIFI
  - Business customer segments prefer investments to be spread out over time, with stable rate increases
  - Customers selected an investment scenario than maintained the pace of capital investments and had an associate rate impact of 5.1%/year[4]

- To improve customer service, the following initiatives are underway or planned:
  - Initiatives to improve reliability, including transformer replacements and lines refurbishment
  - Work to resolve power quality issues for large customers, by adding capacity to the system
  - New customer connections/ upgrades to enable growth
  - Directly engage large transmission customers through dedicated Account Executives who act as a "single point of contact", allowing Hydro One to better understand customers' concerns

TX CUSTOMERS[3]



1. *Report on Hydro One Transmission Customer Engagement Survey, Innovative Research Group, July 2017 (Innovative Report)*
2. *Hydro One Transmission's customer base is made up of: (1) electricity generators who deliver power to the transmission system, (2) distributors who deliver power to direct customers, and (3) end-users such as mining and industrial enterprises that use the power themselves at transmission level voltage*
3. *Innovative Report, p. 28*
4. *Innovative Report, p. 20*

3vii. OEB Concerns Addressed

Prior OEB Finding	Detailed OEB Feedback	Actions Taken
Customer engagement	▪ Use customer engagement feedback to inform plan	▪ Earlier, more comprehensive customer engagement ▪ New risk taxonomies informed by customer engagement feedback
Deficiencies in prioritization	▪ Questioned prioritization and optimization process	▪ Clear, comparable new taxonomies drive investment scoring and prioritization brought to Distribution ▪ Risk scores used to maximize risk mitigation per dollar spent
Asset Condition Assessments	▪ Need a comprehensive asset condition process that informs the prioritization	▪ Risk scores are tied back to available condition assessments ▪ Updated inventory of assets and condition assessment strategy with identified opportunities ▪ Third-party assessments and data initiatives completed
Value Added in Review	▪ In the last application, the plan did not change despite seven months of review	▪ Multiple challenge sessions where the merits of individual investments are debated
Sequencing	▪ Plan was submitted for rate filing before Hydro One Board approval	▪ Sequencing issues addressed for multi-year performance based regulatory applications
Internal Audit	▪ Planning process had outstanding internal audit items to address	▪ All original internal audit items are complete ▪ Follow up internal audit shows lower overall risk level and other recommendations have been addressed
Work Program Delivery	▪ Hydro One had not historically delivered its capital and OM&A programs to OEB approved level	▪ Enhanced upfront engineering and planning deliverables ▪ Increased governance throughout investment lifecycle ▪ Minimal in-service addition variances (1% for 2017, forecasted -2% for 2018)