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



RPP Roadmap: Update on RPP Pilots

Purpose and Overview

Provide an update on the current state of RPP pilots

Presentation Overview:

1. Current Status of Pilot Projects
2. Value of the Pilot Model
3. Recap of the RPP Roadmap and Pilot Guidelines
4. Pilot Proposals received to date
5. RPP Pilot Timelines
6. Next Steps



Project Overview and Current Status

- The OEB is undertaking pilot programs as part of a multi-year initiative to redesign the RPP to provide better value and support public policy objectives.
- Last summer, the OEB invited distributors to propose pilots that would test the effects of different rate structures and customer response to changes in the information they receive about their consumption habits and prices they pay. Focus is RPP residential customers on TOU.
- The OEB received 5 applications from LDCs across Ontario, proposing testing of nearly 27,000 customers:
 - Two pilots are approved by OEB for implementation
 - Two more are in advanced stages of review
 - Contract and reporting framework in late stages of development
- Distributors working toward implementation and customer recruitment over spring and summer.
- Pilots to be in place by November 2017, and run for a year.
- Ability for more pilots to be considered once initial applications are processed.
- Detailed results of currently proposed pilots expected in 2019.
- These price-based experiments will allow real-world experiences and preferences of customers to shape a re-vamped approach to the way electricity is priced for customers -- unlocking more value for the electricity system – and consumers – in the process.



Value of the Pilot Project Model

- Alternatives to the current mandatory TOU price structure will benefit from real-world deployments at pilot scale to learn more about customer behaviour and acceptance.
 - Testing of certain pricing approaches, such as flat rates or very low overnight costs, in conjunction with planned surveys on demographic attributes and usage habits, will help to inform how different customer types can take advantage from departures from the current TOU structure.
 - CPP and Enhanced TOU testing will support the extent to which modifications to TOU can better support policy objectives.
- Price plans will still be built with cost recovery in mind. Enrolled customers will pay actual pilot prices. Attrition and opt-out will help to gauge customer acceptance, understanding and willingness to pay for certain price features.
- Pilots provide value by delivering reliable, reproducible results at a manageable scale. Changes to RPP price plans in the absence of evidence about customer understanding and price responsiveness can lead to cross-subsidies between customers and jeopardize cost recovery – which, under the Fair Hydro Plan, could add refinancing costs beyond those forecast.
- Ways to deliver both customer choice and greater system value nevertheless remain a priority. IESO system planning report indicated in September that current supply situation is expected to be adequate “generally over the next decade across all outlooks”.
- Time is therefore available to accommodate a project timeline that will support better planning and delivery of pilot projects, leading to more robust pricing alternatives in future.



Background: The Role of the RPP Roadmap and Pilot Guidelines

The OEB released the Regulated Price Plan Roadmap in November 2015

The Roadmap sets out “a five-point plan to be implemented over the course of the next 3 to 5 years. Through this plan, the OEB intends to redesign the RPP to better respond to policy objectives, improve system efficiency, and give greater consumer control.”

1. Renew the RPP objectives (completed)
 2. Empower Consumers: Enhancing energy literacy and non-price Tools (currently underway)
 3. Implement price pilots (currently underway)
 4. Engage with low volume business consumers (early stages)
 5. Work with government to reduce barriers
- The renewal of RPP objectives was established within the Roadmap and focused on setting prices that, besides recovering costs, support efficient system operation and investment and encourage customers to reduce their peak demand.



Background: The Role of the RPP Roadmap and Pilot Guidelines

- The **RPP Pilot Guidelines** are a component of the Roadmap that invites distributors to test new priority price and non-price options through pilot projects, which will be used to inform new price plans that could be made available to all RPP-eligible customers. A December 2016 directive from the Minister of Energy established a framework by which the OEB could approve pilot projects to be funded through the IESO's Conservation Fund.

OEB's Priority Pricing Options (July 2016 guidelines):

- Critical Peak pricing (CPP)** - overlays TOU with different prices for specific hours of the year (e.g., 2 pm to 6 pm on a hot summer weekday) when the electricity system is stressed and/or hourly energy market prices are high. CPP can be **quick-ramping** (CPP imposed at short notice, and used in conjunction with automation); in some approaches both CPP price and duration may also vary.
- Enhanced TOU**: the peak- to off-peak price ratio is higher, but the pricing periods remain unchanged.
- Super Peak TOU**: has a high ratio (super) peak during the inner summer or winter months and no mid-peak period.
- Evening Peak TOU**: shifts the summer peak later in the day to match the system peak.
- Seasonal TOU**: eliminates the mid-peak period and introduces flat rates during the shoulder seasons of spring and autumn.

Priority non-price options :

- A **information** option can test the impacts that giving real-time or delayed information to customers about their consumption and other feedback can have on their behaviour – mobile apps, monthly reports, consumption tips etc.
- A **automation** option is often a form of technology (e.g., smart thermostat, load control devices), whether controlled by the user or the utility, or pre-set. Interest in multi-appliance, customer-programmed, and quick-ramping automation.

In addition, distributors were invited to propose their own pricing scenarios as part of the pilot proposal process.



RPP Pilot Proposals: Current Status

	London Hydro	Alectra Utilities	Hydro One	Oshawa PUC	Customer First
CPP	•		•	•	
Enhanced TOU		•	•		•
Super Peak TOU				•	
Evening TOU					
Seasonal			•	•	•
Two-period*		•	•		
# Customers	2,000	14,000	4,450	2,000	4,400
Proposed Budget	\$2.73M	\$9.39M	\$5.97M	\$5.8M	\$2.56M
Status	Pilot approved	Pilot approved	Under review	Under review	Recruiting technical partner
Readiness	Ready	Ready	TBD	Moderate	Moderate
Next Step	Enter contract	Enter contract	Seek OEB approval	Seek OEB approval	Resubmit application

*Alectra's two-period proposal includes a CPP-like element insofar as the on-peak price would vary based on system conditions.

**Number of participants and projected budgets are subject to change following OEB review and approval.



London Hydro Pilot Overview

Expected Participants:

- 2,000 customers in total, with 1,000 participating in the non-price experiment, 500 participating in the price experiment and 500 participating in both the price and non-price experiment.

Price Experiment:

- **Quick-ramping CPP with automation** – Customers who participate in this experiment will be subject to short critical peak periods (1 - 2 hours) without notification. During these periods load control technologies (that are a requirement of this rate option) will reduce customer demand. Targeting about 20 events in summer and winter.

Non-Price Experiment:

- **Real-time information feedback** – Customers will receive access to personalized data and reports that will track energy usage, savings, provide TOU price alerts and energy advice/tips.

Proposed Budget:

- Total proposed budget of \$2.73M of which \$2.37M is sought to be funded through the Conservation Fund.



Alectra Utilities Pilot Overview

Number of Expected Participants:

- 14,000 customers in total; a detailed breakdown of how customers will be allocated to information and communication experiments is outlined in Appendix B on slide 13.

Price Experiments:

- **Enhanced TOU** –higher on-to-off-peak differential; TOU periods (i.e. hours when off or on prices in effect) will remain unchanged.
- **Variable Peak Pricing with CPP** – Two rates in this plan: off-peak rate from 9pm to 3pm that does not change and a variable-peak weekday rate from 3pm to 9pm that can either be low, medium, or high depending on IESO day-ahead demand forecasts. Customers will also be subject to a critical peak price during the variable price period that will be at most four hours long.
- **Enhanced TOU with Low Overnight** – This rate will have an additional off-peak period from 12am to 6am to encourage the shifting of discretionary load and will have a higher mid- and on-peak rate. Open to all customers; may be attractive to shift workers or others with flexible usage patterns. EV customers who enroll in this pilot will be provided with a load control device that will pair with their EV charger and are expected to participate in quick-ramping CPP events.

Non-Price Experiments:

- **Behavioural communication messaging** – Customers will receive access to personalized data and reports that will track energy usage, savings, provide TOU price alerts and energy advice/tips.
- **Real-Time Information Feedback** – Customers will either receive a smart thermostat to better control their energy usage or a mobile app that will disaggregate total usage in order to identify high-usage activities within the household. EV customers in the Low Overnight rate will be provided with load control technologies that pair with their EV charger.

Proposed Budget:

- Total proposed budget of \$9.39M of which \$8.37M is sought to be funded through the Conservation Fund.



Oshawa PUC Pilot Overview

Number of Expected Participants:

- 2,000 customers in total; 500 customers will be allocated to each price and non-price treatment and 500 will be allocated into a control group.

Price Experiments:

- **Super Peak TOU** – Plan charges two rates within an on- and off-peak period for a majority of the year. However, during either a summer or winter season (defined to be three months in length) this rate option will become a three-part rate and introduce a super-peak period.
- **Seasonal TOU with CPP** – Plan includes off- and on-peak prices in the winter and summer seasons (effective 7 to 7) and a single, flat rate in the shoulder season.

Non-Price Experiments:

- **Real-Time Information Feedback** – Customers will receive communications through the delivery method of their choice (e.g. mobile app, direct mail, web portal, call center) that will provide disaggregation of total usage, track energy usage and savings, and generate behavioural messaging to incentivize customer behaviour.

Proposed Budget:

- Total proposed budget of \$5.79M of which \$5.51M is sought to be funded through the Conservation Fund.



Hydro One Pilot Overview

Number of Expected Participants: 4,450 customers in total.

Price Experiments:

As part of the pilot's intake methodology, customers will take part in an initial survey (conjoint analysis) that will gauge the attributes they value most in an alternative rate option, helping to optimize savings opportunities and customer satisfaction. The results from this analysis will be used to provide customers with multiple rate options to choose from before they begin the pilot.

- **Enhanced TOU** – bigger price spreads, same TOU hours.
- **Seasonal TOU** – flat shoulder period prices, two-period prices in winter and summer (effective 7 to 7).
- **Critical Peak Pricing** – Variable peak pricing structure targeting 15 critical event days.
- **Real Time Pricing** – Prices fluctuate with the wholesale rate and typically change hourly.
- **Flat Rate Pricing** – a flat rate at a premium to the average price.

Hydro One proposes to design at least two pilots to have all-in rates – i.e. rates in these pilots will recover not merely commodity costs, but also all regulatory and delivery charges as well. According to Hydro One, which pilots will be subject to this design will be determined during the conjoint analysis.

Non-Price Experiments:

- **Real-Time Information Feedback** – Each treatment offered will be matched with information feedback. Customers will receive either a smart thermostat or an in-home display to better control their energy usage and receive instantaneous feedback on their energy usage.

Proposed Budget:

- Total proposed budget of \$5.96M of which \$5.88M is sought to be funded through the Conservation Fund.



Customer First Pilot Overview

Customer First is comprised of seven LDCs – Greater Sudbury Hydro, Newmarket Tay Hydro, PUC Distribution Inc. (Sault Ste. Marie), Espanola Regional Hydro Distribution Corporation, Northern Ontario Wires Inc. and St. Thomas Energy Inc.

Number of Expected Participants:

- 4,400 customers in total; 2,300 customers will be allocated to the Enhanced TOU group and 2,100 to the Seasonal TOU group.

Price Experiments:

- **Enhanced TOU** – Customers who participate in this experiment will be subject to a higher on- to off-peak differential. TOU winter and summer periods will remain unchanged.
- **Seasonal TOU** – Customers participating in this option will be subject to an off- and on-peak rate in the winter and summer seasons and a single rate in the shoulder season.

Proposed Budget:

- Total proposed budget of \$2.15M of which \$2.07M is sought to be funded through the Conservation Fund.

This application will be complete once Customer First has selected a technical partner to support its experimental design and evaluation, measurement and verification protocols.



LTEP - Possible Highlights

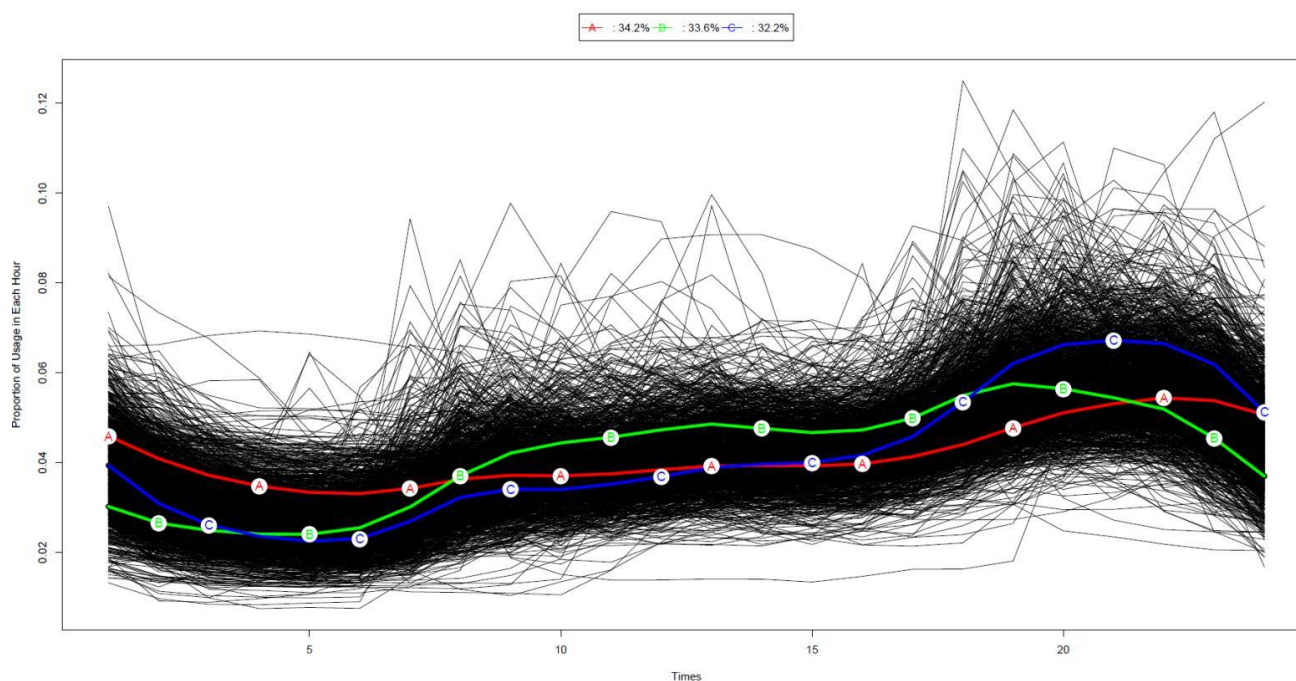
Potential highlights for consideration:

- The OEB has approved [#] pilot projects for in-field testing by [#] distributors, targeting more than ##,000 customers with innovative pricing plans that can help to give customers more control and better information about their behaviour.
- These pilot projects are expected to be fully deployed by Fall 2017 and will be in place for a full year.
- These price-based experiments will allow real-world experiences and preferences of customers to shape a re-vamped approach to the way electricity is priced for customers -- unlocking more value for the electricity system – and consumers – in the process.



Further Work Ahead

- Further OEB avenues of investigation include:
 - Consideration of alternate pilot scenarios, including those which may be informed by research into customer typology and what price plans may make sense for them.
 - Study of generalized consumption patterns expected to be a key input.



RPP Pilot – Detailed Timelines

April – May 2017:

- Applicants who have provided finalized pilot applications are notified if their RPP pilot has been approved
- Finalize Applicant-IESO settlement contract and supporting documentation
- Applicants enter into a contract with the IESO
- Early recruitment activities
- Communications launch

Summer 2017

- Applicants begin to market RPP pilots and recruit customers
- Applicants make necessary arrangements to ensure pilot is ready for go-live date

November 2017

- RPP pilots go-live for one year
- Applicants provide interim report outlining pilot progress and results

Early 2019

- Applicants provide OEB with a final report outlining pilot results

OEB will continue to work to identify further priority areas/pricing plans to explore through pilot initiatives and has expressed interest in receiving more proposals from distributors in response to inquiry.



Appendix A: Sample Price Plans

Time of Day	Status Quo		Status Quo with Critical Peak		Seasonal TOU		Summer Super Peak TOU		Status Quo with Critical Peak Days		Enhanced TOU	
	Price(\$/kWh)	Applicable Period	Price(\$/kWh)	Applicable Period	Price(\$/kWh)	Applicable Period	Price(\$/kWh)	Applicable Period	Price(\$/kWh)	Applicable Period	Price(\$/kWh)	Applicable Period
Off-Peak	\$0.087	7pm - 7am Weekdays, 24 hours on Weekends and Holidays	\$0.070	7pm - 7am Weekdays, 24 hours on Weekends and Holidays	\$0.076	7pm - 7am Jun. through Aug., Dec. through Feb., 24 hours on Weekends and Holidays	\$0.087	7pm - 7am, Weekdays; 24 Hours, Weekends	\$0.087	7pm - 7am, Weekdays; 24 Hours, Weekends	\$0.059	7pm - 7am, Weekdays; 24 Hours, Weekends
Mid-Peak	\$0.132	7am - 11am and 5pm - 7pm Summer Weekdays; 11am - 5pm Winter Weekdays	\$0.132	7am - 11am and 5pm - 7pm Summer Weekdays; 11am - 5pm Winter Weekdays					\$0.114	7am - 11am and 5pm - 7pm, Weekdays	\$0.176	7am - 11am and 5pm - 7pm, Summer Weekdays; 11am - 5pm Winter Weekdays
On-Peak	\$0.180	7am - 11am and 5pm - 7pm Winter Weekdays; 11am - 5pm Winter Weekdays	\$0.180	7am - 11am and 5pm - 7pm Winter Weekdays; 11am - 5pm Winter Weekdays	\$0.189	7am - 7pm Jun. through Aug., Dec. through Feb., Weekdays	\$0.123	7am - 1pm Jun Weekdays, Jun. through Aug.; 7am - 7pm, Weekdays, Sept. through May	\$0.154	11am - 5pm, Weekdays	\$0.234	7am - 11am and 5pm - 7pm, Winter Weekdays; 11am - 5pm Summer Weekdays
Critical Peak, Super-Peak, or Critical Peak Day			\$0.650	2pm - 6pm, Top 15 Summer or Winter Demand Days			\$0.337	1pm - 7pm, Weekdays, Jun. through Aug.	\$0.400	10am - 10pm, Top 5 Summer Demand Days		
Shoulder Months					\$0.113	24 hours, Sept. through Nov., March through May						

**Indicative prices only, based on November 2016 price inputs. Actual prices implemented require approval of the OEB and will be set prospectively to reflect RPP costs at the time.
Variable Peak and Low Overnight rate not shown here.*



Appendix B: Alectra's proposed Experimental Design

