



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

REGULATED PRICE PLAN
ROADMAP: GUIDELINE FOR PILOT
PROJECTS ON RPP PRICING
EB-2016-0201

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A. INTRODUCTION

This is the Ontario Energy Board's (OEB) Regulated Price Plan (RPP) Guideline for Pilot Projects on RPP Pricing (Guideline). The Guideline has been prepared with assistance from the Brattle Group and informed by comments received from members of a stakeholder working group on pilot implementation, including electricity distributors, consumer representatives, the Independent Electricity System Operator (IESO), and the Ministry of Energy.

The Guideline explains what the OEB's objectives are for RPP pilots, identifies priority treatments for price and non-price pilots, and lays out a framework for electricity distributors to design, implement and evaluate these pilots. The OEB is also providing direction on what should be filed by distributors in support of an application for a pilot program and the mechanism for cost recovery to simplify the process and reduce uncertainty for applicants.

This Guideline addresses the OEB's approach to pilot programs for residential RPP consumers. The OEB is currently examining issues related to low volume business consumers and will issue further guidance about pilots directed at those consumers in due course.

A.1 – Background

On November 16, 2015 the OEB issued its [Regulated Price Plan \(RPP\) Roadmap](#), which set out a five-point plan to be implemented over the course of the next 3 to 5 years. This multi-year process will undertake a comprehensive revamping of the RPP that will make incremental changes over the course of the plan in order to provide consumers with an adequate amount of time to adjust to the changes. Through this plan, the OEB intends to redesign the RPP to better respond to policy objectives, improve system efficiency, and give greater consumer control.

The RPP Roadmap concludes that of the four objectives originally set out in the RPP, two were not being achieved. The current TOU price structure is not:

- Creating a price structure that is easily understood by consumers, or

- Setting both prices and a price structure to give consumers incentives and opportunities to reduce their electricity bills by shifting their time of electricity use.

In order to address these issues, the OEB formulated two of the main components of the RPP Roadmap:

- Implementing price pilots: The OEB stated that it would work with LDCs to undertake several pricing (and non-price) pilots. The pilots will run for at least one calendar year to assess whether there is persistence in the impact of the intervention.
- Empowering Consumers: Enhancing energy literacy and non-price tools: The OEB stated that it intends to launch non-price pilot initiatives, such as piloting automated load control technology and behavioural interventions.

The OEB established a working group with distributors, the IESO and consumer representatives to discuss potential options for price and non-price pilots as part of implementing the OEB's new RPP policy.

As stated in the RPP Roadmap, from the price pilots that are conducted and evaluated, the OEB will identify options that meet the RPP objectives. The OEB will examine the successful options with a view to making them available to all RPP eligible consumers. Non-price pilots may lead to changes in the design of electricity bills as well as what and how information is presented to consumers.

B. OVERVIEW

As part of advancing the RPP Roadmap, the OEB is calling for electricity distributors to submit applications to conduct pilots to test price and non-price programs that may eventually be scaled up province-wide.

The objectives of these pilots are (as indicated in the RPP Roadmap):

1. Set the price structure to support the achievement of efficient electricity system operation and investment;

2. Set both prices and the price structure to give consumers incentives and opportunities to reduce their electricity bills by shifting their time of electricity use and reducing their peak demand;
3. Enhancing energy literacy and consumer response through non-price tools.

For both pricing and non-pricing pilots, the OEB and its advisors will provide guidance and advice on the adequacy of the experimental design, sampling, survey and measurement and verification approach. The OEB will require regular updates from participating distributors throughout the life of the pilot.

The OEB engaged the Brattle Group to assist in constructing a technical manual for the development, implementation, and evaluation of pilots. The Brattle Group's Technical Manual is posted on the OEB's website and should be read in conjunction with, and supplemental to, the OEB's Guideline (particularly as LDCs move from proposals to implementation). The Technical Manual contains the technical details regarding pilot implementation and experimental design (e.g. recruitment and sampling).

The OEB expects that distributors will follow the OEB's Guideline and the Technical Manual. Distributors are responsible for ensuring that all relevant information discussed in both documents is provided before the OEB.

Distributors should note that providing a complete application does not guarantee pilot approval. The OEB will assess all applications in order to determine which pilots would provide the highest value to Ontario consumers and move forward with these applicants.

C. TIMEFRAME

Distributors may begin submitting pilot applications as of July 20, 2016. The deadline for submitting applications is August 19, 2016.

The OEB expects that approved pilots will be operating in the field no later than May 1, 2017.

All approved pilots must be completed with all deliverables, including final evaluations of the pilots, provided to the OEB no later than December 1, 2018.

D. PRIORITY PILOTS

D.1 – Price

Pricing pilot treatments are a top priority of the RPP Roadmap. For most residential consumers in Ontario, the RPP is a time-of-use rate.¹ TOU prices vary based on when electricity is used. They are designed to encourage consumers to use power when electricity market prices are lower.

The research conducted as part of the RPP Roadmap indicated that the response to TOU pricing to date has been moderate and that many consumers may prefer an alternative time-varying pricing option and/or an ability to choose between different options.²

The OEB has identified priority pricing pilots with the aim of examining alternatives and choice for consumers in addition to or as a replacement for the current TOU regime. The priority pricing pilots reflect both modifications to the existing TOU rate and the introduction of more dynamic pricing. The broad structure of these pilots is adapted from the 2014 Navigant study examining alternative TOU structures: "[Time of Use Rates in Ontario Part 2: Alternative Scenario Analysis](#)". The priority pilots are:

TOU with Critical Peak Price (CPP): CPP is the application of 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. TOU with CPP maintains the current TOU rate structure and overlays it with CPP. There are two different varieties of CPP, regular CPP and quick ramping CPP.

¹ Some customers remain on "Tiered Pricing".

² The general structure of the priority price pilots is adapted from the Navigant study: "[Time of Use Rates in Ontario Part 2: Alternative Scenario Analysis](#)".

Regular CPP will vary both the price and the number of peak hours called to see how these variables influence customer response. The CPP events are predetermined. Participants are notified by telephone, email or text messages prior to the CPP event occurring. Typically a CPP window is about 4 hours long, but may be shorter or longer.

Quick Ramping CPP has a very short critical peak pricing window (15 minutes) and no advanced notice. Quick ramping CPP events are not predetermined. As a result, quick ramping CPP requires enabling technology to ensure customer response.

TOU Variations: These price structures test a range of TOU options.

- *Enhanced Peak TOU* the peak to off-peak price ratio is higher, but the pricing periods remain unchanged.
- *Super Peak TOU* has a 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.

Of the pricing structures discussed above, the Evening Peak TOU and both CPP options are potential future choices that could be offered, in addition to a default TOU rate. The remaining TOU pricing structures described above are potential replacements of the current default TOU rate and time period structure, or may be developed as options for consumers to choose from.

For those pricing treatments that may only be offered as choices to consumers in the future, the Evening Peak TOU and CPP, the pilots would have to be offered on an opt in basis only to reflect the manner in which they would be implemented. Both opt in and opt out strategies may be applied for other pricing treatments, and in the normal course a mixture of approaches would be used. Appendix A provides further description of the priority pricing treatments.

The OEB expects that distributors will conduct pricing pilots identified above with and without enabling technology in order to be able to identify the impacts of the enabling

technology and prices independently. Enabling technologies can include home or device automation, enhanced customer feedback, or combinations of the two.

The OEB will advise on the specific prices and pricing periods to be used before the pilots are implemented.

While the OEB has identified priority pilots, distributors are welcome to submit applications for alternative pricing policies to be tested. For example, the OEB's Working Group identified the additional price options that could be run alongside the Priority Pilots identified above. These other options are listed in Appendix B.

D.2 – Non-Price

The non-price pilots seek to fulfill the RPP Roadmap goal of empowering consumers by enhancing energy literacy through the use of non-price tools. These non-price tools and pilots will be used to help make TOU pricing more easily understood by consumers. The RPP Roadmap noted that “research findings suggest that there are a number of non-price interventions that could increase energy literacy and improve consumer response to TOU pricing (and other CDM programs) in terms of shifting use and/or conservation.”

Non-price pilots can be split into two broad categories – information and automation.

Information treatments are defined by the content of the message, how the message is framed, the delivery mechanism (form), and the immediacy/timing of the message. The framing of the message will depend on the type of customer motivation that the pilot is trying to engage. Also, psychological biases can be leveraged to potentially increase the impacts.

Automation treatments are defined by who is in control of the appliance(s), how that control is exercised (form), and what the control is being exercised on (end-use). For example, a smart thermostat (type) may be controlled by the utility (controller) to reduce its cooling (end-use) set point, or it may be controlled by the customer, who pre-programs responses to utility signals or pricing events.

The **priority information treatments** are:

Real time vs. delayed provision of information: This timing treatment would test the impact of providing customers with information about their electricity usage or costs. For example, a consumer could be provided with information about their electricity consumption or costs on either a real-time or delayed (e.g., weekly or monthly) basis. This (and the other information treatments) would be run as two separate treatments (i.e. one group getting real time information and the other group receiving delayed information) within one pilot to gauge their relative efficacy.

Example of Delayed Information Provision



Source: BEworks, "[Analyzing and Nudging Energy Conservation and Demand Shifting Through Time of Use Compliance.](#)"

Financial Opportunity vs. Environmental/Health information: This framing treatment would test the impact of providing customers with information framed as a financial opportunity or in terms of motivations related to the environment or health.

For example, financial information framed as an opportunity to save money could be a message related to not running the dishwasher during the TOU Peak period, such as: "Running your dishwasher in the TOU off-peak period can save you \$50 per year." Framing an environmental message could include information on the content on carbon dioxide emissions, for example, the message could be

“Running your dishwasher in the TOU off-peak period can save 10 kilograms of carbon dioxide from being released into our atmosphere.”

Example of Environmental Message

Shifting when you use electricity saves the environment by decreasing on-peak loads which rely more heavily on fossil fuels.

Sign the following pledge to shift your usage and do your part to help the environment:

I, _____ pledge to do any or all of the following:

- Wait until after 7pm or weekends to do my laundry
- Turn my A/C unit up by a few degrees during the daytime
- Invest in a programmable thermostat or an energy efficient appliance



Source: BEworks, “[Analyzing and Nudging Energy Conservation and Demand Shifting Through Time of Use Compliance.](#)”

Cost per kilowatt hour (\$/kWh) vs. Bill to date: This content treatment would test the impact of providing customers with information about their electricity consumption based on the cost of their usage on an hourly basis compared to a running total of their spending.

For example, for one customer, the message could be “Over the last hour you spent \$3 on electricity.” Alternatively, the message could be “You have spent a total of \$50 on electricity so far this month.”

The **priority automation treatments** are:

Multi-appliance automation: This treatment offers a utility interface that controls multiple devices, for load control events. Customers can exercise control over the order and magnitude that each appliance is curtailed.

Customer-Programmed Appliances: This treatment allows customers to program their appliances with key objectives, such as changing their air conditioning temperature set points when a load control event is triggered.

Quick Ramping Automation: This treatment is akin to Direct Load Control, but would be limited to the utility turning off/down customer devices (e.g. electric water heater, air conditioner) for very short periods of time (15 minutes).

As with the price treatments, many of the priority non-price treatments above can be tested individually or in combination with another treatment. Appendix A provides further description of the priority non-price, both information and automation, treatments.

E. PILOT IMPLEMENTATION

This section identifies and describes the OEB expectations regarding the design and implementation of pilots (both price and non-price). However, all pilots will need to be implemented in accordance with the approach set out in the Brattle Group's Technical Manual, which discusses in greater detail the specifics related to experimental design, recruitment, sampling, survey design and pilot outputs.

In order to develop the following guidance, the OEB has relied on lessons learned from distributors on the Working Group (see Appendix C) along with input and advice of Brattle.

E.1 – Pilot Deployment Approach

Pilot deployment should reflect the likely deployment scenario if the pilot were to be implemented as a province-wide policy going forward. More specifically:

- If a price pilot (e.g., Enhanced Peak TOU) is intended to assess the impact of changing the default TOU pricing for all customers, then it should be implemented as opt-out.
- If a price pilot (e.g., CPP) is intended to offer a choice in addition to the default TOU pricing, then the pilot should be deployed as opt-in.

- Non-price pilots requiring active interventions, such as installing devices at a customer residence, should be opt-in.

E.2 – Combination of Pilot Treatments

Preference will be given to applicants willing to run pilots featuring all or multiple treatments. Testing multiple treatments in a pilot is useful for understanding the effectiveness of one treatment relative to another when they are tested side-by-side. Distributors can apply to conduct a pilot of all or any combination of the pricing treatments and/or non-price treatments. Distributors seeking to conduct multiple treatments should submit their proposals as a single application.

There are complementary combinations of pricing treatments and automation treatments. Pricing treatments should be run both on their own and in combination with various automation technologies. This will test the efficacy of the price mechanism, whether it can be complemented with an automation technology, and the relative efficacy of the various potential technologies.

Automation technologies can also be tested on their own.

There may also be complementary combinations of information and pricing pilots, for example, pairing customer feedback with CPP.

E.3 – Capturing Provincial Diversity and Distributor Collaboration

Because Ontario is geographically diverse the OEB is seeking pricing treatments that can be run simultaneously across several distributors to obtain a representative assessment of the pilot impacts. Distributor characteristics range from urban to rural; those serving the winter peaking northern region to the summer peaking southern region. This implies that the priority pilots need to be repeated for regions of Ontario which are reasonably different from other regions. The OEB expects to receive a pool of applications that is representative of this diversity.

In addition to ensuring geographical diversity, distributors are encouraged to include subsamples for low income customers and high usage customers as part of a pilot. Distributors are encouraged to recruit low income customers across all pricing pilots conducted in order to determine whether low income customers have different reactions in terms of both energy usage and/or participation.

Distributors are also encouraged to subsample high usage customers for all automation/enabling technology treatments. High usage customers may represent “low hanging fruit” in terms of reducing demand.

Distributors are encouraged to collaborate on joint pilots covering multiple service territories. Joint pilots will benefit from economies of scale, encourage smaller distributors to participate, increase the pool of customers available for pilot recruitment more generally and increase the size of low income customers and high usage customer subsamples.

E.4 – Recruitment

Customer recruitment is one of the most challenging phases of a pilot program implementation. Past experience from members of the OEB’s Working Group revealed that low participation numbers can be an issue, making it prudent to use various recruitment tools including letters, e-mail blasts, and direct calls. The Working Group identified email as an effective and inexpensive marketing tool (typically). Direct calls are usually used as the last recruitment resource because of higher labor cost. Qualifying criteria questionnaires may help reach the right group of customers. The potential difficulties with recruitment make it prudent to have back-up plans if the initial recruitment strategy is underperforming.

Given that pricing concepts are inherently complex, a communication plan that uses plain language is the key to successful customer enrollment. In particular, phrasing around commodity and non-commodity rates and charges should be handled carefully. It is also advisable to be sensitive about the language in marketing materials for load control programs and to utilize language that highlights communal benefits and/or how enabling technology empowers consumers to save money. The OEB will assist distributors with developing communication plans.

E.5 – Survey Design

High-quality surveys can provide invaluable information to complement and aid in the analysis of pilot program data. Such surveys fall into four basic categories: i) market response surveys to assess customers' reactions to enrollment mechanisms; ii) pre-treatment surveys to study baseline household conditions; iii) within-experiment surveys to study conditions during experiments; and iv) post-treatment surveys to study household conditions after the intervention.

To facilitate the aggregation of survey results across LDCs, a pre-defined set of questions must be asked in all pre-treatment surveys, in the exact same manner and order. These questions are attached in Appendix D.

Useful survey questions generally pertain to household characteristics, appliance holdings, business characteristics, or customer awareness and education. When possible, information on customer characteristics and appliances should be collected as part of the process of enrolling experimental subjects into treatment and control groups.

E.6 – Communication with Customers

Based on the advice of the Working Group distributors should pursue multiple points of customer engagement. Distributor staff should be available to answer customer questions through a variety of channels that cover a range of customers' communication preferences. It is extremely effective to make the most of having a technician attend at the consumer's home to educate the customer about any devices that are being installed as part of a pilot.

The OEB intends to develop new RPP communication materials as part of the RPP Roadmap and will assist LDCs with customer communication plans for their pilots.

E.7 – Evaluation, Measurement and Verification

To ensure consistency in evaluation and comparability across different RPP pilots as well as other CDM activities in Ontario, the methods and activities for evaluations will be governed by the [Conservation First EM&V Protocols and Requirements](#) (EM&V Protocols) as applicable. The OEB recognizes that the EM&V Protocols were developed for a wide range of conservation programs and that a number of sections of the document are not likely applicable to the priority RPP pilots. For instance, any sections covering gross energy savings calculations, cost effectiveness evaluations, and net to gross adjustments will not be a requirement of the RPP pilot program, as the pilots will rely on actual consumer metered energy usage. The OEB will provide distributors additional guidance as to the specific sections they should adhere to from the EM&V Protocols, if they are invited into the full pilot proposal process.

F. APPLICATION SUBMISSION AND COST RECOVERY

F.1 – How to Apply

The OEB has provided a template application form for distributors to complete in order to apply for pilot funding. In developing an application distributors are also encouraged to consider the lessons learned set out in Appendix C, including the discussion of budgeting and scheduling for pilots.

The application process for the RPP pilot program will be similar to the 2-stage application process used for the IESO's Conservation Fund.

To apply, follow these steps:

1. Ensure that your proposed pilot aligns with the objectives, priorities and criteria of the RPP Roadmap as identified in this document.
2. Complete the project overview application form ([Appendix E](#)).
3. Submit the application form to BoardSec@ontarioenergyboard.ca citing "EB-2016-0201: RPP Pilot Application" in the subject line.
4. The project overview is screened by a review committee and, if approved, applicants are invited to submit a full proposal.

F.2 – Applying to Extend an Existing Pilot

There are a number of pricing and non-pricing pilots that are currently being run in the province. If these pilots align with or complement the priority pilots described in this document and/or the objectives of the RPP, then the distributor can apply for funding to either tailor or extend their existing treatments to better match the OEB priority pilots, or, if the pilot already matches with the priority pilots, extend the current treatments to test the persistence of customer response. Customer response may change over time as customers learn, form new habits or investment in new appliances/equipment. Testing persistence of existing programs that meet the OEB's pilot objectives is valuable.

Applications to extend existing pilots may be assessed on an expedited basis. To enquire about extending an existing pilot, please contact the OEB at IndustryRelations@ontarioenergyboard.ca, using “EB-2016-0201: RPP Pilot” in the subject line.

F.3 – Cost Recovery

Costs directly related to the design, development, demonstration, installation, implementation, testing, measurement and performance verification of the project will be eligible for recovery.

APPENDIX A: ADDITIONAL DETAIL ON PRIORITY PRICING AND NON-PRICING PILOTS

The following information is provided as further explanation of the types of priority pilots the OEB intends to be implemented in Ontario. The first two tables provide a further explanation of the types of pricing [pilots the OEB has determined are a priority for implementation as part of the RPP Pilots program.

Table A1: Experimental Design for Priority Pilots

Treatment 1: TOU with Critical Peak Price (CPP)		Treatment 2: TOU Variations	
T1		T2A	T2B
Opt-Out		Opt-Out	Opt-In
Low CPP	Shorter Peak	Enhanced Peak TOU	Enhanced Peak TOU
	Longer Peak	Super Peak TOU	Super Peak TOU
High CPP	Shorter Peak		Evening Peak TOU
	Longer Peak	Seasonal TOU	Seasonal TOU
Enabling Tech. Only		Enabling Tech. Only	Enabling Tech. Only
Low CPP	Shorter Peak	Enhanced Peak TOU	Enhanced Peak TOU
	Longer Peak	Super Peak TOU	Super Peak TOU
High CPP	Shorter Peak		Evening Peak TOU
	Longer Peak	Seasonal TOU	Seasonal TOU
Quick Ramping CPP			

Table A2: Alternative Scenario Descriptions and Prices

Time of Day	Status Quo		Scenario 1: Status Quo with Critical Peak		Scenario 2: Two Period Summer/Winter, One Period Shoulder		Scenario 3: Summer Super Peak		Scenario 4: Status Quo with Critical Peak Days (RPP Summer Only: May 1 - Oct 31)		Scenario 5: Enhanced Status Quo	
	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	\$0.067	7pm - 7am Weekdays, 24 hours on Weekends and Holidays	Winter: \$0.067 Summer: \$0.057	7pm - 7am Weekdays, 24 hours on Weekends and Holidays	\$0.060	7pm - 7am, Jun. through Aug., Dec. through Feb., 24 hours on Weekends and Holidays	\$0.067	7pm - 7am, Weekdays; 24 Hours, Weekends	\$0.067	7pm - 7am, Weekdays; 24 Hours, Weekends	\$0.046	7pm - 7am, Weekdays; 24 Hours, Weekends
Mid-Peak	\$0.104	7am - 11am and 5pm - 7pm Summer Weekdays; 11 am - 5pm Winter Weekdays	\$0.104	7am - 11am and 5pm - 7pm Summer Weekdays; 11 am - 5pm Winter Weekdays					\$0.094	7am - 11am and 5pm - 7pm Weekdays	\$0.137	7am - 11am and 5pm - 7pm Summer Weekdays; 11 am - 5pm Winter Weekdays
On-Peak	\$0.124	7am - 11am and 5pm - 7pm Winter Weekdays; 11am - 5pm Summer Weekdays	\$0.124	7am - 11am and 5pm - 7pm Winter Weekdays; 11am - 5pm Summer Weekdays	\$0.151	7am - 7pm, Jun. through Aug., Dec. through Feb., Weekdays	\$0.092	7am - 1pm, Weekdays, Jun. through Aug.; 7am - 7pm, Weekdays, Sept. through May	\$0.112	11am - 5pm, Weekdays	\$0.182	7am - 11am and 5pm - 7pm Winter Weekdays; 11am - 5pm Summer Weekdays
Critical Peak, Super-Peak, or Critical Peak Day			\$0.500	2pm - 6pm, Top 15 Summer Demand Days			\$0.296	1pm - 7pm, Weekdays, Jun. through Aug.	\$0.300	10am - 10pm, Top 5 Summer Demand Days		
Shoulder Months					\$0.090	24 hours, Sept. through Nov., March through May						

Note: Adapted from Navigant's TOU Study - Part 2 - Alternative Scenario Analysis

Figure A1: High Priority Non-Price Pilots

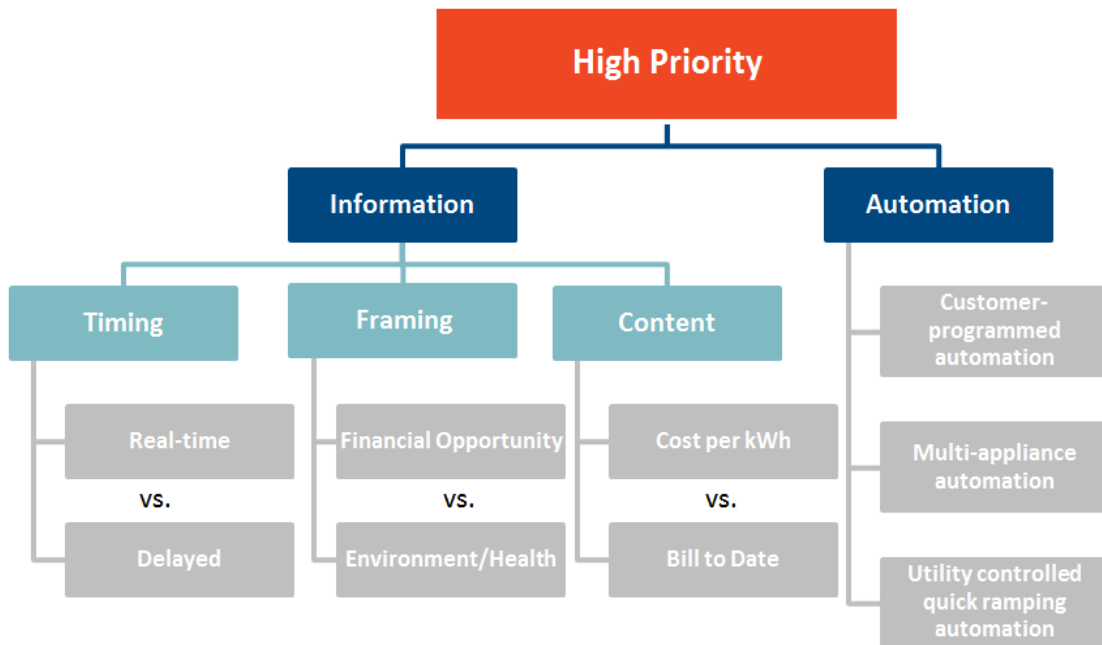


Figure 1: Information (Education and Feedback) Treatment Menu

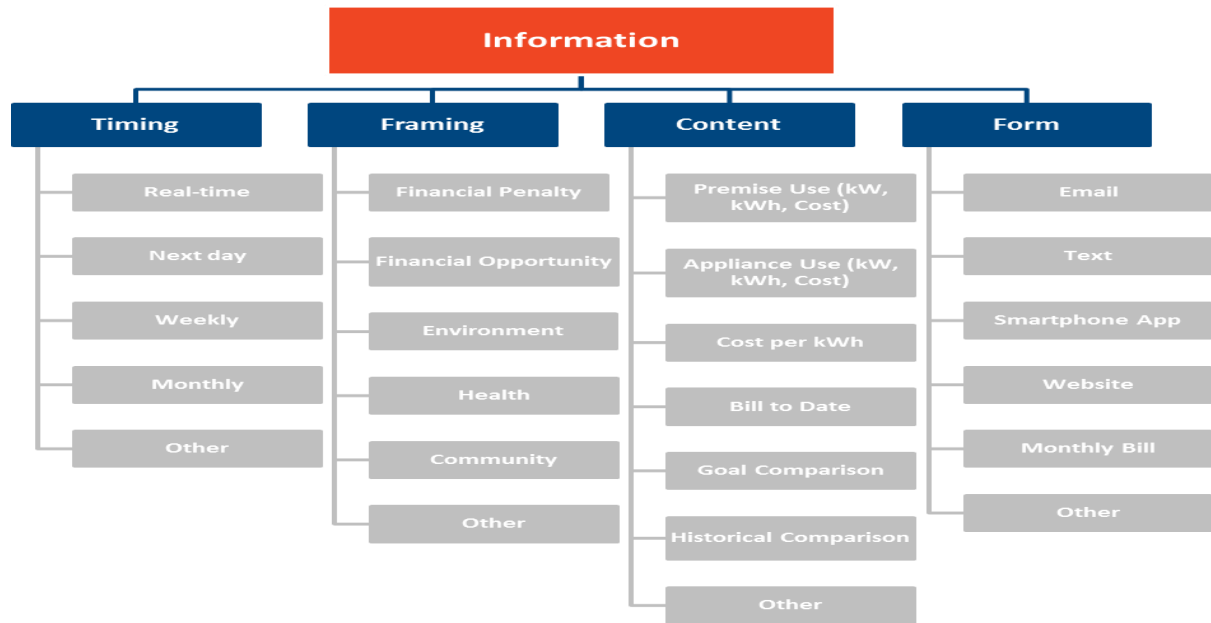
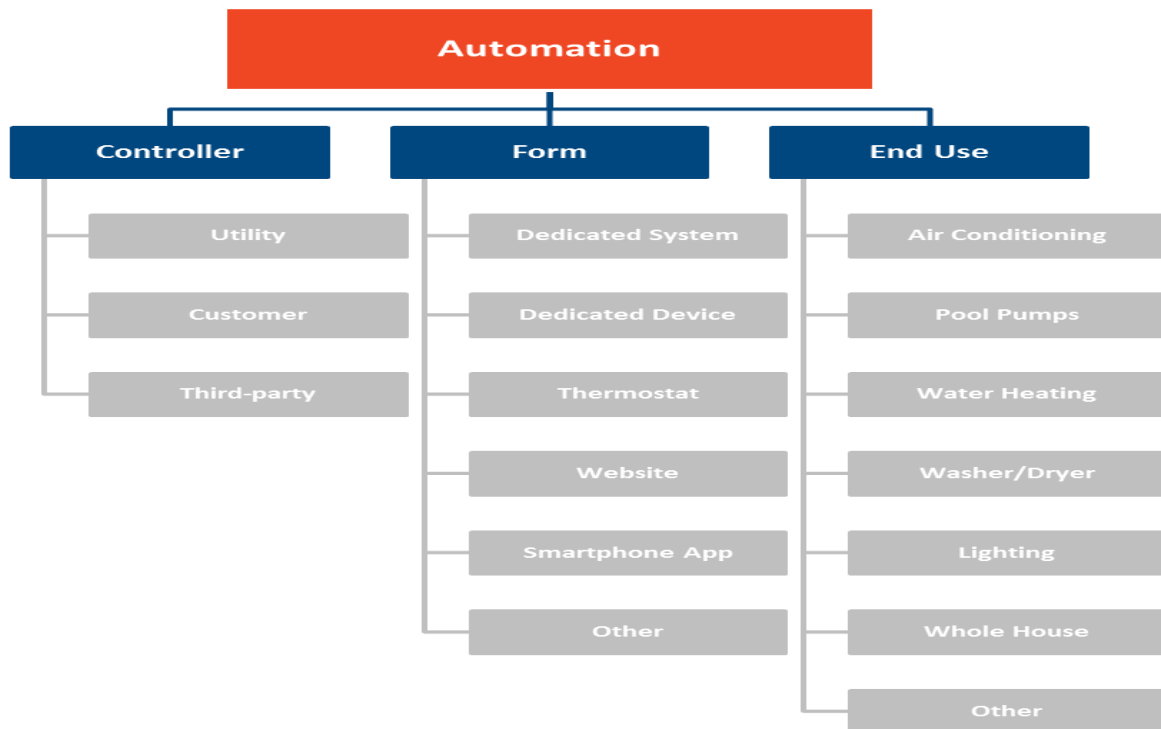


Figure 2: Automation Treatment Menu



APPENDIX B: OTHER PRICING PILOTS

As a result of the stakeholder process, we have identified the following price options that could be run alongside the Priority Pilots identified above. However funding for these pilots will only be made available once all of the priority pricing pilot treatments have been subscribed.

TOU Period Menu: Customers can choose from a menu of peak periods. These can vary in duration and timing. This is intended to allow heterogeneous customers to choose peak windows that allow them to more effectively reduce peak usage. However, there is the risk of self-selection into peaks where usage is already low. Creating a menu that matches system peaks and likely load shapes of customers will help mitigate the impact of self-selection. A menu of peak periods has been offered by Oklahoma Gas and Electric (OG&E) in a previous version of their [SmartHours program](#).

Variable Peak Pricing (VPP): A variant of TOU where the peak period price is adjusted to reflect market prices and/or system constraints. Hydro One and PowerStream are both currently piloting VPP tariffs. VPP is offered alone as well as overlaid with enabling technologies including smart thermostats and real-time feedback disaggregated by end use. These pilots are opt-in with shadow bills and bill protection (savings are offered as a rebate). Hydro One's pilots are currently being deployed and results will not be available ahead of the OEB pilot deployment. PowerStream is completing the first year of their pilot study and results will be available by mid-2016. They have extended the treatment options for a second iteration that is currently being deployed.

Real Time Pricing (RTP): Prices fluctuate with the wholesale rate and typically change hourly. Since customers may not be able to effectively respond in real time, enabling technology is necessary. Hydro One is currently piloting RTP; this is offered alone and overlaid with enabling technologies including smart thermostats and real-time feedback disaggregated by end use. These pilots are currently being deployed and results will not be available ahead of the OEB pilot deployment. Hydro One's pilots are opt-in with shadow bills and bill protection

(savings are offered as a rebate). Real time pricing may be structured based on day-ahead prices or actual real time prices.

Quick Ramping RTP: Highly granular real time pricing that fluctuates with market prices (up to every 15 minutes). Since customers may not be able to effectively in such granular, real time periods, enabling technology is necessary.

APPENDIX C: LESSONS LEARNED

The OEB's Working Group identified a number of lessons learned from previous pilots that distributors should keep in mind when developing a potential pilot. Distributors should consider the following:

- Whether the pilot will require upgrades to AMI, DR Management System, CIS, or other system infrastructure
- Whether the pilot will require changes to service provider contracts such as with CSR call centers.
- The costs of supplemental data needs, for example MPAC parcel data are expensive in Ontario
- Customer surveys can be a major driver of evaluation costs. Take time to think of the staffing needs for outreach and evaluation of surveys.
- There will always be unexpected costs such as the need to increase recruitment/marketing efforts, higher than expected rebates or unanticipated technical requirements. Make sure to anticipate this in the budget by setting up a contingency fund to address any unforeseen costs.
- Allow sufficient time for issues such as:
 - collecting billing and other data for sample selection; screening potential participant data for quality issues;
 - working with the legal department to prepare and approve contracts/agreements with external vendors;
 - testing any new software or hardware; aligning any internal or external resources that are needed;
 - pilots may touch many different departments within the LDC. Communicate proactively and bring groups on board early so they aren't

- asked late to help support this initiative, which may be additional work and/or outside of their current scope. For example, customer service representatives may be unable to handle a large influx of customers to a new program, and recruitment may need to be staggered; and
- Depending on your ability to obtain the requisite customer data, selecting study participants may take several months and recruitment several more. Start planning early and do as many tasks in parallel as possible.
 - With respect to budgeting for a pilot the Working Groups suggested consideration of:
 - Whether the pilot will require upgrades to AMI, DR Management System, CIS, or other system infrastructure
 - Whether the pilot will require changes to service provider contracts such as with CSR call centers.
 - The costs of supplemental data needs, for example MPAC parcel data are expensive in Ontario
 - Customer surveys can be a major driver of evaluation costs. Take time to think of the staffing needs for outreach and evaluation of surveys.
 - Potential for unexpected costs such as the need to increase recruitment/marketing efforts, higher than expected rebates or unanticipated technical requirements. Make sure to anticipate this in the budget by setting up a contingency fund to address any unforeseen costs.
 - The Working Groups suggested consideration of the following when developing a plan for a pilot:
 - Allow sufficient time for issues such as collecting billing and other data for sample selection; screening potential participant data for quality issues;
 - Working with the legal department to prepare and approve contracts/agreements with external vendors; testing any new software or hardware;
 - Aligning any internal or external resources that are needed. Pilots may touch many different departments within the LDC;
 - Communicate proactively and bring groups on board early so they aren't asked late to help support this initiative, which may be additional work and/or outside of their current scope.

APPENDIX D: PRE-TREATMENT CUSTOMER PILOT SURVEY

Customer Name: _____

Please take some time to complete this questionnaire. Your responses will provide important information that will aid the development of the Regulated Price Plan in Ontario.

The purpose of the RPP Roadmap Customer Pilot Survey is to gauge participant's understanding of energy pricing while also capturing relevant socio-economic and demographic information that could be vital to understanding which customers are applying to pilots and why.

This survey is a required component of the pilot process, lack of completion will result in removal from the pilot program. Please complete this survey by **[date]** in order to remain within the pilot.

Sections:

1. Awareness and Comprehension

- a. Please select the pricing model that you think best describes how electricity is currently priced in Ontario?
 - i. Description of Time-Of-Use
 - ii. Description of VPP
 - iii. Description of CPP
 - iv. Description of Flat Rate
 - v. Other
 - vi. Unsure
- b. Days are split into different Time-Of-Use periods. The cost of electricity varies between these periods. What do you think the daily Time-Of-Use Periods are called in Ontario?
 - i. Three different TOU periods: Low-Rate, Mid-Rate, High-Rate
 - ii. Three different TOU periods: Off-Peak, Mid-Peak, On-Peak
 - iii. Two different TOU periods: Off-Peak, On-Peak
 - iv. Two different TOU periods: Low-Rate, High-Rate
 - v. Other
 - vi. Unsure
- c. Please select the option(s) that best describes Ontario's Time-Of-Use pricing models. (Please select all that apply)
 - i. There is a different charge for electricity depending on the time of day
 - ii. There is a different charge for electricity depending on the day of the week
 - iii. There is a different charge for electricity for electricity depending on the season

- iv. Other
- v. Unsure
- d. Select the top 3 household items that you believe consume the most electricity?
 - i. Heating and Cooling unit
 - ii. Fridge
 - iii. Water heater
 - iv. Lighting
 - v. Washing machine/Dryer
 - vi. Dishwasher
 - vii. TV
 - viii. Microwave
 - ix. Oven
 - x. Computers/Laptops
 - xi. Cable box
 - xii. Unsure
 - xiii. Other
- e. What do you think is the most effective way to reduce your electricity bill in the summertime?
 - i. Raise the temperature on you're A/C unit by 2 degree Celsius between the hours of 1pm and 7pm during hot months.
 - ii. Minimize your use of appliances that generate heat (oven, hair dryer, dishwasher)
 - iii. Close the blinds or curtains on the sunny side of your home
 - iv. Turn off and unplug "silent energy users" such as computers, game consoles, phone chargers, cable boxes, which draw electricity even when not in use
- f. How much money do you expect to save on your monthly electricity bill by participating in this pilot program?
 - i. In dollars(\$)?
 - ii. In kilowatts hours (kWh)?
- g. How much electricity do you think your household consumes, on average, relative to other households your size? (e.g., 5 or 7 Scale like (1 = substantially less / 4 = same / 7 = substantially more))

2. Household Characteristics

- a. Do you own or rent your home?
 - i. Own
 - ii. Rent
- b. What type of residence do you live in? Do you live in a...
 - i. Single-family

- ii. Duplex or two-family
 - iii. Low-rise apartment or condo building
 - iv. High-rise apartment or condo building
 - v. Townhouse or row-house
 - vi. Other (please specify)
- c. When was this dwelling originally built? (Select the range that best applies)
- i. 1920 or before
 - ii. 1921-1945
 - iii. 1946-1960
 - iv. 1961-1970
 - v. 1971-1980
 - vi. 1981-1985
 - vii. 1986-1990
 - viii. 1991-1995
 - ix. 1996-2000
 - x. 2001-2005
 - xi. 2006-2011
 - xii. 2011-2016
 - xiii. Unsure
- d. Does your home have a programmable thermostat?
- i. Yes
 - ii. No
- e. Is it programmed? (Only answer if you answered Yes to d.)
- i. Yes
 - ii. No
- f. Which of the following appliances do you own? (Read list, select all that apply)
- i. Electric space heater
 - ii. Central Air-Conditioning
 - iii. Room or Window-Air Conditioner
 - 1. List how many room or window units you have here
 - iv. Electric water heater
 - v. Electric clothes dryer
 - vi. Swimming pool
 - vii. None of the above
- g. What is the primary method that you use to heat your home?
- i. Natural gas furnace
 - ii. Electric furnace
 - iii. Electric baseboard heaters
 - iv. Propane furnace
 - v. Boiler with hot water or steam radiators

vi. Other

3. Demographic and Socioeconomic

- a. Including yourself, how many adults, 18 or older, currently live in your household?
 - i. Write down the total here
- b. How many of these adults are over the age of 65?
 - i. Write down the total here
- c. How many children under the age of 18 live in your household?
 - i. Write down the total here
- d. Last year, that is in (insert year here), what was your total household income from all sources, before taxes?
 - i. Less than \$10,000
 - ii. \$10,000 to less than \$20,000
 - iii. \$20,000 to less than \$30,000
 - iv. \$30,000 to less than \$40,000
 - v. \$40,000 to less than \$75,000
 - vi. \$75,000 to less than \$90,000
 - vii. \$90,000 to less than \$100,000
 - viii. \$100,000 to less than \$150,000
 - ix. \$150,000 or more
- e. What is the last grade or class you completed in school?
 - i. None, or grade 1-8
 - ii. Secondary (high) school incomplete
 - iii. Secondary (high) school graduate
 - iv. Registered Apprenticeship or other trades certificate or diploma
 - v. College or other non-university certificate or diploma
 - vi. University certificate, diploma or degree
 - vii. Post- graduate or professional schooling after university (e.g. Master's degree or Ph.D; law or medical school)
- f. Please select the option that best describes your current employment status
 - i. Employed full-time
 - ii. Employed part-time
 - iii. Self-employed
 - iv. Unemployed
 - v. A student
 - vi. Retired
 - vii. Other
- g. How many persons, including yourself, are currently working full-time (30 hours or more per week)?
 - i. Write down number of persons here

- h. At what time of the day do they typically leave home to go to work or school?
(Only answer if the answer to g. is non-negative)
 - i. List time in the following format : HH:MM AM/PM
- i. At what time of the day do they typically get home from work or school? (Only answer if the answer to g. is non-negative)
 - i. List time in the following format: HH:MM AM/PM
- j. Is there someone home Monday to Friday during the day between 7am-7pm at least one day a week?
 - i. Yes
 - ii. No
- k. Do you or does anyone in your household have a chronic illness that requires regular or occasional in-home medical treatment?
 - i. Yes
 - ii. No
- l. Do you or anyone in your household require specialized medical equipment in order to treat a chronic illness?
 - i. Yes
 - ii. No

APPENDIX E: RPP PROJECT OVERVIEW APPLICATION



Regulated Price Plan Roadmap Pilot Program Project Overview Application

Instructions

1. Review all eligibility criteria to confirm that your project is eligible for the Regulated Price Plan Pilot Program.
2. All fields must be completed. Incomplete submissions will not be considered. Maximum 10 pages excluding attached documents.
3. All answers, rationale and substantiation must be provided in this document in the space provided. Do not provide attachments unless letters of support from project partners, links or other references as these will not be considered in the review of your application.
4. **Attach this completed document, in Word format (no PDFs) to an email and submit to:** BoardSec@ontarioenergyboard.ca citing "EB-2016-0201: RPP Pilot Application" in the subject line.
5. Within one week of submission, you will receive a response confirming that your application was received with further information regarding the timeline for review.
6. If you have questions you may reach the OEB by calling 1-888-632-6273 or by emailing IndustryRelations@ontarioenergyboard.ca citing "EB-2016-0201: RPP Pilot Program" in the subject line.

A. Key Information

Project title:	
Distributor(s):	
Applicant(s) Contact name:	
Applicant(s) Contact title:	
Mailing address:	
Phone:	
Email:	
Submission date:	

Receipt of an application does not constitute a commitment by the Ontario Energy Board to approve the application.

B. Project Overview (check all that apply)

Regulated Price Plan Roadmap Category	
<input type="checkbox"/> Price	<input type="checkbox"/> Non-Price
Target Market(s): Residential Market Only	
<input type="checkbox"/> Existing Homes	<input type="checkbox"/> High Usage Customers
<input type="checkbox"/> New Homes	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Multi-family	
<input type="checkbox"/> Single-family	
<input type="checkbox"/> Low Income Customers	
Project Type	
<input type="checkbox"/> Time-of-use	<input type="checkbox"/> Other Pricing
<input type="checkbox"/> Critical Peak Pricing	
<input type="checkbox"/> Appliance/Household Automation	
<input type="checkbox"/> Information Provision	

Expected Project Duration: Months

Funding*:** Applicants are encouraged, but not required, to contribute support or have project partners contributed support to the proposed project. Differentiate between cash and in-kind support to the proposed project. Please indicate if the funding is confirmed. "Requested Funding" represents your funding request to the OEB.
IF THIS SECTION IS LEFT BLANK YOUR APPLICATION WILL NOT BE CONSIDERED

	Cash (\$)	Cash (% of total project value)	In-kind (\$)	In-kind (% of total project value)
Applicant contribution*	\$	%	\$	%
Partner 1 contribution*	\$	%	\$	%
Partner 2 contribution*	\$	%	\$	%
Other(s)**	\$	%	\$	%
Subtotal (non-OEB funding contribution)	\$	%	\$	%
Requested Funding	\$	%	N/A	N/A
Totals	\$		\$	%
Total project value (all cash costs + in kind)	\$			

* Provide actual name
 **Add rows as necessary
 ***These fields may be amended at a later stage if required.

1. PROJECT CONCEPT AND RATIONALE

A. In one sentence, state the ultimate goal of this project. How will the objectives of the Regulated Price Plan Roadmap be achieved as a result of this project?

B. Discuss in detail the specific objectives of the Regulated Price Plan Roadmap that this project addresses (e.g. technical challenge, energy literacy gap, etc.).

C. How will your project's activities and outputs address the objectives of the Regulated Price Plan Roadmap outlined above? What solution is this project designed to develop?

D. Explain how your project compares to other initiatives/ technologies already deployed/ piloted in Ontario and elsewhere. Provide diagrams, etc. as necessary (within this document).

2. PROJECT PLAN

A. In no more than ten sentences, outline the project plan.

B. Describe each of the major task areas for this project (e.g. program design, development of training, measurement and verification, research, communications, knowledge transfer, etc.).

C. Describe each of the major deliverables that will be provided to the OEB as part of this project.

3. PROJECT TEAM & PARTNERS

A. In this section, please outline the composition of the project team and list any project partners. Discuss the role that each person and organization participating in the project will play. Include the applicant organization in this table. If a 3rd party is not yet part of the team, please identify the accountability they will be responsible for and enter TBD for the name and organization.

PROJECT TEAM		
Project team member	Organization and job title	Major accountability
		e.g. Project lead
		e.g. Evaluation, Measurement and Verification
PROJECT PARTNERS		
Organization	Project role (e.g. participant, funder)	Financial or in-kind contribution (indicate if confirmed). Please note that if you are invited to submit a proposal your partner must confirm their contribution in writing to the IESO.

Attach this completed document, in Word format (no PDFs) to an email and submit to:
BoardSec@ontarioenergyboard.ca *citing "EB-2016-0201: RPP Pilot Application" in the subject line.*