

ONTARIO ENERGY BOARD

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## Report to the Minister of Energy

# DESIGN OF AN OPTIONAL ENHANCED TIME-OF-USE PRICE

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Ontario  
Energy  
Board

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# Executive Summary

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In November 2021, the Minister of Energy asked the Ontario Energy Board (OEB) to report back and advise on the design of an Optional Enhanced Time-of-Use (OETOU) price for Regulated Price Plan (RPP) customers to further incent demand-shifting away from peak periods to lower-demand periods. The Minister's letter describes the following objectives that should be considered in developing the price design options: incenting electricity usage behaviour that will benefit the electricity system under anticipated increased electrification and providing value for customers with consideration for overall ratepayer impacts.

The OEB has developed a single price design option that is expected to best achieve the objectives described in the Minister's letter, based on the results of previous RPP pilots, OEB analysis and a report by consultancy firm Guidehouse Canada Ltd. (Guidehouse). The pricing option presented in this report would complement the existing RPP price options and support the implementation of electric vehicles and resultant carbon reduction. While the OEB's analysis forecasts an expected under-recovery of revenue due to OETOU-enrolled consumer cost savings in the short term, there is expected to be very little impact on other RPP consumers. Furthermore, as OETOU-enrolled consumers shift demand to lower-demand overnight periods, there would be benefits to the electricity system that would benefit all electricity consumers. Over the longer term, consideration would be given to aligning consumer cost savings and associated under-recovered amounts with the electricity system benefits of consumers' demand profile. The OEB is available to assist with the development of any implementation plans if the Ministry of Energy determines that it will pursue this or any other new RPP price option.

The OEB was asked to provide details on three topics as discussed below. A summary of the OEB response to each item is provided below, and further support and discussion regarding each item is provided in this report.

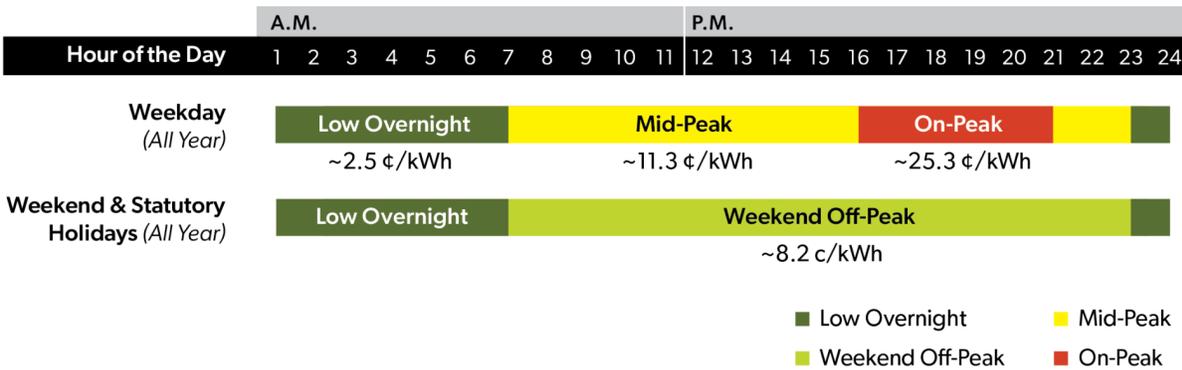
## **1. Define the price ratios, price periods and seasons that apply to the price design option(s).**

A summary of the proposed OETOU price plan is provided in Figure 1 showing illustrative prices estimated to recover the same average supply cost as RPP prices effective November 1, 2021, through October 31, 2022. Further detail on the price ratios and price periods that apply to the proposed OETOU price plan are provided in Table 1. There is no seasonal variation in the proposed OETOU price plan.

**Figure 1: Summary of proposed design of the OETOU price plan.**

## Optional Enhanced TOU Electricity Price

An optional price plan available to all RPP consumers in addition to the standard TOU and Tiered price plans. Prices are illustrative, based on the RPP prices set for November 1, 2021.\*



*\*Actual prices would be determined through the OEB's RPP price-setting process.*

**Table 1: Definition of price ratios and price periods in the OETOU price plan.**

Price Period	Hours Applicable (Prevailing Time)	Price
<b>On-Peak</b>	Weekdays: 4pm-9pm	Equal to 10 times Low Overnight price
<b>Mid-Peak</b>	Weekdays: 7am-4pm and 9pm-11pm	Equal to standard TOU Mid-Peak price
<b>Weekend Off-Peak</b>	Weekends and Statutory Holidays: 7am-11pm	Equal to standard TOU Off-Peak price
<b>Low Overnight</b>	Every day: 11pm-7am	Calculated so that the OETOU recovers the forecasted average supply cost (RPA)

The structure for the proposed OETOU price plan is designed to enable consumer choices that deliver significant individual and collective benefits. Specifically, allowing customers to choose the OETOU price is intended to:

- Reduce energy and capacity costs

- Increase customer control over electricity bills
- Incentivize cost-effective decarbonization

**2. Estimate the average revenue to be recovered by the rate design option(s), bill impacts, and expected shift in peak demand under different enrolment assumptions.**

An estimate of the requested impacts in the first year of introducing the proposed OETOU price design are presented in Table 2 under low and high enrolment scenarios.

**Table 2: Scenario Assumptions and Estimated Impacts**

	Low Enrolment Scenario	High Enrolment Scenario
<b>Scenario Assumptions<sup>1</sup></b>		
<b>Number of Consumers Enrolled in OETOU Pricing</b>	23,000 Consumers	318,000 Consumers
<b>Number of Enrolled Consumers with EVs</b>	9,800 EVs	32,000 EVs
<b>Estimated First Year Impact<sup>2</sup></b>		
<b>Average Change in Collected Revenue</b>	-\$56,000/month (0.1% of avg. monthly change in variance)	-\$653,000/month (1.1% of avg. monthly change in variance)
<b>Average Change in RPP Variance Settlement Factor</b>	-\$0.00001/kWh	-\$0.00016/kWh
<b>Average Annual Peak Demand Reduction</b>	3 MW (0.01% of avg. Ontario peak demand)	40 MW (0.17% of avg. Ontario peak demand)
<b>Average Change in Monthly Bill for Consumers Enrolled in OETOU Pricing</b>	-2%	-2%
<b>Average Change in Monthly Bill for all RPP Consumers due to Change in Collected Revenue</b>	0.01%	0.10%

<sup>1</sup> Scenario assumption values are indicative of values in 2021. See Appendix B for full description of scenario assumptions.

<sup>2</sup> Impacts shown are for the initial year of implementation. Economic impacts in subsequent years will depend on a number of factors as discussed in section 5.

The average revenue to be recovered from consumers enrolled in the proposed OETOU price plan is expected to differ from the amount that would have been collected from them under the standard RPP price options by the Average Change in Collected Revenue amounts listed above. The associated Average Change in RPP Settlement Factor is also presented, which describes the amount by which supply prices will need to increase for all RPP consumers in subsequent price-setting periods to recover the estimated under-recovered revenue.

The Average Annual Peak Demand Reduction provides an estimate of the expected shift in annual Ontario peak demand.

Two bill impacts are shown. The first is an estimate of the average change in OETOU-enrolled consumers' bills relative to charging those consumers standard RPP prices. The second bill impact is the amount by which bills are expected to increase for *all* RPP consumers (including OETOU-enrolled consumers) in order to recover the estimated under-recovered revenue.

### **3. Assess the risks of under-recovery and options to address.**

The OEB's current RPP price-setting process is expected to avoid systemic rate-structural under-recovery from an OETOU price plan. This means that the OETOU price would be set so that, on average, OETOU-enrolled consumers would pay the same average price as other RPP consumers based on a forecast of supply costs and consumer demand.

The estimated under-recovered revenue amounts are expected to arise due to OETOU-enrolled consumers shifting their demand in ways that are different from their historical demand. It is expected that OETOU-enrolled consumers would shift their demand away from peak periods to lower-demand overnight periods, which would provide system benefits for all electricity consumers. These under-recovered amounts are expected to have very little impact on RPP consumer bills (no more than 0.10% increase) in the early years of implementing an OETOU price plan as shown in Table 2.

The extent of these under-recovered amounts and the impact on electricity bills for all RPP consumers over the longer term would depend on the number and load profile of consumers who enrol in the OETOU price plan, as well as the way in which the OEB sets OETOU prices. For example, the OEB's current RPP price-setting process may limit the longer-term savings that OETOU-enrolled consumers benefit from for shifting their demand away from peak periods to lower-demand periods. OETOU prices would be set in a way that may not be reflective of the underlying supply costs attributed to OETOU consumers.

In light of these considerations, upon implementation, the OEB would set OETOU prices according to its current price-setting process and principles. The OEB would continue to monitor the uptake and load profile of consumers on all RPP price plans and use that

up-to-date information when setting prices to best achieve those principles. The OEB would work carefully to ensure that OETOU price-setting reflects the appropriate balance of the core RPP objectives of cost reflectiveness, stability and providing consumers incentives to reduce their electricity bills, with consideration given to the issues related to consumer savings and underlying supply costs identified in this report. Over the longer term, consideration would be given to potentially introducing changes to the price-setting process so that prices being charged to all RPP consumers are more reflective of the supply cost associated with their consumption.

## 1. Introduction

On November 16, 2021, the [Minister of Energy issued a letter](#) (Letter) requiring the OEB, under Section 35 of the *Ontario Energy Board Act, 1998*, to report back and advise on the design(s) of an OETOU rate to further incent demand-shifting away from peak periods to lower demand periods. Specifically, the OEB was asked to include the following in its report:

1. Defining the price ratios, price periods and seasons that apply to the rate design option(s).
2. Estimating the average revenue to be recovered by the rate design option(s), bill impacts, and expected shift in peak demand under different enrolment assumptions.
3. Assessing the risks of under-recovery and options to address.

Additionally, the Letter emphasized the importance that the OEB continue to engage with the Independent Electricity System Operator (IESO), as needed, to ensure that the evaluation of OETOU price designs considers the reliability and adequacy of the provincial system to meet demand.

The OEB is well-equipped to provide the requested advice based on several years of in-depth research into a range of electricity pricing options, as well as its experience setting RPP prices. In 2017, the OEB commissioned a set of pilots (RPP Pilots) that tested the effects of a variety of price plans and non-price tools for residential consumers on the RPP. The results of these pilots have been reported in the [RPP Pilot Meta-Analysis Final Report](#), which provides a valuable resource of findings and lessons for new pricing options based on real-world behaviour. These pilot results, combined with OEB staff analysis, have been used to inform and support the price design proposed in this report.

### **The Value of Enhanced TOU Pricing**

The cost of supplying electricity is not constant but changes hour-to-hour depending on prevailing supply and demand conditions. Generally speaking, the cost of generating electricity in a given hour increases when demand increases and/or the availability of supply decreases, and *vice versa*. Further, sustained increases in annual maximum demand (peak demand) must be addressed, most commonly by investments in new capacity resources (e.g., generation, demand response, etc.) as well as complementary investments in transmission and distribution infrastructure. Electricity pricing models that align with the underlying cost of supply in a given hour can successfully incent consumers to lower their demand during high-cost, high-demand periods, potentially shifting that demand to lower-cost periods, which could provide cost savings for all

electricity consumers through lower energy costs and, over the longer term, avoided capacity investment.

The increasing availability and prevalence of consumer-level energy and information technologies means that electricity consumers have greater knowledge and control of their electricity consumption than ever before. The [Green Button](#) will enable households and businesses access to their utility data and the ability to authorize the automatic, secure transfer of their data from their utility to applications or third parties. This will provide consumers access to detailed information regarding their electricity usage. Programmable thermostats and other such “smart” devices, as were tested in the RPP Pilots, allow for the timing of energy use to be customized by the user or their utility provider. Electric Vehicle (EV) and other charged loads provide some discretion as to when the charging occurs. The availability of such technologies means that many consumers are equipped to shift their electricity usage to take advantage of more dynamic price plans, better managing their electricity bills while also creating opportunities for cost savings to the electricity system.

As described in the Letter, electrification of emissions-intensive sectors is expected to provide opportunities to reduce provincewide emissions, which may put pressure on the electricity grid. The introduction of a new OETOU price plan could help alleviate this pressure by providing incentives to shift such increased electric load to lower-demand periods, when electricity is generated largely from non-emitting resources, while also reducing the amount of new supply capacity and complementary transmission and distribution infrastructure needed to support electrification.

This report discusses many of the potential impacts and risks associated with the introduction of a new OETOU price plan as requested in the Letter. The report does not represent a full analysis of the potential future costs and benefits of such a price plan, nor does it address detailed issues of implementing such a new pricing option. If a new RPP price plan were to be implemented, it would likely require amendments to O. Reg 95/05 under the *OEB Act, 1998*, the Standard Service Supply Code and the RPP Manual.

### **The Regulated Price Plan**

The RPP provides residential and small business consumers stable and predictable electricity pricing, encourages conservation and ensures the revenues collected from consumers matches the amounts paid to generators for RPP consumption. RPP prices are set every November to recover the forecast cost of electricity supply over a 12-month price-setting period.

Two pricing options are currently provided through the RPP: TOU pricing (referred to as “standard TOU” pricing in this report) and Tiered pricing. Standard TOU pricing charges different prices during different hours of the day. Tiered pricing charges a constant price for consumption in all hours up to a monthly threshold and a higher constant price in all

hours for all consumption above that threshold.<sup>3</sup> As further described in Appendix A, both TOU and Tiered prices are set to recover the same forecasted average per kilowatt hour (kWh) RPP supply cost.

### **Customer Choice and the Optional Enhanced Time-of-Use Price**

On November 1, 2020, Customer Choice was introduced, allowing RPP consumers to choose between TOU and Tiered pricing options. Prior to Customer Choice, only consumers who were ineligible for standard TOU pricing were charged Tiered prices. Since the introduction of Customer Choice, consumers are able to choose the pricing plan that best suits their lifestyle or business.

This report presents a potential third RPP pricing option (OETOU) that would be available to all RPP consumers with an eligible meter.<sup>4</sup> The proposed OETOU price plan would charge different prices at different times of the day. It would also include unique price periods and pricing levels that provide an enhanced incentive for consumers to shift demand away from peak periods to lower-demand periods compared to the standard TOU pricing option. This third option would provide greater choice to consumers and the potential for greater control over their electricity bills.

This report describes the proposed OETOU price plan, drawing upon the results and lessons learned from the RPP pilots and OEB staff analysis. Further insight into the potential impacts of the OETOU price plan is provided by the results of the Overnight Price Pilot run by Alectra Utilities (Alectra), given the similarity between it and the proposed OETOU price plan. Alectra's pilot results are summarized alongside additional analysis of the potential decarbonization potential of the piloted plan. The potential first year impacts of such a price plan on cost recovery, Ontario peak demand and consumer bills are estimated and discussed under a low and high enrolment scenario, as requested in the Letter. Further sections provide an assessment of the risks of under-recovery and discussion of potential options to address such cost recovery issues. The report concludes with a summary of the feedback that has been received from the IESO, as well as from the broader stakeholder community regarding the proposed OETOU price plan.

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<sup>3</sup> For residential consumers, the monthly tier threshold is 600 kWh in the summer (May – October) and 1,000 kWh in winter (November – April). For small business consumers, the monthly tier threshold is 750 kWh in all months.

<sup>4</sup> This report addresses the design of an RPP price plan for the *supply* of electricity and does not address the design of distribution rates or other elements of consumers' electricity bills.

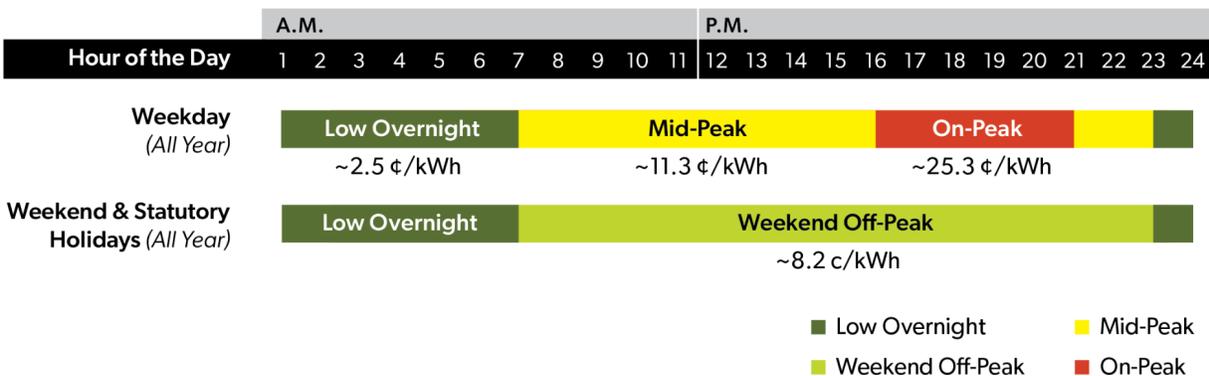
## 2. Optional Enhanced Time-of-Use Price Design

In response to the Letter, the OEB has prepared the proposed design for an OETOU price as summarized in Figure 2. The price plan is designed to be available to all RPP-eligible consumers on an optional basis, in addition to the standard TOU and Tiered pricing options. The sample prices provided are illustrative, estimated to recover the same average supply cost as RPP prices effective November 1, 2021, to October 31, 2022 (see Table 8). The OEB is proposing no changes to the standard TOU or Tiered price plans.

**Figure 2: Proposed design of optional enhanced TOU price.**

### Optional Enhanced TOU Electricity Price

An optional price plan available to all RPP consumers in addition to the standard TOU and Tiered price plans. Prices are illustrative, based on the RPP prices set for November 1, 2021.\*



\*Actual prices would be determined through the OEB's RPP price-setting process.

Further detail on the price ratios and price periods that apply to the proposed OETOU price plan are provided in Table 3. There is no seasonal variation in the proposed OETOU price plan

**Table 3: Definition of price ratios and price periods in the OETOU price plan.**

Price Period	Hours Applicable (Prevailing Time)	Price
<b>On-Peak</b>	Weekdays: 4pm-9pm	Equal to 10 times Low Overnight price
<b>Mid-Peak</b>	Weekdays: 7am-4pm and 9pm-11pm	Equal to standard TOU Mid-Peak price
<b>Weekend Off-Peak</b>	Weekends and Statutory Holidays: 7am-11pm	Equal to standard TOU Off-Peak price
<b>Low Overnight</b>	Every day: 11pm-7am	Calculated so that the OETOU price plan recovers the forecasted average supply cost (RPA)

The proposed structure for an OETOU price plan is designed to enable consumer choices that deliver significant individual and collective benefits. Specifically, allowing customers to choose the OETOU price is intended to:

- **Reduce energy and capacity costs.** The proposed OETOU price is closely based on a pilot price plan that significantly reduced On-Peak demand and increased overnight demand. Price response of this nature reduces the gap between average and peak load, making the electricity system more efficient, and reducing the average cost per kWh, benefiting all electricity consumers.
- **Increase customer control over electricity bills.** The proposed OETOU price is intended to allow individuals an additional pricing option to take control of their energy costs with the potential to substantially reduce them. For example, consumers taking advantage of this price plan to convert from an internal combustion engine vehicle to an EV can reduce their annual energy spending by thousands of dollars per year. Opportunities for bill savings also exist for motivated customers without an EV.
- **Incentivize cost-effective decarbonization.** The incentives provided by the OETOU price plan are expected to reduce demand during On-Peak periods, when the availability of non-emitting generation is sometimes limited, and shift it to the low-demand overnight period when electricity is generated largely from non-emitting sources. Additionally, the proposed OETOU price substantially reduces the annual operating cost of an EV, providing increased incentive for consumers to purchase an EV, rather than an internal combustion engine vehicle, thereby reducing carbon emissions.

The way in which the design of the proposed OETOU price plan is expected to achieve these goals is described below.

## 2.1 Support for Price Design

The design elements of the proposed OETOU price plan were selected to support the goals described above, based on the results of the RPP Pilots that were developed and managed by the OEB and the electricity distributors that participated, as well as OEB staff research. The RPP Pilots tested a wide range of different price plan options for RPP consumers as described in the RPP Pilot Meta-Analysis Final Report. The OETOU price design incorporates several key elements and recommendations from those pilots that have proven to provide effective incentive to enrolled consumers to take actions consistent with the goals stated above.

The sections below describe the support for each key element of the pricing design, drawing specific examples from the RPP Pilots, OEB staff analysis and consideration of the opportunities enabled by the proposed OETOU price plan.

### 2.1.1 Low Overnight Price Period

The proposed price design features a very low electricity price of approximately<sup>5</sup> 2.5 ¢/kWh during the Low Overnight period between 11 p.m. – 7 a.m., when Ontario demand is lowest compared to other hours of the day. This Low Overnight period would continue through weekends and statutory holidays all year long. The rationale for such a Low Overnight period is described in Table 4.

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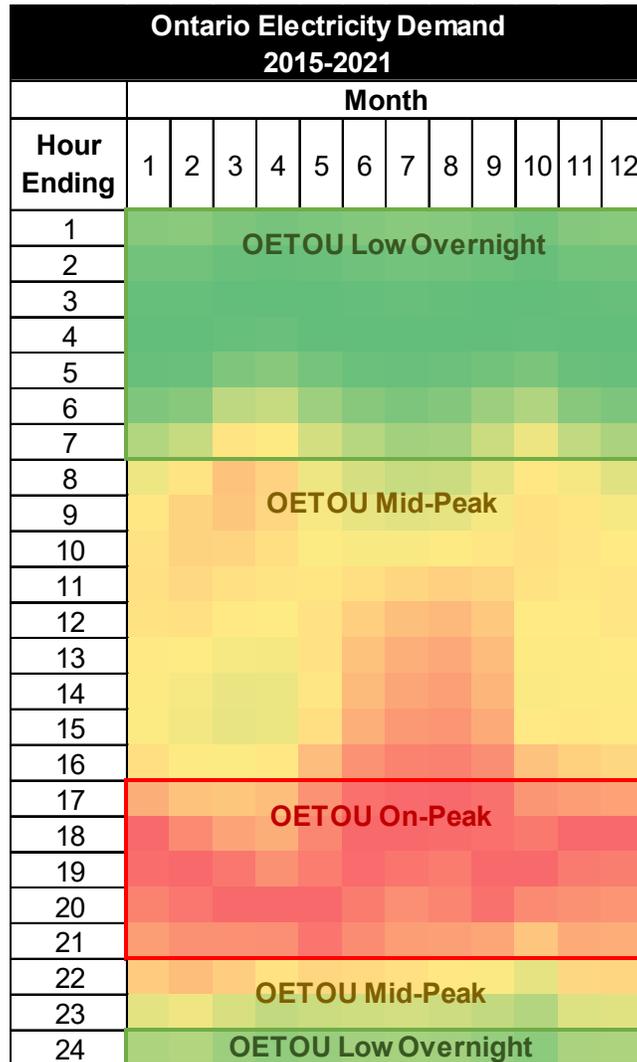
<sup>5</sup> Specific prices for the OETOU price plan are presented for illustrative purposes and are estimated to recover the same average supply costs as are recovered from standard TOU prices in effect November 1, 2021, to October 31, 2022. Actual OETOU prices would be calculated through the OEB's RPP price-setting process.

**Table 4: Support for Low Overnight Price Period**

Support for Low Overnight Price Period Every Day 11 p.m. – 7 a.m. (All Year)
OETOU price design features a similar Low Overnight period and prices to those tested in the Overnight Price Pilot which saw <b>significant reduction</b> in demand of participants during summer <b>mid-peak</b> (8.1% reduction) and <b>on-peak</b> (9.6% reduction) periods.
The hours between 11 p.m. and 7 a.m. exhibit <b>the lowest Ontario electricity demand</b> , and thus the lowest supply costs and lowest emissions intensity (on average) compared to other hours during the day as represented in Figure 3.
Provide <b>value</b> and greater <b>control over electricity bills</b> for consumers who can <b>shift load</b> to overnight periods, when generation is least expensive. Shiftable loads include: <ul style="list-style-type: none"> <li>• Home EV charging,</li> <li>• Public EV charging (shifted to home),</li> <li>• Heating across fuels (e.g., shifting to electric heating overnight),</li> <li>• Overnight pre-cooling in summer,</li> <li>• Plug loads (e.g., dishwashers, dryers) enabled by smart plugs/appliances.</li> </ul> See Section B.5 for further discussion of potential bill savings.
A universal low-priced overnight period on every day of the year allows for the establishment of <b>simple daily schedules</b> for shiftable loads to take advantage of Low Overnight prices, making such cost-saving demand shifts easier to sustain over the long term.
Low overnight prices provide additional <b>incentive</b> for consumers to <b>adopt decarbonization technologies</b> , such as EVs or electric thermal storage. Further analysis of the Overnight Price Pilot indicates that the price plan was successful in incenting participants to <b>acquire and use EVs more</b> compared to internal combustion engine vehicles, providing both societal benefits and individual consumer savings. See Section 3.2 for further detail.

Figure 3 shows a heat map of the relative Ontario electricity demand in each hour of the day in each month of the year between 2015-2021. The colour scale is normalized within each month so that red indicates the hour with the highest Ontario demand and green indicates the hour with the lowest demand. The price periods indicated are the ones that maximize the ratio of Ontario demand in the OETOU On-Peak period relative to the OETOU Low Overnight Period compared to other timing options.

**Figure 3: Ontario Electricity Demand – Heat Map.**



### 2.1.2 Weekday Afternoon-Evening On-Peak Price Period

The proposed OETOU price is designed to provide an incentive to consumers to shift their demand away from peak periods by charging a higher price during periods when Ontario peak demand tends to occur. The proposed on-peak period for the OETOU price plan between 4 p.m. – 9 p.m. on weekdays is expected to be effective at providing the desired demand shifting away from peak periods as described in Table 5.

**Table 5: Support for On-Peak Price Period**

Support for On-Peak Price Period Weekdays 4 p.m. – 9 p.m. (All Year)
Recommendation and evidence from RPP Pilot Meta-Analysis Final Report <b>delay the start of weekday off-peak pricing</b> from 7 p.m. to 9 p.m. to provide incentive to reduce demand during high demand evening hours.
OEB staff analysis shows that the <b>highest Ontario demand</b> occurs between <b>4 p.m. – 9 p.m. in all seasons</b> as depicted in Figure 3.
OEB staff and expert analysis show that <b>aligning high prices</b> with periods of high Ontario demand <b>increases economic efficiency</b> as described in the <a href="#">OEB's 2019 staff research paper</a> on alternative electricity price designs.
Alectra's Dynamic Pilot exhibited a <b>significant reduction</b> in participant demand during its <b>on-peak period</b> of weekdays from 3 p.m. – 9 p.m. (4%-13%). <sup>6</sup>
RPP Pilots showed <b>limited incremental value</b> in <b>seasonal price plans</b> . Maintaining the same price periods all year long is significantly simpler than changing price periods in response to modest seasonal variation in demand.

### 2.1.3 Increased Price Ratios

The proposed OETOU price plan is designed to provide demand-shifting incentives, while also recovering the same average supply costs incurred by RPP consumers on the TOU and Tiered price plans. Thus, if prices are increased during the OETOU On-Peak period to incent a decrease in On-Peak consumption, prices in other periods must be calibrated to achieve the targeted average supply cost. The degree to which on-peak prices are higher than off-peak prices is a design choice, and a wide range of such price ratios were tested in the RPP Pilots. For the proposed OETOU, the On-Peak price is set to be 10 times the value of the Low Overnight price for the reasons summarized in Table 6.

<sup>6</sup> Alectra's Dynamic Pilot employed a variable peak pricing model where the on-peak price varied between a low value (10 ¢/kWh) on low demand days to a high value (39.8 ¢/kWh) on high demand days. Although the OETOU price plan does not employ a variable peak pricing model, the observed reduction of 4% (on low-priced days) to 13% (on high-priced days) shows that consumers will respond to higher price signals between 3 p.m. – 9 p.m. on weekdays. See the [RPP Pilot Output Data Sheets](#) for further information on the results of the Dynamic Pilot.

**Table 6: Support for OETOU Price Ratios**

<b>Support for OETOU Price Ratios On-Peak Price is 10 Times Low Overnight Price</b>
Recommendation from RPP Pilot meta-analysis to <b>increase on- and mid-peak prices</b> relative to <b>off-peak</b> prices <sup>7</sup> beyond 2:1 to provide sufficient incentive to shift demand away from peak periods to lower-demand periods.
In several pilot treatments (dynamic pricing, super-peak pricing, critical peak pricing and overnight pricing), customer <b>demand response increased</b> the closer the ratio between the highest and lowest price was to <b>10:1</b> .
<b>Limited demand response</b> has been observed in pilot treatments or existing standard TOU prices where the ratio between the highest and lowest prices is <b>less than 4:1</b> .

As described in Table 3, the prices in the OETOU Mid-Peak and Weekend Off-Peak period are set to the same value as standard TOU Mid-Peak and Off-Peak prices, respectively. Demand response is less valuable in the OETOU Mid-Peak and Weekend Off-Peak periods since these periods typically do not experience extremely high or low demand levels at the provincial level. As such, prices in these periods were set to align with standard TOU prices to:

- Minimize price differences with consumers on standard TOU prices during hours when demand response is less valuable.
- Provide consistency for consumers shifting from standard TOU pricing to OETOU pricing.

<sup>7</sup> As described in the RPP Pilot Meta-Analysis Final Report, the recommendation to increase on- and mid-peak prices relative to off-peak prices is presented as a general recommendation in the context of modifying the standard RPP TOU price plan. While the focus of this report is not on the standard TOU price plan, this recommendation is equally applicable to the proposed OETOU price plan, if it proceeds.

### 3. Overnight Price Pilot

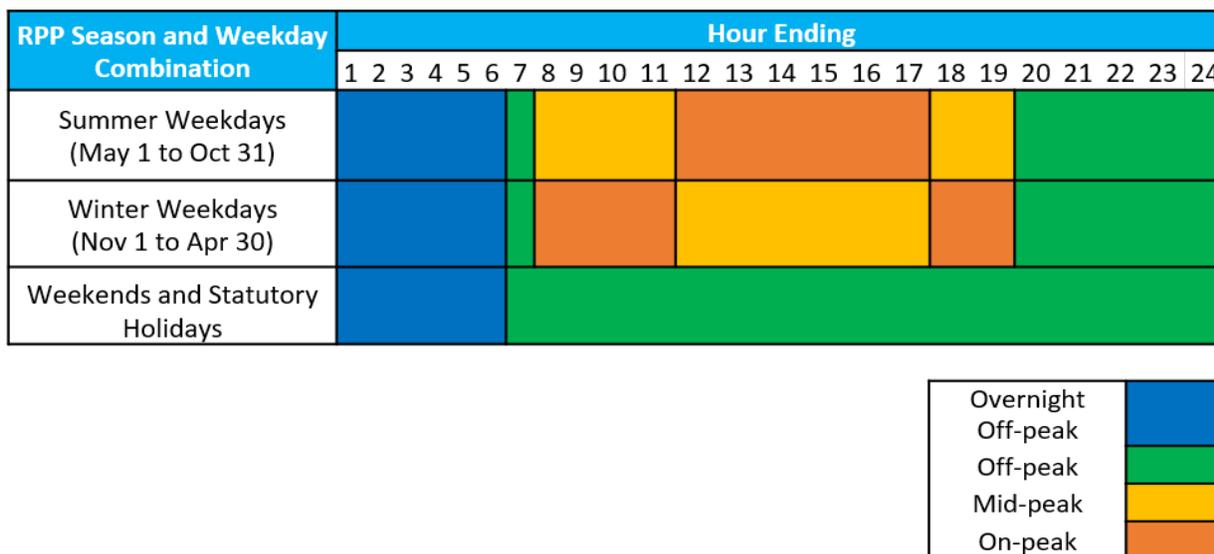
As described in Section 2, the proposed OETOU price plan draws on many of the elements of Alectra’s Overnight Price Pilot. Given the similarities between the OETOU price plan and the Overnight Price Pilot, the results and lessons learned from that pilot are indicative of what may be expected from the introduction of the proposed OETOU price plan. A brief description of the pilot and the pilot results are provided below, along with a summary of the results of an additional investigation into the decarbonization potential of such overnight price plans.

#### 3.1 Summary of Overnight Price Pilot and Results

##### Description of Overnight Price Plan

The Overnight Price Plan was one of three price plans implemented by Alectra as part of its RPP pilot. Under this price plan, as shown in Figure 4 below, participants accepted a higher On-Peak (~18 ¢/kWh) price in exchange for a price (2 ¢/kWh) in the period from midnight to 6 a.m. that was less than one third the status quo TOU Off-Peak price. Otherwise, the price structure matched that of the status quo TOU price plan. This price plan targeted EV owners and customers that might otherwise benefit due to shift work, lifestyle, etc.

**Figure 4: Price periods in the Overnight Price Pilot.**



The RPP Pilot Meta-Analysis was commissioned by the OEB to provide an analysis of the results of the RPP pilots, including Alectra’s Overnight Price Plan.

## Significant Demand Reductions

The meta-analysis found that the Overnight Price Plan elicited the most substantial behavioural response of any of the 10 price plans tested as part of the RPP pilots, with a 45% increase in demand between midnight and 6 a.m. during the summer, and a 73% increase in demand during the same hours in winter. Summer overnight demand increases were partially offset by On-Peak and Mid-Peak demand reductions of approximately 10% and 8%, respectively. Overall, the average annual consumption of participants increased by nearly 15% (20% in winter months).

## Opportunity for Bill Savings

The meta-analysis also revealed that the Alectra Overnight Price Plan provided opportunities for significant bill savings. Participants in the Overnight Price Plan were able to save on average \$5.60 per month in the summer and \$6.90 per month in the winter. Customers testing other pilot price plans were not able to realize the same level of bill savings. Customers on the price plan with the next best level of savings were only able to save on average \$1.50 per month throughout the year.

These bill savings for customers meant that the Overnight Price Plan performed the worst of any of the price plans tested in terms of cost recovery.

## Cost Recovery

The Overnight Price Plan experienced an under-recovery of supply costs that were attributed to participating customers. That is, the revenue collected from participating consumers through the Overnight pilot prices under-recovered by 15% the supply costs that were attributed to them on average. This missing revenue would be recovered from all RPP consumers in a subsequent price-setting period.

Analysis of the Overnight pilot results identifies two distinct sources for the under-recovery of supply costs.

- **Rate-Structural Under-Recovery (9%)<sup>8</sup>** – Due to setting prices to recover the average supply cost based on the average RPP load profile, rather than the load profile of consumers enrolled in the pilot.<sup>9</sup> This resulted in participants saving 9% in commodity costs without accounting for any shift in their demand in response to prices. The current OEB methodology for setting RPP prices avoids such rate-structural under-recovery as described in Section 5.2.
- **Behavioural Under-Recovery (6%)** – Due to participants changing consumption

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<sup>8</sup> In the materials presented at the February 17, 2022, stakeholder meeting on the design of an OETOU price plan, the proportions of rate-structural and behavioural under-recovery were incorrectly attributed. These proportions have been corrected in this report and align with those reported in the [Output Data Sheets](#) for the RPP Pilots.

<sup>9</sup> The average load profile of consumers enrolled in the Overnight pilot was unknown at the time prices were set.

patterns in response to the Overnight price and so lowering their commodity costs by 6% on average.

## Decarbonization Potential

The meta-analysis also revealed that the Overnight Price Plan resulted in a negative system benefit. The avoided cost benefit of the peak demand and On-Peak and Mid-Peak energy reductions are less than the incremental system costs of the additional overnight consumption, with a net present value of a lifetime avoided cost benefit of -\$14 and a net average increase in consumption of 5% in the summer and 20% in the winter, for an average annual increase of nearly 15%.

In the meta-analysis it was hypothesized that the two most probable sources for the net additional Overnight Off-Peak and non-Overnight Off-Peak loads were:

- **Shifting EV Charging Location.** Participants with EVs shifting from paying a per-hourly charge for EV charging (for example, at their workplace) outside of their home to charging their EV at home overnight.
- **Behavioural Fuel Switching.** Participants satisfying an increasing share of their overnight thermal load with auxiliary electric space heating equipment, instead of natural gas heating equipment.

If either or both of these hypotheses regarding participant price-response (i.e., shifting away from workplace charging and/or behavioural fuel-switching) above are correct, then an examination only of participant household electric loads will understate – potentially quite substantially – the price plan’s benefits.

To test these hypotheses, the OEB retained consultancy firm Guidehouse to undertake a study to understand the changes in behaviour responsible for the net increase in consumption associated with the Overnight Price Plan, and the benefits, including the decarbonization potential, associated with these changes in behaviour. When the results of the new study are taken into account, the Overnight Price Pilot is estimated to have an overall positive societal benefit, as discussed below.

## 3.2 Further Analysis of Overnight Price Pilot

Through this study Guidehouse found:

- The estimated net increase in consumption due to the Overnight Price Plan does not appear to be the result of behavioural fuel-switching. Participants that did not report owning or leasing an EV during the pilot period did not exhibit any statistically significant increase in consumption during the Overnight Off-Peak period. EV participants in contrast increased their average summer Overnight Off-Peak demand by more than 1 kW and their average winter Overnight Off-Peak demand by nearly 2 kW.
- A very high proportion of EV participants acquired their vehicles during the pilot.

Of the 135 participants that responded to Guidehouse's survey, 63 indicated that they owned or leased an EV during the pilot period, and of these, 27 (43% of EV participants) indicated that they acquired the vehicle during the pilot.

- The majority of the estimated increase in consumption as a result of the Overnight Price Plan is likely attributable to participants using EVs more, and internal combustion engine vehicles less. Only 5% of EV participants that responded to the survey indicated that they had shifted their consumption from public to private charging. As noted above, all increases in Overnight Off-Peak consumption are attributable to EV participants, and nearly half of these identified that they had acquired their EV during the pilot.
- Where the average increase in consumption may be attributable to a shift from internal combustion engine vehicle to EV use, the societal benefits due to decarbonization are considerable. Using average vehicle efficiencies to convert the incremental electricity consumption attributable to EVs (on a per vehicle basis) to an estimated reduction in gasoline use, and applying the federal carbon price as a proxy for the societal benefit of these reductions, Guidehouse has estimated an average annual societal benefit of approximately \$200/vehicle, which represents almost four tonnes of CO<sub>2</sub>.
- The individual customer savings of converting to EV driving when subject to the Overnight Price Plan may be more than \$2,000 per year. One of the most significant costs of operating a vehicle are fuel costs. As the Overnight Price Plan greatly reduces the fuel cost for EVs (which already have a lower per-mile cost than internal combustion engine vehicles), the realized benefits are significant.

These results suggest that there is the potential that the Overnight Price Plan, or one like it, could help support decarbonization of the transportation sector in Ontario. While the original RPP Pilot Meta-Analysis reported an estimated net present value of lifetime avoided cost benefit of -\$14 per customer, that estimate did not account for the approximately \$200/vehicle of annual societal benefit that applied to approximately one-fifth of the pilot treatment population. With the inclusion of this newly estimated societal benefit, it is estimated that the Overnight Price Plan would yield a positive societal benefit.

The final report for this study, Additional Investigation of the Benefits of an Overnight Pricing Plan, has been delivered to the Minister of Energy at the same time as this report.

## 4. Potential Impact of Price Design

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The introduction of an OETOU price would impact the electricity system and consumers both individually and collectively. In requesting that the OEB develop a new OETOU price design, the Letter directed the OEB to consider three types of impacts, each related to core objectives of the RPP<sup>10</sup>:

- **Average Revenue Recovery.** How will the proposed price affect the RPP objective that prices must be set to recover the full cost of RPP supply on a forecast basis from the consumers who pay the prices?
- **Peak Demand.** How will the proposed price design support the achievement of a more efficient, and therefore more cost-effective, electricity system?
- **Consumer Bill Impacts.** How will the proposed price support the RPP objective that prices give consumers incentives and opportunities to take action to reduce their electricity bills?

The answers to these questions depend on several factors, including the number of consumers that enrol in the OETOU price plan, the collective load profile of enrolled consumers, and the way in which those consumers change their consumption behaviour in response to the OETOU price plan.

The OEB has been asked to estimate these impacts under different enrolment assumptions as described in the Letter. Real historical data was used to conduct a “what if” analysis of the potential impacts of introducing an OETOU price plan in each of the years 2015-2021, simulating the introduction of the price plan in seven different years under a low enrolment and high enrolment scenario. The average relative impacts on the metrics described below, averaging over all years, provides an estimate of the potential impacts within the first year of introducing an OETOU price plan. The impacts are summarized in Table 7 followed by a brief description of each metric. Further information on the impact assessment and each impact estimate is provided in Appendix B.

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<sup>10</sup> A complete list of the RPP objectives can be found in the OEB’s [RPP Roadmap](#).

**Table 7: Scenario Assumptions and Estimated Impacts**

	Low Enrolment Scenario	High Enrolment Scenario
<b>Scenario Assumptions<sup>11</sup></b>		
<b>Number of Consumers Enrolled in OETOU Price Plan</b>	23,000 Consumers	318,000 Consumers
<b>Number of Enrolled Consumers with EVs</b>	9,800 EVs	32,000 EVs
<b>Estimated First Year Impact<sup>12</sup></b>		
<b>Average Change in Collected Revenue</b>	-\$56,000/month (0.1% of avg. monthly change in variance)	-\$653,000/month (1.1% of avg. monthly change in variance)
<b>Average Change in RPP Variance Settlement Factor</b>	-\$0.00001/kWh	-\$0.00016/kWh
<b>Average Annual Peak Demand Reduction</b>	3 MW (0.01% of avg. Ontario peak demand)	40 MW (0.17% of avg. Ontario peak demand)
<b>Average Change in Monthly Bill for Consumers Enrolled in OETOU Price Plan</b>	-2%	-2%
<b>Average Change in Monthly Bill for all RPP Consumers due to Change in Collected Revenue</b>	0.01%	0.10%

#### 4.1. Average Revenue Recovery

Two metrics are used to assess under-recovery. The **Average Change in Collected Revenue** is the revenue expected to be recovered from consumers enrolled in the OETOU price plan, minus the amount of revenue that would be expected to be recovered from those same consumers under standard RPP prices. The calculated amounts are compared to the average month-to-month change in the total RPP

<sup>11</sup> Scenario assumption values are indicative of values in 2021. See Appendix B for full description of scenario assumptions.

<sup>12</sup> Impacts shown are for the initial year of implementation. Economic impacts in subsequent years will depend on a number of factors as discussed in section 5.

Variance.

The **Average Change in RPP Variance Settlement Factor** is the average \$/kWh amount that such a change in collected revenue is expected to have on all RPP prices in subsequent price-setting periods through the RPP Variance Settlement Factor. This change in the settlement factor is expected to lead to an increase in monthly bills for all RPP consumers of 0.01% to 0.10% in the low and high enrolment Scenarios, respectively.

The under-recovered revenue amounts in the first year of implementing an OETOU price plan are expected to be small compared to the magnitude of average monthly changes in RPP variance under both the low and high enrolment scenarios. Such under-recovery is expected to have little impact on consumer bills compared to other sources of variance. The OEB's RPP price-setting process is designed to adapt to shifts in demand behaviour and thus limit the persistence of such under-recovery in subsequent years as described in Section 5.

## 4.2. Peak Demand

The **Average Annual Peak Demand Reduction** is the anticipated reduction in maximum Ontario hourly demand that is expected under the different OETOU enrolment scenarios. This amount is shown as an absolute value, as well as relative to the maximum Ontario hourly demand.

The relative impact of the proposed OETOU price plan on Ontario peak demand is expected to be quite small in the first year and likely to have little to no impact on capacity requirements as determined by the IESO. Nevertheless, the introduction of such a price plan creates a new opportunity to reduce capacity investments, if enrolment increases beyond that of the high enrolment scenario in subsequent years.

## 4.3. Consumer Bill Impacts

The **Average Change in Monthly Bill for Consumers Enrolled in OETOU Price Plan** is estimated as the average change in an enrolled consumer's total monthly bill under OETOU pricing, relative to what that bill would have been under standard RPP pricing. The values presented include an estimation of the demand shifting that is expected to occur in response to the OETOU price.

This average bill impact represents a range of enrolled consumers, some of whom would save more than the average, some of whom would save less, including a small fraction who would experience bill increases due to the switch to OETOU pricing. Generally speaking, consumers with higher demand during the Low Overnight period (e.g., an EV owner) would have greater opportunity for bill savings compared to those with lower Low Overnight demand (up to 4-5% reduction in monthly bills, on average). Section 5.2 provides further discussion of potential bill impacts for enrolled consumers

beyond the first year.

The **Average Change in Monthly Bill for all RPP Consumers due to Change in Collected Revenue** is the average relative increase in all RPP bills due to the need to recover the estimated under-recovered amounts. The values presented are based on the estimated bill impacts for an average residential consumer on standard TOU pricing, but bill impacts for other RPP consumers are expected to be similarly small in scale. The bill impacts due to under-recovered amounts from OETOU-enrolled consumers is expected to be very small compared to other sources of variance.

## 5. Cost Recovery Issues

OEB staff identified that the introduction of a price plan that is likely to impact customer demand patterns, like the OETOU price plan, may require the RPP price-setting approach to evolve in the longer term. Such evolution may be required to continue to meet the RPP objectives of cost-reflectiveness and price stability.

This section of the report is divided into three sections:

- 5.1. **Principles of Price Setting and Cost Recovery.** This section describes the OEB's current RPP price-setting approach (at a high level) and identifies two recent changes applied to that approach.
- 5.2. **OETOU Price under Current Price-Setting Method.** This section details a potential issue that may arise from continuing to collect the same \$/kWh average supply cost (RPA) from OETOU consumers as from standard TOU and Tiered consumers. More specifically, it addresses how a misalignment between average revenue and average costs could impact individual consumers through the price-setting process.
- 5.3. **Consideration of Potential Future Changes to Price-Setting Method.** This section identifies the longer-term actions that the OEB may consider to address this issue, including why it would be imprudent to introduce these actions in the short term, and how this issue could be accommodated if an OETOU price plan were to be introduced.

### 5.1. Principles of Price Setting and Cost Recovery

The OEB sets RPP electricity prices based on the requirement of “supply cost recovery.” This approach requires the OEB to set electricity prices at a level that enables full recovery of all costs it anticipates being incurred to deliver the forecast amount of power over the forecast period (i.e., that the forecast costs of electricity supply equal the forecast revenue generated through its sale). As prices are based on a forecast, the RPP price-setting process is also used to “true up” any over- or under-collections from prior periods. The addition of the supply cost estimate and the true-up amounts produces the RPA. RPP TOU and Tiered prices are set to recover this targeted RPA on average.

The process employed by the OEB to establish RPP prices is described in the OEB's [RPP Manual](#). When necessary, the RPP Manual is updated to reflect changes in the OEB's RPP price-setting process brought on by, amongst other things, changes in government policy.

The methodology described in the RPP Manual is comprehensive. From a supply

perspective, it directs that detailed information on the supply costs of Ontario's generators and assumptions about how generators choose to participate in Ontario's wholesale electricity market be used to inform price. Further, the RPP Manual instructs that forecasts of RPP supply costs must reflect the terms and conditions of applicable IESO supply and demand management contracts, consider the Global Adjustment charges of both Class A and Class B consumers, and incorporate the expected output and costs of Non-Utility Generation suppliers. Inherently, fuel prices are also a critical input into the RPP supply cost forecast.

Forecasts of total RPP electricity demand and detailed load profiles of RPP-eligible consumers on both Tiered and TOU price plans are the major demand-side forecast requirements that must be developed when establishing RPP prices.

The OEB has been required to adapt its RPP price-setting process to respond to changes in government policy, to remain adherent to its supply cost recovery principle. Two recent examples illustrate how the two primary factors affecting the RPP supply cost forecast – assumptions related to RPP supply and RPP demand – have been adjusted to achieve this goal.

**Example 1:** In December 2020, the OEB performed an unplanned reset of RPP prices to reflect a significant decrease in the RPP supply cost resulting from the Ontario government's decision to fund a portion of renewable energy contract costs. This update decreased the RPP supply cost forecast by approximately \$0.026/kWh and RPP prices were necessarily revised to recover a lower forecast cost of RPP supply.

**Example 2:** On November 1, 2020, the Ontario government introduced Customer Choice, which provides eligible TOU consumers with the option of being charged on the basis of Tiered prices. In response, the OEB updated its assumptions related to Tiered prices based on 1) the number of TOU consumers who were likely to shift to Tiered pricing, and 2) how the shift would be expected to alter the detailed load profile of the typical Tiered consumer. These adjustments were necessary to ensure consumers on Tiered price plans continued to pay RPP prices reflective of the forecast RPP supply cost, as well as limit any cross-subsidization between TOU and Tiered consumers. The OEB continues to calibrate its assumptions related to the impacts of Customer Choice, as more data on the typical Tiered and TOU consumer is collected.

The OEB's practice of monitoring trends, analyzing data and forecasting the impacts of current or future government policy is designed to develop unbiased TOU and Tiered prices that achieve the cost recovery objective, while at the same time limit any level of cross-subsidization between price plans to the extent possible. That is, ensuring

consumers on both TOU and Tiered price plans pay the same forecasted RPA.

## 5.2. Optional Enhanced TOU Price under Current Price-Setting Method

The introduction of an OETOU price plan would represent a third option for RPP consumers in addition to the existing standard TOU and Tiered price plans as well as a new set of prices that the OEB would need to set on an annual basis. This section discusses the potential implications of how the OEB's current price-setting methodology may influence individual consumer prices and RPP cost recovery, starting with consideration of two general scenarios. These scenarios assume perfect foresight in the price-setting process (i.e., ignoring variances due to forecast error).<sup>13</sup>

**Scenario A – No Demand Response:** In the first year of implementation, the estimated load profile of consumers on each price plan would be used to set the prices on each plan to recover the same \$/kWh RPA average price attributed to all RPP consumers collectively. If there is no change in demand from enrolled OETOU consumers in response to the new price, the same average revenue would be collected from OETOU consumers as would be collected from TOU and Tiered consumers, respectively. In this way, the OEB's current price-setting methodology is designed to avoid systemic or rate-structural under-recovery from consumers on any individual price plan.<sup>14</sup>

**Scenario B – Demand Response:** This scenario assumes that enrolled consumers do respond to the introduced OETOU prices by lowering their demand during On-Peak periods and/or shifting demand to the Low Overnight period to save money on their electricity bills. Lower average consumer bills will necessarily result in reduced average revenue. This is an example of the behavioural under-recovery that was observed in the Overnight Price Pilot (see Section 3.1 for further detail on the pilot results).

In the subsequent price-setting period, the under-recovered amounts from OETOU consumers in Scenario B would be collected uniformly from all RPP consumers across all RPP price plans, including an OETOU price plan. The resulting increase in the average RPP consumer bill is expected to be small and estimated in Section B.6.

More importantly, from the perspective of OETOU consumers, the shift in demand of OETOU consumers would then be incorporated into the demand forecast used in the

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<sup>13</sup> While it may be difficult to predict the number and load profile of consumers who will initially enrol in an OETOU price plan, the OEB would continue to calibrate its assumptions related to enrolled consumers as more data is collected.

<sup>14</sup> Such rate-structural under-recovery was observed in the Overnight Price Pilot due to setting pilot prices based on the average RPP consumer load profile rather than the load profile of consumers who enrolled in the pilot (see Section 3.1 for further detail on the pilot results). The OEB's current price-setting methodology avoids this form of under-recovery by setting prices for each price plan based on the estimated load profile of consumers on each price plan, respectively, rather than on the overall average load profile of all RPP consumers collectively.

subsequent RPP price-setting period. The OETOU prices would then change in the next price-setting period to eliminate the Scenario B under-recovery to ensure that the average revenue (per kWh) collected from OETOU and other RPP consumers is equalized.

Absent any additional changes to the OETOU consumers' average load profile, electricity bills for OETOU consumers would, as a result of the new prices, *increase* on average back to the level they had been paying prior to enrolling in the OETOU price plan. Equalizing average revenue collected implicitly means equalizing average bills. The financial reward to OETOU consumers for their prior period shift in demand (in ways that benefit the system and all electricity consumers collectively) would, on average, be eliminated. Further changes in demand would be required in order to attain the same savings they had experienced in the prior price-setting period.

Below is an illustrative example from an enrolled consumer's perspective.

- **Action Taken** – In response to signing up for the OETOU price plan, the enrolled consumer changes their load behaviour to take advantage of the new Low Overnight price, potentially investing in new devices or systems in order to achieve greater savings.
- **Savings Achieved** – During the first year of enrolment, this consumer would experience bill savings relative to what they paid previously on standard RPP prices due to their change in demand.
- **RPP Prices Reset** – After a year, the OEB adjusts OETOU prices, as described above, to recover from OETOU consumers the same RPA as for all RPP consumers. The OETOU consumer would see their electricity bills return to levels similar to what they paid under standard RPP prices, even if they continue to practice the behaviours that yielded their first-year bill savings.

This example highlights the dynamics that may result from applying the OEB's current price-setting method to OETOU prices. This potential effect is a result of requiring consumers on all price plans to recover the same average RPA supply cost without regard to whether the average supply cost differs across price plans.

Until the introduction of Customer Choice in November 2020, this discrepancy between incurred supply costs and setting prices relative to a universal RPA was not an issue. RPP consumers were, by default, on TOU and only those consumers who were ineligible<sup>15</sup> for TOU pricing were charged Tiered prices. In the absence of Customer Choice, it was appropriate to set prices on each price plan to achieve the same collective average supply cost since consumers had little control of the price plan they were charged. Since the introduction of Customer Choice, as more consumers adopt

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<sup>15</sup> Prior to Customer Choice, a small number of RPP consumers were charged on the basis of Tiered pricing because their electricity use was not billed using a smart meter primarily due to technological limitations.

Tiered pricing or potentially a new OETOU price plan, the difference between the costs incurred by consumers on different price plans may become more pronounced, potentially leading to a divergence between the prices charged to consumers on each price plan and the actual supply cost associated with their consumption.

The OEB's current price-setting methodology would set prices for a new OETOU price plan in the short term that would avoid systemic rate-structural under-recovery. Over the longer term, as the relative number of OETOU consumers increases, prices charged to consumers on different price plans may diverge from supply costs, so consideration should be given to modifying and adapting such methodologies while still adhering to the core principles of the RPP.

### **5.3. Consideration of Potential Future Changes to Price-Setting Method**

The previous section outlined a potential longer-term issue that may arise from the current RPP price-setting approach that equalizes the average revenue collected per kWh across price plans when consumers in a given price plan take actions that reduce the costs they impose on the system.

This section identifies the OEB's key considerations for addressing this issue in both the short and long term.

#### **5.3.1. Long-Term Considerations**

With the introduction of Customer Choice, and with consideration of a new third option like the proposed OETOU price plan, it will be important for the OEB to consider potential changes to its RPP price-setting methodology to adapt to the new dynamics that may arise now that consumers are able to choose their price plan.<sup>16</sup>

One potential change is to modify the price-setting process to set prices for each price plan based on the estimated costs incurred by consumers on each price plan separately. That is, rather than calculate one universal RPA that represents the average supply costs incurred by all RPP consumers, separate RPAs could be calculated, for each price plan, based on the projected supply costs that would be incurred by consumers on those price plans.

The prices on each price plan would then be set to recover the projected average supply cost attributed to consumers on each plan, rather than the collective average supply cost. As a result, any change in the collective load pattern of consumers on a specific price plan that leads to a change in supply costs, either up or down, would be reflected in a commensurate change in the prices on that price plan in the subsequent

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<sup>16</sup> There is a relatively small proportion of RPP consumers who are unable to be charged TOU prices and so are charged Tiered prices for technical reasons beyond the consumers' control.

price-setting period.

The introduction of separate RPAs based on the average supply costs for consumers on different price plans would need to be approached in a considered manner for several reasons:

- **It would require a significant change to the RPP price-setting approach.** At present, the RPP share of supply costs is calculated for all RPP consumers collectively. Developing separate RPA values for each price plan would require the development of a bottom-up estimation of the relative contribution to supply costs from each price plan individually.
- **The equilibrium load profile of OETOU consumers is not known, which could lead to price fluctuations.** Creating a bottom-up estimate of supply costs contributed by OETOU consumers requires a relatively stable “equilibrium” load profile year-to-year. This is unlikely to be observed until the number of consumers on each price plan, and their associated load patterns, are stable and well understood. If the number of consumers on each price plan changes significantly or if the forecast of their load profile differs significantly from their actual load profile, then the calculation of the separate RPA values for separate price plans and thus the prices themselves could vary significantly from one price-setting period to the next. Such fluctuations in prices could continue until the proportion of consumers on different price plans and their associated average load profiles are stable and well understood. Such price fluctuations would not be reflective of the costs incurred by consumers on different price plans but rather due to a lack of information and should be avoided.
- **The impact of separate RPAs on all RPP consumers should be considered.** Some consumers will not take advantage of OETOU pricing or the ability to choose price plans because they are unable to be billed based on smart meter data (for technical reasons), are unaware of their ability to choose price plans or are unable to reasonably shift their demand to take advantage of TOU pricing (e.g., do not have access to smart appliances, EVs, etc.). Such consumers who are on a price plan with a higher average price (higher RPA) compared to other price plans could be unaware that they are paying a higher price and/or could be unable to lower their electricity costs by switching to another price plan or shifting their demand. As the OEB considers potential changes to its price-setting methodology, it will be important to also consider this class of consumers and ensure that they are protected from any unfair cross-subsidization of other RPP consumers.

For these reasons, the introduction of separate average supply costs for consumers on different price plans is a strictly longer-term consideration and should be addressed when the number and load profile of consumers on each price plan are stable and reasonably predictable.

### 5.3.2. Short-Term Considerations

In the initial years of introducing an OETOU price plan, the OEB would continue to set prices according to its current price-setting process, as described in Appendix A. Such a process is designed to avoid systemic rate-structural under-recovery from any price plan relative to another. The OEB would continue its practice of monitoring the uptake and load profile of consumers on each price plan.

Such up-to-date uptake and load profile information would be used when setting OETOU prices with consideration given, as part of the implementation of the new price plan, to how best achieve the RPP objectives that drive the principles described in Section 5.1. The OEB would work carefully to ensure that OETOU price-setting reflects the appropriate balance of the core RPP objectives of cost reflectiveness, stability and of providing consumers incentives to reduce their electricity bills with consideration given to the issues related to consumer savings and the RPA discussed above.

## 6. IESO and Stakeholder Engagement

### 6.1. IESO Engagement

In the Letter from the Minister of Energy, it was expressed that it will be important that the OEB continue to engage with the IESO, as needed, to ensure that the evaluation of designs considers not only cost but also reliability and adequacy of the provincial system to meet demand.

In February 2022, the proposed OETOU price plan was presented to the IESO for feedback. The IESO does not have concerns from a reliability and adequacy standpoint. The IESO expressed interest in monitoring uptake of the price plan and the impact that high participation may have on reducing peak demand. The OEB is working with the IESO on addressing further questions regarding how the proposed OETOU price plan aligns with system costs and will continue to work with the IESO if the OEB proceeds to implement a new RPP price plan.

On issues of implementation, the OEB has consulted with the IESO Smart Metering Entity and received confirmation that there are no technical barriers related to the Meter Data Management Repository to implement the changes involved in implementing the proposed OETOU price plan. Any required changes would be coordinated with electricity distributors, would be implemented at the lowest possible cost and would not impact the Smart Metering Charge to consumers.

### 6.2. Stakeholder Engagement

On February 17, 2022, the OEB held a stakeholder meeting to seek input on the design of the proposed OETOU price plan. Approximately 140 participants registered for this event representing over 60 organizations, including electricity distributors, industry associations, consumer groups, societal interest groups and private companies.

Stakeholders were also given the opportunity to submit written comments on the proposed design following this stakeholder meeting. The OEB received written comments on the proposed design from 19 stakeholders. Six of the comments were from electricity distributors or distributor associations, one was from a consumer group, seven were from industry associations, four were from societal interest groups and one from an EV infrastructure company. All of the comments are posted on the [webpage for this initiative](#).

A brief summary of the written comments is presented below. A more detailed summary of the stakeholder comments is provided in Appendix C along with a brief “OEB Response” to comments.

Of the submissions that explicitly provided feedback on the price design, most were

supportive of the OEB's proposed design, with limited comments on the design elements as presented. That is not to say that all stakeholders were supportive of the OETOU price plan. A consumer group and several electricity distributors expressed concern that the OETOU price plan would benefit primarily wealthy consumers and that there could be "backlash" from other RPP consumers. While one societal interest group commented that an OETOU price plan is not needed, an industry association commented that more than a single enhanced TOU option should have been developed.

There was no agreement among stakeholders whether cost savings or under-recovery should be recovered from all RPP consumers in subsequent price-setting periods. Of the stakeholders that responded to this question directly, some stated that under-recovered amounts due to cost savings from shifting consumption should be recovered from all RPP consumers, while others stated that such under-recovered amounts from consumers of each price plan should be recovered by consumers of that price plan. The remaining stakeholders that addressed this question encouraged minimizing cross-subsidization from consumers on the standard TOU and Tiered price plans to consumers on the OETOU price plan. Two stakeholders stated that cost savings to consumers who shift their demand should be commensurate with the reduction in system costs that results from such shifting.

Further feedback from stakeholders has been submitted to the Environmental Registry of Ontario posting for the [Proposal to Enable a New Voluntary Enhanced Time-of-Use Rate Including Considerations of a New Ultra-Low Overnight Price](#). The comment period for the registry posting was February 9, 2022 to March 29, 2022. Registry submissions were unavailable for consideration before submitting this report.

## Appendix A. Current RPP Price-Setting Methodology

In 2005, the Ontario Energy Board (OEB) was provided legislative authority to set and re-set electricity rates under the RPP. Ontario Regulation (O. Reg.) 95/05 – Classes of Consumers and Determination of Rates – establishes that the OEB must adhere to the principle of supply cost recovery when determining RPP prices:

*In determining the rates, the Board shall forecast the cost of electricity to be consumed by the consumers to whom the rates apply, taking into consideration adjustments required under section 25.33 of the Electricity Act, 1998 and shall ensure that the rates reflect those costs.<sup>17</sup>*

In broad terms, the methodology used to develop RPP prices has two essential steps:

1. Forecast the RPP supply cost for 12 months, and
2. Establish RPP-TOU and RPP-Tiered prices to recover the forecast RPP supply cost, from RPP consumers, over a 12-month period.

The OEB's process and rules for setting RPP prices are set out in the RPP Manual.

### RPP Manual

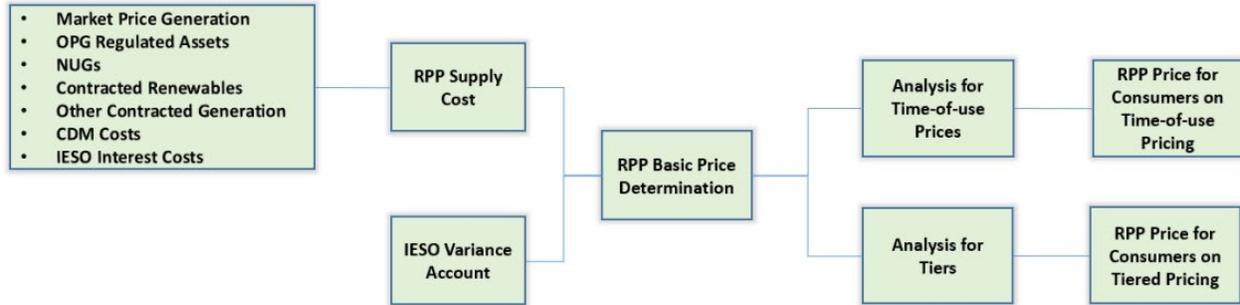
The OEB is required by law to set RPP commodity prices for periods of not more than 12 months and set RPP prices to reflect the forecast cost of supplying RPP consumers. The RPP Manual demonstrates how the OEB adheres to this requirement by, amongst other things, detailing the OEB's processes for calculating the RPP supply cost forecast and how TOU and Tiered prices are derived to recover this forecast cost of supply over a 12-month period. This methodology is summarized in Figure 5, following which a brief description of each of its components is provided.

The OEB issues a RPP Price Report as part of each RPP price setting. The report details how the methodology described in the RPP Manual has been applied to determine forecast period TOU and Tiered prices. Current RPP prices are set to recover the forecast cost of RPP supply over the November 1, 2021, to October 31, 2022, period. The most current RPP Price Report, which constitutes a working example of the OEB's methodology, can be found here: [RPP Price Report November 1, 2021 to October 31, 2022](#).

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<sup>17</sup> <https://www.ontario.ca/laws/regulation/050095>

**Figure 5: RPP Price-Setting Process**<sup>18</sup>



**RPP Supply Cost:** as more fully explained in the RPP Manual, RPP supply cost represents the OEB’s forecast cost of supplying electricity to RPP consumers over a 12-month period (the forecast period). The following equation is used by the OEB to forecast RPP supply cost:

$$RPP\ Supply\ Cost = M + \alpha [(A - B) + (C - D) + (E - F) + G] + H^{19},\ where$$

- M is the amount that the RPP supply would have cost under the Market Rules<sup>20</sup>; and
- $\alpha$  is the RPP proportion of the total Global Adjustment costs. Each group of terms in  $\alpha$  represents a separate driver of Global Adjustment, each of which being further described in the RPP Manual.

Each term in the equation represents a separate forecast based on several data sources and/or assumptions. The value of each term is determined by a forecasting model specifically designed to predict the various drivers of RPP supply cost. To ensure the precision of the model’s outputs, the OEB undertakes significant efforts to ensure that data and assumptions underpinning the forecast represent the best and most current information available. Descriptions of each term in the equation are provided in the RPP Manual.

**IESO Variance Account (VA):** the IESO VA tracks the accumulated difference between the actual RPP supply cost and the revenues collected from RPP consumers. A variance is expected, as RPP prices are based on a forecast of RPP supply cost. RPP prices are set to clear the variance, which can be a positive or negative depending on whether RPP consumers had over- or under-paid for RPP supply during the previous period.

**RPP Basic Price Determination (RPA):** The RPA is calculated as the total RPP supply

<sup>18</sup> RPP Manual, p. 5

<sup>19</sup> The RPP supply cost calculation includes the stochastic adjustment, which is not represented in the RPP supply cost equation. The stochastic adjustment is included to take into consideration the probability that the actual RPP supply cost will be higher than the forecast.

<sup>20</sup> "Market Rules" means the rules made under section 32 of the *Electricity Act*

cost (i.e., the sum of the RPP Supply Cost and the balance in the IESO VA) divided by total forecast RPP demand. The OEB leverages two inputs to forecast RPP demand: historical RPP consumption and the IESO’s latest demand forecast. The OEB extrapolates from these data points to forecast total RPP demand over the forecast period. The result of this calculation is a ¢/kWh amount. For the most current period, the RPA is 10.4¢/kWh, as shown in Table 8.

RPP prices are calculated so that a TOU consumer with an average TOU load profile would pay the same average price as an RPP consumer that pays the Tiered prices with a typical Tiered load profile. This average price is equal to the RPA.

**RPP Prices for Consumers on TOU Pricing:** For those consumers with eligible TOU meters that have not elected Tiered pricing, RPP prices are calculated for three separate price periods: On-, Mid-, and Off-peak. These three prices are calculated to recover the RPA, given the load profile of TOU consumers.

The load profile represents the average TOU consumer’s ratio of consumption between On-, Off- and Mid-Peak periods. The box entitled “Analysis for TOU Prices” in Figure 5 refers to the process of developing the TOU load profile from which TOU prices are derived.

**RPP Prices for Consumers on Tiered Pricing:** For those consumers with conventional meters or those that have elected to pay Tiered pricing, RPP prices are based on a two-tiered pricing structure. Tier 1 is the ¢/kWh price for consumption at or below the tier threshold, while Tier 2 is the ¢/kWh price for consumption above the Tier 1 threshold. Tier 1 and Tier 2 prices are set to recover the RPA, given the load profile of Tiered consumers.

In this instance, the load profile represents the OEB’s forecast of the expected ratio of consumption between Tier 1 and Tier 2. The box entitled “Analysis for Tiers” in Figure 5 refers to the process of developing the tier load profile from which Tiered prices are derived.

Table 8 shows current TOU and Tiered prices that were developed in accordance with the methodology described in the RPP Manual. As demonstrated, both price structures have been designed to achieve the same RPA, as required by applicable regulation.

**Table 8: November 1, 2021 - October 31, 2022, TOU and Tiered Prices**

<b>Time-of-Use RPP Prices</b>	<b>Off-peak</b>	<b>Mid-peak</b>	<b>On-peak</b>	<b>RPA</b>
Price per kWh	8.2¢	11.3¢	17.0¢	10.4¢
% of TOU Consumption	64%	18%	18%	
<b>Tiered RPP Prices</b>	<b>Tier 1</b>	<b>Tier 2</b>	<b>RPA</b>	
Price per kWh	9.8¢	11.5¢	10.4¢	
% of Tiered Consumption	67%	33%		

## Appendix B. Impact Assessment and Detailed Results

### B.1. Impact Assessment

To estimate the impacts of the proposed OETOU price plan, OEB staff conducted historical analysis on the potential impact that the introduction of such a plan would have had if it had been introduced in each of the years 2015-2021<sup>21</sup> respectively. That is, for each year, it is predicted what would have been the system and economic impacts in that year if the OETOU price plan had been an option to RPP consumers. Potential impacts of the OETOU price plan in subsequent years following its introduction are discussed in Section 5.

For each year from 2015-2021, OETOU prices were calculated following the price ratios and price periods in Table 3 so as to recover the same average \$/kWh price from OETOU-enrolled consumers as was recovered from those same consumers under the prevailing standard RPP pricing in each of the RPP price-setting periods in those years. This ensures that the same revenue would be recovered from enrolled consumers as was recovered when they were charged the prevailing standard TOU prices in those years *assuming no change in their load behaviour in response to the new price*. This simulates an OETOU price-setting method that is similar to that currently employed by the OEB to set TOU and Tiered prices, namely utilizing load profile information of consumers on each different price plan respectively to achieve the same targeted average RPP supply cost across all price plans (see Section 5 for further detail on the OEB's RPP price-setting methodology). In the case of this impact model utilizing historical actual data, the price-setting process simulates the OEB having perfect foresight of consumer load profiles (under the prevailing RPP prices) and RPP supply costs so that any estimated impact within this model can be attributed to the estimated consumer response to the new OETOU price plan, and not to any forecast error.

An elasticity model was utilized to estimate the expected average demand response of enrolled consumers to the calculated OETOU prices. This elasticity model is the same as the "own-price elasticity" model that was utilized in the OEB's 2019 staff research paper on alternative electricity price designs, a model that is based on data from a wide range of electricity pricing studies spanning 15 years. This elasticity model, which utilizes an own-price elasticity of -0.075, produces similar summer on-peak demand reductions in response to the proposed OETOU price plan as those observed in the

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<sup>21</sup> Modelled results from the years 2020-2021 are neglected from some impact estimates due to the introduction of emergency pricing measures in response to the COVID-19 pandemic during these years. Modelling the response of consumers to an OETOU price plan relative to such emergency pricing is likely not a good measure of potential actual outcomes since OETOU prices would likely have been put on hold during the emergency pricing periods similar to the suspension of standard TOU prices. Emergency pricing measures were not in effect during periods of peak Ontario demand so modelled results from the years 2020-2021 are included in the estimated impact on peak demand. See Appendix B for further detail.

Overnight Price pilot described in Section 3.

This estimated demand response was used to calculate the expected cost savings for enrolled consumers, the associated under-recovery of RPP supply costs and the estimated reduction in Ontario peak demand. Doing this for each year 2015-2021 provides a simulation of the introduction of OETOU prices in seven different years. The results presented in Table 7 are average relative impacts over the years 2015-2021.

While such historical analysis simulates impacts under different real-world conditions using real data, it does not reflect potential or anticipated future changes to electricity consumption and generation. The calculated first-year impacts are thus reasonable estimates of impacts if the OETOU price plan were to be introduced in the next several years, but impacts further into the future or over a longer period of time may need to consider such systemic changes.

## **B.2. Enrolment Scenarios**

It is difficult to predict the number and load pattern of consumers that would enrol in an OETOU price plan. Rather than attempt to predict potential enrolment, two enrolment scenarios have been developed that are expected to represent reasonable limits on enrolment in the first year of an OETOU price plan based on observed response to other pricing policies and initiatives in Ontario.

A simplified model of enrolment was developed to estimate the requested impacts. For each of the enrolment scenarios, an estimated fraction of residential RPP consumers on the standard TOU price plan was assumed to enrol<sup>22</sup>. For the high enrolment scenario, a fraction of 7% or approximately 318,000 residential standard TOU consumers were assumed to enrol in the OETOU price plan. This number is modestly higher than the number of RPP consumers who switched from standard TOU pricing to Tiered pricing in the first year after the introduction of Customer Choice in November 2020<sup>23</sup>. This represents the assumed upper enrolment bound. For the low Enrolment scenario, 0.5% or approximately 23,000 residential TOU consumers were used, modelling potential difficulty in communicating the plan to consumers and/or little interest among the consumer base.

Within each scenario, a fraction of enrolled consumers was assumed to own or lease an EV. These consumers are modelled to have an average residential TOU load profile

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<sup>22</sup> While it would be recommended that the OETOU price plan be available to all RPP-eligible consumers, if it proceeds, it is expected that the price plan would appeal primarily to residential consumers on standard TOU pricing. General Service (non-residential) consumers are more likely to have a higher daytime load and less shiftable load compared to residential consumers, so are less likely to benefit from OETOU pricing. Consumers who have enrolled in Tiered pricing are likely not interested in an OETOU price plan if they have already opted out of standard TOU pricing. While there is likely to be some number of General Service and Tiered price plan consumers who would enrol in an OETOU price plan, the majority are expected to be residential consumers on the standard TOU price plan.

<sup>23</sup> See the OEB report [Frequency of RPP Switching Under Customer Choice](#) for further detail.

with the addition of a single car being charged daily based on an average daily charging profile provided by the IESO. In the high scenario, it is assumed that 10% or 32,000 enrolled consumers own an EV, representing approximately half of the estimated 67,000 electric vehicles<sup>24</sup> being charged under this plan in the first year of implementation. In the low scenario, it is assumed that 43% or approximately 9,800 enrolled consumers own an EV, which is the same proportion of participants in the Overnight Price pilot who owned an EV.

It is anticipated that the OETOU price plan could appeal not just to owners of EVs but to a broader class of consumers. Nevertheless, the introduction of an EV charging load profile into the enrolment assumptions provides a tangible scenario that simulates the fact that the OETOU price plan would tend to appeal to those who already have lower on-peak consumption and/or higher off-peak consumption relative to the average residential TOU consumer.

### **B.3. Cost Recovery**

Currently, the OEB sets RPP prices for each price plan every 12 months to recover the forecasted supply costs attributed to all RPP consumers collectively. Up-to-date load profile data of RPP consumers on each price plan (in addition to other data sources) is used to predict supply costs and revenue recovery to protect against any systemic over- or under-recovery from consumers on one price plan relative to another, and adapts as load patterns change.

In modelling the impacts of the OETOU price plan based on actual historical data, it was assumed that the OETOU prices would be set using a similar methodology as currently employed by the OEB, but one with perfect foresight of consumer load profiles (under the prevailing RPP prices) and actual realized supply costs. Such perfect foresight eliminates any over- or under-recovery due to forecast error, and any modelled impact can be attributed to the estimated change in load behaviour of enrolled consumers exposed to the new OETOU price. In reality, there would be some additional variance due to forecast error, especially in the initial years of implementation, but such variance is expected to decline over time as the number and load pattern of enrolled consumers becomes better understood.

In this way, if there is no change in consumer load behaviour in response to the prices, then there is expected to be no systemic change to revenues recovered from consumers under OETOU relative to standard TOU prices. However, it is expected that consumers who enrol in an OETOU price plan would change their behaviour in response to the new price to lower their electricity bills. To estimate this demand response, an elasticity model was used as described in Section B.1.

The bill savings that result from the estimated change in demand are expected to lead

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<sup>24</sup> [News Release](#) from the Government of Ontario.

to an under-recovery of RPP supply costs relative to the revenue that would have been recovered under standard RPP prices. These under-recovery amounts have been estimated under the low and high Enrolment scenarios and are presented in Table 9.

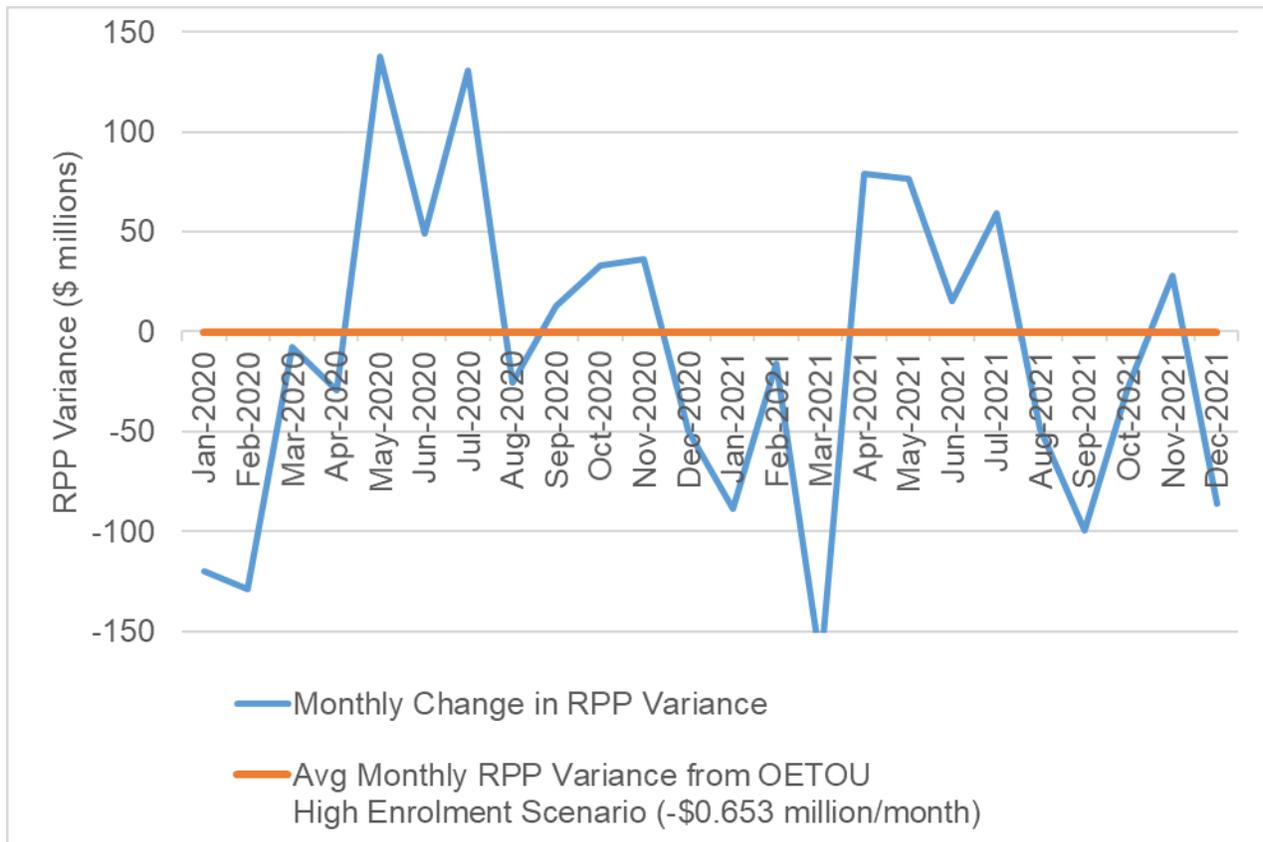
Such under-recovered amounts would need to be recovered from all RPP consumers in the subsequent price-setting period. The recovery mechanism is described in Appendix A. The impact that the estimated under-recovery from enrolled OETOU consumers would have on the RPP Variance Settlement Factor and thus on average prices is also provided in Table 9.

**Table 9: Estimated cost recovery impacts in the first year of implementing an OETOU price plan.**

	Low Enrolment Scenario	High Enrolment Scenario
<b>Estimated First-Year Impact</b>		
<b>Average Change in Collected Revenue</b>	-\$56,000/month (0.1% of avg. monthly change in variance)	-\$653,000/month (1.1% of avg. monthly change in variance)
<b>Average Change in RPP Variance Settlement Factor</b>	-\$0.00001/kWh	-\$0.00016/kWh

There is always a variance between actual revenue collected from RPP consumers and the realized supply costs. These variances are expected, tracked in the IESO-managed RPP variance account as described in Appendix A and [published monthly](#) by the OEB. In Figure 6, the month-to-month change in the balance in the RPP variance account from January 2020 to December 2021 is depicted relative to the estimated average monthly under-recovery under the high enrolment scenario. There it is seen that the estimated under-recovery amounts under the high enrolment scenario are significantly smaller than the month-to-month change in typical RPP variance. The estimated under-recovery of \$653,000/month is approximately 1% of the average magnitude of the month-to-month change in RPP variance in 2020-2021.

**Figure 6: Month-to-month change in RPP Variance from January 2020 to December 2021 relative to the estimated average monthly under-recovery under the high enrolment scenario.**



#### **B.4. Peak Demand Reduction**

The OETOU price plan is designed to provide financial incentive for enrolled consumers to reduce their demand during the weekday on-peak period of 4 p.m. – 9 p.m. Since this is the period in which Ontario peak demand tends to occur, the introduction of an OETOU price plan is expected to lead to a reduction in Ontario peak demand. Such peak demand reductions have the potential to lead to a reduction in the amount of future capacity that needs to be procured to meet that peak demand.

The degree to which peak demand is expected to be reduced would depend on the level of enrolment in the OETOU price plan and the degree to which those enrolled consumers respond to the new price. Using the low and high enrolment scenarios and the elasticity model discussed above, the estimated reduction in peak demand averaged over the analysis timeframe of 2015-2021 is shown in Table 10. Under these assumed enrolment assumptions, there was no change in the date or time of when peak demand occurred in any year in the analysis timeframe of 2015-2021.

The potential reduction in capacity costs associated with the demand reductions are

also provided in Table 10, assuming such peak demand reductions resulted in an equal reduction in the electricity system’s capacity requirements as determined by the IESO. The Potential Capacity Cost Savings (Short Term) is the value of the Average Annual Peak Demand Reduction based on clearing prices from the [IESO capacity auction](#) and representative of the current value of capacity in Ontario.<sup>25</sup> The Potential Capacity Cost Savings (Long Term) is the value of the Average Annual Peak Demand Reduction based on the estimated price of long-term capacity used in the OEB’s 2019 staff research paper.<sup>26</sup>

**Table 10: Estimated peak demand impacts in the first year of implementing an OETOU price plan.**

	Low Enrolment Scenario	High Enrolment Scenario
<b>Estimated First-Year Impact</b>		
<b>Average Annual Peak Demand Reduction</b>	3 MW (0.01% of avg. Ontario peak demand)	40 MW (0.17% of avg. Ontario peak demand)
<b>Potential Capacity Cost Savings (Short Term)</b>	\$0.1M/year	\$1.7M/year
<b>Potential Capacity Cost Savings (Long Term)</b>	\$0.5M/year	\$5.7M/year

### **B.5. Bill Impacts for OETOU-Enrolled Consumers**

The impact of an OETOU price plan on an individual consumer’s electricity bill relative to what they would have paid under the standard TOU price plan would depend on the consumer’s consumption patterns and the amount by which they change those patterns in response to the new price plan. In Table 11, we provide the estimated average bill impacts for the average enrolled consumer under the low and high enrolment scenarios. In the absence of any change in demand in response to the OETOU price plan, there is no impact on consumer bills on average since OETOU prices would be set to recover the same amount as standard TOU pricing from enrolled consumers. Taking into account the expected demand response of enrolled consumers to the OETOU price plan, average monthly bill savings are estimated to be 2% or \$2-3/month in the first year of enrolment.

All estimated bill impacts are based on the average monthly bill over a 12-month period.

<sup>25</sup> The short-term capacity price of \$42,249/MW-year is an annual average based on the clearing prices of \$264.99/MW-day for summer and \$60.00/MW-day for winter.

<sup>26</sup> The long-term capacity price of \$143,531/MW-year is an intermediate value between capacity auction clearing prices and the cost of building a new natural gas generating facility.

Supply costs are assumed to be charged at current standard TOU prices in effect November 1, 2021, to October 31, 2022 (see Table 8) and OETOU prices set relative to those standard TOU prices according to the price ratios and price periods described in Table 3. All other non-supply items that appear on a consumer's bill were calculated for each utility based on rates current to February 1, 2022, then averaged across all utilities, weighted by each utility's number of customers.

**Table 11: Estimated first-year bill impacts for the average OETOU enrolled consumer relative to bills under the standard TOU price plan.**

<b>Bill Impacts for Average OETOU-Enrolled Consumer</b>		
	<b>Low Enrolment Scenario</b>	<b>High Enrolment Scenario</b>
<b>Estimated First-Year Impact</b>		
<b>Average Monthly Consumption<sup>27</sup></b>	859 kWh/month	776 kWh/month
<b>Average Monthly Bill with standard TOU Pricing</b>	\$141/month	\$131/month
<b>No Demand Response to OETOU Price</b>		
<b>Average Monthly Bill with OETOU Pricing</b>	\$141/month	\$131/month
<b>Average Change in Monthly Bill</b>	\$0/month	\$0/month
<b>Average Percentage Change in Monthly Bill</b>	0%	0%
<b>With Demand Response to OETOU Price</b>		
<b>Average Monthly Bill with OETOU Pricing</b>	\$138/month	\$128/month
<b>Average Change in Monthly Bill</b>	-\$2.85/month	-\$2.39/month
<b>Average Percentage Change in Monthly Bill</b>	-2%	-2%

<sup>27</sup> The monthly consumption differs between the low and high enrolment scenarios due to the difference in the assumed proportion of consumers who own an EV in each scenario. The low enrolment scenario assumes a higher proportion of consumers with EVs and so the average monthly consumption of enrolled consumers will be higher in the low enrolment scenario compared to the high enrolment scenario.

The estimated average bill impacts for consumers enrolled in the OETOU price plan are less than those experienced by consumers who participated in the Overnight Price Pilot despite similarities to the OETOU price design. This lower expected bill impact is due to modelling the price-setting process based on the OEB's current price-setting methodology, and thus removing the rate-structural under-recovery that was inherent in the way in which pilot prices were set. By avoiding rate-structural under-recovery, only collective changes in load behaviour would change the average impact on enrolled consumers' bills. Such behavioural under-recovery was observed to result in a 6% under-recovery in commodity costs from pilot participants which would result in an approximately 2% decrease in total monthly bills, similar to what is presented in Table 11. See Section 3 for further information on the bill savings observed in the Overnight Price Pilot and Section 5 for further discussion of the OEB's price-setting process.

The impacts presented are for the average OETOU-enrolled consumer but bill impacts would vary among those consumers. For example, an enrolled consumer with higher demand during the Low Overnight period and lower demand during the On-Peak period would save more compared to the average enrolled consumer. Conversely, an enrolled consumer with lower Low Overnight demand and higher On-Peak demand would save less compared to the average enrolled consumer and may pay more on the OETOU price plan compared to the standard TOU or Tiered price plans.

As an example, consider an enrolled consumer who owns an EV and thus is expected to have higher consumption during the Low Overnight period compared to the average enrolled consumer. The estimated first-year bill impacts for such a consumer are shown in Table 12. Since this EV consumer has a load profile that differs from that of the average enrolled consumer, they would experience some monthly bill savings even without changing their load patterns. The greater the difference between the EV owner's load profile and the average load profile of all enrolled consumers (which is used to set prices), the greater the bill savings would be as shown in the difference in bill savings between the low and high enrolment scenarios. Shifting load in response to the OETOU price would provide even further savings.

**Table 12: Estimated first-year bill impacts for an OETOU-enrolled consumer with an EV relative to bills under the standard TOU price plan.**

<b>Bill Impacts for OETOU Consumer with an EV</b>		
	<b>Low Enrolment Scenario</b>	<b>High Enrolment Scenario</b>
<b>Estimated First-Year Impact</b>		
<b>Average Monthly Consumption</b>	1,001 kWh/month	1,001 kWh/month
<b>Average Monthly Bill with standard TOU Pricing</b>	\$158/month	\$158/month
<b>No Demand Response to OETOU Price</b>		
<b>Average Monthly Bill with OETOU Pricing</b>	\$155/month	\$153/month
<b>Average Change in Monthly Bill</b>	-\$2.96/month	-\$4.98/month
<b>Average Percentage Change in Monthly Bill</b>	-2%	-3%
<b>With Demand Response to OETOU Price</b>		
<b>Average Monthly Bill with OETOU Pricing</b>	\$152/month	\$150/month
<b>Average Change in Monthly Bill</b>	-\$5.97/month	-\$7.55/month
<b>Average Percentage Change in Monthly Bill</b>	-4%	-5%

The estimated bill impacts presented above are those that are expected to occur during the first year of enrolment in the OETOU price plan based on a response to the OETOU price relative to the standard TOU prices. Bill savings in subsequent years would depend on any additional changes in demand patterns among enrolled consumers relative to their first year as well as the way in which the OEB approaches RPP price setting as discussed in Section 5.

### **B.6. Bill Impacts for RPP Consumers Not Enrolled in OETOU Pricing**

Enrolment in an OETOU price plan is expected to have little impact on non-enrolled consumers in the first year. However, as presented in Table 9, revenue from OETOU consumers is expected to be lower than the average supply cost leading to an under-

recovery of revenue which, according to the OEB’s price-setting methodology, is recovered from all RPP consumers in the subsequent price-setting period. In this way, the average bill of *all RPP consumers on all RPP price plans* in the subsequent price-setting period is expected to increase slightly in order to collect the under-recovered revenue from the first year of OETOU enrolment.<sup>28</sup>

Specifically, the average \$/kWh supply cost paid by RPP consumers in the subsequent price-setting period is expected to increase by the amount by which the OETOU price plan is expected to decrease the RPP Final Variance Settlement Factor as reported in Table 9. The impact that such an increase in average supply cost is expected to have on an average residential consumer on the standard TOU price plan is shown in Table 13. Relative bill impacts due to OETOU under-recovery for General Service RPP consumers and RPP consumers on the Tiered and OETOU price plans are expected to be similar in magnitude.

**Table 13: Estimated bill impacts for residential consumers on the standard TOU price plan.**

<b>Bill Impacts for Standard TOU Residential Consumer</b>		
	<b>Low Enrolment Scenario</b>	<b>High Enrolment Scenario</b>
<b>Standard TOU Bill with no Impact from OETOU Pricing</b>		
<b>Average Monthly Consumption</b>	751 kWh/month	751 kWh/month
<b>Average Supply Cost</b>	\$0.10400/kWh	\$0.10400/kWh
<b>Average Monthly Bill with standard TOU Pricing</b>	\$127.87/month	\$127.87/month
<b>Estimated Second-Year Impact Due to OETOU Enrolment</b>		
<b>Average Supply Cost</b>	\$0.10401/kWh	\$0.10416/kWh
<b>Average Monthly Bill with standard TOU Pricing</b>	\$127.88/month	\$127.99/month
<b>Average Change in Monthly Bill</b>	\$0.01/month	\$0.12/month
<b>Average Percentage Change in Monthly Bill</b>	<b>0.01%</b>	<b>0.10%</b>

<sup>28</sup> This analysis does not include any potential reductions in supply cost resulting from the shift in demand induced by the OETOU price plan. Such reductions in avoided energy and capacity costs are expected to be small in the short term but could become substantial over the long term, depending on the number of consumers who enrol in the OETOU price plan and the amount by which they shift their demand.

## Appendix C. Detailed Summary of Stakeholder Comments and OEB Response

### C.1. Comments on Price Design

Of the submissions that explicitly provided feedback on these elements of the price design, most were supportive of the OEB's proposed design. Only 4 of the 19 written submissions suggested that the OEB consider modifications to the proposed pricing design.

For example, one industry association recommended aligning the timing of the price periods for the OETOU plan with the price periods for standard TOU pricing by: i) eliminating the Low Overnight price period on weekends and holidays and replacing it with the regular Off-Peak; ii) shifting the On-Peak period to begin at 7 p.m. and end at 11 p.m. so that the Mid-Peak period operates from 7 a.m. to 7 p.m. on weekdays.

This industry association also recommended shortening the proposed On-Peak price period from 4 – 9 p.m. to 6 – 9 p.m. as they suggest that the shorter price period would provide an incentive for customers to participate in OETOU pricing. They did recognize that shortening the On-Peak period could reduce the effectiveness of the plan to address system peaks and stated that the OEB should weigh the value of potentially higher enrolment with ensuring that the rate is designed to optimize system benefits.

A consumer group said the opposite, stating that consideration should be given to adding hours to the beginning and end of the On-Peak period, as the On-Peak period is likely to increase load in the hours immediately adjacent to this time period, which could result in the overall system peak shifting to hours outside of the defined On-Peak period.

Another industry association expressed concern that the On-peak price would be uniformly applied between 4 p.m. to 9 p.m. on weekdays throughout the year and suggested that further consideration be given to the design of seasonally varying critical peak rates as opposed to the proposed yearlong uniform evening peak rate. Similarly, an electricity distributor commented that an alternative price design be considered that leverages a critical peak price or variable peak price (VPP) structure, as a VPP with a low overnight price would more closely align with system needs and make the rate more appealing to customers.

A consumer group also expressed concern about the lack of seasonality, stating that the same price structure all yearlong results in an On-Peak period of over 1,200 hours. This consumer group recommended that IESO input should be sought regarding the importance of the winter and shoulder seasons in the determination of overall system reliability and the need for new capacity. This consumer group also expressed concern that the design of the price plan places too much emphasis on setting the On-Peak period price at 10x the rate for the Low Overnight period based on the view that this

differential would provide material bill savings, thereby encouraging customers to shift load. However, in its opinion, the focus of the design should be to shift load in a way that benefits the electricity system and customers through lower system costs.

## **OEB Response to Stakeholder Comments on Price Design**

The rationale for the design of the price periods is informed by the results of the RPP Pilots as well as OEB staff analysis as described in Section 2.1. Delaying or shortening the proposed On-Peak period poses a significant risk of not targeting the highest Ontario demand hours with the high On-Peak prices, significantly diminishing the financial incentive to shift demand away from the highest demand periods and thus diminishing the potential for the OETOU price plan to reduce system peak demand. Lengthening the proposed On-Peak period would result in charging higher prices during hours when consumer demand response has little value.

There is little seasonal variation in the time in which Ontario peak demand tends to occur in each month of the year as shown in Figure 3. For this reason, the proposed OETOU price plan features price periods that remain the same all yearlong. However, demand during these peak demand periods tends to be higher in the summer compared to other seasons. As such, there may be value in considering increasing On-Peak prices in the summer months and decreasing On-Peak prices in other months to provide improved price signals that reflect these demand patterns over the course of the year.

### **C.2. Comments on OEB Questions**

As part of the stakeholder presentation, participants were asked a series of questions related to the price design and the recovery of costs. Many of the stakeholders that submitted written comments responded to these questions. A summary of the response to each question is provided below.

#### **Question 1. Will the proposed price design be effective at achieving the following goals described in the letter from the Minister of Energy?**

- a) Incenting electricity usage behaviour that will benefit the electricity system under anticipated increased electrification.**
- b) Providing value for customers with consideration for overall ratepayer impacts.**

Of the 15 stakeholders that addressed at least one part of the question, the majority (nine) of them agreed that the price design would be effective in achieving the Minister of Energy's goals of incenting electricity usage behaviours that will benefit the electricity system and provide value for consumers while considering overall impacts.

Of those that thought that the price design would not meet the goals, a number of stakeholders indicated that the price plan would only appeal to a small subset of consumers – mainly EV owners – and that enrolment would be too small to have an

impact on the electricity system or provide overall positive ratepayer impacts.

Other stakeholders indicated that the analysis presented in the stakeholder materials were not enough to ascertain system and ratepayer impacts. Some stakeholders suggested that a cost-benefit analysis and/or market assessment should be conducted to estimate potential enrolment and system impacts.

### **OEB Response to Stakeholder Comments on Question 1**

As discussed in Sections 1 and B.2, the proposed OETOU price plan is expected to appeal to a broader class of consumers than those who own EVs due to the increasing availability and prevalence of consumer-level energy and information technologies that provide them greater knowledge and control of their electricity consumption. Further examples of consumers who may be interested in the proposed OETOU price plan are provided by stakeholders as described below under Question 4.

A cost-benefit analysis and/or market assessment to estimate potential enrolment and system impacts were not included in the scope of what was requested of the OEB in the Letter from the Minister of Energy.

### **Question 2. Do you have any recommendations for improving the price design to achieve the goals listed above?**

As described in Section C.1, the majority of stakeholders did not have any comments of the specific elements of the price design presented by the OEB in the stakeholder materials.

Some stakeholders did have comments on other aspects of the price design. For example, one industry association recommended that the OEB reconsider how the under-recovered system costs are allocated to subscribers of the OETOU price plan. The stakeholder recommended that the under-recovered costs be applied to the consumer's monthly fixed charge like the OEB fixed monthly charge for distribution fixed costs (preferred option) or applied as the same kWh surcharge to all the rate periods except the Low Overnight price period.

Another industry association and an electricity distributor agreed that the Minister's letter pointed to a broader policy objective and direction, and that the OEB should have gone beyond developing a single enhanced TOU option and taken a more holistic view on rate design and grid infrastructure investments.

A societal interest group commented in response to this question that the concept of an Enhanced TOU rate is not needed and therefore had no recommendations for improving it. A consumer group indicated that the price design could be improved by ensuring the prices more closely align with system costs.

## OEB Response to Stakeholder Comments to Question 2

Issues related to price setting and cost recovery and their implications for the OETOU price plan are discussed in Section 5. There it is stated that, over the longer term, consideration would be given to potentially introducing changes to the price-setting process so that prices being charged to all RPP consumers are more reflective of the supply cost associated with their consumption.

### **Question 3. Does the proposed price plan pose any risks not already considered?**

Thirteen of the written submissions identified risks posed by the price plan design that should be considered. The most commonly identified risk referenced in 4 submissions (by electricity distributors and a consumer group), was low uptake of the OETOU price plan. Some of the reasons provided were due to the higher On-Peak price for a longer period and the current number of EVs in the province. The consumer group indicated that this low enrolment could limit overall system benefits as well as the number of customers that would see bill savings because of participation.

Another risk identified by four stakeholders (electricity distributors and an industry association) was regarding variations in conditions throughout the province. These stakeholders indicated that enrolment in an OETOU price plan may not be consistent across the province (for example, rural, bedroom or retirement communities may be less likely to participate). Some of these stakeholders also noted that peak demand is not consistent across the province and suggested that the OEB should consider variability in peak demand across different regions when it assesses risks of the price design.

Other risks identified by stakeholders include:

- An OETOU price plan would not provide long-term savings for customers who enrol. This risk would depend on the cost recovery methodology selected
- Customers may switch back and forth between price plans to obtain bill savings
- An OETOU price plan is more popular than expected and surplus electricity would need to be rationed sooner than anticipated
- Consumers unable to take advantage of an OETOU price plan are unhappy
- Net-metered consumers are not provided access to an OETOU price plan
- An OETOU price plan could result in greater greenhouse gas emissions if the emissions intensity in the Low Overnight period increases or the price plan encourages consumers to switch to natural gas appliances
- A price plan that focuses on switching demand to the overnight period poses

a risk to solar energy producers

- A Low Overnight price design may result in more EV owners charging at home and may overload the electricity distribution grid in residential areas, resulting in blackouts and costly upgrades
- Having two different On-Peak periods for two different price plans may cause confusion
- Time consuming and expensive for many electricity distributors and the IESO Smart Metering Entity to implement
- It is unknown what impact an OETOU price plan would have on consumption profiles.

To mitigate these risks, some stakeholders suggested that the OEB undertake additional analyses, including a cost-benefit analysis of the impacts of the OETOU price design and more detailed forecasting of potential customer enrolment. Stakeholders also recommended monitoring the uptake and impacts of the OETOU price plan over time and making any modifications as necessary.

### **OEB Response to Stakeholder Comments on Question 3**

The way in which the OEB intends to address risks related to price setting, cost recovery and long-term savings for consumers is discussed in Section 5.3. Other risks identified by stakeholders would be considered during the implementation process of any potential new RPP price plan.

### **Question 4. Which types of consumers will be interested in choosing the proposed price plan?**

Of the 14 stakeholders that responded directly to this question, 11 of them indicated that EV owners would be interested in choosing the proposed pricing design. Other types of consumers that stakeholders indicated would be interested in the proposed price design include:

- Consumers with thermal storage
- Consumers with electric battery storage
- Consumers with electric heat
- Consumers with propane and oil heating
- Consumers with air source heat pumps with fossil fuel heating as a backup
- Residential consumers with flexibility in shifting usage

- Consumers with load control devices (e.g., thermostats)
- Self-generators
- Consumers that can fuel switch in the winter for heating purposes and/or precool in the summer overnight period
- Small businesses that use a high amount of electricity overnight, use very little electricity during the On-Peak hours or that use equipment that can be scheduled to run during Low Overnight hours
- Agricultural consumers

Some stakeholders suggested that a market assessment should have been conducted to determine which types of consumers would be interested in the proposed price plan.

There was some disagreement among stakeholders as to whether shift workers would benefit from an OETOU price plan.

One consumer group indicated that the proposed price plan would only be of interest to a small, specific segment of RPP consumers and warned there could be “backlash” from other RPP customers if the plan is viewed as offering preferential service to select customers at the expense of other customers. Another group of electricity distributors commented that the proposed price plan will primarily benefit wealthy consumers, with only those that can afford to buy storage (EVs, home battery storage, etc.) able to benefit.

#### **OEB Response to Stakeholder Comments on Question 4**

The OETOU price plan is designed to be provided as an option for RPP-eligible consumers in addition to the existing standard TOU and Tiered price plans. In this way, RPP consumers are encouraged to choose the price plan that works best for them based on their electricity use and lifestyle. While the OETOU price plan is expected to appeal to a wide variety of consumers, as described in the stakeholder responses and summarized above, the standard TOU and Tiered price plans are expected to remain the best options for many consumers based on their electricity use and lifestyle.

#### **Question 5. Should consumer cost savings (i.e., under-recovery) from shifting consumption be recovered from all RPP consumers in subsequent price-setting periods? If not, how should those costs be recovered?**

There was not agreement among stakeholders whether cost savings or under-recovery should be recovered from all RPP consumers in subsequent price-setting periods. Of the 11 stakeholders that responded to this question directly, 3 (societal interest groups and an industry association) stated that under-recovered amounts due to cost savings from shifting consumption should be recovered from all RPP consumers, while an

electricity distributor and its industry association stated that such under-recovered amounts from consumers of each price plan should be recovered by consumers of that price plan.

The remaining stakeholders that addressed this question encouraged minimizing cross-subsidization from consumers on the standard TOU and Tiered price plans to consumers on the OETOU price plan. Two stakeholders stated that cost savings to consumers who shift their demand should be commensurate with the reduction in system costs that results from such shifting.

### **OEB Response to Stakeholder Comments on Question 5**

See below, OEB Response to Stakeholder Comments on Question 5, 6, 7 and 8.

**Question 6. Under the OEB's current price-setting methodology, everything else being equal, alternative TOU prices are expected to increase in response to consumers shifting demand to lower-cost periods.**

**a) Will this price increase pose a risk to achieving the goals described in the letter from the Minister of Energy?**

**b) Should the OEB consider changes to its price-setting methodology to provide longer lasting financial incentive for consumers to shift demand?**

Most stakeholders did not respond directly to part a) of this question. Of the 4 stakeholders that did, two indicated that they could not tell at this time whether a price increase would pose a risk to achieving the goals set out in the Minister of Energy's letter. One consumer group indicated that it would pose a risk, but no more than with the current TOU price plan. The other electricity distributor stakeholder indicated that even if OETOU prices are impacted, this would not act counter to the direction provided in the Minister's letter.

Of the 7 stakeholders that directly responded to part b) of this question, six of these stakeholders – including industry associations, societal interest groups, consumer groups and electricity distributors – indicated that the OEB should consider changes to its price-setting methodology to provide longer lasting financial incentive for consumers to shift demand.

Some changes to the price-setting methodology that were proposed by stakeholders include:

- Analyzing the electricity usage overnight in three categories: 1) Historical overnight consumption for dependable electricity prior to enrollment in the OETOU price plan; 2) Historical electrical load On-Peak shifted to Low Overnight periods; 3) Additional new electrical load used to displace fossil fuels and charge EVs with surplus electricity that is currently exported at low prices or curtailed at

zero revenue.

- Use the overall average RPP load profiles when allocating costs to the pool of customers in the OETOU price plan in ongoing annual RPP adjustments.
- Change the way prices are set for the various RPP options to be more closely aligned with longer-term system costs. The way cost under-recovery is calculated should be more reflective of the cost of serving the customers on each RPP price plan.

The one stakeholder that did not recommend that the OEB change its price-setting methodology suggested that longer-lasting financial incentives should flow out of the cost savings achieved from lowering future electrical demand.

### **OEB Response to Stakeholder Comments on Question 6**

See below, OEB Response to Stakeholder Comments on Question 5, 6, 7 and 8.

**Question 7. The OEB has proposed the use of historical/baseline load profiles to set alternative TOU prices to avoid/delay price increases and provide a longer-term financial incentive.**

**a) Will this proposal help in achieving the goals described in the letter from the Minister of Energy?**

**b) What are some potential risks with implementing this proposal?**

Ten stakeholders directly responded to this question. Of those that did, 5 of them – including three industry associations and two electricity distributors – indicated that they supported the OEB’s proposal to use historical/baseline load profiles to set alternative TOU prices to delay price increases and provide a longer-term financial incentive to OETOU consumers.

Of these stakeholders, 4 indicated that there was a risk of not using the appropriate historical/baseline load profile due to the impact of COVID-19 over the past two years. They suggested that the historical/baseline load profile employed be augmented to consider the impacts of COVID-19. Some of these stakeholders also recommended that the historical/baseline load profiles be further augmented with load profiles of participants of Alectra’s Dynamic RPP pilot, as the proposed OETOU price plan includes elements of this Dynamic price design.

Three stakeholders representing societal interest groups did not support the OEB’s proposal to use historical/baseline load profiles to set alternative TOU prices. Two of them stated that “the incoming rate setting should be based on the average RPP load profile, not on a forecasted load profile for customers likely to opt-in,” and another stated that “this proposal will increase cross-subsidies that ratepayers who cannot take advantage of the OETOU (price plan) will have to pay to the small number of relatively

wealthy customers who will be able to take advantage of the rate.” A consumer group commented that the underlying issue – that the pricing for all options is designed to recover the average cost for all RPP supply – needs to be addressed, and that adopting the proposed price-setting methodology could be viewed as providing unfair and preferential treatment to customers enrolling in the OETOU price plan.

Another stakeholder indicated that more information would be required to answer this question, given the impacts of COVID-19 on load profiles.

### **OEB Response to Stakeholder Comments on Question 7**

See below, OEB Response to Stakeholder Comments on Question 5, 6, 7 and 8.

### **Question 8. What other ways might the OEB modify its price-setting procedure for the proposed alternative TOU price to provide meaningful financial incentive to shift consumption for customers on the price plan, while fairly recovering supply costs from all RPP consumers?**

Ten stakeholders responded directly to this question, taking the opportunity to reiterate their main comments and recommendations.

These comments and recommendations include:

- The OEB should use the overall average RPP load profiles when allocating costs to the pool of customers in the OETOU price plan in ongoing annual RPP adjustments, as customers with flatter consumption profiles are already paying a disproportionate portion of electricity system costs because residential distribution charges are levied on a fixed basis.
- The proposed price design undermines the electricity system's economic efficiency, especially by harming many customers through increased cross-subsidization.
- The OEB should ensure that the total costs recovered from customers on each RPP plan are reflective of the cost of serving the load profile associated with the particular plan and should set prices that are reflective of system costs. These changes would reduce the degree of under-recovery, but they would not eliminate the issue on a year-to-year basis as some system benefits (e.g., capacity savings) are only achieved over the longer term. As a result, there may be merit in also reviewing the way such costs are recovered (e.g., on a proportional as opposed to fixed \$/kWh basis) and a need to monitor the overall level of under-recovery required.
- It is not clear what impact the proposed price plan would have on other RPP eligible-customers, and what the implications of the impact would have on uptake, cost recovery, bill impacts and risks. An assessment on the suitability

of enhanced TOU options should assess the option(s) across the spectrum of RPP-eligible customers.

- A deeper analysis of the market potential should be done now to determine who would participate in the OETOU price plan. Consideration should be made to opening the market up, so that consumers pay the cost of electricity when they use it.
- The initial uptake of the OETOU price plan would likely be slow. Therefore, the OEB should be conservative in its approach to avoid penalizing customers who opt in early on and not dissuade future customers from joining the new plan. The key principle is to ensure that each price plan pays its fair share of the costs it creates or contributes to.
- In the longer term as the OEB considers the structure of the RPP, under the RPP Roadmap, the OEB may consider unbundling or changing the level of overall supply costs intended to be recovered from each type of RPP customer to better reflect the costs they contribute.

### **OEB Response to Stakeholder Comments on Question 5, 6, 7 and 8**

As discussed in Section 5, the OEB's current price-setting process is designed to ensure that consumers on each price plan pay the same price, on average, and thus avoid systemic, rate-structural under-recovery on any one price plan relative to another. Such a price-setting process would be applied to setting OETOU prices in the short term. Over the longer term, consideration would be given to potentially introducing changes to the price-setting process so that prices being charged to all RPP consumers, including consumers enrolled in the OETOU price plan, are more reflective of the supply cost associated with their consumption. In doing so, it would be important to consider consumers who would be unable to take advantage of OETOU pricing or the ability to choose between RPP price plans and to ensure that they are protected from any unfair cross-subsidization of other RPP consumers.

### **C.3. Comments on Implementation Considerations**

Although out of scope of this portion of the consultation, some stakeholders provided comments on issues that would need to be considered prior to implementation of an OETOU price plan. These implementation considerations include:

- **Educating consumers** – There was broad agreement among stakeholders that consumers would need to be educated about any new price plan and the range of pricing choices available to them, including updating the OEB's bill calculators so that consumers could make informed choices. Stakeholders also recommended educating consumers on a range of topics, including:
  - The relationship between electricity generation costs and peak loads

- The decarbonization benefit of the new price design
- Equipment or actions needed to take advantage of the new price plan
- The difference in costs between internal combustion engine vehicles and EVs
- **Time and costs to electricity distributors** – Some electricity distributors and their industry association expressed concern that implementation of an additional price plan may be time consuming and expensive for activities such as:
  - Updates to customer information systems, including synchronization with revised Meter Data Management Repository framing
  - Bill presentment changes and billing adjustments
  - Customer service resources to explain a more complex pricing system and process applications to switch price plans
  - Changes to monthly IESO settlement process.

Of those electricity distributors that specifically referenced a date for implementation for OETOU pricing, there was disagreement on when that would be feasible. One distributor indicated that a May 1, 2023, deadline would be achievable if certain information is provided immediately. Another indicated that a realistic timeline for implementation should be no earlier than November 2023.

- **Net-metered customers** – Four stakeholders representing environmental groups, an industry association and an electricity distributor commented that net metering should be considered prior to implementation of an OETOU price plan.

### **OEB Response to Stakeholder Comments on Implementation Considerations**

The OEB will consider these implementation concerns/issues submitted in the written comments if the Government of Ontario decides to proceed with an OETOU price plan.



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