March 29, 2022

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Via email to submissions@ontario.ca

Re: ERO 019-5054, New Voluntary Enhanced Time-of-Use (TOU) Rate

The Power Workers' Union ("PWU") represents a large portion of the employees working in Ontario's electricity industry. Attached please find a list of PWU employers.

The PWU appreciates the opportunity to provide input on the enhanced TOU rate design consultations. The PWU is a strong supporter and advocate for the prudent and rational reform of Ontario's electricity sector and recognizes the importance of low-cost, low-carbon energy to the competitiveness of Ontario's economic sectors.

The PWU believes that Ontario requires a reliable electricity system that delivers energy at the lowest reasonable cost while stimulating job creation and growing the province's gross domestic product (GDP). We are respectfully submitting our detailed observations on emerging risks and recommendations for consideration in the upcoming budget.

We hope you will find the PWU's comments useful.

Yours very truly,

Jeff Parnell
President

PWU Submission on ERO-019-5054, Ministry of Energy Proposal for Enhanced TOU Rate
March 29, 2022

The Ministry of Energy is seeking input on creating an optional enhanced time-of use (TOU) electricity rate to encourage residential and small business consumers governed by the Regulated Pricing Plan (RPP) to shift electricity use to low demand periods. The proposed TOU is modelled on the Ontario Energy Board's (OEB) pricing pilot which included an ultra-low overnight price. The Ministry is also seeking input on ways to address barriers to further enable electric vehicle (EV) adoption. The Ministry has identified three objectives for this initiative:

- ***Provide additional customer choice*** to enable customers to shift their demand, including for EV charging;
- ***Prepare the electricity system for electrification*** by encouraging the shifting of loads to overnight periods to increase efficiency in Ontario's electricity grid; and,
- ***Support decarbonization by*** shifting electricity loads to, lower-demand periods overnight when electricity may be generated by non-emitting sources.

In parallel with the OEB's TOU and EV initiative the government is seeking feedback on specific detailed questions in the following three areas:

a) ***System and environmental perspective of an optional rate:*** How could incentives result in shifting of demand and encourage new technologies and how could data be best used to understand the implications?
b) ***Customer perspective of optional rate:*** How might this rate option impact consumers and their adoption of a new rate plan?
c) ***Additional electricity sector opportunities:*** How could LDCs best prepare to integrate EVs?

The PWU applauds the Ministry's initiative to facilitate Ontario's transition to a decarbonized economy by addressing both the implications for the electricity system and electrifying transportation via the adoption of EVs. The PWU makes the following recommendations:

1. The government should set realistic objectives with respect to decarbonization and the benefits of load shifting to reduce Ontario's capacity needs;
2. The desired TOU rate reform benefits should include hot water and other demand side management opportunities that improve efficiencies in Ontario's grid;
3. TOU metering data should be used to help optimize and reward outcomes and support better planning;
4. The rate program should not be optional but should include an opt-out provision for small businesses;
5. Additional incentives to support DSM aggregators, including in-home bidirectional EV charging use, could produce the desired results and obviate any need for additional Distributed Energy Resources (DERs) to enhance EV adoption;
6. The further promotion of net metering should not occur as it will add costs to the system and provide no benefits to infrastructure costs; and,
7. Improved regional planning and anticipated forecasting outcomes from the IESO's Pathways study will best prepare LDCs to meet all of Ontario's electrification challenges, not just for EVs.

Recommendation #1 - The government should set realistic objectives with respect to decarbonization and the benefits of load shifting to reduce Ontario's capacity needs.

The Ministry's objectives include preparing for electrification, enabling further EV adoption, and reducing electricity system emissions.

Analysis clearly demonstrates that the proposed RRP reforms will not achieve additional emission reductions from Ontario's electricity system for at least the next 15 years given growing demand and the IESO's inability to procure the needed long-term, low-carbon generation resources.[1] All new demand will be provided by carbon-emitting, natural gas-fired generation, even at night. Achieving emission reductions from Ontario's electricity system will only be achieved in the long term and will be determined by the IESO's response to the Ministry's requested assessment of Ontario's reliance on gas-fired generation and a pathway for decarbonizing the economy.[2] Furthermore, increased EV adoption in the short-term will only increase emissions from Ontario's electricity sector until new low-carbon baseload generation is developed in the next decade.

Ontario is facing a capacity and energy shortfall even without considering the organic electricity growth that is forecast from increased EV adoption,[3] let alone any additional incentives.[4] The PWU anticipates that when the IESO completes its Pathways Study, it will be clear that Ontario will have insufficient energy to meet its needs. The PWU supports the electrification of Ontario's transportation sector with EVs but recognizes that the key challenge of meeting Ontario's capacity gap is more urgent than incenting further electricity demand growth.

TOU incentives should be focused on cost-effective solutions that best prepare Ontario's electricity system to respond to demand growth and specifically the impacts of accelerated demand from electrification prior to the building of new generation capacity. The focus of these incentives should encourage changes in consumer behaviours that shift loads that reduce capacity needs in addition to EV adoption.

In the long run, this alternative approach will accommodate and enhance higher EV adoption and ultimately emission reductions once new, low-carbon generation has been added to Ontario's bulk system.

Recommendation #2 - The desired TOU rate reform benefits should include hot water and other demand side management opportunities that improve efficiencies in Ontario's grid.

The Ministry has asked how TOU pricing could help shift demand to overnight periods and help integrate new sources of demand such as EV charging. RPP TOU rate reform is a broad incentive for consumers to reduce their energy bills in any manner that they can, and to do so by shifting their behaviors to use electricity off-peak. Shifting of peak demand can extend not only to EV charging but also hot water, total home energy demand side management initiatives, as well as energy efficiency.

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[1] PWU submission to the MENDM on Long Term energy planning, April 2021; Strapolec, "Electrification Pathways for Ontario, 2021; PWU submission to the IESO on its Annual Planning Outlook, February 2022.
[2] Minister of Energy, Ministerial Directive to IESO, November 10, 2021; IESO Pathways to Decarbonization project, webinar materials, February 24, 2022.
[3] IESO, 2021 Annual Planning Outlook, 2021.
[4] Strapolec, "Electrification Pathways for Ontario", 2021.

The PWU has sponsored several studies that have demonstrated the benefits of demand-side management strategies in optimizing the costs of Ontario's electricity system as demand grows.[5] These benefits occur in three areas:

1. A reduction of up to 5% in the need for rarely used peak generation, representing a cost savings of about $500M/year;
2. Improved efficiency from better utilization of Ontario's transmission and distribution assets;
3. A reduction of future rate payer costs to 16% below today.

These benefits would help to better integrate emerging demand and help inform the anticipated benefits from TOU reform.

The inherent benefit of TOU reform is the shifting of demand from high-cost peaking supplies to lower - cost, baseload, off-peak resources. Since the cost effectiveness of baseload capacity stems from its high utilization, the new TOU rates should apply to all seasons to minimize demand for peaking supplies and maximize demand for baseload throughout the year. Smart EV charging can increase the need for, and value of low-carbon, low-cost baseload power all year while reducing Ontario's reliance on high-carbon, high-cost, intermediate supply.

Recommendation #3 - TOU metering data should be used to help optimize and reward outcomes and support better planning.

The Ministry has asked how making better use of available consumption data could inform a new rate design that ensures full cost recovery. There are two desired outcomes associated with cost recovery: the redistribution of costs among ratepayers should net the total benefits allocated to each ratepayer group; and, that the targeted benefits are realized and offset the costs of the program.

The OEB's RPP pilot program confirmed a material risk that recovering the costs required to change the desired consumer behaviours would not be achieved as the desired benefits from customers changing their behavior are offset by undesired free riders who do not change their behaviours. The latter outcome pushes costs to non-participants in a voluntary program.

It is also important that the program design scales its incentives to match the anticipated benefits in order to discourage higher cost outcomes that increase overall system costs. Overly generous programs, e.g. the Industrial Conservation Initiative (ICI) and Net Metering programs, have increased system costs by encouraging the adoption of high-cost solutions.

Better utilization of available data to help mitigate these two problems should include a measure of the ratio of nighttime (off-peak) to daytime (on-peak) demand for each consumer. This can be done by measuring the gap between a consumers on-peak use and off-peak use, likely assessed for each season. If the gap reduces over time for any particular consumer group, it can be determined that the consumer has changed behavior and is enabling a system benefit. The LDCs have this data for any customer with a smart meter.

[5] Strapolec, "Electrification Pathways for Ontario", 2021.

The TOU rate could be designed to over-recover costs which could be rebated at the end of the year. This approach would not reward free riders nor penalize non-participants and could be best matched to the desired system cost outcomes.

Recommendation #4 - The rate program should not be optional but should include an opt-out provision for small businesses.

The Ministry has asked how the TOU reform might remove barriers to households or small businesses in adopting EVs or other clean technologies and encourage consumers to participate.

Ontario's peak demand is driven largely by residential consumers, not businesses, making it important that all residential RPP customers participate. A TOU program that shifts demand will encourage RPP customers to adopt both EVs and any clean technologies that reduce their bills as previously described. Maximum participation will offer the greatest system benefits, accelerate participation, reduce the cost implications and minimize the complexity of the final TOU design.

To fairly implement a rate design change, it must be ensured that those who do not change their behavior support the costs of the incentives provided to those who do change their behaviors. Any rate design, by definition, imposes costs on the majority of consumers for the benefit of the ratepayer groups being targeted. Since the system cost problem being addressed results primarily from residential customer behaviors in the first place, such as air conditioning, it is reasonable for those who don't change their behavior to pay a premium in order to support those who take action to reduce system costs.

A universal TOU rate imposed for all RPP customers maximizes the ratepayer participation, better balances ratepayer equity, and minimize the risk of under recovering program costs.

Most small businesses, on the other hand, do not have operational flexibility to shift demand. Restaurants in particular standout as they operate mostly during peak demand times. Businesses like this should not be penalized by such a rate program but be allowed to op-out.

Recommendation #5 - Additional incentives to support DSM aggregators, including in-home bidirectional EV charging use, could produce the desired results and obviate any need for additional Distributed Energy Resources (DERs) to enhance EV adoption.

The Ministry has asked how LDCs can improve their processes to support efficient charging and the deployment of other electricity system infrastructure, including "non-wire" alternatives. The PWU assumes the latter includes distributed energy resources (DER).

There is much discussion about the potential for EVs equipped with bi-directional chargers that can provide energy storage services to mitigate peak electricity system demand. The PWU supports the use of EVs for this purpose as the system benefits of such applications have been confirmed.[6] In fact, using EVs as low-cost storage could provide all of the local storage needs for optimally smoothing demand and improving infrastructure efficiency at the LDC level.[7] By leveraging EVs in this manner, deployment of additional new DER could be avoided. Furthermore, forecasts suggest that EV storage capacity alone,

[6] Plug n Drive, "EV Batteries Value Proposition for Ontario's Electricity Grid and EV Owners", 2020.
[7] Strapolec, "Electrification Pathways for Ontario", 2021.

which is a DER resource optimally located close to the load (e.g. building/home), could obviate the need for additional DER to meet system needs in general.[8]

Furthermore, bidirectional charging in residential settings (behind the meter), referred to as vehicle to building (V2B), coupled with TOU incentives are more cost effective than direct vehicle to grid (V2G) applications. The complexity of V2G results in higher costs while offering no additional system benefits compared to V2B.

As with other DSM applications, aggregators of home energy services can help optimize consumer response to a TOU rate, including EV charging and provide the desired system benefits. The V2B option can help avoid increasing peak demand on LDC systems from EV charging and also reduce demand at peak times, particularly, if managed by an aggregator. This mitigates the risks and reduces the integration costs for LDCs. These benefits warrant government support for bidirectional charging in homes and buildings, including potentially mandatory requirements for V2B. Mechanisms that provide better insight into EV adoption forecasting will help LDCs prepare for timely increases in capacity. Business models that encourage the participation of aggregators in the adoption of EVs could support the gathering of such information.[9]

Recommendation #6 - The further promotion of net metering should not occur as it will add costs to the system and provide no benefits to infrastructure costs.

The Ministry has asked if the Net Metering programs integrated with EVs could help reduce consumer bills and LDC infrastructure costs. Net metering programs increase the cost of the electricity system, particularly for residential ratepayers, as the PWU has articulated in previous submissions to the Ministry.[10] Half the excess growth in residential/RPP rates has been caused by the ICI and Net Metering programs. No further incentives should be provided and these programs should be grandfathered and phased out as soon as possible.

Recommendation #7 - Improved regional planning and anticipated forecasting outcomes from the IESO's Pathways Study will best prepare LDCs to meet all of Ontario's electrification challenges, not just for EVs

The Ministry has asked how LDCs could effectively support EV adoption ahead of demand materialization. The PWU believes that better forecasting, in particular by the IESO, is required. This forecasting should acknowledge the potential for demand growth from these various sources to provide the best tool for LDCs to plan their systems. The IESO's underway Pathways to Decarbonization project that may provide more granular, fact-based assumptions about technology adoption across several areas could help inform LDC and regional planning and improve cost effective outcomes.

Closing

[8] Strapolec, "Electrification Pathways for Ontario", 2021, identifies a need for 1300 GW of storage by 2030 which is only 10% of anticipated EV penetration.
[9] Plug n Drive, "EV Batteries Value Proposition for Ontario's Electricity Grid and EV Owners", 2020.
[10] PWU Submission to the Ministry of Energy on Community Net Metering, 2020.

The PWU has a successful track record of working with others in collaborative partnerships. We look forward to continuing to work with the Ministry of Energy and other energy stakeholders to strengthen and modernize Ontario's electricity system. The PWU is committed to the following principles: Create opportunities for sustainable, high-pay, high-skill jobs; ensure reliable, affordable, environmentally responsible electricity; build economic growth for Ontario's communities; and, promote intelligent reform of Ontario's energy policy.

We believe these recommendations are consistent with, and supportive of Ontario's objectives to supply low-cost, low-carbon, and reliable electricity for all Ontarians. The PWU looks forward to discussing these comments in greater detail with the Ministry of Entergy and participating in the ongoing stakeholder engagements.