

Bruce Power Submission September 2022

Proposed Implementation of an Ultra-Low Overnight Electricity Price Plan for Regulated Price Plan Consumers

On behalf of Bruce Power, thank you for the opportunity to allow us to again share our thoughts with the government on its proposed new Ultra-Low Overnight Electricity Price Plan ([ERO 019-5849](#)).

The government has correctly indicated over the coming years, electrification of emissions-intensive sectors such as transportation is expected to provide opportunities to reduce province-wide emissions. However, this trend will also put enormous pressure on the electricity grid as electricity demand for clean GHG emissions free generation increases.

As a critical supplier of 30 per cent of Ontario's power daily, Bruce Power is pleased to play a leadership role in assisting the province begin to take the steps necessary to ready the electricity system for the changes ahead. We were here when the province phased out coal, with nuclear providing 70 percent of the energy needed to enable that transition. We are the first nuclear operator in the world to announce our commitment to net zero, a target we plan to meet in 2027.

But most importantly we are diligently working to refurbish our nuclear reactors to ensure their safe operation to 2064, providing tens of thousands of jobs to Ontarians while simultaneously improving the operating efficiency of our reactors with a target nameplate capacity of 7000 MW by 2030, a full 700 MW more than where we started in 2016; helping to avoid are estimated 450,000 metric tonnes of CO₂e annually, the equivalent of taking approximately 100,000 cars off the road.

Moving forward, Ontario's electricity grid will need storage capacity. Ontario's recent Annual Planning Outlook (APO) projects an increase in provincial electricity demand at a rate not seen in almost two decades, driven largely by increased electrification and the goal to reduce carbon emissions. The report indicates that the growth in demand will lead to a larger capacity need for both summer and winter peaks.

Demand comes in two forms – baseload and variable. Electrification will increase the need for both beyond what is currently planned which is why to help prepare the electricity system for electrification: Shift loads to overnight periods to potentially increase efficiency in Ontario's electricity grid the government is considering enabling the creation of a new optional TOU rate plan with a new ultra-low overnight price. According to the OEB's recently released Regulated Price Plan Pilot Meta-Analysis Final Report found that the overnight rate structure has the potential to reduce greenhouse gas emissions, while providing more customer choice and opportunities to save money.

Bruce Power believes an overnight rate as proposed will increase optionality and flexibility to best utilize the strengths of our energy system buoyed by our strong nuclear baseload and provides rate saving opportunities for customers.

As a reliable, flexible, and low-cost source of low carbon electricity, nuclear will form the backbone of any electrification scenario. Nuclear energy provides the consistent and emissions-free electricity needed for clean energy storage technologies— reducing reliance on gas-fired electricity plants and providing a system that can provide clean power even when demand is at its highest.

Many technology options exist to supply Ontario's low-carbon future, however both nuclear and storage will play a critical role. The proposed rate structure change aims to encourage EV owners to schedule charging at night, where firm baseload supply provided by nuclear is most critical, available, and affordable 24/7.

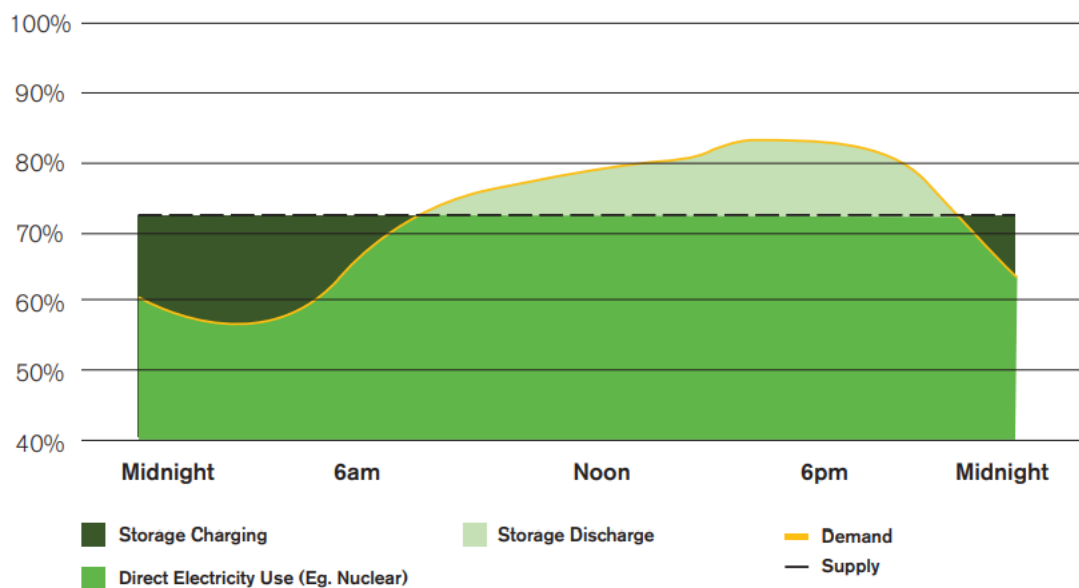
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Pairing the clean electricity produced by nuclear power with energy storage capacity like the proposed Ontario Pumped Storage project, or through increased EV proliferation and overnight charging being discussed as part of this consultation, will help lower greenhouse gas emissions while ensuring a dependable source of electricity.

Energy storage technologies are in themselves non-emitting—they simply store electricity generated elsewhere and provide it when needed. But when coupled to an already largely clean electricity system such as Ontario’s, they have the potential to reduce the overall carbon footprint by storing clean, emission-free electricity when available and displacing the need to use natural gas fired generation during peak demand periods.

Incentivized charging at “off peak times” can be used to shift generation from times when it is created to times when it is needed, presenting a “flattened demand” to the grid. This reduces the need for variable generation capabilities currently provided by gas-fired generation, as seen below (figure 1).

Figure 1: Storage helps to flatten the daily demand variation



Source: Strapolec, 2019b.

The abundant supply of clean nuclear power in Ontario positions the province to reap the full benefits of energy storage and incentivizing EV owners to shift their charging periods overnight. Combining energy storage with baseload supply will mitigate the need for Ontario electricity customers to pay for peaking capacity that is used sparingly during high demand hours, as those assets may become relied upon less frequently.

Additionally, incentive to charge an EV overnight enables community storage which can be located near demand loads and smooth variable demand, potentially reducing grid infrastructure costs by enabling greater use of growing baseload supply. EVs can provide mobile storage capabilities to help address peaking demand needs and act as virtual power plants (VPPs).

As we seek to achieve a net-zero electricity system in Ontario, policies to support climate action usually fall into one of four categories: mandates, subsidies, incentives, or strategic focuses. This current proposal on TOU pricing is both strategic but provides an incentive to customers to charge during periods of lower demand. Most importantly what this proposed policy change does is leverage the advantages of our electricity system anchored by nuclear power.

Emissions-free energy storage needs emissions-free baseload energy. A combination of nuclear power paired with storage provides a flexible, reliable, and clean solution resulting in an overall benefit to Ontario's electricity system. An overnight rate helps to enable this transition and Bruce Power looks forward to working government to achieve its climate change objectives with this policy and beyond.



Pat Dalzell
Head of Corporate Affairs
Bruce Power