

# BC Hydro Review: Phase II Interim Report – Comments and Feedback

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*From*

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*and*

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<sup>1</sup> Siemens Energy Canada Limited was carved out of Siemens Canada Limited on March 1<sup>st</sup>, 2020. Together they are referred to as “Siemens” in this document. Both entities continue to serve customers in Canada.

# 1. Supporting CleanBC

## 1.1. Optional Rate Designs

When looking at an optional time of use rate, factors that are important to consider include:

- **Keeping rates simple** so that consumers can understand them and respond; for example, a two-period TOU rate is generally preferable to a three-period, and long-term stability in the pricing periods
- **Recovering costs appropriately**; for example, for EV charging at commercial sites, the California PUC determined that only marginal costs of distribution should be collected
- **Ensuring proper price signals** continue to be sent, such as avoiding consumption during peak times and promoting usage when renewable resources are abundant; an example is the Overnight Rate recently approved by BC Hydro and applicable to bus fleets in BC
- **Transitioning rates to full cost recovery over time** while promoting adoption of beneficial technologies, such as EVs, as in the recently approved Demand Transition Rate
- **Consideration of a Seasonal Rate Adjustment** to ensure customers are aligned with utility objectives regarding seasonal consumption

When looking at an optional interruptible rate / demand response rate, factors that are important to consider include:

- **Offering an interruptible rate** to loads that shift energy sources from traditionally fossil powered sources to clean energy sources
- **Including a conditional firm service** as an option between interruptible and firm service. This rate can be in between firm and interruptible rates, and can help the utility prioritize loads
- **Consideration of grid scale battery storage** for reduction in the requirement for interruptions, since the battery can act as firming capacity during interruption events
- **Creating a Charging Rate aligned with the interruptible rate** in order to stimulate the management of demand peak, optimize generation as well as encourage increased adoption of electric storage charging and electric vehicle charging technology. Meter separately with ToU combined with interruptible rate.
- **Consideration of a wholesale rate for certain customer classes** to incentivize load shifting, in addition to an interruptible rate

When looking at discounted rates for heat pumps, factors that are important to consider include:

- **Providing innovative price plans for EVs or heat pumps** that can accelerate adoption; an example is Xcel Energy (MN), which has a subscription rate for EVs that is a flat monthly fee for all the electricity used for off-peak home charging.

## 1.2. Overcoming Barriers to Electrification

Competitiveness for business and industry can be prioritized and barriers to electrification can be reduced in an electrified future in the following ways:

- **Flattening the two-tier rate** will remove the disincentive for large consumers to consume more power, thereby encouraging greater electrification for industry
- **Creating an economic development rate** is critical to overcome barriers to electrification of clean industry and stimulating beneficial electrification.
- The hydrogen economy presents many policy, regulatory, as well as business opportunities for BC, the BC Government and BC Hydro. Just as traditional oil and gas companies are now entering the utility space, there

may be an opportunity for traditional electric utilities to enter the transportation refuelling space. For example, a “BC Hydro Energy” station could offer grid scale energy storage, e-vehicle charging and hydrogen refueling at the same or connected locations.

- **Streamlining the interconnection process** is significant in overcoming barriers. Business process improvements combined with regulatory revision can often be significant steps to relieving barriers to cost reduction for new customers.

### 1.3. Internal Carbon Price

- **Efficiencies for buildings – further reduce GHG emission through target setting working towards Net Zero**  
BC Hydro could take a leadership role in not only looking at its own facilities but contributing, along with the City of Vancouver and Metro Vancouver, to an atmosphere of opportunities to decarbonization through smart electrification as well as a path to Net Zero buildings.

## 2. Thriving in an Evolving Energy Sector

BC Hydro can best position itself to drive innovation in the following ways:

- **Grid Modernization:** Grid modernization ultimately includes a unified and systematic shift toward intelligent distributed grid operations. The success of the future grid will be dependent on a grid design that:
  - Fully factors the layers of systems required for modern operations
  - Enables an evolution through systematic asset refreshment activities that will leverage innovation
  - Contains innovations that are cybersecure by design and leverage modern standards that are future compatible
  - Deploys increased communication capability to form the basis of BC’s strengthened Critical Infrastructure
  - Embraces standards evolving for the energy sector (i.e. IEC/ISO/NIST/NERC CIP) and how these are converging and being supported by CSA
  - Embraces new management models, such as Distribution System Operator (DSO), ensuring reliability and efficiency in the operation of a system that integrates DERs
  - Leverage concepts of “Big Data,” inclusive analytics, artificial intelligence and machine learning
  - Facilitate digitalization and decentralization while furthering decarbonization progresses
- **Partnerships for Behind the Meter (BTM) Services – opportunities to further reduce GHG emissions and costs**

Historically, the demarcation point of the grid edge was the meter. Today, individual devices behind the meter are being controlled with surgical precision. It is anticipated that if the devices behind the meter are fully factored into grid operations that the number of end points monitored will increase by a factor of 10.

Siemens has entered into a long-term contract with Algonquin College in Ottawa to provide equipment and services on campus to address several issues that had arisen. This is an example of a partnership for BTM services that could be entered into by BC Hydro, so that even though the customer’s electricity consumption is reduced, the utility can offset the reduction by providing services.

## ▪ **Regulatory Sandbox / Innovation Sandbox**

A regulatory sandbox is a policy concept to create space and funding opportunities for innovations, standardization and adoption to grow while working on effective regulation models in parallel. BC and an appropriately formed stakeholder community could establish a Canadian leadership with BC Hydro to align federal funding for new innovations by creating an ecosystem of innovation. Alignment with the federal government could establish a Pan Canadian program.

### 2.1. Resource Flexibility

*Provide BC Hydro flexibility to meet future demand with clean resources at least cost. E.g.:*

#### ▪ **Consider all potential value sources**

In considering alternatives to traditional generation, transmission, and distribution, it is essential to consider all the potential value sources. A good case study in doing so is looking at various “value of solar” analyses performed by states such as Maine and Minnesota. In Maine’s example, the public utility commission took the comprehensive look.

## 3. Leveraging Our Strengths

### 3.1. Clean Electricity Standard

#### • **Re-electrification via Combustion of H2 in Gas Turbines**

One of the most important considerations for a 100% clean energy standard for BC’s integrated system is the fuel that powers combustion turbines on the grid. As discussed under Evolution of the Electricity Trade in the Phase 2 Interim Report, intermittent renewables have had a significant effect on capacity in the jurisdictions to which BC Hydro is connected. Green hydrogen can be seen as both a variable load that can manage fluctuating generation alongside firm generating resources and can also be used as a storage medium when combined with re-electrification approaches.

#### • **Phased Implementation Strategy**

Consider implementing a phased strategy to getting to 100%; for example, BC could set a small number of interim targets, e.g. two, with checkpoints at e.g. 40% and 75% to demonstrate progress to the 100% objective. By having a stage gate at a proportion of the way to a target, the deadline’s appropriateness and achievability can be re-evaluated.

As BC Hydro looks to expand its business interests outside of Powerex, it could consider the following:

- **Leverage core competencies** and avoid getting into areas requiring new or significantly different expertise
- **Focus on areas where there is a consumer need** but the competitive market has difficulty meeting that need
- **Manage risk carefully** through avoidance of high-risk ventures and use of risk-sharing for medium-risk opportunities, for example via joint ventures or leveraging of third-party equity.

## 4. Opportunities for Indigenous Nations and Communities

### 4.1. Cleaner Electricity for Remote Communities

- **Off-grid Communities**

Self governance and energy independence, shifting away from carbon intense fossil fuel towards a greener electric or mixed electric solution can be achieved through microgrids.

### 4.2. Indigenous Alignment

- **Golden standard for collaborative engagement**

For example, BC Hydro could play a key role as an energy mediator in working towards establishing a province wide collaborative engagement process from start to finish.

We hope the foregoing recommendations are useful as the Advisory Group prepares the final Phase 2 Report.

Together, Siemens Canada Limited and Siemens Energy Canada Limited have decades of experience helping utilities around the world manage the energy transition. We would be more than happy to continue to provide support and advice to the Government of BC as it navigates through this dynamic period.

Please don't hesitate to contact us.