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Submitted via Email: ECD-DEC@ec.gc.ca

Re: Proposed Frame for the Clean Electricity Regulations

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 Proposed Frame for the Clean Electricity Regulations. The PWU is a strong supporter of emission reduction strategies, climate change initiatives, and Canada's clean electricity objectives and has engaged in several federal consultations that support the prudent and rational reform of the electricity sector and the importance of low-cost, low-carbon energy to the competitiveness of Canada's economic sectors.

The PWU believes that developing new, low-carbon electricity infrastructure is the best way to help advance Canada's NZ objectives by 2050 in a way that supports workers, communities and the competitiveness of our economy.

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

Yours very truly,

Jeff Parnell
President

Encl.

**Power Workers' Union Submission on Canada's Proposed Frame for the Clean Electricity Regulations
(CER)
August 2022**

The Power Workers' Union (PWU) is pleased to submit comments and make recommendations to Environment and Climate Change Canada (ECCC) regarding the development of the proposed frame for the Clean Electricity Regulation (CER). The PWU is a strong advocate of emission reduction strategies and has engaged in several federal consultations, including the SMR Action Plan, Hydrogen Strategy, National Infrastructure Plan, Clean Fuel Standard (CFS), Carbon Capture Utilization and Sequestration (CCUS) tax credit, the 2030 Emission Reduction Plan, and the Clean Electricity Standard (CES).

The PWU applauds the ECCC for having crafted a proposed CER framework that addresses the initial concerns expressed by the PWU in its submission regarding the earlier CES discussion paper:¹

- 1) Reflects the improbability of achieving a net zero electricity emissions by 2035 with a focus on a phased approach to 2050;
- 2) Provides an ongoing role for gas-fired generation providing peak and reserve capacity in a backup or emergency role;
- 3) Employs the CER to displace the Output Based Pricing System (OBPS) and makes the use of gas-fired generation for baseload and intermediate demand uneconomic in all provinces;
- 4) Adopts a technology neutral approach and supports the deployment of emerging, non-emitting technologies; and,
- 5) Focuses on policy drivers that provinces and territories can use to develop the desired net zero emissions electricity system by specifically defining the allowable emissions intensity and complementary financial measures on a generating unit basis.

The PWU also notes that the proposed CER, appropriately, remains silent on many other issues raised by the CES, as they are more associated with other federal initiatives.

However, the PWU is concerned about several areas within the proposed CER framework that could undermine the ultimate achievement of its objectives and makes the following recommendations:

- 1) Reinforce the CER's technology neutrality by clearly defining "clean electricity" and the intent of the CER to broadly encourage "non-emitting solutions";
- 2) Revise the allowable conditions for the continued use of existing natural gas-fired generation for backup to be based on system needs, not "variable renewables";
- 3) Exclude the potential for averaging emissions performance over a fleet of assets; and,
- 4) Clarify that the CER will replace the OBPS and all federally approved alternatives to its requirements for the electricity system, e.g., the Ontario Emission Performance Standard (EPS).

Recommendation #1 – Reinforce the CER's technology neutrality by clearly defining "clean electricity" and the intent of the CER to broadly encourage "non-emitting solutions".

¹ PWU submission to the ECCC regarding the CES, April 2022.

To be an effective regulation for clean electricity, the CER should clearly define what constitutes “clean electricity”. The proposed framework does not provide an explicit definition. Two factors should be addressed:

- Definition of clean electricity as it relates to non and low-emitting sources; and,
- Use of the term renewables should be broader than wind and solar generation.

a) Definition of “Clean Electricity”

Diagram 1 in the proposed frame contains a text box that suggests clean electricity includes “non-emitting electricity” produced by: hydro, wind, solar, emerging renewables, nuclear, and hydrogen. The term emerging renewables is not defined. That same box identifies an intent to phase down the use of natural gas-fired generation.

However, the proposed emissions performance standard for eligible “clean electricity” is potentially based on the emissions intensity of gas-fired generation equipped with carbon capture and storage (CCS). This suggests that a “clean electricity” option includes gas-fired generation equipped with CCS. This also implies that the intent is to phase down the use of “unabated” natural gas-fired generation, not necessarily gas-fired generation as a whole.

The option to produce clean electricity using sustainably harvested waste biomass, such as Ontario’s Atikokan Generating Station in northern Ontario, has not been identified and should be to the extent that it may meet the standard and could be a net negative emissions sink if equipped with CCS.

The ECCC has conveyed that the CER is intended to be technology neutral. As such, and for clarity and consistency within the regulation, “clean electricity” should be defined inclusively as: “Low greenhouse gas (GHG) emitting electricity generation sources whose emission intensity is compliant with the emissions performance standard of the CER.” The term “low GHG emitting sources” should also be explicitly defined within the CER to the maximum practical extent and include:

- Non-emitting supplies such as hydro, wind, solar, and nuclear;
- Emerging non-emitting sources such as hydrogen, tidal, geothermal, etc.;
- Low-emitting supplies such as sustainably-harvested, waste biomass and CCS equipped natural gas-fired generation; and,
- Negative emission sources such as biomass fueled-generation facilities equipped with CCS.

b) Use of the Term “Renewables”

The use of the terms “renewables” and “variable renewables” and the associated implications on the intent of the CER are not clear. CER statements in various sections include:

- Context: “...use of natural gas may be required .. to complement variable wind and solar...”;
- To support affordability: “existing units ... could ... provide backup to variable renewable ...”
 - o Footnote ii: “ ... back up of variable renewable electricity” (2 places);
- Potential flexibility: “fleet averaging could ... incentivise the build out of renewables”; and,
- Context: “... costs can be reduced by ... the adoption of low cost wind and solar...”

The first quote pairs the term “variable” with “wind and solar” implying that variable renewables are limited to wind and solar. This interpretation, coupled with the second quote suggests that the proposed CER explicitly allows unabated use of gas-fired generation to backup variable wind and solar. The third quote suggests that the proposed CER is not technology neutral but rather a vehicle for specifically promoting wind and solar technologies. The final quote reinforces this interpretation by suggesting that wind and solar are low-cost options for consumers.

The CER should not show such bias to specific solutions and remain technology neutral for several reasons:

- The term “variable renewables” is not defined in the proposed CER frame. Generally, the “variability” may reflect the presence of natural factors not related to consumer energy demand, such as weather causing intermittent output for solar and wind. However, hydro and tidal are also variable due to natural forces. Tidal output depends on cycles of the moon. Ontario’s run of the river hydro facilities do not have large “back-up” reservoirs and their production is subject to seasonal weather related precipitation cycles and conditions. As a result, these resources require backup capacity to meet system demand (see recommendation #2).
- The ongoing need for natural gas-fired generation includes not just a backup role for variable renewables, but the flexibility it provides in maintaining a reliable system that can accommodate variations in demand (See recommendation #2).
- Analysis shows that wind and solar renewables-based solutions are higher cost solutions for Ontario consumers compared to alternatives as outlined in the PWU’s CES submission.²
- The separate issue of “fleet averaging” is addressed by recommendation #3.

To sustain a technology neutral regulation and avoid inadvertent encouragement of solutions that may be higher cost (e.g. wind and solar), the CES should include a formal definition of the term “variable” and the terms “wind and solar” and “renewables” in the above quotes should be replaced with “non-emitting supplies”.

Recommendation #2 – Revise the allowable conditions for the continued use of existing natural gas-fired generation for backup to be based on system needs, not “variable renewables”.

There are two reasons that the potential need for unabated gas-fired generation from Canada’s existing units should be analysed from a system reliability perspective:

1. The proposed allowable use of existing unabated natural gas-fired generating units to provide backup for variable renewable generation presents several risks to the achievement of the CER objectives:
 - Backing up unmanaged renewables output could require substantial gas operations, e.g.:
 - o Backup for a 100 MW wind farm requires a 100 MW gas-fired generating plant given the periods when there is no wind. Under a baseload supply assumption, a gas-fired generation plant would operate over 65% of the time given that Ontario’s wind capacity factor is less than 35%.

² PWU submission to the ECCC regarding the CES, April 2022.

- Similarly, backup for a 100 MW solar farm in Ontario would require the backup gas-fired generating plant to operate almost 80% of the time.
 - In order to implement the exempting conditions, facilities would have to be designated as “backup” to the variable renewables.
 - This designation will be difficult for system operators in the provinces and territories to enforce. Regulations will be required to address key matters such as how such units are dispatched by the system. Establishing clear regulatory parameters will require the collaboration of the provinces in an area beyond the ECCC’s jurisdiction.
2. The flexibility that natural gas-fired generation provides for reliably in meeting changes in demand is its greatest value to the electricity system. There are four types of demand:
- **Baseload** –The constant level of demand present 24x7 365 days per year. Going forward, GHG emitting sources should not be considered for meeting baseload.
 - **Intermediate** – Demand rises during the day and drops at night. Fossil-fuel generation has traditionally been used to meet intermediate demand.
 - **Peak** – Represents the top 1-2% of the demand hours in a year, typically driven by consumer heating and cooling (air conditioning) demand.
 - **Reserve supply** -- Rarely occurs as the estimates for peak demand already reflect worst case weather conditions. Reserve capacity is provided to assure system reliability against failures in load-serving generation supply. The use of reserve capacity is generally under emergency situations.

The National Electric Reliability Corporation (NERC) sets the requirements for reserve capacity for utilities in the United States and Canada to ensure sufficient supply is available to reliably meet peak demands. Gas-fired generation currently provides the lowest cost reserve capacity and its use under peak or emergency situations has negligible emissions (or economic) consequences.

The more difficult challenge is determining the fluctuations in intermediate demand that will drive the need for the ongoing use of existing gas-fired assets. The profile of intermediate demand changes daily depending on the time of year, weather, holidays, weekends, etc. Flexible supply resources enable the hourly response to differences in demand from normal. Variable renewables increase the volatility of the daily and hourly fluctuations, but are not the primary cause of the need for flexible supply.

System operators understand this volatility and can plan for it by ensuring suitable operating reserves are in place to address it. If a system operator determines that a generation unit is required for this reliability purpose, its capacity could be designated as such. Conflicts with the operation of electricity energy markets may have to be addressed.

By adopting a system solution approach, the CER may not need to specify absolute operating limits for the existing units since the system operators would establish them as the system reliability needs and solutions evolve. The use of existing facilities should be subject to the financial compliance requirements as an economic incentive for their phase-out. Note that power plants fueled by sustainably harvested waste biomass, such as Ontario’s Atikokan Generating Station in northern Ontario, would have net negative carbon emissions if equipped with CCS that may offset any emissions from the use of unabated natural gas-fired generation used for system reliability purposes.

Recommendation #3 – Exclude the potential for averaging emissions performance over a fleet of assets.

The proposed CER frame regulates the emissions intensity of electricity production units. Accommodating a portfolio approach to averaging emissions across different production units is inconsistent with the proposed frame and will rapidly become complex. The following questions highlight these challenges.

- Would the averaging be allowed for a fleet owner of different technologies?
- Would the averaging be a requirement imposed on the provincial system operator?
- How would these options not undermine the goal of the CER to criminalize the operation of non-compliant electricity generation?
- If a portfolio approach were to be allowed how does the CER differ in effect from the emissions credit approach of the OBPS?

Recommendation #4 – Clarify that the CER will replace the OBPS and all federally approved alternatives to its requirements for the electricity system, e.g., the Ontario EPS.

The discrepancies between the federal OBPS and the Ontario EPS regarding emissions standards for electricity generation are clear, particularly for new generation. The federal OBPS has an increasingly stringent emissions standard while the EPS does not. Since the CER is intended to displace OBPS requirements, clarification is required regarding any provincial agreements with respect to the OBPS performance requirements for electricity generation.

Closing

The PWU's comments and recommendations are supportive of Canada's clean electricity objectives. We will continue to work with the ECCC and other stakeholders to help achieve Canada's climate goals. The PWU is committed to the following principles: create opportunities for sustainable, high-pay, high-skill jobs; ensure reliable, affordable, and environmentally responsible electricity; build economic growth for Canadian communities; and, promote intelligent reform of Canada's energy policy.