

Achieving net-zero grids by 2035: Changes to Canada's proposed Clean Electricity Regulations

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What you need to know

On February 16, 2024, the federal government released an update outlining several changes considered to the Clean Electricity Regulation (the **Proposed Regulation**), which regulation was published in draft form on August 10, 2023.

Policy context

Pressure is mounting on governments to meet international commitments to reduce greenhouse gas (**GHG**) emissions. The Proposed Regulation is intended to help Canada achieve its GHG reduction targets committed to in the Paris Agreement and outlined in the [2030 Emissions Reduction Plan \(2030 ERP\)](#)¹ by, among other policy initiatives, transitioning Canada to a net-zero electricity grid starting in 2035.

In addition to reduction targets set by governments, efforts are underway to track and reduce GHG emissions from world supply chains. Various jurisdictions, [standard setters](#) and [private sector players](#) are requiring disclosure of Scope 1, 2 and 3 emissions. As disclosure around climate change increases, clean electricity will demand a premium and provide a competitive advantage to those that can supply it. [Virtual power purchase agreements](#) connecting renewable energy suppliers with corporate buyers are becoming more prevalent in Alberta and Ontario and provide empirical data on the value of such premium.

The Proposed Regulation builds on existing federal policy to de-carbonize, which is underpinned by a price on GHGs (which include CO₂ and five other gases with global warming potential). The federal government already has in place the Output Based Pricing System covering large emitters and the fuel charge (collectively, the **Federal Benchmark**) and the Clean Fuel Regulations, which each put a price on GHGs, as detailed in our previous [bulletins here](#). Tax incentives in the form of investment tax credits for carbon capture and storage (**CCS**) projects are also in place, with additional tax credits for clean technology to be passed this year and hydrogen and clean electricity to be tabled as legislation in the next two years.

While the price on GHG emissions will reach \$170/tonne CO₂e (carbon dioxide equivalent, a metric used to measure GHGs) by 2030, the regulatory analysis conducted by the Department of the Environment and Climate Change concludes that the Federal Benchmark would not be sufficient to reduce emissions in the electricity sector to net-zero by 2035. Hence the implementation of the Proposed Regulation. On February 16, 2024, the federal government released an update outlining several changes being considered to the Proposed Regulation. This article provides detail on the Proposed Regulation and the recently proposed amendments, with key changes highlighted.

Overview

The Proposed Regulation will be enacted pursuant to the *Canadian Environmental Protection Act*. If passed, the Proposed Regulation will come into force January 1, 2025 and will repeal the *Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations* and the *Regulations Limiting Carbon Dioxide Emission from Natural Gas-fired Generation of Electricity* as of January 1, 2035 and January 1, 2045, respectively.

Scope of application

The Proposed Regulation is limited to CO₂ emissions and does not apply to the broader category of GHGs targeted by other federal programs such as the Federal Benchmark. The Proposed Regulation applies to an electricity generating unit (referred to as a **unit**, as further defined in the Proposed Regulation) that meets the following criteria (the Criteria): (i) greater than 25 MW², (ii) uses any amount of fossil fuels to generate electricity, and (iii) is connected to an electricity grid that is subject the North American Electricity Reliability Corporation (**NERC**) standards (referred to herein as a **Regulated Grid**).

NERC standards are enforceable for bulk electricity grids in the continental United States and British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Québec, Nova Scotia and New Brunswick. Prince Edward Island and Newfoundland and Labrador, and the Yukon, Northwest Territories and Nunavut are not subject to NERC standards. Fossil-fired generation units located in such jurisdictions are therefore not subject to the Proposed Regulation. Nor does the Proposed Application does apply to behind-the-meter facilities or to distribution-connected facilities.

Proposed change: Expand the 25 MW threshold to apply to a facility with more than one unit whose capacities collectively amount to 25 MW or more.

Emissions Intensity Limit

The Proposed Regulation prohibits all units that have a net injection of electricity greater than 0 GWh to a Regulated Grid (a net export) from producing emissions from the burning of fossil fuels that exceed, on an average annual basis, an emissions intensity greater than 30 tCO₂/GWh (the **Emissions Intensity Limit**). Emissions intensity is determined by dividing the total CO₂ emissions of a unit by the quantity of electricity generated by the unit in a given year.

$$\text{Emissions Intensity} = E(\text{tCO}_2) \div G(\text{GWh})$$

The Proposed Regulation permits co-generation units (units that create electricity and steam and sell both) to deduct the quantity of CO₂ emissions attributable to the production of useful thermal energy from their calculation of emissions. Likewise, CO₂ emissions that are captured and permanently stored in a deep saline aquifer or a depleted oil reservoir are also deducted from a unit’s total emissions. Units that combust hydrogen must account for the CO₂ emissions in the production of the hydrogen, since hydrogen, when used to create electricity, will have zero emissions.

Exceptions to the Emissions Intensity Limit

The Proposed Regulation imposes a blanket prohibition on any unit using fossil fuel to generate electricity to emit above the Emissions Intensity Limit after a prescribed date. The Proposed Regulation makes exceptions for CCS and facilities (except coal) that are used almost exclusively to meet peak power needs (referred to colloquially as **Peaking Facilities**).

Carbon, capture and storage

A unit that includes a CCS system that started operating within the last seven calendar years can, between January 1, 2025 and December 31, 2039, emit no more than 40 tCO₂/GWh (the **CCS Emissions Intensity Limit**) if it can show that the unit operated at or below the Emissions Intensity Limit for two periods of 12 consecutive hours, with at least 4 months between those two periods in a given calendar year.

Peaking Facilities

Under the Proposed Regulation, a unit may emit up to 150 kt CO₂ in a calendar year provided it operates less than 451 hours during that calendar year (the Peaking Facility Limit, together with the Emissions Intensity Limit and the CCS Emissions Intensity Limit, the **Emissions Limits**). The exception specifically targets Peaking Facilities and is significant in that units would be allowed to operate under a total emissions and time-limit threshold per calendar year without having to meet the intensity-based performance standard.

Proposed change: Replace the Emissions Intensity Limit and the CCS Emissions Intensity limit (tCO₂/GWh) with an annual emissions limit (tCO₂) tailored to each unit’s capacity. The annual emissions limit for a particular unit would be set at the level of emissions in a year from a natural gas unit of the same size that operates as baseload and at an emissions intensity limit set by regulation, calculated as:

$$\begin{array}{l} \text{Unit} \\ \text{Emission} \\ \text{limit} \\ \text{(t/year)} \end{array} = \begin{array}{l} \text{Performance} \\ \text{standard} \\ \text{(t/GWh)} \end{array} \times \begin{array}{l} \text{MW} \\ \text{(capacity} \\ \text{of unit)} \end{array} \times \begin{array}{l} 8760 \\ \text{hours} \\ \text{(total hours} \\ \text{in a year)} \end{array} \times \begin{array}{l} \left(\frac{1 \text{ GW}}{1000 \text{ MW}} \right) \\ \text{(unit conversion)} \end{array}$$

Proposed change: Adjust the emissions intensity limit (i.e. the performance standard) in the above calculation to a number that is greater than 30 t/GWh.

Proposed change: Allow for a responsible person that owns multiple units in the same jurisdiction to pool their emissions limit.

Proposed change: Allow a responsible person to use GHG offsets to comply with the annual emissions limits set by the Proposed Regulation.

Proposed change: If the changes proposed for pooling of annual emissions limits are implemented, the exception for Peaking Facilities will be removed, since all units would be subject to an aggregate annual emissions limit.

Implementation flexibilities for new and existing electricity units

The Proposed Regulation provides a phased-in approach to implementation, with increased stringency for coal plants and newly built plants. The respective Emissions Limit applies as of:

- January 1, 2035 for any unit that: (i) is commissioned after January 1, 2025, (ii) has increased its electricity generation capacity by more than 10 per cent since registration of the unit, or (iii) combusts coal.
- For any other unit (i.e. units commissioned prior to January 1, 2025, except coal), the later of: (i) December 31st of the calendar year that is 20 years after the unit's commissioning date, and (ii) December 31, 2034. This date is referred to as the end of prescribed life (**EoPL**). This allows projects that may have incurred significant capital investment before the Proposed Regulation was introduced to operate beyond 2035, somewhat mitigating stranded investment in such assets.

Proposed change: The 20-year time frame for EoPL may be increased, to a yet undefined number.

Coal-fired plants that converted to boiler units and meet certain conditions are prescribed a separate implementation timeline.

Emergencies

A responsible person may apply to the Minister from an exemption to meet the applicable Emissions Limit if the system operator declares an emergency. The application for exemption must be provided to the Minister within 15 days of the day on which the emergency began.

Proposed change: Grant the system operator the power to trigger the exemption (rather than the retroactive exemption from the Minister) for a reasonable period of time (TBD). The Minister would need to be notified in all cases. Consideration is being given to requiring the Minister's approval to continue operating under emergency circumstances beyond the exemption period granted by the system operator.

Registration and reporting

Any unit that meets the Criteria must be registered, regardless of whether the unit has net exports greater than 0 MWh. Registration must be completed:

- In the case of a unit that has a commissioning date on or after Jan 1, 2025, within 60 days after the date on which the unit was commissioned; or
- In the case of all other units, by December 31, 2025.

Beginning in the calendar year during which the relevant Emissions Limit applies, the responsible person must submit an annual report (in the form prescribed by Schedule 2 of the Proposed Regulation) for each calendar year the unit meets the Criteria.

Non-compliance

The Proposed Regulation does not outline the consequences for non-compliance – e.g. the failure of a unit to meet the applicable Emissions Limit. The Proposed Regulation is made under CEPA, and therefore compliance measures are set out in the Compliance and Enforcement Policy for CEPA.

¹ In March 2022, Canada's 2030 ERP set out key measures the Federal Government intends to take in order to achieve the 2030 target (40-45 per cent GHG emission reductions below 2005 levels), an interim GHG emissions objective for 2026, as well as sectoral strategies and a forecasted implementation plan. The 2030 ERP provides the roadmap towards achieving net-zero GHG emissions economy-wide by 2050.

² This capacity size trigger is consistent with the capacity size trigger in the *Regulations Limiting Carbon Dioxide Emissions from Natural Gas-fired Generation of Electricity*,

By

[Alan Ross, Kristyn Annis](#)

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BLG Offices

Calgary

Centennial Place, East Tower
520 3rd Avenue S.W.
Calgary, AB, Canada
T2P 0R3

T 403.232.9500
F 403.266.1395

Ottawa

World Exchange Plaza
100 Queen Street
Ottawa, ON, Canada
K1P 1J9

T 613.237.5160
F 613.230.8842

Vancouver

1200 Waterfront Centre
200 Burrard Street
Vancouver, BC, Canada
V7X 1T2

T 604.687.5744
F 604.687.1415

Montréal

1000 De La Gauchetière Street West
Suite 900
Montréal, QC, Canada
H3B 5H4

T 514.954.2555
F 514.879.9015

Toronto

Bay Adelaide Centre, East Tower
22 Adelaide Street West
Toronto, ON, Canada
M5H 4E3

T 416.367.6000
F 416.367.6749

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