

March 15, 2024

Karishma Boroowa
Director, Electricity and Combustion Division
Energy and Transportation Directorate
Environment and Climate Change Canada
Email: ECD-DEC@ec.gc.ca
Submitted via email to: ECD-DEC@ec.gc.ca

Dear Ms. Boroowa

Re: Energy Storage Canada Feedback On Update to Clean Electricity Regulations

Energy Storage Canada (ESC) is the national trade association dedicated to accelerating the deployment of energy storage projects and technologies.¹ ESC is pleased to provide comments on the update on the Clean Electricity Regulations released on February 16, 2024. ESC's top priority with respect to the CER is now speed and durability of implementation, with the goal of achieving certainty for investment in energy storage resources. In addition, ESC has suggestions regarding specific design parameters of the CER. Please see our feedback on the update detailed in Appendix A, as well as ESC comments on the draft CER in Appendix B for reference.

Very best regards,



Robert Tremblay

Policy Manager, Energy Storage Canada (robert.tremblay@energystoragecanada.org)

¹ For further information, please visit: www.energystoragecanada.org

Appendix A: ESC Feedback on Clean Electricity Regulations Public Update

Introduction

Energy Storage Canada (ESC) is pleased to provide comments on the update on the Clean Electricity Regulations released on February 16, 2024.²

ESC applauds and supports the goal of limiting the global temperature increase to below 1.5°C. This is accomplished by achieving a net-zero economy in Canada by 2050 and a net-zero electricity sector in Canada by 2035, as outlined in the International Energy Agency's 2021 report *Net Zero by 2050: A Roadmap for the Global Energy Sector*.³ Energy storage will play a significant role in any pathway to net-zero electricity by 2035. This is shown in our *Energy Storage: A Key Net Zero Pathway* report, which identifies a minimum of 8-12GW of energy storage needed to achieve net-zero electricity in Canada by 2035.

Energy storage is a vital technology group for achieving net-zero electricity in Canada by 2035. Energy storage ensures supply adequacy, guaranteeing electricity is available to consumers when they need it, as well as providing a reliable operation of the power grid, delivering crucial services such as frequency stability, voltage support, and fast ramping capabilities. By charging in times of surplus supply and discharging in times of high demand, energy storage ensures the lowest cost non-emitting energy, often from variable clean sources, reaches consumers, supplying a clean, reliable, and affordable stream of electricity to consumers.

Energy storage, especially including Long Duration Energy Storage, should be understood as the clean, firm, flexible supply of capacity to meet future electricity demand in an economy transitioning to net-zero by 2050.

Comments on CER Parameters

The CER Update provides openness on nearly all the parameters of the CER towards the goal of building a CER that works across Canada, as well as a possible pivot to consider emissions performance in terms of capacity as opposed to energy and use of offsets for compliance. ESC's commentary on specific parameters of the CER is below:

Performance Standard

ESC has previously supported a stringent performance standard, holding the position that energy storage and other sources of emissions-free should be seen as the main means of meeting capacity needs, as opposed to relatively emissions intensive natural gas electricity under a lax performance standard. ESC continues to hold this position but is amenable to more flexibility on early adoption of carbon capture and sequestration installations.

² <https://www.canada.ca/content/dam/ecccc/documents/pdf/climate-change/clean-fuel/electricity/clean-electricity-regulations-public-update-16022024.pdf>

³ <https://www.iea.org/reports/net-zero-by-2050>, page 99

Peaker Provisions

ESC has previously opposed the peaker provision outright, again stemming from the position that energy storage and other sources of zero carbon capacity should be seen as the main means of supply adequacy. ESC continues to hold this position.

Inclusion of Offsets

ESC is open to the inclusion of offsets for compliance, but stresses that inclusion would represent a significant expansion of scope to the CER, and by extension risk to prompt completion and implementation of the CER.

End of Prescribed Life (EOPL)

The EOPL is likely the most consequential parameter for residual emissions to continue in the electricity sector beyond 2035. ESC has held the position that as short an EOPL as possible in the CER is prudent and continues to hold that position.

Interaction of CER with Carbon Pricing

It should be noted that a laxer CER will shift burden on the decarbonization of electricity from the CER to the industrial carbon pricing system. Updates to the OBPS performance benchmarks on the electricity sector that complement the goals of the CER should be a priority to implement in parallel with the implementation of the CER.

25 MW Threshold

The draft CER included a 25MW threshold for coverage of the CER on specific units. ESC found that this may be a point of significant leakage in coverage of the CER and supports the elimination or reduction of the threshold with respect to new units. ESC welcomes the proposed rules being considered that would preclude entities from circumventing the regulation by commissioning new natural gas units smaller than 25 MW. ESC supports a parallel strategy for exemption of emitting generation in remote and Indigenous communities.

Emissions Limit Approach

The CER update contemplates an annual emissions limit, in t/MW/year as an alternative to both the performance standard and the peaker provision, giving any units coverage to emit up to a given amount per year, regardless of the marginal emissions intensity. Additionally, an owner of multiple units may pool the combined caps together and distribute amongst the different units, allowing unused emissions from some units to be used by other units that have met their emissions limit. This approach may be sensible in that it provides flexibility to stakeholders who have expressed concerns around both the peaker provision and the performance standard. However, the emissions limit should remain sufficiently stringent so as not to provide an advantage to emitting electricity capacity over clean sources of clean capacity, such as energy storage. This limit should not exceed 450t/MW/year to ensure sufficient

incentive for clean sources of firm capacity such as energy storage, nuclear, hydro, hydrogen, and abated gas.

Comments on path forward for the CER

ESC's top priority for the CER is prompt completion and implementation. A successful CER, and more generally a path to a net-zero economy by 2050, needs certainty resulting from buy-in across a variety of stakeholders and jurisdictions. ESC applauds and supports ECCC's approach to work with stakeholders to find a CER that works across Canada. ESC encourages ECCC to consider ESC's feedback but also consider the concerns of other provinces, ISOs, utilities, and other stakeholders towards to the aim of creating a CER that works for everyone.

Appendix B: ESC Feedback on Draft Clean Electricity Regulations, submitted November 2, 2023 | Included here for Reference

Introduction

Energy Storage Canada (ESC) is pleased to provide comments on the first draft of the Clean Electricity Regulations released in the Canada Gazette on August 19, 2023.⁴

Energy storage is a vital technology group for achieving net-zero electricity in Canada by 2035. Energy storage ensures supply adequacy, guaranteeing electricity is available to consumers when they need it, as well as providing a reliable operation of the power grid, delivering crucial services such as frequency stability, voltage support, and fast ramping capabilities. By charging in times of surplus supply and discharging in times of high demand, energy storage ensures the lowest cost non-emitting energy, often from variable clean sources, reaches consumers, supplying a clean, reliable, and affordable stream of electricity to consumers.

Energy storage, especially including Long Duration Energy Storage, should be understood as the firm, flexible supply of capacity to meet future electricity demand.

Section Specific Comments

Executive Summary

ESC applauds and supports the goal of limiting the global temperature increase to below 1.5°C. This is accomplished by achieving a net-zero economy in Canada by 2050 and a net-zero electricity sector in Canada by 2035, as outlined in the International Energy Agency's 2021 report *Net Zero by 2050: A Roadmap for the Global Energy Sector*.⁵ Energy storage will play a significant role in any pathway to net-zero electricity by 2035. This is shown in our *Energy Storage: A Key Net Zero Pathway* report, which identifies a minimum of 8-12GW of energy storage needed to achieve net-zero electricity in Canada by 2035.

Issues

Same as executive summary.

Background

Table 2 shows that to-date emissions reductions in the Canadian electricity sector have largely been driven by a shift from coal-based electricity to wind, solar and natural gas electricity in historically carbon intensive provincial grids, such as Alberta and Ontario. While this represents meaningful progress, the

⁴ <https://www.gazette.gc.ca/rp-pr/p1/2023/2023-08-19/html/reg1-eng.html>

⁵ <https://www.iea.org/reports/net-zero-by-2050>, page 99

need to further decarbonize electricity requires resources to maintain supply adequacy. Energy storage should be seen as the primary means of achieving this supply adequacy.

While today's deployment cost for storage systems is highly competitive, these technologies – especially battery energy storage systems – have for many years been following a steady and now-predictable development and adoption curve and are thus expected to have meaningful and predictable cost declines with even conservative estimate of their continued deployment.⁶ This dynamic must be accounted for in the modelling and regulatory requirements.

Objective

ESC agrees with the objectives of the proposed regulations.

Description

Peaker Provision

ESC's top priority concern is the inclusion of the so called "peaker provision" in the draft Clean Electricity Regulations. The provision represents a sentiment that only gas will continue to be a firming resource beyond 2035, which ignores the key role that energy storage can play in achieving supply adequacy. This sentiment is outdated. As shown in the Australian Clean Energy Council report *Battery Storage: The New Clean Peaker*, energy storage can offer substantially more economic peaking capacity and energy than traditional gas peakers.⁷ This dynamic is reinforced in the Canadian context by Clean Energy Canada's *A Renewable Powerhouse Report*, which finds that energy storage paired with wind or solar provides a competitive and increasingly lower levelized cost of energy compared to existing gas.⁸ Thus, energy storage should be seen as a key future source of peaking capacity in the future grid.

Application

ESC believes that "25MW or greater" leaves open the path for a potentially high volume of unabated gas generation outside of intended exceptions such as the End of Prescribed Life provision and peaker provisions. For example, in Alberta there is currently a total of 295MW of combined natural gas units smaller in volume than 25MW connected. This volume could increase if units under 25MW are allowed to operate outside of the Clean Electricity Regulation.

Performance Standard

ESC believes that performance standards should allow for abated natural gas generation to compete in a low carbon electricity system, while ensuring sufficient performance of any carbon capture and storage

⁶ Costs for battery storage have plummeted 90% over the past decade, and the U.S. [National Renewable Energy Laboratory](#) forecasts a further cost reduction in battery storage deployment of between 28 and 58% by 2030. Bloomberg's [2021 Global Energy Storage Outlook](#) states, "This is the energy storage decade. We've been anticipating significant scale-up for many years and the industry is now more than ready to deliver."

⁷ <https://assets.cleanenergycouncil.org.au/documents/resources/reports/battery-storage-the-new-clean-peaker.pdf>

⁸ <https://cleanenergycanada.org/report/a-renewables-powerhouse/>

system. The performance metric should thus not exceed 30t/GWh, representing a 95% capture rate on a best-in-class natural gas unit. Crucially, financial compliance for residual emissions must be meaningful, for example full flow through of the scheduled \$170/t carbon price with an OBS of 0t/GWh.

Regulatory Development

End of Prescribed Life (EOPL)

ESC finds that the EOPL provision can allow for significant amounts of carbon intensive electricity to be generated outside of the coverage of the Clean Electricity Regulations' performance standard. As shown in the "Regulatory Analysis" section, longer EOPL values can allow for significantly increased emissions from the electricity system, especially if the value is greater than the currently proposed 20 years. Longer EOPL values thus discourage the scale up of competing clean sources of capacity, such as energy storage. Similar to our earlier comments on the peaker provision, energy storage is shown to be competitive with natural gas minimizing the need for exceptions for unabated natural gas in the Clean Electricity Regulations.

Additionally, ESC notes that while under exception from the Clean Electricity Regulations' performance standard due to the EOPL provision, the most significant signal for a natural gas unit owner to decrease or abate emissions will be the carbon price. It is thus essential that full carbon price apply to any generation utilizing the EOPL provision.

Regulatory Analysis

No comment.

Implementation, compliance and enforcement, and service standards

ESC urges that the Clean Electricity Regulations be finalized and adopted as soon as possible to maximize certainty in clean electricity investment. Substantial consultation has and is being completed on the Clean Electricity Regulations. Ensuring that the Clean Electricity Regulations are adopted no later, and ideally earlier, than the schedule illustrated will be critical to ensuring investors have the certainty to build the infrastructure need to achieve net-zero electricity in Canada by 2035.

Moreover, ESC also recommends strong complementary measures be implemented to support the vision of the CER. It is well acknowledged that the CER alone will struggle to achieve electricity decarbonization and that a suite of policies to transition towards a net-zero electricity sector will be required. Supports for the development of new clean, firm, and flexible capacity, such as energy storage, will be critical to provide the necessary capacity, frequency stability, voltage support, etc.

As indicated above, carbon pricing is an essential part of the Canadian approach to electricity decarbonization and maintaining certainty in the price is critical to guide and enable investment.

Programs such the Clean Technology and Clean Electricity Investment Tax Credits and the Smart Renewables and Electrification Program have been and will be critical to achieving a reliable, affordable,

and clean grid. However, programs beyond the current ITCs and SREP will very likely be necessary to bring on the resources needed, such as long duration energy storage, to achieve the objectives of the CER.

ESC looks forward to continuing to engage and collaborate towards a net-zero electricity system, of which energy storage will play an essential role.