

Please accept these comments from the NGO *Saskatchewan Coalition for Sustainable Development* (“SCSD”) in relation to the proposed changes to the draft *Clean Electricity Regulations* (“CERs” or “Regulations”) released February 16, 2024, by Environment and Climate Change Canada (“ECCC”).

Background. The Regulatory Impact Analysis Statement (RIAS) pertaining to the proposed draft set of CERs acknowledged that some provinces will be impacted more than others by the CERs. Saskatchewan and Alberta have limited access to local hydro resources and currently fossil fuel generators provide substantial contributions to electricity generation in these provinces. Saskatchewan and Alberta will require the most aggressive transformative changes to their electricity grids in terms of capital costs, retirement of existing assets, interconnections with other regions, intra-provincial transmission and distribution, and net domestic imports (as summarized in Tables 26 and 27 of the RIAS).

A timely transition to a clean electricity supply in Alberta and Saskatchewan will be an essential component to achieve a Net Zero or Near Zero emissions national electricity grid by 2035. Throughout this transition, system operators must maintain grid reliability and avoid imposing an undue burden of cost on their customers.

The SCSD has focused our analysis on electricity supply sector transition pathways for Saskatchewan and Alberta. We are recommending that the finalized CERs are revised to accommodate the unique challenges of these provinces by providing flexibility while still achieving significant emissions reductions that deliver a national Net Zero or Near Zero emissions electricity grid by 2035.

Clean Electricity Sector Transition Pathways for Alberta and Saskatchewan. The Alberta Electricity Systems Operator, the Pembina Institute, the Canada Energy Regulator, and Navius Research Inc. have all published details of least-cost emissions reduction pathways for electricity generation in Saskatchewan and Alberta under scenarios of a year 2035 national near or net zero emissions clean electricity transition. Common to all this modelling work, is some degree of residual emissions from continued operation of unabated natural gas plants after Dec 31st, 2034. In these models, the overall contribution of unabated gas plants in Alberta and Saskatchewan to baseload electricity supply declines over time and the role of these generators shifts progressively toward balance and backup of renewables.

The approach taken by the SCSD is not to select a scenario from the published models of transition for electricity generation in Alberta and Saskatchewan. Rather, SCSD have evaluated all these models collectively for residual emissions and arrived at a year 2035 upper limit for pooled provincial emissions from electricity generation that is consistent with maintaining grid reliability while controlling costs without compromising the national ambition to transition to a near zero emissions electricity supply by 2035.

SCSD’s Primary Recommendation

A Sector-Wide Cap on Provincial Pooled Emissions for Electricity Generation in Alberta and Saskatchewan. In the Public Update: *What we heard* (released Feb 16, 2024), ECCC summarized changes being considered for the proposed CERs. Pooling of emissions from multiple generators with common ownership is under consideration. Further consideration is being given to allow individual units owned by different parties to participate in a common emissions pool.

The SCSD is recommending an option for Saskatchewan and Alberta whereby emissions from all generators (over a specified capacity) operating within provincial jurisdiction are pooled and that a sector-wide cap on provincial emissions is implemented as follows:

Proposed Provincial Caps on Emissions on GHG emissions from Electricity Generation					
	Alberta		Saskatchewan		Projected Pooled Emissions Intensity t CO ₂ e/GWh
Year	Emission cap (Mt/y CO ₂ eq)	Emissions Cut*	Emission cap (Mt/y CO ₂ eq)	Emissions Cut*	
2035	7.7	85%	2.1	85%	55
2040	5.1	90%	1.4	90%	35
2045	3.6	93%	1	93%	20
2050	0	100%	0	100%	0

*Relative to emissions on record for year 2005 provincial electricity generation.

As it is the provinces that have the constitutional authority to build and operate their electrical grids, the SCSD suggests that the CERs could allow provinces to subscribe to a pooled emissions cap without further conditions or regulations. This provides the flexibility to the provinces without the need for federal mandates as to End of Prescribed Life, maximum operating hours, peaker designations, minimum capacity thresholds, or cogeneration details. However, if any province declined to choose the pooled emissions cap, then the default provisions of the CERs would apply.

Rational. The proposed caps on provincial emissions for Saskatchewan and Alberta are based on the energy mix for electricity generation derived from least-cost models of net zero scenarios published by Canada’s foremost energy system analysts. Emissions projections consider continued operation of existing and under construction unabated natural gas generators. In Saskatchewan, by 2035, in the absence of offsets, operation of unabated gas plants would be reduced to about 18% of total installed unabated capacity. Potentially, offsets either purchased or provided by negative emissions generators would allow Saskatchewan’s unabated plants to run beyond 18% of capacity. Existing gas plants along with storage and interprovincial flows of electricity would provide the backup and balancing for renewables as required to maintain grid reliability and control costs.

Nationally, by 2035, limited operation of remaining unabated gas plants in Saskatchewan and Alberta would account for the bulk of residual electricity sector emissions. On a blended national basis, residual emissions from electricity generation would equate to about 8% of emissions on record for 2005 and thus could accurately be described as near zero. The objective of the declining provincial emissions cap would be to achieve absolute net zero by mid-century.

Electricity generation is under provincial jurisdiction. A simple cap on provincial emissions for Saskatchewan and Alberta without further regulations or conditions, avoids an overreach of federal regulations into areas of provincial jurisdiction. Saskatchewan and Alberta would retain control over the design and operation of their respective electricity generation sectors provided that the pooled emissions are below the cap. The cap should be designed to allow for limited continued operation of gas plants in Alberta and Saskatchewan (a reasonable phase down of unabated generation) without overly compromising the national ambition to transition to a clean electricity supply by 2035.

Potential Roles for Offsets and Clean Electricity Equity Transfers to Accelerate the Timeline to Zero Emissions. ECCC should consider carbon pricing policy in relation to the design of the CERs. Provinces will likely make strong arguments against carbon pricing applied to residual emissions below the proposed provincial sector-wide cap. As mentioned above, AB and SK already face significant costs to decarbonize their electricity generation, so pollution pricing exemptions for the residual emissions under the pooled emissions cap should be considered. However, SCSD suggests that provinces should be incentivized to exceed emissions reductions targets and accelerate the ambition to net-zero electricity.

A market-based system of equity flow based on exceeding emissions reduction targets can incentivise the implementation of higher ambition transition pathways. The SCSD is of the opinion that emissions-based financial incentives should be in place and announced as a compliment the CERs. Emissions-based incentives can be backed by Carbon Contracts for Differences (CCfDs) to provide certainty to industry, the provinces, and electricity systems operators to justify long-term investments in clean electricity. Market-based financial drivers could have a particular relevance for provinces operating under a sector-wide emissions cap on emissions.

Potentially, “transitional offsets” could be issued to the provinces for avoided emissions below the sector-wide cap. These offsets could be sold and applied to specified difficult to abate industrial sources of emissions. While the quality of such offsets can be challenged, it should be noted that the system would be transitory with diminishing issuance as the provincial cap on electricity sector emissions ratchets down to zero between 2035 to 2050. The role of “transitional offsets” would be to accelerate the transition of the critical electricity supply sector to a net zero outcome.

Alternatively, Clean Electricity Equity Transfers (CEETs) could be issued to provinces that achieve avoided emissions below the sector-wide cap rather than transitional offsets as described in the paragraph above. Conceivably, the payment structure could mirror carbon pricing applied to consumer use of fossil fuels. A \$170/tCO₂eq CEET could be paid to the provinces annually and based on the difference between the emissions cap and the inventory of residual emissions that is below the cap. The CEETs would incentivize provinces to exceed emissions reductions targets thereby motivating provinces to commit to achieving net-zero as soon as possible, rather than merely achieving their pooled emissions cap. The CEET could be backed up by a CCfD.

Ideally, CEETs would not be limited to a zero emissions outcome and would extend to net negative emissions. In Saskatchewan and Alberta there is considerable potential for converting existing coal-fired facilities to negative emissions BioEnergy with Carbon Capture and Storage (BECCS). As early as 2035, atmospheric withdrawal from BECCS generators could readily exceed residual emissions from gas power plants such that Saskatchewan and Alberta could transition to net negative emissions. CEETs as annual payments for total difference between the electricity supply provincial cap and net atmospheric withdrawal could incentivise implementation of BECCS in Saskatchewan and Alberta. Under this system, the federal government would have purchased the rights to high quality negative emissions offsets from Saskatchewan and Alberta. These offsets could be sold nationally or internationally.

Extending the Option for Sector-Wide Caps on Electricity Generation to Other Provinces. Conceivably, each province could be given the opportunity to opt into a provincial electricity generation sector-wide cap on emissions. However, the remaining provinces, with the possible exception of Nova Scotia and New Brunswick, have access to abundant hydro and can readily achieve a net zero or near zero emissions outcome by 2035. As such provincial caps on emissions from electricity supply may not be warranted

outside of Saskatchewan and Alberta. If provincial sector-wide caps on emissions are to be offered across Canada, careful consideration must be given to the magnitude of the cap assigned to each province. For hydro-rich provinces the cap would be zero or close to zero as of Jan 1st, 2035. This approach mirrors the “common but differentiated responsibilities and respective capabilities” principle that has been adopted by the United Nations Framework Convention on Climate Change. Canada leading by example domestically to acknowledge regional differences, but nevertheless demonstrating a sincere commitment to emissions reduction from our national electricity system would have an impact beyond our borders.

Recommendations on Additional Changes to the CERs.

The SCSD proposes that the prescriptive electricity generation regulations outlined by the CERs would not apply to provinces that decide to opt in to comply with a sector-wide provincial emissions cap. The CERs would only apply in the absence of a cap on provincial emissions. Below, the SCSD provides specific comments on the proposed changes to the CERs as outlined by ECCC in their paper of Feb 16, 2024.

- 1. Unit-specific annual emissions limit and adjusted underlying performance standards.** The SCSD proposes a clear delineation for performance standards applied to natural gas plants based on the operating capacity of the generator.
 - A clear definition of low load "peaker" plants should be established in consultation with experts in field. This could mirror the U.S. recommendations of the Environmental Protection Agency whereby low load turbines are defined as operating annually at less than 20% of designed capacity. This definition could be extended to a maximum size of generator. As an example, low load peaker plants could be defined as operating annually at less than 20% of a maximum designed capacity of 50 MW.
 - The performance standard(s) of larger intermediate or base-load gas plants operating at over 20% of capacity factor should be based on consultation with experts in the projected efficiency of carbon capture and storage (CCS) applied to natural gas generators. The SCSD agrees that an overly stringent standard will dissuade investment in CCS and may work against implementation of a low emissions technology. As an alternative to CCS, the standard could be met by fuel blending or switching to low emissions hydrogen.
 - The SCSD suggests that the proposed performance standard for new base-load units should not be raised above 40 Tonnes CO₂eq/GWh. Allowing new units to exceed the performance standard in the first 5-7 years is also worthwhile to allow fine tuning during commissioning of nascent CCS technology. ECCC should consider tightening the performance standard back to 30 Tonnes CO₂eq/GWh for new units commissioned after 2035.
 - A separate performance standard should be developed for new build low capacity unabated peaker plants. There may be a role for limited operation of new build unabated peaker plants after 2035. However, this separate standard must be designed carefully to avoid a situation that favours a build out of emissions-intensive unabated natural gas combustion generators over lower emissions options to balance loads and backup renewables. Conceivably, a stringent emissions standard could be assigned to the operation of peaker plants after Dec 31st, 2034, beyond which carbon pricing would be applied to excess emissions. As such, emissions intensive peaker plants would be allowed to operate but a portion of the total emissions would be subject to carbon pricing. The peaker emissions

standard could become more stringent with time (to achieve net zero by 2050) but structured to keep electricity affordable for customers while incentivizing the transition to fuel blending with low emissions hydrogen or the implementation of alternate zero and low emissions options for grid balancing.

2. **Peaker provisions.** The SCSD agrees with removal of the proposed 450-hour annual limit for the operation of peaker plants. Removal of this limitation provides additional flexibility in the use of peaker plants to balance and backup renewables.
3. **EoPL for existing units.** The SCSD contends that careful consideration should be given to extending the prescribed end-of-life for existing natural gas plants. Continued operation of inefficient natural gas plants with higher emissions intensities beyond January 1st, 2035, or 20 years from commissioning, is not warranted. ECCC could consider extending the prescribed end of life for higher efficiency peaker and base-load gas plants to 25 years from commissioning provided that emissions from these plants does not exceed a specified intensity per GWh.
4. **Date for new versus existing units.** The SCSD contends that the date for “new” units should not be extended beyond December 31, 2025.
 - In Saskatchewan, projects to expand the Yellowhead Power Station and the Ermine Power Station are well underway. Construction had begun on both projects prior to publication of the draft of the proposed Clean Electricity Regulations in the Canada Gazette on August 19, 2023. These projects would add a 46 MW turbine to the existing capacity at each station and are projected to be on-line in May and December of 2025. These peaker plants will contribute to backing up renewables. These projects warrant consideration for a special extension of the commissioning date beyond December 31st, 2024, to be considered as “new” facilities under the CERs.
 - Recently, Saskatchewan announced approval and go-ahead to build a new, unabated 370 MW natural gas combined cycle power station (Aspen Power Station). Construction is expected to begin in 2024 with commissioning in 2027. This power station was approved *after* ECCC published the draft of the Clean Electricity Regulations in the Canada Gazette on August 19, 2023, and does not warrant an extension of the Dec 31st, 2024, commissioning date for consideration as a “new” facility.
 - The SCSD contends that projects with substantial construction underway prior to January 1, 2024, and with a commissioning date prior to December 31st, 2025, could be considered as “existing” generators. All other plants commissioned after December 31st, 2024, should be deemed as “new” plants within the scope of the CERs.
5. **Cogeneration Units.** The SCSD is of the opinion that electricity exported to the grid from new co-generation units should be subject to the same regulations as other contributors to the grid. There may be some need for special consideration of “behind the fence electricity” from co-generation units. However, SCSD is of the opinion that any “carve out” for behind the fence electricity supply must be given careful consideration as to the impact on provincial and national emissions.