



2018 Review of the Emissions Management Framework for the Alberta Electricity Sector

BACKGROUND

- In 2003, CASA published *An Emissions Management Framework for the Alberta Electricity Sector*. The Government of Alberta accepted the framework and its 71 recommendations for managing emissions from electricity generation.
- CASA members and stakeholders review the framework every five years to ensure continuous improvement and to keep the framework relevant. CASA completed the third five-year review in April 2021.
- The third five-year review resulted in one non-consensus recommendation and nine consensus recommendations, which CASA provided to Alberta Environment and Parks as advice to support their decision making.
- Nitrogen oxide (NO_x) emissions are a priority air management issue for the electricity sector in Alberta. While NO_x does occur naturally in the environment, the electricity sector contributes approximately 8% of NO_x emissions in Alberta.
- Summary of the recommendations:
 - a. NO_x Emissions Standards for Gas-Fired Electricity Generation Units
 - i. Context: This task was to review Best Available Technology Economically Achievable (BATEA) and then update the NO_x air emission standards for new gas-fired generation units.
 - ii. Recommendation: The project team did not reach consensus on an updated NO_x air emission standard, and stakeholders submitted perspectives documents as advice to Alberta Environment and Parks.
 - b. NO_x Emissions Standards for Reciprocating Engines
 - i. Context: NO_x emissions standards currently in use are primarily based on gas-fired turbines. There is a difference between the NO_x emission intensity of gas-fired turbines and gas-fired reciprocating engines, and multiple reciprocating engine units are sometimes banked together.

- ii. Recommendation: The 2023 Five-Year Review Project Team should review this issue and if there is a need, the 2023 Team should determine BATEA-based NO_x emission standards for gas-fired reciprocating engines used for electricity generation.
- c. NO_x Emissions Standards for Biogas-Fired Engines
 - i. Context: Biogas has variable fuel composition and uses conventional burner systems; it can have a high NO_x emission intensity. Applications for biogas-fired engines are currently dealt with on a case-by-case basis.
 - ii. Recommendation: The 2023 Five-Year Review Project Team should review this issue and if there is a need to develop NO_x emissions standards, the 2023 Team should determine BATEA-based emissions standards for biogas-fired engines.
- d. Assessment of the Emissions Trading System
 - i. Context: An assessment of the implementation of the Emissions Trading System was a key task from the project charter, and industry members expressed concerns and requested clarity on the treatment of coal-to-gas conversions.
 - ii. Recommendation: The Government of Alberta should provide a consultation opportunity to provide input on the Emissions Trading Regulation through the regulatory review process in 2021.
- e. Emissions Standards for Biomass-Fired Units
 - i. Context: Depending on the biomass fuel being used, these units are considered an environmentally proactive initiative and are carbon neutral. However, the emission profile of these units is unknown.
 - ii. Recommendation: The 2023 Five-Year Review Project Team should review this issue and if there is a need to develop emissions standards, the 2023 Team should determine BATEA-based emissions standards for biomass-fired units.
- f. Federal Stationary Diesel Engine Regulations
 - i. Context: Environment and Climate Change Canada sets new emissions standards for stationary diesel engines. These standards reflect current US EPA emission standards and are considered BATEA.
 - ii. Recommendation: There is no further need to set specific emissions standards for Alberta for off-road compression ignition engines used in electricity generation.
- g. Primary Particulate Matter (PM) Management System
 - i. Context: Mercury management methods recommended for coal-fired electricity generation did not have the expected co-benefit of PM capture. The need for a primary PM management system for coal-fired units needed to be assessed.
 - ii. Recommendation: Based on off-coal milestones occurring in 2023 or earlier for all coal-fired electricity generation units, there is no need to develop a primary PM management system because primary PM emissions are expected to be substantially reduced by 2023.
- h. Information Gathering
 - i. Context: Literature reviews on substances emitted through electricity generation, their health and environmental impacts, and pollution-abatement technology advances are standard components of five-year reviews.
 - ii. Recommendation: To assist in meeting the goal of completing the five-year reviews within one year, the working group for the next five-year review should identify information needs and scope of work for any contracts required so they

can be initiated and completed before the creation of the 2023 Electricity Framework Review (EFR) Project Team.

- i. Future Five-Year Reviews
 - i. Context: Many of the tasks undertaken during the five-year reviews were identified in the 2003 Framework. The electricity sector has changed since then, and the scope of the five-year reviews should also change to ensure they remain relevant and are meeting stakeholder needs.
 - ii. Recommendation: A working group drawn from previous stakeholders who have participated in EFRs should be struck to undertake a holistic review of the tasks traditionally included in the project charter for five-year reviews. This review should include an assessment of the recommendations for five-year reviews from the 2003 Framework, exclusion of non-relevant tasks, and inclusion of new tasks deemed relevant to the electricity sector in its current form.
- In addition to the tasks that resulted in recommendations from the project team, the team received a report on the electricity sector in Alberta and how it has changed following the last five-year review. They also reviewed information on any improvements to emissions reduction technology made since the previous review.
 - CASA will begin the fourth five-year review in 2023 and will work to implement the recommendations made in the third five-year review.

Copies of the documents will be posted online in the coming weeks. Additional information on the Clean Air Strategic Alliance and the 2018 Electricity Framework Review Project Team can be found at <https://www.casahome.org/current-initiatives/electricity-framework-review-55/>.

The Clean Air Strategic Alliance is a partnership that provides leadership, expertise, and sector knowledge and perspectives to help governments, Indigenous Peoples, industry, and non-government organizations to support air quality management in Alberta and improve air quality for Albertans using a collaborative consensus process.

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