

## 2013 Electricity Framework Review Project Team Recommendations

Below is a summary of the 13 consensus recommendations approved by the CASA Board this past spring.

It is important to note that since the team did not reach a consensus on the need to review and/or adjust the Alberta Framework, the matter was referred to the Government of Alberta to provide guidance advice, as appropriate. A final decision from the Government of Alberta on a full review of the Framework is still pending and that decision may require a review of any foregoing provisional agreements.

1	Emissions Standards for Conventional Coal-Fired Generation	The standards and credit limits in the Report on the First Five-Year Review of the Emissions Management Framework for the Alberta Electricity Sector, May 13, 2010 should be carried over for conventional coal.
2	Emissions Standards for Unconventional Coal-Fired Generation	The standards and credit limits for unconventional coal should be approved on a case-by-case review by the regulator.
3	Emissions Standards for Gas-Fired Generation (Non-Consensus)	Although the CTRS Task Group had extensive discussions on developing an emissions standard for gas-fired generation, they were unable to reach agreement on a standard. The group's final report included information on its six consensus recommendations, as well as details on the diversity of perspectives with regards to the non-consensus on emissions standards for gas-fired generation. The intent of the group's final report is to provide input to the Government of Alberta for development of new emission limits for gas-fired units.
4	Emissions Standards for Biomass-Fired Generation	The 2018 Five-Year Review Project Team should review the need to include biomass sources of electricity generation in the Alberta Electricity Framework.
5	Emissions Standards for New Diesel-Fired Reciprocating Engines (regular use units)	The following standards should apply to new diesel-fired reciprocating engines in regular use units that are approved on January 1, 2016 or later: > 1200 HP (0.89 MW) (<30 L displacement per cylinder): 0.50 g/bhp-hr (approximately 0.67 g/kWh) > 699 kW (805 HP) (≥30 L displacement per cylinder): 1.8 g/kWh (approximately 1.34 g/bhp-hr) These standards are expressed in a similar format to the US EPA Tier 4 Compression Ignition New Source Performance Standards, which include diesel-powered generator sets, and is based on selective catalytic reduction (SCR).
6	Emissions Standards for New Diesel-Fired Reciprocating Engines (stand-by units)	The following standard should apply to new diesel-fired reciprocating engines in stand-by units that are approved on January 1, 2016 or later: > 750 HP (0.560 MW) 4.8 g (NMHC+NOx)/bhp-hr (approximately 6.4 g (NOx+NMHC)/kWh) This standard is expressed in a similar format to the US EPA Tier 2 Compression Ignition New Source Performance Standards for generator sets, and is based on combustion controls (that is, no SCR).
7	Emissions Standards for New Natural Gas-Fired Reciprocating Engines	The following standard should apply to new natural gas-fired reciprocating engines, approved on January 1, 2016 or later: > 75 kW (500 hp is US size range): 2.7 g/kWh (based on 2.01 g/bhp-hr) This standard is based on the BLIERS for NOx for natural gas-fired reciprocating spark ignition engines, which are based on the US EPA requirements for these types of engines.
8	Evaluation of Category 2 Substances	The multi-stakeholder group undertaking the 2018 Electricity Framework Review should ensure that each substance listed in Category 2 (i.e. Management actions need to be considered) of the Air Emissions Substance Review are evaluated, taking into account: <ul style="list-style-type: none"> <li>the state of the science on the substance,</li> <li>substance reduction potential including management and cost</li> <li>co-benefits to be managed</li> <li>requirements for monitoring.</li> </ul>
9	Substances for Ongoing Surveillance	The multi-stakeholder group undertaking the health and ecological assessment for the next five-year review should explicitly include substances listed in Category 3 (i.e. on-going surveillance is recommended) in the search terms for the health and ecological literature reviews.
10	Future Substance Reviews	A multi-stakeholder Health and Environmental Assessment Task (HEAT) Group should be convened as soon as possible after the 2018 Electricity Framework Review Project Team is established, and provided with the terms of reference from the 2013 HEAT Group, to adjust as the new Group deems necessary.
11	Implementation of the Emissions Trading System	Implementation of the Emissions Trading System should be assessed as part of the 2018 five-year review of the Alberta Electricity Emissions Management Framework.
12	GoA Decision on Previous Recommendations	The CASA Board should request an update on the status of the GoA decision process related to recommendations 6, 7 and 9, as found in the 2010 report from the first five-year review.
13	Public Consultation	The 2018 Five-Year Review Project Team should consider the role of public consultation and develop a plan at the beginning of its process.

## GENERATING FUTURE DISCUSSIONS

With the second Five-Year Review process now complete, there is much to consider. New targets and recommendations for the next review have been set and areas requiring further discussion have been identified.

We know that global issues such as climate change and increasing energy

demand will continue to shape electricity policy, legislation, industry practices and community perceptions.  
Provincial and Federal policy and regulation as well as local and regional air quality issues will also play a key role in our future direction on electricity related air emissions management.

As the electricity landscape continues its evolution, CASA's collaborative multi-stakeholder process will continue to contribute to ensuring that air emissions from the province's electricity sector are responsibly managed and are not adversely affecting the health of Albertans or the environment.



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ELECTRICITY  
FRAMEWORK REVIEW

## MESSAGE FROM THE BOARD

For more than two decades, the Clean Air Strategic Alliance (CASA) has been striving to protect and improve air quality for Albertans.

Through CASA, industry, government and non-government representatives have worked collaboratively on a host of initiatives, and have demonstrated a collective commitment to ensuring the air we all breathe has no adverse odour, taste or visual impact and no measurable adverse effects on people, animals or the environment.

CASA is proud to be a catalyst for positive change across the province. In addition to bringing together multiple stakeholders to discuss and provide advice on addressing a range of air issues, we are responsible for evaluating the performance of the Emissions Management Framework for the Alberta Electricity Sector every five years.

One of the great strengths of our alliance is that we are a multi-stakeholder partnership with differing views, backgrounds and expertise. This diversity was exemplified in the Electricity Framework Review Team, which was convened two years ago and tasked with examining the Framework and how it measures up against today's context.

During this second Five-Year Review, the team improved on the previous 5-year process and continued to use consensus decision-making to ensure that results were representative of the larger community.

After much time and effort by many, we are pleased to share information about this significant undertaking as well as key recommendations and items that require further discussion in the future.

## MESSAGE FROM THE CO-CHAIRS

Our diverse Review Team appreciates the role of stable, predictable and affordable electricity. We also recognize the importance of preventing and minimizing air emissions in order to protect air quality.

This publication marks the end of an intense two-year journey that started in 2013, when over 30 representatives from industry, government and the community came together to perform the province's second Five-Year Review of the Electricity Framework.

Equipped with a diverse set of skills, experience and perspectives, the group carefully considered new technical and scientific information; past, existing and projected air emission data; relevant information on the possible health and environmental effects of electricity emissions; previous recommendations and current practices; as well as the evolving provincial and national electricity landscape.

Over the last two years, we have examined leading-edge emission control technologies, revisited existing emission limits, gauged whether new substances require controls and put the Framework itself under the microscope.

As a group, we were selected to operate for the collective good. Our differing backgrounds and goals ensured robust discussion and debate across issues and it is fair to say that the collaborative process has been both fruitful and frustrating at times.

A mandate to seek consensus has encouraged us to delve deeply into various topics. While we didn't always emerge with a clear solution or achieve consensus on all issues, we gained a greater understanding of differing viewpoints, identified issues requiring further attention and confirmed shortcomings of our approach.

It has been a great privilege to lead this important multi-stakeholder process, to deliver a new round of consensus recommendations and to bring forward details on non-consensus issues for the CASA Board's consideration.

**Randy M. Dobko, P.Eng.**  
Alberta Environment and Parks  
Government Co-Chair

**Thomas Marr-Laing,**  
Pembina Institute  
ENGO Co-Chair

**Jim Hackett,**  
ATCO Power Canada Ltd.  
Industry Co-Chair

## THE FRAMEWORK



Developed in 2002/2003 and comprising 71 consensus recommendations, the Emissions Management Framework for the Alberta Electricity Sector is a mix of management strategies that are intended to increase long-term regulatory certainty for all parties, to provide flexibility in reducing emissions and to encourage continuous improvement of the overall management system. Also included in the Framework is a Five-Year Review recommendation to ensure a formal process to review elements of the Framework.



2002

CASA is tasked with developing a new way to manage air emissions from Alberta's electricity sector.

2003

CASA publishes the *Emissions Management Framework for the Alberta Electricity Sector*.

2004/2005

The Framework is implemented as regulations and standards by the Government of Alberta.

2006

Emissions standards for new units for SO<sub>2</sub> and NO<sub>2</sub> are implemented.

2008/2010

CASA undertakes the first Five-Year Review of the Framework. The final report and recommendations are presented to the CASA Board in 2010. This includes updated emissions standards for new coal-fired units for Particulate Matter (PM), Nitrogen Oxides (NO<sub>x</sub>) and Sulphur Dioxide (SO<sub>2</sub>).

2013/2015

CASA undertakes the second Five-Year Review of the Framework. The final report and recommendations are presented to the CASA Board in 2015.

## REVIEW, RENEW OR RECYCLE?

While the **Project Charter** outlined the scope and direction for project team members, it also provided three core areas of focus for the Initial Assessment phase – a process used to assist the team to determine if a review of the structure of the Framework itself was warranted. A structural review would involve a renewal of the Framework to reflect current circumstances, as appropriate.

Working together, the team undertook the following key tasks as part of the initial assessment:

- 1. GHG Regulations:** Identifying potential implications and emissions management issues for the Framework created by the implementation of federal GHG Regulations.
- 2. Emissions Growth Review Trigger (Recommendation 34):** Updating the emissions forecast and determining if the emissions are 15% higher for a five-year period than projected in the previous five-year review.
- 3. Economic Review Trigger (Recommendation 35):** Determining if the economic assumptions underlying the Framework are significantly different, so as to adversely affect the viability of the electricity sector.

## UP IN THE AIR

Despite their best efforts, the group was unable to reach consensus on the need to review or adjust the Framework, given divergent views of members as to what is required to allow changes to this consensus document.

The key issues and differing perspectives were described in detail in the **June 2014 Interim Report**. As is the CASA protocol, when consensus is not reached, the CASA Board asked the Government of Alberta to weigh in on the matter and to describe the path forward as appropriate.

In August 2014, CASA was notified that the department of Environment and Parks was working on a cross-ministry plan with the departments of Energy and Health that would review the interim report and determine the next steps for the Framework. We will continue to keep stakeholders posted on this process as information becomes available.

## TASK ORIENTED ACTION

To ensure a comprehensive review, specialized teams were assembled to focus on specific assessment components including the extent to which previous recommendations in the 2003 Framework and the first five-year review have been implemented. Group recommendations were then provided to the broader team and submitted to the CASA Board for approval.

### The Base Case Working Group

Developed a base case for the emissions profile expected under the Framework, updated the emission forecast undertaken in 2009 and reviewed the key underlying assumptions of previous forecasts.

### The Control Technologies and Reduction Strategies Task Group

Looked at current and emerging emission control technologies and reduction strategies, and reviewed emissions standards for new units.

### The Health and Environmental Assessment Task Group

Conducted literature reviews and a chemical screening to identify all emissions produced by electricity generation and then assessed these emissions and developed recommendations for further action.

### The Particulate Matter Management Task Group

Discussed the need to develop a PM Management System.

## BRIGHT IDEA

In a slight variation from previous review processes, our second Five-Year Review was underpinned by a Project Charter instead of Terms of Reference. The new document, which provides more clarity and structure for all stakeholders, was collaboratively developed by a working group and approved by the CASA Board in March 2013.

## SPOTLIGHT: HEAT GROUP SPARKS SYSTEMIC SOLUTIONS

Our 2013 Health and Ecological Assessment Task (HEAT) Group made significant progress. The team developed a more structured way of assessing new substances and health impacts.

After reviewing the work of earlier groups, the 2013 HEAT Group adopted a three-pronged approach.

### 1. HEALTH & ECOLOGICAL ASSESSMENT

**Purpose:** to review recent literature on the health and ecological effects of air emissions from electricity generation.

### 2. CHEMICAL SCREENING

**Purpose:** to identify all air emissions produced by electricity generation, and associated emission rates, toxicity, bioaccumulation, and persistence.

### 3. AIR EMISSIONS SUBSTANCE REVIEW

**Purpose:** to assess air emissions produced by electricity generation based on foregoing work, and create recommendations for further action.

