



**FIVE YEAR REVIEW OF ALBERTA'S  
ELECTRICITY FRAMEWORK**  
Interim Report, June 2014

Prepared by the 2013 Electricity Framework Review Team for the  
CASA Board of Directors

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## 1. Decision Requested

The EFR team did not reach a consensus on the need to review and/or adjust the Alberta Framework given fundamentally divergent views regarding what is required to allow changes to be made to the Framework.

Some parties believe that the five-year review team must demonstrate and agree that either the emissions growth trigger or economic review trigger have been exceeded to proceed with a structural review of the Framework, otherwise the team is not empowered to vary the terms of the current Framework. These stakeholders also believe that the federal GHG Regulations have no substantive implications to the Alberta Framework.

Some parties believe that both the 2013 Project Charter and the Alberta Framework itself allow stakeholders to open the Framework for review. These stakeholders believe that the economic review trigger and emissions growth trigger are not the only factors that should be considered when determining whether a review and/or adjustment of the Framework is necessary. Through an open “interest-based” discussion, the team could agree that a review and/or adjustment of the Framework is warranted based on any number of elements and/or changing circumstances. This agreement would empower the team to make recommendations to the CASA Board as appropriate.

Some parties believe that while the economic trigger has likely not been exceeded, an independent assessment of the economic review trigger would add clarity to the issue of whether the sector is still viable with current and forthcoming environmental regulations facing the sector. This clarity could help settle the non-consensus items and assist in determining the way forward.

Finally, some parties believe that while the emission and economic triggers have likely not been exceeded, they would be prepared to participate in a review and a possible update of the Alberta Framework. These parties also believe that for such a review to proceed, all stakeholders would have to agree by consensus. This agreement could not be reached by the EFR project team.

**As such, the Government of Alberta should consider if adjustments to the Framework are warranted, the nature of those adjustments, and a description of the path forward as appropriate.** This should be accompanied by an associated description of the considerations that were applied in reaching the decision.

The EFR team has prepared this interim report to clearly document key issues and identify points where the team agrees to disagree. A more detailed account of the various perspectives is appended in the individual submissions from potentially impacted parties (see Appendix C).

## 2. Background

In January 2002, Hon. Lorne Taylor, Alberta’s Minister of the Environment, asked the Clean Air Strategic Alliance (CASA) to develop a new way to manage air emissions from the electricity sector. The Electricity Project Team developed *An Emissions Management Framework for the Alberta Electricity Sector* (the Alberta Framework). The Alberta Framework was developed through a collaborative, multi-stakeholder process that included the active participation of government, non-government organizations, locally-affected interest groups, and the Alberta electricity sector. The Alberta Framework is a set of 71 consensus recommendations, negotiated by the team and agreed to as a package. These recommendations were adopted by consensus of the CASA Board of Directors in 2003 and subsequently

implemented as regulations in 2004/2005 by the Government of Alberta (see Appendix B) The Alberta Framework represents a creative mix of management strategies that increase long term regulatory certainty for all parties, provide flexibility in reducing emissions and encourage continuous improvement of the overall management system.

To ensure continuous improvement and to keep the Alberta Framework timely and relevant, the Framework recommends a defined multi-stakeholder process to evaluate the performance of the Framework at five-year intervals (see Recommendation 29). The intent of the five-year review is to assess new emission control technologies, update emission limits for new generation units, determine if emission limits for new substances need to be developed, review implementation progress and determine if the Alberta Framework is achieving its emission management objectives. Each Five-Year Review should be a publicly credible, transparent, participatory process that involves stakeholders from all sectors, including the public. If core assumptions are proven wrong, the Framework will be revised.

The first Five-Year Review started in 2008 and the Electricity Framework Review (EFR) Team submitted its report and recommendations to the CASA Board in June 2009. The report contained ten consensus recommendations and one non-consensus item. The consensus items included revisions to the Particulate Matter (PM), Nitrogen Oxides (NO<sub>x</sub>) and Sulphur Dioxide (SO<sub>2</sub>) emission standards for new coal-fired units based on improvements in emission control technologies, effective January 1, 2011. The non-consensus item pertained to NO<sub>x</sub> emission standards for new gas-fired generation for both peaking and non-peaking units. A final report, including the interests and rationale with respect to the non-consensus recommendation, was forwarded to the Government of Alberta in May 2010 for decision.

A sub-group of the EFR team continued to meet to develop a Particulate Matter (PM) System for existing units, as per Recommendation 22 of the Framework. However, in March 2011, the Board put the sub-group into abeyance until the final details of the pending *Reduction of Carbon Dioxide Emissions from Coal-Fired Generation of Electricity Regulations* (GHG Regulations) were available.

During this time, the CASA Board also discussed the potential misalignments between the Alberta Framework, Environment Canada's proposed Base Level Industrial Emissions Requirements (BLIERs) for existing coal-fired electricity generation units, and the proposed federal GHG Regulations. The Board emphasized the need for CASA to respond to these issues in a strategic manner and struck a Working Group to develop a report on the potential misalignments. In December 2011, the working group presented their final report to the Board and, upon the Board's approval, the Government of Alberta committed to presenting the report at the Canadian Council of Ministers of the Environment Champion's table.

On September 12, 2012, the federal GHG Regulations were published in the Canada Gazette, Part II: Official Regulations. As such, the working group updated their report in October 2012 and resubmitted it to the CASA Board and the Government of Alberta.

In March 2013, the Board reviewed a Project Charter for the second Five-Year Review of the Framework that included all the information relevant to the project's parameters and outcomes. The Board approved the Project Charter and established the 2013 Electricity Framework Review (EFR) project team with the following project goal:

To ensure the *Emissions Management Framework for Alberta's Electricity Sector* (the Framework) reflects current circumstances, the project team will conduct a Five-Year Review, as

outlined in Recommendation 29 of the Framework. The team will also consider whether a review of the structure of the Framework itself is warranted and develop recommendations as appropriate.

The Project Charter described an initial assessment to assist the team in determining if a review of the structure of the Framework itself is warranted. The initial assessment included three tasks:

1. GHG Regulations: Identify potential implications and emissions management issues for the Alberta Framework created by the implementation of federal GHG Regulations.
2. Emissions Growth Review Trigger (Recommendation 34): Update the emissions forecast and determine 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): Determine if the economic assumptions underlying the Framework are significantly different, so as to adversely affect the viability of the electricity sector.

The project team proceeded with their work based on the following assumptions:

- The GHG Regulations will be implemented, as published in Canada Gazette, Part II: Official Regulations and any inconsistencies with the Alberta Framework will need to be identified, considered, and addressed; and
- Environment Canada's proposed BLIERs for existing coal-fired units will not be implemented in Alberta and need not be considered at this time.

### 3. Current Status

#### 3.1. GHG Regulations

Stakeholders have strongly differing views on the potential implications of the implementation of the GHG Regulations. Some stakeholders believe the implementation of the GHG Regulations has implications for the Alberta Framework that need to be addressed. Others believe the GHG Regulations have no impact on the Alberta Framework.

#### 3.2. Emissions Growth Trigger (Recommendation 34)

Work is still underway on Recommendation 34 to update the emissions forecast and determine if the emissions are 15% higher for a five-year period than projected in the previous Five-Year Review.

#### 3.3. Economic Review Trigger (Recommendation 35)

Stakeholders have strongly differing views on whether the economic assumptions underlying the Framework are significantly different so as to adversely affect the viability of the electricity sector. There is also disagreement on how to interpret the guidance given in Recommendation 35. After discussions about the economic trigger (Recommendation 35), stakeholders raised concerns about a potential impasse if the team continued to discuss whether the economic trigger had been exceeded. The economic trigger has emerged as an issue where strongly divergent views exist.

#### 3.4. Approach Taken

Rather than pursue a discussion that would potentially end in an impasse, there was agreement to shift the team's focus to the potential implications and emissions management issues for the Alberta Framework created by the implementation of GHG Regulations. In November 2013 and January 2014,

the team held meetings that focussed on open “interest-based” discussions, looking for potential win-win solutions to address the implementation of the federal GHG Regulations together with the Alberta Framework, with the following caveats:

- Any discussion of alternative concepts was on a “without prejudice” basis. I.e. Team members would not be viewed as having committed to a particular solution being discussed prior to reaching agreement on a complete package of recommendations.
- Participating in these discussions was not an indication of agreement that the Alberta Framework should be subject to a structural review and/or adapted.

The outcome of these meetings was a range of ideas and concepts proposed by various stakeholders that received limited review and consideration by the team. On a “without prejudice” basis, the team discussed each concept to develop a common understanding of the general nature and key elements of the concept. Detailed discussion on these concepts was subsequently curtailed as the team acknowledged that they had not reached consensus to proceed with a review and/or adjustments to the Framework. These concepts are presented in Section 5 in no particular order and with no specific endorsements from the EFR team.

### 3.5. On-Going Tasks of the 2013 Five-Year Review

Although the EFR team has been unable to make progress on the above elements of the Five-Year Review, there are some discrete tasks that are in progress as per Recommendation 29, as follows:

- A consultant is preparing a review of emission control technologies for gas-fired electricity generation. This report and other relevant information will be used to identify the Best Available Technology Economically Achievable (BATEA) emission limit standards and corresponding deemed credit thresholds for new thermal generation units.
- A consultant is developing an updated emissions and generation forecast. This report will be used to evaluate the emissions growth trigger.
- Literature reviews have been prepared to assist with a review of new information that illustrates potential health and ecological effects associated with emissions from the electricity sector.
- The literature reviews and other relevant information will be used to review the air emissions substances subject to formal limits, including possible new substances.

The following tasks have not been initiated by the 2013 EFR Team:

- The development of a PM Management System for existing units (there is some work from the 2008 EFR team).
- An assessment of the implementation of the Emissions Trading System.
- A review of the implementation of the recommendations.
- The development and implementation of a strategy for communicating and engaging with stakeholders and the public.

In their Project Charter, the team has noted specific areas where federal and provincial air quality management initiatives should be considered.

## 4. Areas of Disagreement

Given that interested parties had reached an impasse on some key issues, the EFR team agreed to employ a broader collaborative approach to clearly document key issues, highlight areas of common

ground, and identify points where the team agreed to disagree. A more detailed account of the various perspectives is appended in the individual submissions from potentially impacted parties.

The key points of departure are:

- There is no agreement on whether there are implications and emissions management issues for the Alberta Framework created by the implementation of the federal GHG Regulations. In addition, there is no agreement on how to assess the implications of the implementation of the GHG Regulations.
- There is no agreement on the interpretation of the Economic Review Trigger and whether the assessment of the trigger and the viability of the Alberta electricity sector should consider the macro-level (electricity sector as a whole) or micro-level (plant and company).
- There is no agreement on the factors that should be considered when determining if adjustments to the Framework are warranted. Specifically, there is no agreement on whether the Economic Review Trigger and the Emissions Growth Trigger should be the only factors that can create the need for a review.

#### 4.1. Implications of the GHG Regulations

The Alberta Framework requires a unit reaching the end of its design life – the later of the expiry of the Power Purchase Agreement (PPA) term or its 40 year anniversary – to shutdown or meet the ‘standard of the day’ for NO<sub>x</sub>, SO<sub>2</sub>, Particulate Matter and Mercury. The implementation of the federal GHG Regulations will require existing coal-fired units to physically meet a ‘clean as gas’ standard for GHG emissions when a unit reaches its 50-year anniversary (or earlier for some units).

Stakeholders have strongly differing views on the potential implications of the implementation of the federal GHG Regulations. The key points of departure are outlined below.

Some stakeholders believe that a review of the Alberta Framework would show that some adjustments are necessary. To comply with the Alberta Framework, a unit reaching 40 years of life or PPA expiry, whichever is later, would be required to use NO<sub>x</sub> or SO<sub>2</sub> credits generated in the Emissions Trading System or make physical improvements. Since there is currently no economically-viable technology to achieve the clean as gas standard and offsets and trading are not options for compliance with the GHG Regulations, it is believed that at 50 years, these units would shutdown to comply with the GHG Regulations. Therefore, the Alberta Framework does not recognize the significant air emissions reductions the federal requirement delivers by truncating the life of coal units. As such, the End of Design Life retrofit required to comply with the Alberta Framework is uneconomic (emissions control retrofit life is also truncated) and unnecessary (similar emissions reductions could be achieved more efficiently).

Other stakeholders feel that the implementation of the GHG Regulations, when assessed in conjunction with the Alberta Framework, have no material impact on the viability of the Alberta electricity sector. Therefore, the team is not empowered to vary the terms of the existing Framework. These stakeholders believe that the purpose of considering the GHG Regulations in the Project Charter was only to highlight the issue as an additional consideration in the team’s overall assessment, and not to trigger a review of the Framework. In addition, it is felt that there are sufficient opportunities within the current system for facilities to take actions now that would generate the NO<sub>x</sub> and/or SO<sub>2</sub> credits necessary to allow units to run to 50 years.

There are some stakeholders that agree that the implementation of the GHG Regulations, when assessed in conjunction with the Alberta Framework, have no material impact on the viability of the Alberta electricity sector. However, these stakeholders support an independent assessment of the implications of the implementation of the GHG Regulations. These stakeholders believe that, based on the results of the independent assessment, the EFR team could determine a suitable path forward.

#### 4.2. Economic Review Trigger (Recommendation 35)

The Economic Review Trigger also emerged as an issue where strongly divergent views exist. Stakeholders have a range of underlying economic concerns, from respecting Alberta's electricity market structure to considerations of market stability to protecting commercial interests and maintaining a level playing field.

One issue is that the Alberta Framework does not provide specific criteria on what "the viability of the electricity sector" means, for the purpose of determining if the economic review trigger has been exceeded. On this issue, the key points of departure are:

- Some members believe that the trigger was intended to evaluate changes at a macro-level (wholesale market sector), and that potential economic impacts on an individual generator basis are already included in the consideration of the broader market and its efficiency.
- Other members believe that plant or company-level economic considerations and economic efficiency should be taken into account when evaluating the economic impact.

To supplement their discussion, the EFR team reviewed the following reports that provided third-party perspectives on Alberta's wholesale electricity market:

1. The Brattle Group. (2011). *Evaluation of Market Fundamentals and Challenges to Long-Term System Adequacy in Alberta's Electricity Market*. Prepared for the Alberta Electricity System Operator.
2. The Brattle Group. (2013). *Evaluation of Market Fundamentals and Challenges to Long-Term System Adequacy in Alberta's Electricity Market*. Prepared for the Alberta Electricity System Operator.
3. Market Surveillance Administrator. (2012). *State of the Market Report 2012: An Assessment of Structure, Conduct, and Performance of Alberta's Wholesale Electricity Market*.
4. EDC Associates. (2013). *Trends in GHG Emissions in the Alberta Electricity Market: Impact of fuel switching to natural gas*. Prepared for the Independent Power Producers Society of Alberta.

Each report takes a slightly different approach to evaluating Alberta's electricity market. The Brattle Group reports (2011, 2013) review resource adequacy; the Market Surveillance Administrator (MSA) report (2012) looks at competitive behaviour and the sustainability of the market; the EDC Associates report (2013) provides projections of potential GHG emissions under different scenarios for Alberta's generation fuel-mix portfolios.

Some members felt that the reports offered conclusions relevant to the team's work and that the reports prepared or commissioned by the AESO and the MSA, must be given consideration, given the legislative mandates and responsibilities of the AESO and MSA in respect of the electricity sector. It was felt that The Brattle Group reports (2011, 2013) conclude that cumulative retirements are unlikely to lead to significant resource adequacy impacts and that there is no compelling or immediate need for major design changes. These members were of the opinion that the MSA report (2012) also concludes that Alberta's wholesale electricity market is effectively competitive and efficient and that there is no need for changes to the policy Framework. These members felt that the reports support their opinion that Alberta's electricity market continues to be viable.

Further, some stakeholders were concerned that, because no final decision has been reached between the Alberta government and Federal government on a potential equivalency agreement for implementing the federal GHG Regulations, this introduced uncertainty as to whether the federal GHG Regulations would contribute to air emission reduction co-benefits.

There were concerns by other members that The Brattle Group reports (2011, 2013) and MSA report (2012) were not specific enough to support the EFR Team's work. The reports were commissioned for specific purposes and did not necessarily offer any conclusions in determining if the underlying economic assumptions of the Alberta Framework were significantly different so as to adversely affect the viability of the electricity sector. Some members felt that the reports oversimplified the mechanism of the PPAs, did not accurately model the impacts of the interaction between the federal GHG Regulations and the Alberta Framework, and oversimplified supply growth in the electricity sector.

Other members felt that further work is required to fully explore the questions raised in the initial review of the economic trigger. They felt that an independent economic analysis of the viability of the electricity sector should be commissioned. This was raised during the team's discussions. Considering the strongly divergent views on this issue, there were concerns regarding the team's ability to reach consensus on the conclusions of an economic analysis.

#### 4.3. [Relevance of the Alberta Framework](#)

A fundamental difference that has hindered discussions was the divergent views on what conditions are necessary to justify reviewing or making adjustments to the Framework.

Some members are of the view that the Five-Year review team would need to agree that either the emissions review trigger (Recommendation 34) or economic review trigger (Recommendation 35) had been exceeded to proceed with a structural review of the Framework. They believe that Recommendations 34 and 35 reflect the agreed-upon terms for future reviews of the Alberta Framework and establish the thresholds for undertaking such reviews. In all other circumstances, the team would not be empowered to vary the terms of the existing Framework. They feel this provides the regulatory certainty necessary to support investment in Alberta's energy-only de-regulated electricity market.

Other members felt that the decision to proceed with a review should not be limited to the economic review trigger or the emissions review trigger, but must also include the implications of the implementation of the GHG Regulation, as well as any additional factors. They believe that these triggers are meant to be indicators that the Alberta Framework may need to be revisited, but are not meant to be the only factors used to determine if a review is warranted. It was suggested that a broader perspective that considers whether or not the Alberta Framework is still relevant in light of changing circumstances is a more appropriate consideration. These members are of the view that the Framework itself anticipates and makes provision for changes to reflect changing circumstances and that each five-year review gives stakeholders the opportunity to determine if a change in circumstances warrants a review of the Framework. They feel that the review process should be directed at maintaining the original spirit and intent of the Framework.

As noted previously, a more detailed account of the various perspectives is appended in the individual submissions from potentially impacted parties.

## 5. Alternative Ideas and Concepts

In keeping with the CASA principles of open “interest-based” discussion, and looking for potential win-win solutions, stakeholders supported and participated in discussions regarding potential ideas and concepts to address the implementation of the federal GHG Regulations together with the Alberta Framework, with the following caveats:

- Any discussion of alternative concepts was on a “without prejudice” basis. I.e. Teams members would not be viewed as having committed to a particular solution being discussed prior to reaching agreement on a complete package of recommendations.
- Participating in these discussions was not an indication of agreement that the Alberta Framework should be subject to a structural review and/or adapted.

The team developed some high level principles to guide the “without prejudice” discussions of the alternative concepts:

### 1. Environmental Outcomes

*Any options that the team considers for adapting the Framework should maintain the same or similar environmental outcomes and expectations of the current Framework.*

### 2. Power Purchase Arrangements (PPAs)

*Any options the team considers for adapting the Framework should maintain the PPAs as described in the 2003 Framework.*

### 3. Regulatory Certainty

*Any options the team considers for adapting the Framework should provide regulatory certainty, efficiency, and outcome predictability over the long-term.*

### 4. Alberta’s Deregulated Energy Market

*Any options the team considers for adapting the Framework should respect the structure of Alberta’s deregulated energy market and not disrupt its reliable operation.*

### 5. Efficient Use of Capital

*Any options the team considers for adapting the Framework should consider cost implications and the efficient use of capital.*

### 6. Social Outcomes

*Any options the team considers for adapting the Framework should result in an improved social outcome.*

On this basis, potential concepts were discussed at EFR meetings in November 2013 and January 2014. The outcome of these meetings was a range of concepts proposed by various stakeholders that received limited review and consideration by the team. On a “without prejudice” basis, the team discussed each concept to develop a common understanding of the general nature and key elements of the concept. Implementation was not discussed. Detailed discussion on these concepts was subsequently curtailed as the team acknowledged that they had not reached consensus to proceed with a review and/or adjustments to the Framework.

The concepts are presented below in no particular order and with no specific endorsements from the EFR team. The stakeholders who proposed these ideas intended that they be designed to potentially improve flexibility in compliance and to maintain the same or similar environmental outcomes and expectations of the current Framework.

1. Mass-based Approach - The mass-based approach proposed replacing the emissions intensity standard (kg/MWh) for generating units with a mass-based standard (kg/hr).
2. Market Mechanism Enhancement - This option proposed a market-based approach to the generation of emissions credits. The method would involve an analysis of the emissions credit requirement over a certain period, the request for proposals from interested parties to supply the emissions credits at some cost, and selection of the party through competitive bid to deliver the required credits.
3. Reasonably Achievable Control Technology (RACT) – In the context of the Alberta Framework, considerations in determining RACT could include assessing what technologies and/or operational changes are possible; the cost of these changes in the context of the federal “End of Useful Life” concept; and the emission reductions that are achievable relative to the cost to achieve these reductions.
4. Combined Integrated Approach - The proposal combined several of the options (mass-based and fleet concepts, NO<sub>x</sub>/SO<sub>2</sub> fungibility, credit for early shutdown and Market Enhancements) into one proposal. Baseline period generation would be used to determine a mass standard, emissions permits are allocated and true-up is required for all unit emissions.
5. Fleet versus Unit Treatment – This option proposed that a company would agree to an emissions profile for its existing units that would establish fleet mass emissions limits for SO<sub>2</sub> and NO<sub>x</sub> between 2013 and 2035.
6. Early Shutdown - This option proposed awarding emissions credits for permanent shutdown of coal units prior to the GHG Regulations End of Useful Life date that could be used in the Alberta Emission Trading System.
7. Temporary Shutdown – This method proposed that actions that result in actual emissions reductions should be recognized.
8. NO<sub>x</sub> / SO<sub>2</sub> Fungibility – This option deems NO<sub>x</sub> and SO<sub>2</sub> emissions credits as interchangeable. Either a NO<sub>x</sub> or SO<sub>2</sub> credit could be used to meet a compliance obligation for NO<sub>x</sub> or SO<sub>2</sub>.
9. Expanded Trading System - The current Emission Trading System is limited to electricity generation. This option would consider expanding the emissions trading system to include other industries and sources of NO<sub>x</sub> and SO<sub>2</sub> emissions.
10. Timing of Reductions – This option proposed recognition for early emissions reductions by using a multiplier for early reductions or applying a discount to future reductions.
11. Renewable Energy or Natural Gas Credits – This method proposed investigating a system similar to the Specified Gas Emissions Framework that would offer NO<sub>x</sub> and SO<sub>2</sub> emissions credits for natural gas and renewable energy as compared to an electricity system average.

## Appendix A: 2013 Electricity Framework Review Team Members

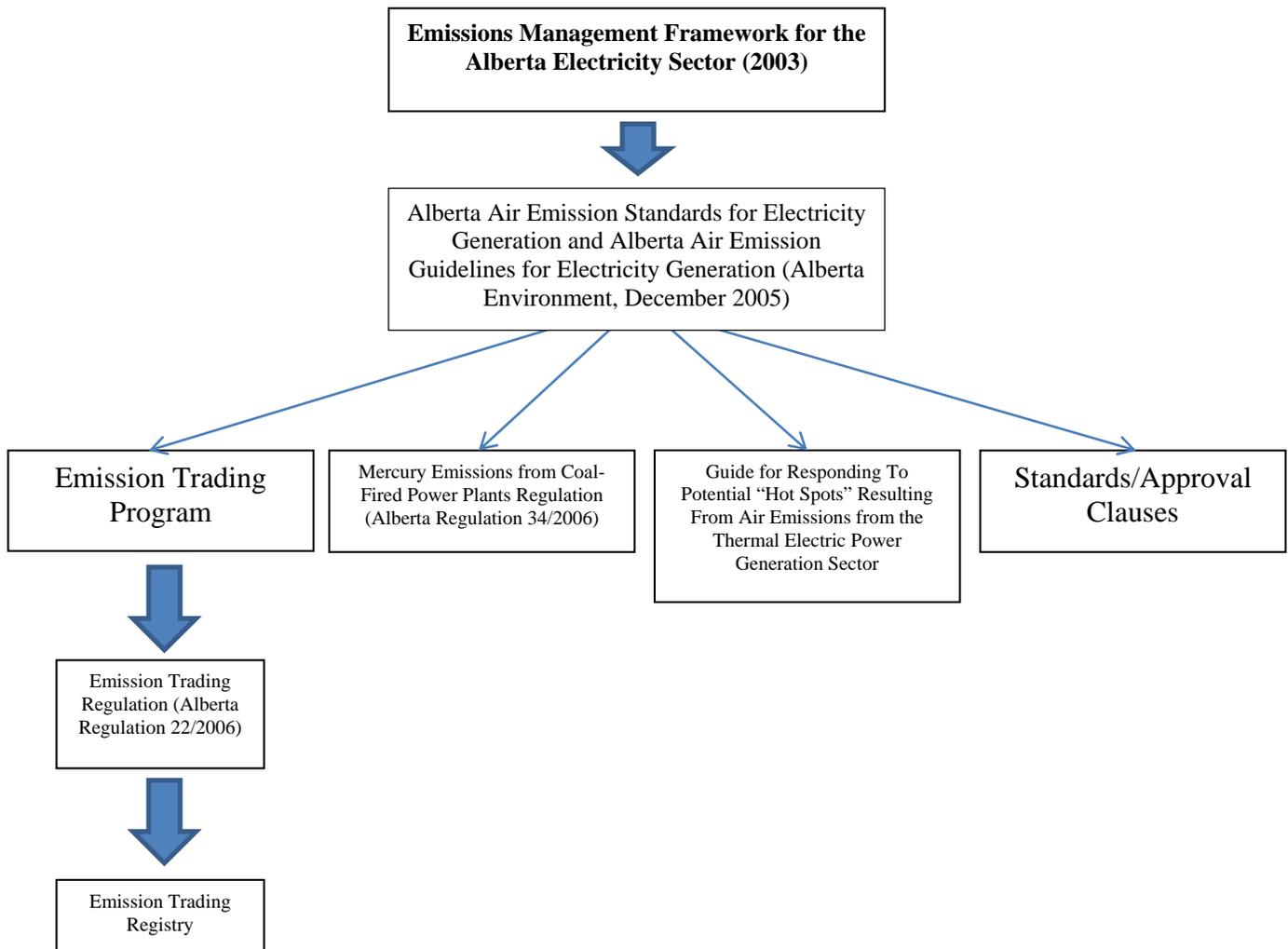
### Team Members

Ahmed Idriss	Capital Power Corporation
Al Schulz	Chemistry Industry Association of Canada (CIAC)
Anamika Mukherjee	Cenovus Energy Inc.
Ben Thibault	Pembina Institute
Brian Jackowich	Alberta Urban Municipalities Association (AUMA)
David Spink	Prairie Acid Rain Coalition
David James	Alberta Energy
David Lawlor	ENMAX
Tom Marr-Laing (Co-Chair)	Pembina Institute
Don Wharton	TransAlta Corporation
Jim Hackett (Co-Chair)	ATCO Power Canada Ltd.
Kristi Anderson	Mewassin Community Council
Njoroge Ngure	TransCanada Energy
Peter Moore	Alberta Energy
Randy Dobko (Co-Chair)	Alberta Environment and Sustainable Resource Development
Rod Crockford	Encana Corporation
Shaun McNamara	Milner Power Inc.
Steven Flavel	Alberta Energy
Vinson Banh	Alberta Energy
Wayne Ungstad	Ponoka Fish and Game
Robyn Jacobsen (Project Manager)	Clean Air Strategic Alliance
Celeste Dempster (Project Manager)	Clean Air Strategic Alliance

### Alternates and Corresponding Members

Glynis Carling	Imperial Oil Resources
Kelly Scott	ATCO Power
Leonard Standing on the Road	Ponoka Fish & Game
Lynn Meyer	Capital Power
Oliver Bussler	TransAlta
Rob Watson	Maxim Power
Srikanth Venugopal	TransCanada Energy
Sushmitha Gollapudi	Alberta Environment & Sustainable Resource Development
Brian Gilliland	Weyerhaeuser Company Ltd.
Brian Norgaard	Alta Gas
Brian Ahearn	Canadian Fuels Association
Krista Phillips	Canadian Association of Petroleum Producers
Merry Turtiak	Alberta Health
Paul DiJulio	Slave Lake Pulp
Tasha Blumenthal	Alberta Association of Municipal Districts & Counties (AAMDC)
Tim Whitford	Alberta Urban Municipalities Association (AUMA)
Tim Weis	Canadian Wind Energy Association
Marlo Reynolds	BluEarth Renewables Inc.

## Appendix B: Implementation of CASA Recommendations





May 30, 2014

Robyn-Leigh Jacobsen  
Senior Manager, Program Planning & Delivery  
Clean Air Strategic Alliance  
10<sup>th</sup> Floor, 10035 – 108 Street  
Edmonton, Alberta T5K 2G8

Dear Ms. Jacobsen,

**Re: Structural Review of Alberta Electricity Framework – ATCO Power View**

ATCO Power supports a limited structural review of the Alberta Electricity Emissions Management Framework (CASA Framework). We believe that a review is necessary in light of the federal *Reduction of Carbon Dioxide Emissions from Coal-Fired Generation of Electricity Regulations* (GHG Regulations) that were enacted in 2012 and ongoing regulatory uncertainty.

Additionally, there have been significant changes since the CASA Framework was first developed in 2003 and opportunities exist to achieve similar or even improved environmental outcomes with more certainty and at lower cost. These ought to be explored in order to avoid the risk of creating inefficiencies and higher costs that are not in the public interest.

ATCO Power recommends changing from intensity based emission limits to mass based emissions limits in order to resolve core issues with the original framework while respecting the five guiding principles (Sustainability, Continuous Improvement, Inclusiveness, Policy Efficiency and Transparency) of Alberta's Renewed Clean Air Strategy. There are no barriers to prevent CASA stakeholders from discussing and agreeing to continuous improvement of the CASA Framework. Most elements of the framework do not need to be changed.

**Case for Change**

The CASA Framework indirectly controls emissions from coal-fired generating units by imposing emission intensity standards on them. This format was selected in 2003 to accommodate the significant growth that was expected in the electricity sector to allow expansion (much of it coal generation) while mitigating the associated environmental impacts.

However, the federal GHG Regulations prohibit the expansion of conventional coal-fired generation and mandates the shutdown or conversion of existing units. The GHG Regulations will phase-out about 70% of Alberta coal units and their associated emissions by 2030. Accordingly, the context in which the CASA Framework was developed and expected to operate has been substantially affected and it could even be argued that for coal units the framework has been effectively superseded by the Federal GHG Regulations.

It was expected that the CASA Framework would drive investment in emissions control technology that in turn would supply emissions credits into a system to provide generators with flexible compliance mechanisms and cost effective emissions reductions. However, this has not happened so adjustments are required to ensure success.

Of the four owners of coal-fired units in Alberta, three have brought forward concerns with the CASA Framework and suggested modifications to it with a vision that a solution could be found using the CASA consensus-based decision making process. Unfortunately, the Electricity Review Team was unable to progress past the initial step of determining if the framework can be opened. ATCO Power urges Alberta Environment and Sustainable Resource Development and Alberta Energy to recognize the impacts of the federal GHG Regulations on the CASA Framework, to explore the opportunities available to gain greater efficiencies and to consider the suggestions proposed by the affected plant owners.

### **Ability to Review the CASA Framework**

ATCO Power believes that stakeholders are allowed to open the CASA Framework for reasons other than the Economic Review and Emissions Growth Review Triggers, as per the following:

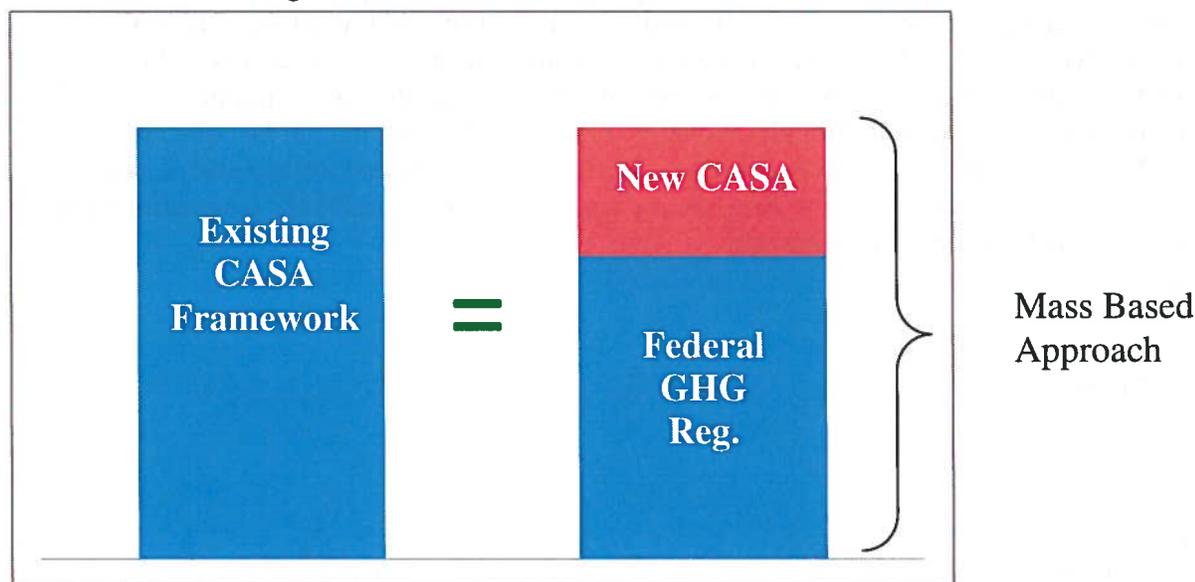
- CASA embraced the original Alberta Clean Air Strategy (1991) and this guided the development of the original CASA Framework in 2003. The Province has acknowledged that many things had changed since the original strategy was developed and in recognition of this they developed Alberta's Renewed Clean Air Strategy in 2012. Because CASA embraces the five Guiding Principles (Sustainability, Continuous Improvement, Inclusiveness, Policy Efficiency and Transparency) of the new strategy, the CASA Framework should be renewed to acknowledge the changed conditions.
- The CASA Framework itself permits stakeholders to re-open the CASA Framework. Recommendation 29 of the CASA Framework sets out six specific elements that every five-year review must undertake. The Recommendation also states that the multi-stakeholder group should "conduct an initial scoping to determine which if any of the elements identified in the review process described in the above recommendation warrant a detailed review".
- The 2013 Electricity Framework Review Project Charter ("Charter") permits the stakeholders to re-open the CASA Framework. The Charter is clear that there are three areas (GHG Regulation impacts, Emissions Growth Review Trigger and Economic Review Trigger) to test in the initial assessment to assist with the determination if a structural review is required. The Project Goal directs the group to also consider whether a review of the Framework is warranted in addition to the five-year review tasks.

Policy stability is an important objective but should not impede reasonable responses to significant changes in circumstances (like the federal GHG Regulations), mandate inefficient investment or force the retirement of plants for competitive reasons.

## Description of Mass Based Approach to Achieve Emissions Reductions Targets

ATCO Power proposes that the current coal-fired generating unit intensity based emission limits be replaced with mass emission limits. Adding this flexibility to the CASA framework could be achieved through minor changes to the Emissions Trading Regulations and facility approvals. The mass based approach recognizes the co-benefits of the Federal GHG Regulations which results in improved cost efficiency and environmental outcomes. Consistent with the CASA Framework, these limits would be set to avoid impacts to the PPAs. Beyond the CASA End of Design Life, the units' mass emission limits would be set to achieve a similar (or better) overall environmental outcome from the coal-fired generating fleet as the CASA Framework was expected to deliver when it was implemented. Figure 1 illustrates the substantial co-benefit of air emissions reductions from the Federal GHG Regulations that when combined with further reductions from coal-fired generators will equal the emissions reductions using the current CASA Framework.

Figure 1: Cumulative Mass Emissions Reductions (2030)



By recognizing the environmental benefits of all actions that reduce actual emissions (rather than just those that reduce emission intensity), mass emission limits would afford coal-fired generating units greater flexibility to meet their environmental obligations while assuring desired environmental objectives. This is particularly important in light of the already shortened useful lives of conventional coal-fired generating units mandated by the GHG Regulations, which reduce the cost-effectiveness of the capital intensive investments typically required to achieve significant emission intensity reductions. The mass based approach would recognize and guarantee the environmental benefit associated with the unit shutdowns or conversions mandated by the GHG Regulations.

### Benefits of the Mass Based Approach

By aligning well with the federal GHG Regulations and recognizing permanent air emissions reductions of SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub>, Mercury and other emissions, the mass based approach

provides the following benefits:

1. **Consumer** - Additional flexibility allows more cost efficient compliance options and retains low cost generation on the grid, which ultimately provides lower cost electricity to consumers
2. **Environment** - Encourages early action and provides a better long term environmental outcome through permanent reductions in all coal-fired plant emissions (including GHGs)
3. **Market Participants** – Facilitates a smooth transition to low and non-emitting generation while respecting the Alberta Electricity Market and supporting a Fair, Efficient, Open and Competitive market.

The majority of Alberta coal unit owners have raised concerns about the misalignment of the CASA Framework with the federal GHG Regulation by not recognizing the reductions that the federal framework achieves. ATCO Power supports a mass based approach to address the misalignment and to provide more efficient emissions reductions than what the current CASA Framework recognizes. CASA's Mission aims to recommend strategies to assess and improve air quality in Alberta using a consensus process. We believe that the discussion process should seek continuous improvement through innovative efficient solutions and not be constrained. ATCO Power welcomes a timely decision by Alberta Environment and Sustainable Resource Development and Alberta Energy to consider the impacts of the federal GHG Regulations and to update and adjust the CASA Framework.

Yours truly,

ATCO Power



Bob Piro  
Sr. Vice President  
Regulatory and Compliance

May 30<sup>th</sup>, 2014

Robyn-Leigh Jacobsen  
Senior Project Manager  
Clean Air Strategic Alliance  
10<sup>th</sup> Floor, 10035 – 108 St. N.W.  
Edmonton, Alberta T5J 3E1

Dear Ms. Jacobsen

**RE: Capital Power Comments Regarding the 2013 Five-Year Review of the Emissions Management Framework for the Alberta Electricity Sector**

Capital Power submits this letter for inclusion in the June 2014 report that the Electricity Framework Review Project Team (“EFR”) has prepared and will be providing to the Clean Air Strategic Alliance (“CASA”) Board of Director (“CASA Board”) to advise on the non-consensus issues that emerged as part of the recent Electricity Framework Review process.

The CASA report confirms that stakeholders were unable to achieve consensus on two central issues relating to the Emissions Management Framework for the Alberta Electricity Sector (“Alberta Framework”). The first is whether the “sector viability” threshold established by Recommendation 35 of the Alberta Framework has been met such that a full review of the Framework is warranted. The second is whether the introduction of the Federal Reduction of Carbon Dioxide Emissions from Coal-Fired Generation of Electricity Regulations (“GHG Regulations”) creates a misalignment with the Alberta Framework that impacts sector viability or otherwise warrants a review of the Alberta Framework.

In respect of these key issues, Capital Power’s position has been and remains that the threshold under Recommendation 35 to trigger a review has not been met, and that the implementation of the GHG Regulations does not create any issues to warrant a review of the Alberta Framework. Moreover, Capital Power strongly believes the Alberta Framework remains the most appropriate and effective framework for addressing emissions associated with Alberta’s generation in a manner that balances the various interests of all stakeholders, including facility owners, investors, environmental constituents, the Government, and Albertans. As such, the Alberta Framework should be maintained in its current form.

Capital Power also respectfully submits that a decision to re-open the Alberta Framework is unwarranted and would have several adverse repercussions for the market and environmental framework governing Alberta’s electricity sector. The “Alternative Concepts” that have been discussed would simply delay the timing for emissions reductions from coal units to the detriment of Alberta’s environmental performance objectives as well as the credibility of Alberta’s emissions management framework. In addition, the Alternative Concepts would undermine the efficiency and effectiveness of Alberta’s competitive wholesale market as they would prolong the operation of less environmentally efficient generating units, limiting the dispatch and delaying the market entry of more efficient generating units. A change to the Alberta Framework at this time would also introduce a new element of policy uncertainty that could undermine investor confidence.

Capital Power’s positions in these respects are described in detail in the sections that follow. An Executive Summary providing a more detailed overview of the key elements of Capital Power’s position is first provided, followed by sections providing additional commentary and discussion on specific issues.

## 1. Executive Summary

Capital Power believes that the Alberta Framework that has existed since 2003 remains appropriate and effectively balances the interests of all stakeholders. The clear thresholds that were established to determine whether to undertake a review have not been met, nor are there any compelling reasons to do so. Any decision to nevertheless alter the framework would have adverse repercussions for Alberta's environmental objectives, electricity market, and the credibility of Alberta's emissions management policies and framework. In support of its positions in these respects, Capital Power submits the following:

- Implementation of the GHG Regulations, when assessed in conjunction with the Alberta Framework, has no material impact on the viability of the Alberta electricity sector. Therefore, a structural review of the Alberta Framework is not warranted or needed, nor are any "minor adjustments". The EFR is not empowered to vary the terms of the existing Alberta Framework, including the terms governing the threshold that must be met to trigger a structural review.
- The end of life provisions of the Alberta Framework have been in place since 2003. The issue raised by the more recent introduction of the GHG Regulations and their definition for End of Useful Life ("EoUL") will affect all coal generators, including Capital Power. However, Capital Power submits that these individual commercial implications must be considered in the context of the broader benefits that the Alberta Framework provides for Alberta, including continued progress towards Alberta's emissions reduction targets, regulatory certainty with respect to the emissions management framework that facilitates a more stable investment climate, and a framework that recognizes the unique features of Alberta's electricity market design.
- The "sector viability" threshold established in Recommendation 35 ("Economic Trigger") of the Alberta Framework relates to the viability of the electricity sector as a whole (macroeconomics). It was not intended to relate to the circumstances of any particular generating unit (micro economics), nor can it reasonably be interpreted in this manner. Potential impacts on individual generators would only be sufficient to lead to a finding of adverse effect for the electricity sector if the aggregate impact for the sector was so severe as to "affect the viability" of the sector, which Capital Power submits is not the case in this instance. In this regard, recent reports prepared by or for the Alberta Electricity System Operator ("AESO") and Market Surveillance Administrator ("MSA") affirm the viability and sustainability of Alberta's electricity market and these must be given significant weight to consideration of "sector viability" within the CASA context. Any determinations arising from the CASA review that suggest the Alberta market is not "viable" would be contrary to the findings of the AESO and MSA reports – both of which have been referred to by the Government in support of the market – and could have far-reaching implications for investor confidence in Alberta's market. Further support for the expected viability of the electricity sector is provided by the various proposals for new generation projects that are being advanced by various parties (including parties that are questioning sector viability within the CASA context).
- Altering the Alberta Framework would effectively reward inaction on the part of individual generators who have not made changes to their fleets in anticipation of the regulations made pursuant to the Alberta Framework, and of which they have been aware since 2003. At the same time, altering the Alberta Framework would unfairly penalize responsible operators who took early action to invest in improving Alberta's air quality under the existing Alberta Framework.
- All of the "Alternative Concepts" that were briefly discussed by the EFR team on a "without prejudice" basis are common in that they would all allow coal units to continue to operate without making additional efforts beyond business as usual to reduce emissions after the Alberta Framework End of Design Life ("EoDL"). Some of the discussed alternative concepts would have negative impacts for the efficiency of Alberta's electricity market and would not achieve environmental outcomes at the same level of the Alberta Framework, while others are not based on sound scientific analyses or good public policy. Adopting any of these options would be a regressive step from an emissions reduction perspective.
- Alberta Environment and Sustainable Resource Development ("AESRD") is seeking an Equivalency Agreement ("EA") with the Federal Government relating to the GHG Regulations. It is understood that the EA is being developed to avoid duplication of efforts in controlling Greenhouse Gas ("GHG") emissions, respect provincial jurisdictions, and create flexibilities for compliance with

GHG targets. In light of these ongoing EA discussions and the flexibility that may be provided with respect to GHG “end of life” compliance mechanisms, re-opening the Alberta Framework at this time to address the differences between it and the GHG Regulations with respect to end-of-life definitions would be premature and inappropriate.

- The Government of Alberta (“GOA”), when making its decision regarding the Alberta Framework, must be mindful of the risk of Federal intrusion with respect to regulation of air emissions from the electricity sector via the Base Level Industrial Emission Requirements (“BLIERs”), which would negate much of the existing Alberta Framework while resulting in no net (and probably negative) environmental gain or benefits.
- The Alberta Framework is a consensus-based Framework that was approved by the CASA Board. Altering the Alberta Framework without following the governance structure presented in Recommendations 34 and 35 in the Alberta Framework would risk undermining the entire CASA consensus process. Stakeholders may question the value of the consensus process and reconsider the extent of their participation in future consensus initiatives if past consensus outcomes can be changed without following the review process that stakeholders have agreed upon, particularly the clear thresholds and criteria established to govern whether and when a review is warranted.

## 2. Implications of the GHG Regulations

The EFR project charter for the current review directed the EFR to consider the potential implications of the GHG Regulations in the context of the possible need for structural changes to the Alberta Framework. The final GHG Regulations were published in September 2012 and incorporated an EoUL concept.

The purpose of the inclusion of the GHG Regulations in the project charter was only to highlight this issue as an additional consideration in the overall assessment of sector viability, but not to create a new trigger in and of itself. The CASA working group that developed the project charter had no mandate to change the original consensus-based framework and add a new “GHG Regulations” trigger to potentially initiate a structural review of the Alberta Framework. The GHG Regulations should have no impact on the Alberta Framework unless its implementation results in one of the trigger conditions under Recommendations 34 or 35 being met. Capital Power does not believe the trigger conditions have been met taking into account the Federal GHG Regulations.

Capital Power acknowledges the difference in the determination of the “end of life” for an asset between the Alberta Framework and the GHG Regulations. However, it must be noted that the final EoUL of under the GHG Regulations is on average 3.5 years longer than what had been initially been proposed. The revision to the EoUL term was made in part to respond to the advocacy of certain Alberta parties who are now advocating that the threshold for review of the Alberta Framework should be based on individual adverse economic impacts. Those parties knew, or ought to have known, that the GHG Regulations would apply in the context of the Alberta Framework, which address a different suite of air emissions and timelines. In this regard, it would be inappropriate to alter the Alberta Framework at this time to address individual generating unit issues that the owners of those units have in large part created themselves.

Some stakeholders claim that the GHG Regulations will have a co-benefit of air emissions reduction that must be considered in the Alberta Framework. This is incorrect. There is a significant time difference between the Alberta Framework EoDL and the GHG Regulation EoUL during which retrofits will be needed to bridge the time gap to reduce air pollutants and GHG. Without such retrofits pursuant to the Alberta Framework, air emissions will increase as older inefficient uncontrolled coal units will continue to operate to EoUL, inhibiting entry into the market of more efficient generating units and displacing efficient natural gas-fired generation in the merit order. Beyond resulting in inferior emissions performance, this outcome would also undermine the efficiency effectiveness of Alberta’s competitive wholesale market.

These stakeholders also claim that the federal GHG Regulations can make an EoDL retrofit required to comply with the Alberta Framework uneconomic and unnecessary because the GHG Regulations shortened the life of coal units. Respectfully, Capital Power disagrees. The GHG Regulations require coal units that reach EoUL to meet carbon dioxide emission intensity of 420 kilogram per megawatt-hour. The decision to shutdown a coal unit is at the discretion of the operator since the GHG Regulations do not mandate shutdown but do require meeting emission intensity targets. Various options may exist depending

on configuration and circumstance of the unit. It is also possible that the ongoing EA discussions may provide additional compliance flexibility with respect to EoUL.

### **3. Economic Review Trigger - Electricity Sector Viability**

The Economic Trigger includes consideration of the “*viability of the electricity sector.*” Capital Power respectfully submits that a comprehensive assessment of this issue is beyond the capacity and the scope of the EFR given the complexity and unique nature of Alberta’s wholesale electricity market. Instead, Capital Power believes that the EFR review must incorporate and leverage the market studies and assessments undertaken by the AESO and the MSA. Those agencies are in the best position to address the viability of the electricity sector given their legislative mandates and responsibilities in respect of the electricity sector, their expertise and familiarity with the market and factors impacting supply, demand, dispatch and investment, and the processes that each undertake to receive stakeholder input into their assessments of market issues.

In this regard, recent studies prepared by or for the AESO and MSA and which affirm their expectations of the continued viability of the Alberta electricity sector are briefly summarized below.

#### *3.1. AESO Sector Viability Evaluation*

The AESO retained the Brattle Group to provide an assessment of the sustainability of Alberta’s market design, and particularly whether the market structure would continue to attract investment in new generation to ensure resource adequacy. The initial Brattle Report was issued in 2011<sup>1</sup>, with an update released in April 2013<sup>2</sup> that noted the following:

*“Overall, we reiterate our conclusion from 2011—our updated analysis confirms that, from a resource adequacy and generation investment perspective, the Alberta electricity market is generally well functioning based on current market conditions and policies. The current market design should be able to address the identified resource adequacy challenges and there is no compelling or immediate need for major design changes to address these challenges”.*

The 2011 and 2013 reports were comprehensive and addressed the potential impact of key macroeconomic parameters for the sustainability of the Alberta market, particularly with respect to future resource adequacy. The 2013 Brattle report discussed five major points: (i) Environmental Regulations, (ii) Low Gas Prices, (iii) Expiration of Power Purchase Agreements (“PPAs”), (iv) Increasing Wind Penetration, and (v) Investment in New Generation.

#### *3.2. MSA Sector Viability Evaluation*

In December 2012, the MSA released a report entitled “State of the Market Report 2012<sup>3</sup>”, which addressed the main elements of the market and provided a comprehensive assessment of the competitiveness of Alberta’s market framework. The MSA summarized its main conclusions as follows:

*“The Alberta wholesale electricity market is effectively competitive. This conclusion rests on the assessment that over the medium term the market delivers a wholesale price of electricity that is no higher than necessary to secure the reliable supply of electricity to consumers now and in the future. The finding is consistent with the legislative standard of fair, efficient and openly competitive.*

*Wholesale price volatility and price polarity (periods of low prices interspersed with shorter periods of high prices) are an expected outcome in an electricity market such as Alberta’s and consistent with effective competition. In fact, these price signals promote innovation and economic efficiency.*

*Like any market, factors such as market power and barriers to entry can shape the competitive environment in important ways and require the continuing attention of the Market Surveillance Administrator and policy makers. However, there is no need for substantive change to the policy framework, or the Market Surveillance Administrator’s existing enforcement framework. In fact,*

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<sup>1</sup> [www.brattle.com/documents/UploadLibrary/Upload943.pdf](http://www.brattle.com/documents/UploadLibrary/Upload943.pdf)

<sup>2</sup> <http://www.brattle.com/NewsEvents/NewsDetail.asp?RecordID=1278>

<sup>3</sup> <http://albertamsa.ca/uploads/pdf/Archive/2012/SOTM%20Final%20Report%2020130104.pdf>

*policy continuity and stability has been an important foundation for the success of the Alberta market and will continue to be so in the future”. (Emphasis Added)*

Capital Power submits that the general conclusions of both the AESO and MSA reports regarding the expected sustainability and competitiveness of Alberta’s market should be accepted for the purposes of the EFR review as demonstrating “sector viability” is not an issue.

### 3.3. Proposed New Generation

Several companies have recently filed applications to construct new power plants that would have in-service dates in the 2020 timeframe. The applicants and projects are summarized in the table below and represent a combined total of 4510 MW. Among other drivers, the proposed projects are seeking to add capacity that will be needed to both support continued economic growth in Alberta as well as to replace expected retirements of existing coal units under existing environmental regulations. Capital Power recognizes that submitting an application to the Alberta Utilities Commission (“AUC”) does not necessarily mean that the project will be fully developed or built. However, the various applications filed to date demonstrate continued investor interest in and support for Alberta’s market, and the expected continued viability of the sector under the current Alberta Framework and the GHG Regulations.

Table 1- 2013 and 2014 List of Project and Expected Commercial Operation Dates (“COD”)

<b>Maxim - Milner Expansion</b>	<b>ATCO - Heartland Power Station</b>	<b>Capital Power - Genesee 4 and 5</b>	<b>Shell - Carmon Creek</b>	<b>TransAlta - Sundance 7</b>	<b>Paul First Nation - Great Spirit Power Project</b>
2- 260 MW expected COD May 2017	400 MW expected COD August 2017	Up to 1050 MW expected COD January 2016	690 MW expected COD January 2016	850 MW expected COD June 2018	1000 MW expected COD 2017
Application submitted to AUC in November 2013	Application submitted to AUC in December 2013	Application submitted to AUC in December 2013	Application approved by the AUC in March 2014	Application submitted to the AUC in April 2014	News release in February 2014

## 4. Relevance of the Alberta Framework

The Alberta Framework includes two triggers which would require a review of the full Framework: Recommendation 34 (“Emission Trigger”) requires that a full review of the Framework be undertaken if updated emissions forecasts of pollutants exceed 15%. Recommendation 35 requires that a full review of the Framework be undertaken “*if the economic assumptions underlying the framework are significantly different so as to adversely affect the viability of the electricity sector*”. (Emphasis Added)

The 2003 Alberta Framework minutes of meeting<sup>4</sup> stated “*The [Straw Dog Sub-Subgroup] SDSG agreed it is important to define these “framework openers” very carefully. The discussion should be at a high level, talking about the environmental and economic factors that could cause a re-opening of the management framework*”. This statement, and the plain language of the Economic Trigger, reflect the concerns of stakeholders that have existed since the outset about the terms for re-opening the Alberta Framework, and particularly the strong desire to establish a clear and specific threshold for undertaking structural reviews in order to provide the regulatory certainty necessary to support investment in Alberta’s market.

In this regard, the threshold for the Economic Review contemplated by Recommendation 35 clearly states that it was only to consider issues that may “*adversely affect the electricity sector.*” It was not to consider the economic circumstances or viability of individual units (micro economics). In all other circumstances, the EFR would not be empowered to vary the terms of the Alberta Framework, in particular changing the basis upon which a determination of whether a review of the structure of the Framework is warranted is to be undertaken.

<sup>4</sup> Straw Dog Sub-Subgroup (SDSG), Meeting #25, August 21, 2003

Given the foregoing considerations, Capital Power submits that potential impacts on individual generators must not be used to a finding of adverse effect on the electricity sector, and were never intended to be used as such. The Economic Review Trigger was intended to evaluate changes at the sectoral level, not at an individual asset or company-specific level. It is simply not credible for parties to assert that “sector viability” is equivalent to the circumstances of specific generating assets that have pending compliance obligations under the Alberta Framework and which have been known since 2003.

## **5. Issues with Alternative Concepts**

The EFR agreed that any discussion of alternative concepts would be only on a “without prejudice” basis and the discussion of alternative concepts would be only in the context of those potentially available to address the implementation of the GHG Regulation. Capital Power has been consistent in its view that the GHG Regulation does not result in the Alberta Framework review trigger conditions being met. However, Capital Power nevertheless participated in the without prejudice discussions regarding potential alternative concepts in the spirit of the CASA principles of open “interest based” discussion, and looking for potential win-win solutions.

The EFR discussed a range of alternative concepts that their proponents claimed might address potential issues related to the implementation of the federal GHG Regulations together with the Alberta Framework. Capital Power submits that all of the discussed alternative concepts are driven primarily to enable older coal units to continue to operate without making any additional efforts beyond business as usual to reduce emissions after unit EoDL. As discussed below, some of the discussed alternative concepts will not achieve environmental outcomes at the same level of the Alberta Framework and will likely have a negative impact on the efficiency of the electricity market, while other alternative concepts are not based on sound scientific analyses or consider the additionality principle for generation of emission credits. None of the alternative concepts would achieve the same benefits as the Alberta Framework, and all should be rejected.

### *5.1. The Mass-Based Approach, Combined Integrated Approach, Fleet versus Unit Treatment, and Temporary Shutdown Alternative Concepts*

The Mass-Based Approach, Combined Integrated Approach, Fleet versus Unit Treatment, and Temporary Shutdown alternative concepts would set unit generation at a pre-determined value based on unit history, rather than using the actual annual generation. Unit de-rates and reduced operating hours would be compliance options. Under these alternative concepts, older inefficient coal units that reach EoDL will continue to operate without emission control technologies. As such efficient natural gas-fired generation may not be dispatched or built, resulting in increased air pollutants and GHG.

The structure of Alberta’s electricity power pool is that prices are allowed to reflect market supply-demand fundamentals, including conditions of scarcity or surplus. For example, during off peak demand electricity hours, merchant power generators may reduce their generation to the minimum operational level to avoid uneconomic electricity generation. Given this context, under these alternative concepts, units de-rated to avoid market-driven uneconomic operational hours could create emission credits, violating the emission reduction additionality principle. This accepted principle provides that emitters cannot generate emission credits by simply conducting business without any efforts beyond business as usual. A policy that adopted these alternative concepts would create a windfall of emission credits when units are simply avoiding uneconomic conditions.

Furthermore, the proposed alternative concepts assume that unit generation will be set at a pre-determined value based on unit history. Older coal units capacity factor decreases with time and units reaching EoDL are unlikely capable of generating at historical levels. As a result, using historical generation will instantaneously allow older vintage units to generate emission credits because their baseline emission is based on historical generation that is unlikely to be achieved in the future.

The Combined Integrated and Fleet versus Unit Treatment Approaches may also undermine the PPAs and create disputes between Owners and Buyers regarding entitlements and obligations relating to the de-rates that would be incented under the alternate concepts.

## 5.2. The NO<sub>x</sub> / SO<sub>2</sub> Fungibility Alternative Concept

The NO<sub>x</sub> / SO<sub>2</sub> Fungibility alternative concept is not based on sound scientific analyses or good public policy. The NO<sub>x</sub> / SO<sub>2</sub> Fungibility alternative concept assumes that NO<sub>x</sub> and SO<sub>2</sub> emissions credits are interchangeable. NO<sub>x</sub> and SO<sub>2</sub> have different environmental and health impacts, which are reflected in the values of the Alberta Ambient Air Quality Objects (“AAAQO”). So it is incorrect to develop interchangeability between NO<sub>x</sub> and SO<sub>2</sub> based on AAAQO. NO<sub>x</sub> is a precursor to ground level ozone, Fine Particulate Matter (“PM2.5”) and acid rain, while SO<sub>2</sub> is a precursor to PM2.5 and acid rain. The atmospheric chemistry that controls ozone, PM2.5 and acid rain is very complicated and highly impacted by NO<sub>x</sub> and SO<sub>2</sub> ratios in the atmosphere and other emissions such as volatile organic compounds. Extensive air quality modelling and monitoring are needed to establish NO<sub>x</sub> and SO<sub>2</sub> interchangeability based on PM2.5 and acid rain.

The proposed approach must account for NO<sub>x</sub> and SO<sub>2</sub> emissions from other sectors to determine the interchangeability. Therefore, the resulted interchangeability will be limited to specific geographic location and a single value for the entire electricity cannot be used. In addition, such approach does not address the environmental and health impacts of NO<sub>x</sub> and SO<sub>2</sub> in local areas. Moreover, it is unlikely that the Federal Government will accept NO<sub>x</sub> / SO<sub>2</sub> Fungibility alternative concept as equivalent policy to the BLIERs, which is an emission performance policy that is based on emission reduction technologies.

### *The Early Shutdown Alternative Concept*

The Early Shutdown alternative concept proposes to award emissions credits for NO<sub>x</sub> and SO<sub>2</sub> permanent shutdown of coal units prior to the GHG Regulation End of Useful Life (EoUL) date. Such an alternative violates the emission reduction additionality principle, where emitters cannot generate emission credits by simply complying with the regulatory requirements or conducting their business without any efforts beyond business as usual. The proposed alternative concept is not aligned with Alberta’s policies in this fundamental respect.

Despite the fact that the Specified Gas Emitter Regulation (“SGER”) addresses GHG and the Alberta Framework covers air pollutions, the additionality principle must be consistent between the two policies. Under the SGER, Emission Performance Credits (“EPCs”) and offset projects must be additional to business as usual activities, sector common practice, and regulatory and other emission reduction requirements. Capital Power respectfully submits that the GOA cannot credibly have two different additionality principles, which would put at risk the SGER’s EPCs and offsets. Moreover, It is also highly questionable that the Federal Government would accept the Early Shutdown credits as a mechanism to deliver emission reductions equivalent to BLIERs.

## 6. Implementation of the GHG Regulations in Alberta

The EFR drafted the Project Charter with uncertainty regarding federal/national initiatives, so the EFR assumed that the GHG Regulations will be implemented, as published in Canada Gazette, Part II. However, AESRD in the last few months, after the EFR started its deliberations, communicated to stakeholder in numerous public sessions that the GOA is pursuing a GHG Equivalency Agreement (“EA”), under Section 10 of the *Canadian Environmental Protection Act, 1999* (“CEPA”), with the federal government relating to the GHG Regulations. The EA is developed to avoid duplication of efforts in controlling GHG emissions and to respect provincial jurisdictions. AESRD officials stated in numerous occasions that:

- Alberta is currently working on a draft equivalency agreement with Environment Canada on the Coal-Fired Electricity Regulation starting with a Memorandum of Understanding.
- Equivalency could offer increased flexibility and jurisdictional authority; however, Alberta will ensure equivalency leads to better outcomes before signing any agreement.
- In order to sign an equivalency agreement, Alberta will need to modify its current Specified Gas Emitters Regulation to achieve the same environmental outcome as the federal regulation. This would be done in alignment with the provincial policy renewal.

The GOA main goal is to maintain jurisdiction over GHG emission and have enough flexibility to achieve target emission reductions. In order for the GOA to maintain jurisdiction, it must develop or adapt a provincial regulation that can deliver an equivalent emission reduction to GHG Regulations in Alberta. The

current SGER is based on emission intensity reduction and flexible compliance mechanisms cannot deliver equivalent emission reductions to the GHG Regulations. Therefore, the SGER must be amended to accommodate the GHG Regulations or a new provincial regulation must be developed. AESRD wants to manage the electricity GHG emission using a toolbox of policy options that may include but are not limited to, more stringent SGER compliance requirements, carbon tax, intra-sector trading, or a combination of some of the previously mentioned options.

Some generators have argued that individual adverse economic impacts are due to the different definitions of “end of life” under the GHG Regulations and the Alberta Framework. If the GOA and federal government develops an EA for the electricity sector based that may include flexibilities, individual units may not have to meet 420 kilogram per megawatt-hour as per the current GHG Regulations. In this case, the different definitions of “end of life” become a moot point, since individual units are no longer impacted by the GHG Regulations, and cannot be used to argue adverse economic impacts. Capital Power submits respectfully that it is premature and inefficient use of resources to consider a structural review of the Alberta Framework before the GOA makes a decision about the implementation of the GHG Regulations.

## **7. Conclusion**

Capital Power believes that the CASA Board and the Government of Alberta should continue the existing Alberta Framework on the basis that the Economic Trigger threshold for a full structural review of the Alberta Framework has not been reached.

The issue of “sector viability” is of fundamental importance to this finding, and in this respect Capital Power notes that upholding the Alberta Framework and the affirmation of sector viability will be consistent with findings of Alberta’s key wholesale market agencies, and comments of the Government of Alberta, articulating the expected continued viability and sustainability of Alberta’s market.

Maintaining and enforcing the Alberta Framework will reaffirm the importance of regulatory/policy certainty, prevent federal intrusion into provincial regulation through the imposition of BLIERS, and achieve long-established environmental performance targets agreed to by all stakeholders.

Please feel free to contact me at (780) 392-5172 if you have any questions.

Yours,



Ahmed Idriss, Ph.D., P.Eng.  
Senior Advisor, Environment Policy  
Capital Power Corporation

cc

L. Meyer, Capital Power

D. Jurijew, Capital Power

# ENMAX Comments - 2013 Five-Year Review of the Emissions Management Framework for the Alberta Electricity Sector

## ENMAX

ENMAX is a vertically-integrated company with over 1800 employees and \$4.6 Billion in assets. We own or control approximately 2000 MW of thermal power generation, 219 MW of wind generation and 35 MW of installed thermal capacity for district heating. We have an additional 800 MW thermal power generation under construction or in the regulatory phase and we have approximately 460,000 metered customers and 870,000 customers under contract or the regulated rate.

## Support for the Alberta Framework

ENMAX fully supports and is committed to the continuation of the current Alberta Framework. The framework has guided our investment decisions and actions since 2003 and has become an integral part of our investment strategy. Investment in electricity sector assets is capital intensive and requires long planning horizons. We have made major investments in the market which are consistent with the certainty provided by the current Alberta Framework. This certainty drives our investment actions and those of many other participants across the province.

## Electricity Framework Review (EFR)

CASA has built 5 year reviews into its framework to ensure that continuous improvement in environmental performance is maintained and that the electricity sector as a whole remains viable. The 2013 EFR is the second since the inception of the CASA-based framework in 2003. Participants have spent significant time and resources on the 2013 EFR. It has provided tremendous collaborative discussions and workshops. ENMAX is pleased with the overall participation of the EFR team and will continue to work towards building consensus agreements going forward. On rare topics where consensus has not been reached, it has proven to add value to the discussion and often conclusions have landed just outside a consensus decision. This reveals the highly collaborative nature of the process and the commitment of the EFR team. Of the few items on which we did not reach consensus, the rich discussion will provide the Government of Alberta with great industry insight as they make the final determination on those points of contention.

## Framework Openers

The current CASA framework provides certainty for generators and investors within Alberta. Maintaining this certainty is a foundation for the electricity market and for delivering superior environmental benefits across the province. We have seen massive investment in generation since 2003, and this is a testament to the confidence that generators have in the current framework. However, it was

determined that this certainty cannot come at the expense of either continued environmental improvement, or, overall electricity sector viability. As such, the 2003 EFR Project Team created two important framework openers with strong tests as the only mechanisms to allow for structural changes to it. It was recognized that making structural changes to the framework would serve to potentially erode clarity and confidence in the market. Also, it was understood that changes could have long-lasting negative consequences, so the openers were created with the upmost clarity and respect for the market.

Recommendation 34 – sets specific environmental performance thresholds beyond which the framework must be reopened. ENMAX believes that the Framework has delivered superior environmental performance and accepts that this is also the consensus of the larger group.

Recommendation 35 – ENMAX is clear that the Framework has resulted in orderly investment in the Alberta electricity market, which is the clearest indicator of a healthy electricity market. Since 2003, there has been 5000MW of new generation added, with another 4500MW to be added between 2014 and 2020.

ENMAX believes that the Recommendation 34 and Recommendation 35 openers have not been met, and therefore the current Alberta Framework should not to be endangered by a potentially disruptive structural review.

## Alternatives

Numerous alternatives have been presented (without prejudice) for consideration and debate within the EFR team. Largely, these have been adequately debated and documented in the course of our discussions and documented in the EFR non-consensus report. One of the alternatives presented, deemed the *Mass-based Approach*, deserves mention here. This approach would introduce a disruptive “dormant” capacity element into the market. If units are allowed to temporarily withhold from the market under the auspices of maintaining a fleet or unit emission cap, this dormant capacity would distort the signals that generators rely on to time the construction of new facilities – putting many of the projects already announced at risk. This leads to the unintended consequences of a higher emission intensity source delaying the construction of a lower emission intensity source.

## Industry Investment

The investment decisions, project timelines, and technology demonstrated by investors within the Alberta market exhibits the confidence in the current market structure and the Framework. It also underscores the efficient and proper functioning of a healthy electricity sector. This is consistent with both the AESO and the MSA who after extensive research, have concluded that Alberta’s electricity market is “well-functioning” and “effectively competitive”. ENMAX has put significant and material capital to developing new power generation. The following chart is only the capacity of under construction or announced power generation. ENMAX has coal assets under PPAs and since 2003 has developed or purchased 120 MW of natural gas simple cycle (peaking) capacity, 470 MW of NGCC.

Company	Technology	Size(MW)	Est COD
Shell-Carmon Creek	NGCC	690	2014
ENMAX/CP - Shepard	NGCC	800	2015
CP/ENMAX – Genesse 4/5	NGCC	1050	2016
Maxim – Milner	NGCC	520	2017
Atco – Heartland	NGCC	400	2017
Paul First Nation	NGCC	1000	2017
TransAlta – Sundance 7	NGCC	850	2018

ENMAX is a vertically integrated utility that through subsidiaries retails electricity in the competitive retail market. As a retailer ENMAX knows the value of ensuring long term supply of reasonably priced electricity for Albertans. The existing Framework fits with the competitive nature of the market at the same time will lead to emissions reductions.

## Summary

ENMAX has invested significantly in the Alberta electricity sector using the current Alberta Framework as a cornerstone in our strategic planning process. Our sector is viable and healthy. It is competitive and environmentally responsible. The current framework is working, and it must be allowed to continue to work. Though we may occasionally agree to disagree, the diverse collection of stakeholders in the industry has demonstrated remarkable collaboration and agreement on many difficult issues. ENMAX is pleased with the overall participation and progress of the EFR team and will continue to work towards building consensus agreements going forward. We look forward to many more years of participation and collaboration with CASA as we make the transition to a cleaner and more sustainable future.

## **Environmental Non-Government Organizations' Comments on the 2013 Electricity Framework Review, May 29, 2014**

For the past decade, Alberta ENGOs have remained committed to the Alberta Framework and its promise of substantial and timely reductions of NO<sub>x</sub> and SO<sub>2</sub> emissions. This commitment to an Alberta-based agreement was exemplified in our strong defense of the Alberta Framework in the face of Government of Canada proposals to modify pollution control rules for existing coal plants during the National BLIERS discussions (2009-2012). Our commitment to the Framework is further demonstrated by active participation in the previous and current 5-Year Review processes.

One of the essential benefits of the Alberta Framework is that it provides long-term certainty and predictability of outcomes for the expectations of environmental performance from Alberta's existing fleet of coal (and gas) units. When the Framework agreement was reached in 2006, Industry lauded the importance of such certainty in guiding their investment decisions. Similarly, Government, ENGOs and other Public members were also pleased with the certainty that the Framework would bring to regulatory decision-making processes.

The existence of the Framework and its broadly-held consensus has played a critical role in managing public expectations for the environmental performance of the Electric Power Generation sector (coal units in particular) since the contentious new coal plant hearings in 2001-2002. Such environmental certainty is an key component of the "public license" to operate that the EPG sector has largely enjoyed during the past decade.

One of the key compromises conceded to by the ENGOs, as part of the overall Framework consensus, was to respect the Power Purchase Agreements (i.e. no NO<sub>x</sub> or SO<sub>2</sub> modifications to pollution controls on plants under PPAs). With the imminent expiry of the PPA terms, the environmentally-meaningful period of the Alberta Framework is about come into effect. Now is the time when critical decisions regarding substantive reductions in pollution from coal units are to be implemented. ENGOs are gravely concerned that economic interests will lobby for further delays in these long anticipated environmental improvements.

It is the ENGO view that, regardless of the impact of the Federal GHG regulations on coal plants, the anticipated NO<sub>x</sub> and SO<sub>2</sub> reductions from the coal units must be realized in the timeframe agreed to by all parties a decade ago. It is our view that the environmental outcomes of both the Alberta Framework and the Federal GHG regulations can be achieved without any modification to the Framework. We reject arguments that the Framework has been superseded, and the same environmental outcomes achieved, by the Federal GHG regulation.

Regarding the current 5-Year Process, ENGOs are of the view that no information was provided to demonstrate that Recommendation 35 (the "Economic Trigger") was indeed triggered by environmental policies. Although incumbent owners of coal units have raised concerns, several reports produced

by public entities demonstrate that such policies would have no discernible effect on the economic viability of the sector as a whole, nor upon the power pricing experienced by consumers.

Although the issue has many complexities, we view the lack of consensus experienced by the EFR team on this matter to be driven by competing economic interests between various power generators. Fundamentally, this is about the opportunity for existing coal plant unit owners to generate revenues by running their old plants for a few more years without new investment in pollution-control technologies versus the interest of other power generators to be able to build new, environmentally-cleaner, gas-fired units.

Although timely transition from old coal to new gas is clearly environmentally preferable, ENGOs are not shareholders of the power generating companies and thus have no financial interest in who "wins" or "loses". Our primary interest is to ensure that Albertans do not lose the benefits of the environmental promises made by the Alberta Framework so many years ago just as those benefits are about to be realized. Recognizing that responsible environmental protection must be sensitive to cost, we also believe that those benefits can be realized without material economic impact to consumers.

ENGOs are also concerned that the CASA-based model of pro-active, consensus-based environmental management policy development – a model that has reaped many benefits for Alberta's environment, economy and social standing – will be undermined. What value is there for any stakeholder to participate in the development of such policies if they are not honored in their implementation?

ENGOs remain committed to good faith discussions with industry and government regarding this issue. Although we believe that the existing Framework is broad enough to accommodate many (but not all) interests around the CASA table, we were willing to go beyond/outside of the existing Framework to consider modifications if other stakeholders were prepared to. We actively participated in this process until consensus could not be reached on continuing this work.

ENGOs remain committed to the existing Framework. We recommend to the Government of Alberta that it is in the broader interests of all Albertans that no modifications be applied to this "made-in-Alberta" environmental policy. We also recommend that work continue with the rest of the current 5-Year Review.

ENGOs would note that, if the current Framework is changed by the Government of Alberta without consensus support of all stakeholders, then the Alberta Framework will no longer be a consensus Framework. Under those circumstances, ENGOs will be free to pursue other options at the provincial and federal levels to address their interests regarding air emissions from the Alberta Electric Power Generation sector.

**Submission to the Electricity Framework Review (EFR)  
by the The Mewassin Community Council**

**The EFR Process**

The second review of the Alberta Framework for managing emissions from the electricity industry (the Framework) began in May of 2013. Until now, the project team has focused a large part of its time and resources on listing alternatives to deal with potential implications and management issues for the Framework created by the implementation of Canada's greenhouse gas (GHG) Regulations. As a result of the narrow focus by the project team, several tasks that the project team is mandated to complete have been relegated very little of the total time allocated to the process.

As a result, the process could be criticized for appearing to have been directed by a small group of industry representatives interested in preserving their capital investments in light of the introduction of the federal GHG regulations. By limiting the time for the remaining tasks, the process could also be criticized for not focusing adequate attention on tasks that could result in continuous improvement of the management of air emissions from electricity generation in this province. Additionally, the City of Edmonton has been identified as a PM hot spot and the Wabamun region has the potential to become a hot spot following the construction of two combined cycle natural gas generators in the area. This is therefore the first time that the *Guide for Responding to Potential "Hot Spots" Resulting from the Thermal Electric Power Generation Sector* will be tested, thus setting the conditions to assess the effectiveness of the Guide. To date, the project team has not discussed this task.

**Critique of Proposals Presented to the Project Team**

Several proposals for altering the Framework were developed by some of the industry representatives in order to introduce flexibility to the Framework in light of the introduction of the federal GHG regulations. These proposals have not been rigorously tested against the criteria developed by the project team. In particular it is unknown whether any of these proposals would lead to a reduction in air emissions. In the absence of a systematic review of the proposals by the team, additional clarification of some of the criteria may be necessary for outside observers. For example, the "Environmental Outcomes" criterion is intended to incorporate the principle of continuous improvement (environmental expectations). The "Social Outcomes" criterion was left intentionally vague in order to capture a range of positive social outcomes, such as improved health for area residents and reduced health care costs for the province. Weighing the costs and benefits of proposals would likely require the development of some quantifiable factors within this criterion.

*Mass-based Approach:*

Moving from an intensity standard to an absolute standard could have merit if the standard was set at a level stringent enough to result in emission reductions additional to what is anticipated to be achieved by the Framework. However, as the proposal is presented, the standard from the Framework is significantly relaxed by approximately 60-64%. As presented, the underlying assumptions are also out of step with both industry analyst and public expectations, specifically that coal plants are assigned a 60 year life and that 450 MW of new coal are added every five years. In addition, the method used for

totaling emissions would have to be evaluated to ensure that no emissions are excluded from each facility's full amount.

*Market Mechanism Enhancement:*

There are two cautions that should be heeded when making adjustments to the emissions trading market. Firstly, the market must not incent delayed action. In other words, it must not allow the creation of future credits that are applied in the present without corresponding emission reductions in the present. Secondly, an enhanced market should have provisions to ensure that location issues are managed. That is, that the enhanced market does not result in the creation of regional hot spots.

*Reasonably Achievable Control Technology (RACT):*

The emission reductions achieved by the Framework require installation of Best Available Technology Economically Achievable (BATEA). Installation of RACT would be insufficient to obtain equivalent or better emission reductions at the end of design life. However, the Framework is already compatible with the installation of RACT prior to the facility end of life as a way to generate credits.

*Fleet Approach:*

Introducing a standard at the fleet level rather than at the facility level would result in some facilities being fitted with emission abatement technology while others would continue to pollute unabated. Additional conditions would need to be imposed to ensure that this approach does not result in the creation of pollution hotspots.

*Early Imposed End of Life Credit:*

Facilities that are forced to shut down by the federal GHG regulation should not be rewarded with credits for pollution abatement. If such an action were taken, the co-benefits of implementing the GHG regulation would be nullified – resulting in a deception of the Canadian public, and electricity generators would be rewarded for inaction. Potential action in the future should not be awarded credit in the present. In keeping with the principles of the Framework, only real emission reductions should be awarded credits.

*SO<sub>2</sub>/NO<sub>x</sub> Fungibility:*

Reduction of both substances is important for maintaining human health and ecosystem health. Therefore, trading credits between the two becomes problematic and likely would result in inadequate emission reductions of one substance or the other.

*Expanded Trading System:*

Trading with other industries that produce NO<sub>x</sub> and SO<sub>2</sub> may offer the potential to reduce overall emissions and manage regional hot spots and areas in danger of becoming hot spots. However, in order for such a market to function properly, adequate resources will have to be invested into collection of emissions data and oversight of the market.

*Renewable Energy or Natural Gas Credits:*

This proposal has merit but should be considered with the following provisos. Real emission reductions generated by renewable energy should be credited at a higher rate than for natural gas in recognition of the direct emission reduction benefit and the co-benefits related to renewable energy (ie. low environmental impact, long-term, low or no GHG emitting electricity production). The second proviso is that introduction of such a measure should not represent the province's sole strategy to promote the development of renewable energy.

**Changes to the Framework**

A key principle to the development of the Framework is long-term regulatory certainty. Therefore changes to the Framework should not be entered into lightly but if changes are made they must reflect the Clean Air Strategic Alliance's goals for air quality: protect the environment; optimize economic performance and efficiency; and seek continuous improvement.

Any revisions to the Framework should start with the process of "visioning". Albertans involved in this process need to develop a vision for the kind of future that we want for ourselves, our children and our grandchildren. This should be the starting point for working backwards to set in place the conditions that we need to achieve our vision, rather than being reactionary or perpetuating the *status quo*.



May 30, 2014

Robyn-Leigh Jacobsen  
Clean Air Strategic Alliance  
Senior Manager, Program Planning & Delivery  
10th floor, 10035 - 108 Street  
Edmonton, AB T5J 3E1

Dear Robyn,

Maxim Power Corp. ("MAXIM") is a TSX listed, independent power producer headquartered in Calgary, Alberta. MAXIM owns and operates the HR Milner ("Milner") generating station, a 150 MW coal-fired facility located 20 kilometres north of Grande Cache, Alberta. MAXIM is committed to being an environmentally responsible, low-cost power producer, and to developing and operating projects in response to the energy needs of the consumers in the markets we serve.

Milner was brought into commercial service in 1972. Because it has been operational for more than 40 years, it must adhere to the CASA post-design life annual emissions intensity limits for NO<sub>x</sub> and SO<sub>2</sub> for coal-fired facilities effective January 1, 2013. Prior to that date, MAXIM pursued a number of projects to address the emissions objectives. Among these projects was the installation of a Selective Non Catalytic Reduction (SNCR) system in 2009 to proactively generate NO<sub>x</sub> credits leading up to the commencement of Milner's post-design life period. Milner's SNCR system has resulted in more than a 25% reduction in NO<sub>x</sub> emissions and demonstrates the positive impact retrofitted abatement technologies can have on unit air emissions.

In September 2012, Environment Canada released its Greenhouse Gas (GHG) Regulation which stipulates that unless an operator can reduce its GHG emissions intensity level to the equivalent of a high-efficiency natural gas-fired unit, a coal-fired generator must cease base loaded operation on December 31, 2019 or after 50 years for units commissioned prior to 1975, whichever is earlier. As Milner was commissioned in 1972, this will require the unit to cease base loaded operation at the end of 2019, its 47<sup>th</sup> year of commercial operation. It is important to recognize that this is 3 years less than the 50-year life afforded to other Alberta based coal-fired facilities, which impacts investment decisions.

Despite the effectiveness of the SNCR system, further reductions in NO<sub>x</sub> emissions are required for Milner to meet its CASA obligations. While there are other proven technologies available to meet those targets, the truncation of Milner's deemed operating life following the implementation of the federal GHG regulation effectively prevents Milner from recovering investments in further abatement technologies.

May 30, 2014

**Company**

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Although the Emissions Trading Regulation provides a solid foundation for market-driven transactions, we believe it has had limited success in providing the necessary liquidity to foster a healthy market. During the CASA EFR meetings held in December and January, MAXIM actively advocated reopening the framework to create emissions trading market enhancements to enable funds directed at proven abatement technologies to be invested in longer-life assets where it will provide measurable environmental benefit.

Milner remains a strong supporter of the CASA EFR process, that said, market participants currently are impacted by the misalignment of the Federal and Provincial regulations. A timely solution must be implemented to avoid unintended consequences.

We believe that the implementation of the federal GHG Regulation and subsequent misalignment is sufficient reason to reopen the CASA framework, and should be the basis upon which the EFR team should determine next steps.

Yours truly

A handwritten signature in blue ink, appearing to be 'RW' or similar initials, written in a cursive style.

Rob Watson  
Director, Canadian Facilities

## **The Requirement to Change the CASA Electricity Framework TransAlta Corporation**

A fundamental change has occurred. The implementation of the federal GHG regulations promulgated in September 2012, completely undermines one of the principal premises upon which the 2003 CASA consensus agreement was based, and upon which the current CASA regulatory framework rests. The premise was that owners of coal-fired generation would have sufficient productive lives of their units to recover the costs of installing emission control technology. By cutting short the lifespan of coal units, the federal GHG regulation makes it impossible to achieve cost recovery and effectively subjects companies to punitive and substantial costs, which was never the intent of the CASA agreement.

More importantly, the current CASA framework would require major capital investments that will provide little incremental environmental benefit beyond the air pollutant emission reductions achieved by the effect of the federal GHG regulations alone. TransAlta, as the Province's largest generator, will achieve NO<sub>x</sub> and SO<sub>2</sub> emission reductions of over 90% of current levels by 2029 – simply through unit closures required by the GHG rules. Unchanged, CASA would require the expenditure of literally billions of dollars sector-wide to address the remaining fraction of reductions. This is not only poor environmental policy but also highly wasteful of precious capital that can be better spent on much more sustainable investments such as building cleaner generation, including renewables, to both replace retiring coal assets and meet Alberta's electricity demand growth.

We were disappointed that CASA stakeholders could not come to agreement on the need to re-examine the CASA framework in light of the major paradigm shift created by the federal GHG regulations. Our observation was that the majority of stakeholders supported some degree of adjustment to the framework, but consensus was blocked by a few who insisted on no change.

This CASA report accurately identifies the areas of disagreement between stakeholders, though not the weighting of support for one view or the other.

The CASA stakeholders debated a variety of elements related to this issue. We will provide a short commentary on them subsequently, but there is a more fundamental, central question that must be considered by the Government that was not adequately addressed in the stakeholder process: **Does it make economic and environmental sense to maintain the CASA structure unchanged in light of the massive impact of the federal GHG regulations?** TransAlta's view is no, it does not make sense to not adjust Alberta's environmental policy in light of such a major change. The emission profile from Alberta's coal-fired electricity sector will change fundamentally to deliver large reductions. And the cost/benefit of investing billions of dollars for a small and temporary additional reduction is not justifiable under any logic. These facts are unarguable.

It is also unfortunate that we have had this debate in the absence of a science-based context. We should be able to answer the question "Would applying the current CASA requirements for coal-fired generation, on top of the effects of the federal GHG regulations, have a measureable air quality benefit?" CASA cannot answer this question. Therefore our stakeholder discussions devolved to opinions about the "rules" and about the "expectations" of stakeholders. TransAlta's view is that, in the spirit of the original CASA stakeholder process and agreement, Alberta's environmental policy ought to be about sensible rules resulting in lasting improvements in the Province's air quality.

There is a corollary question “Would the costs to industry of imposing the current CASA requirements be better deployed elsewhere with greater and more sustainable effects?” Our view is yes. Whether that’s investment in cleaner, replacement generation, or in supporting other environmental initiatives with greater emission reduction potential, there are clearly better uses of capital than building short-lived control technologies on the back-end of plants forced to retire shortly thereafter. As an estimate, the current CASA regulations will cost roughly \$2000-\$3000/tonne of NOx reduced and \$4000-\$6000/tonne of SO2 reduced. At these cost levels there are numerous opportunities to reduce emissions in more cost-effective ways and potentially in areas of the Province where air quality is in greater need of attention.

To address more specifically some of the areas of stakeholder disagreement on the matter of changing the CASA framework:

**1. Emissions and economic triggers**

CASA stakeholders struggled with the question of whether either the emissions trigger or the economic trigger, as described in the CASA framework, had been exceeded through the effect of the federal coal regulations and therefore should formally open the framework for review. In TransAlta’s view the fact that neither could be categorically answered was a troubling comment on the vagueness of the framework language. But more importantly, we believe that good environmental policy must be both responsive to change and based on sound logic consistent with the Government’s objectives. The micro-focus on triggers was a distraction to the real issue – does it make sense to adjust a regulation when external factors make it redundant and costly to the economy of Alberta. Our view is yes, regardless of language written a decade ago.

**2. Regulatory certainty**

A few stakeholders held that the CASA regulations could not be changed because that would disrupt the regulatory “certainty” that CASA has provided. We strongly disagree. It is naïve to expect that there is ever regulatory certainty regardless of external developments. Did CASA contemplate in 2003 that the federal government would arbitrarily shorten the lives of Alberta coal units? No. TransAlta for one would never have agreed to the original CASA consensus agreement if we had known that would transpire. Industry recognizes that we must be prepared to respond to changing business and regulatory environments, and we expect the same of our Government. CASA is a case in point.

**3. Potential for early action**

A few stakeholders held that companies that are operators of coal-fired generation have had ample time to take early action to reduce emissions and mitigate the costs of CASA compliance. This is not true, for several reasons. Firstly, the operations of coal-fired generation is governed first and foremost by the PPA’s, a regulatory construct, that provides the buyers of PPA’s the right to determine how units are dispatched and establishes minimum levels of availability, below which the owners are subject to penalties. It is simply not feasible to expect that owners such as TransAlta could unilaterally take units out of service for extended periods of time to install control equipment, bearing the costs of the equipment, the risks to operations, and the associated penalties. Further, Alberta had established an emission trading mechanism coincident with the CASA regulations, with the idea that an emission credit market would emerge and allow companies to acquire credits for compliance. That system has been moribund. There has not been one trade executed under the market.

#### **4. Flexibility mechanisms**

CASA stakeholders did some innovative work to develop a series of flexibility mechanisms that could address the gap between the emission reductions achieved by the federal GHG regulations alone and the current CASA regulations. Essentially these mechanisms would substantially reduce the costs/tonne of pollutants reduced while still delivering reductions. It would be unfortunate if the value of these options was lost in a disagreement about whether the CASA framework should be changed or not. They make sense in their own right and deserve attention under any circumstance.

To conclude, TransAlta would request that the Government initiate a fundamental change to the current CASA regulatory framework, in the interests of maintaining sound economic and environmental policy. The CASA framework as it currently exists has been made redundant given the federal actions, it is no longer necessary to maintain good air quality in the regions surrounding coal-fired power plants, and it is now an economically punitive and an inefficient mechanism to achieve emission reductions. We support continuous improvement of the emissions profile of the electricity sector in Alberta, and believe we are on that track without additional CASA requirements.

May 30, 2014

### TransCanada's Submission to the May 2014 Interim Report on the CASA 2013 Electricity Framework Review

Presented in this submission are TransCanada's views on the May 2014 Interim Report developed by the Electricity Framework Review Team (EFR).

#### **Background on TransCanada**

TransCanada is a leader in the responsible development and reliable and safe operation of energy infrastructure in North America. We own and/or operate 68,500 km of natural gas pipelines, 3,467 km of oil pipelines, 406 bcf of natural gas storage and 11,800 MW of power generation. Our generation interests include natural gas, nuclear, coal, wind, hydro and solar across Canada and the United States.

#### **Support for the CASA Framework**

TransCanada would like to reiterate that we fully support the existing CASA Framework. The collaborative and multi-stakeholder approach of the framework represents a novel way to limit environmental and health impacts of air pollutants. Even when the CASA process does not lead to consensus, the work conducted as part of the review process provides the Government of Alberta (GOA) with the tools it needs to effectively chart the way forward.

Alberta's electricity sector is unlike those of other provinces/territories in Canada. By fully deregulating electricity generation, Alberta took the bold step of letting Alberta electricity prices reflect the true economic value of electric generation in Alberta. Since deregulation, electricity prices in Alberta have remained competitive compared to other jurisdictions in North America. The CASA Framework came into place after the market was deregulated and it has given investors sufficient regulatory clarity that has seen over 5,500 MW of generation added to the market since 2003.

The cloud of Federal mid-life Base Level Industrial Emissions Requirements (BLIERS) continues to hang above the electricity sector in Alberta. Federal mid-life BLIERS under the (Canadian Environmental Protection Act (CEPA) is one example of environmental regulation that does not consider local market realities such as the deregulated electricity market in Alberta. CASA on the other hand delivers emissions reductions contemplated in mid-life BLIERS in a way that respects local market realities. Significant diversion away from the existing Framework will potentially leave capital stranded and give an opportunity for the Federal Government to seek jurisdiction on air pollutants. Consequently, it is imperative for the Government of Alberta to

continue sending the message that it is committed to CASA and will not make changes that could undermine the environmental outcomes expected from the framework.

### **Electricity Framework Review**

A key feature of the 2003 CASA Framework is the periodic 5 year review in accordance with Recommendation 29. In addition, Recommendations 34 and 35 gave specific tests, environmental and economic respectively, for determining whether an overhaul of the framework is warranted. The EFR Project Team has completed a significant amount of work over the past months. Much of this work was on the technical, health and scientific aspects of CASA. The EFR Project Team members were not in agreement on whether the Economic Review Trigger, per Recommendation 35, had been met.

### **Recommendation 35: Economic Trigger**

TransCanada's view is that Recommendation 35 provides sufficient guidelines to allow for an independent economic analysis that would answer the question: are the "economic assumptions underlying the framework different so as to adversely affect the viability of the electricity sector" in Alberta? As mentioned above, the electricity sector has and continues to add new generation in Alberta. The failure by the EFR Project Team to commission an independent assessment of Recommendation 35 is a lost opportunity to independently assess the viability of the electricity sector given existing and forthcoming environmental regulations. An independent assessment of Recommendation 35 can add clarity and support consensus building.

To ensure this issue is resolved, TransCanada recommends that an independent assessment of Recommendation 35 be done by a qualified consultant that has knowledge of the Alberta electricity market and its environmental regulations, including the Federal Coal GHG Regulations to determine whether the trigger mechanism has been reached.

### **Federal Mid-life BLIERS Regulation**

Industry's latest discussions with the Federal Government indicate that it continues efforts to implement a National Air Quality Management System (AQMS). Of the many components of the AQMS, mid-life BLIERS is a major concern for existing coal units. The Federal Government has on many occasions indicated that they are unclear as to the emissions reductions projected from the CASA Framework. CASA must ensure that there is clarity and transparency for stakeholders like the Federal Government to easily understand the emissions reductions forecast by the Framework. It is therefore imperative that the technical aspects of the CASA work that is currently underway continue along to a conclusion, so that it provides clarity on the expected emissions trajectory. Failing to complete this effort could cast doubt on the Framework and its environmental outcomes leading to the Federal Government taking jurisdictional authority on these issues.

### **Alberta's Electricity Market is Working and has Investor Confidence**

As mentioned above, the Alberta market has seen addition of over 5,500 MW since 2003. In addition, over 4,500 MW of new generation is expected between now and 2020 based on

applications made to the AUC (see table below). This demonstrates that investor confidence continues to validate the long term viability of Alberta’s electricity sector. Furthermore, recent independent reports by the Brattle Group<sup>1,2</sup> (2011, 2013) (commissioned by the Alberta Electricity System Operator (AESO)), the Market Surveillance Administrator<sup>3</sup> (MSA 2013) and consultant EDC Associates<sup>4</sup>, have all concluded that the Alberta electricity market is working as expected. For this to continue, market rules and regulations need to provide investors with the stability needed to ensure continued investment decisions over the long term.

### List of Projects and Start Dates

Company	Technology	Size (MW)	Expected Start Date
Capital Power, Genesee 4-5	NGCC	1050	January, 2016
Shell Carmon Creek	Cogen/NGCC	690	January, 2016
Maxim Milner	NGCC	520	May, 2017
ATCO Heartland	NGCC	400	August, 2017
Paul Nation Great Spirit	NGCC	1000	2017
TransAlta Sundance 7	NGCC	850	June, 2018
<b>Total</b>		<b>4510</b>	

### Recommendations

Alberta’s electricity sector is unique in Canada and the Government of Alberta should maintain jurisdiction over issues that impacts the sector including air pollutants.

The CASA Framework provides an excellent vehicle to guide air pollutant regulation(s) in Alberta. The EFR Project Team has done a lot of good work on the technical and scientific elements of the Framework and should be allowed to complete this work. We recommend that the Government of Alberta take the following actions:

1. Direct the EFR Project Team to complete its work on the emissions projections and other technical elements of the Framework review, within a definitive time period.
2. Commission an independent assessment of the Recommendation 35 to assess the impacts of existing and forthcoming environmental regulations on the electricity sector and its participants, to be completed within a definitive time period.
3. Communicate the findings of the assessment and provide specific directions to the EFR Project Team.

<sup>1</sup> The Brattle Group (2011). Evaluation of Market Fundamentals and Challenges to Long-Term System Adequacy in Alberta’s Electricity Market: Prepared for the AESO.

<sup>2</sup> The Brattle Group (2013). Evaluation of Market Fundamentals and Challenges to Long-Term System Adequacy in Alberta’s Electricity Market: 2013 Update

<sup>3</sup> Market Surveillance Administrator (2012). State of the Market Report 2012: An Assessment of Structure, Conduct, and Performance of Alberta’s Wholesale Electricity Market.

<sup>4</sup> EDC Associates (2013). Trends in GHG Emissions in the Alberta Electricity Market: Impact of fuel switching to natural gas. Prepared for the Independent Power Producers Society of Alberta.