

December 16, 2010

**To: Alberta Utilities Commission (“AUC” or “Commission”)**

**Re: ISO Rules Filing in Compliance with Decision 2009-042  
Proceeding ID 41**

1. Pursuant to subsection 20.5(2) of the *Electric Utilities Act* (“EUA”), the Alberta Electric System Operator (“AESO”) is filing ISO Rules 9.4 - Transmission Constraint Management (“Revised TCM Rules”) in response to Commission directions in Decision 2009-042<sup>1</sup>.

### **Summary of Revised TCM Rule**

2. Section 17 of the *Transmission Regulation* requires the AESO to make rules regarding the management of transmission constraints, and the Revised TCM Rules have been drafted to satisfy this requirement. Specifically, the Revised TCM Rules prescribe how the AESO must operate and manage the transmission system during real time transmission constraints. Furthermore, the Revised TCM Rules are also intended to guide the development of the system controller procedures to be used to manage constraints that have been identified, through planning studies, likely to arise in real time.

### **Background**

#### Decision 2009-042

3. A new ISO Rule 9.4 - Transmission Constraints Management Rule (“TCM Rule”) was filed by the AESO with the Commission on April 17, 2008<sup>2</sup>. In response to market participant objections, the Commission convened a public hearing and on April 9, 2009 issued Decision 2009-042, which directed changes to the TCM Rule. The Commission’s directions to the AESO in Decision 2009-042 and the AESO’s responses to those directions, in the context of the Revised TCM Rules, are set out in Part 1 of the attached Schedule A. The AESO’s responses to several other issues, which the Commission indicated the AESO should address in its revisions to the TCM Rule, are set out in Part 2 of Schedule A.

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<sup>1</sup> Alberta Electric System Operator, Objections to ISO Rule 9.4 Transmission Constraints Management April 9, 2009.

<sup>2</sup> Application number 1568587

4. In Decision 2009-042, the relationship between the TCM Rule and the AESO's Operational Policies and Procedures ("OPPs") was discussed, with the Commission determining it was not persuaded that the TCM Rule was technically deficient for not providing guidance for the development of AESO OPPs<sup>3</sup>. For information, all OPPs in the OPP 500 transmission series will be reviewed to ensure consistency with the Revised TCM Rules once they are finalized. The AESO intends to phase-in amendments to these OPPs during the 2011-2012 timeframe, and will do so involving full stakeholder consultation.

### Summary of AESO Consultation

5. The Commission noted in Decision 2009-042 that the revisions the AESO was directed to make would benefit from consultation with market participants<sup>4</sup>. A summary of the AESO's consultation with regard to the Revised TCM Rules follows.
6. On December 3, 2009, the AESO issued a discussion paper<sup>5</sup> in response to the Commission's directions. Stakeholder comments on the discussion paper and the AESO responses to those comments were published in a comment response matrix on July 20, 2010.
7. On July 20, 2010 the AESO also issued a [Letter](#) and attached, for stakeholder comment, the Revised TCM Rule that incorporated the changes directed by the Commission in Decision 2009-042.
8. On September 9, 2010 the AESO posted the [Stakeholder Comments](#) received in response to the July 20, 2010 Letter. The AESO considered all written comments received to determine if additional amendments to the Revised TCM Rules were warranted.
9. On December 15, 2010, the AESO posted its reply to written stakeholder comments received on the July 20, 2010 Letter. The AESO made changes to the Revised TCM Rules to address stakeholder comments, and additional clarifying amendments were made based on final AESO review, as outlined in the following paragraph 10. All revisions are aligned with the directions given by the Commission in Decision 2009-42.

### **Summary of Amendments**

#### New ISO Rules Definitions

10. New ISO rules definitions for "downstream constraint side", "constraint effective factor" and "upstream constraint side" have been proposed as part of the Revised TCM Rules and for incorporation into the AESO's Consolidated Authoritative Documents Glossary<sup>6</sup>. The inclusion of fundamental terms was specifically directed

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<sup>3</sup> Decision 2009-042, paragraph 85.

<sup>4</sup> Decision 2009-042, paragraph 209.

<sup>5</sup> *Transmission Constraints Management: Rule 9.4 AUC Re-Filing Proposal*

<sup>6</sup> The AESO's Consolidated Authoritative Glossary is found on the AESO's website following the path Rules & Standards > Consolidated Authoritative Documents Glossary. The Authoritative Document Consolidated Glossary of Definitions contains definitions represented in ISO rules, ISO tariff and Alberta Reliability Standards. The definitions contained in the consolidated glossary have received the necessary confirmation and approvals from the Alberta Utilities Commission in accordance with Section 20.5 of the Electric Utilities Act for ISO rules definitions, Section 125 of the Electric Utilities Act for ISO tariff definitions and Section 19 of the Transmission Regulation for Alberta Reliability Standards definitions.

by the Commission in Decision 2009-042<sup>7</sup>. These three key terms have been modified to align with the existing ISO definition of “transmission constraint” and to improve their clarity.

#### Amendments to the Revised TCM Rules

11. In response to a stakeholder comments and as a result of further AESO review to ensure alignment with Commission directions in Decision 2009-042, the AESO has amended the following in the Revised TCM Rules:
  - a) The term “pool participant” has been replaced with the broader term “market participant” in the Applicability section.
  - b) The phrase “effective in mitigating the constraint” has been adopted and consistently used to add clarity to the determination of ‘effectiveness’ for purposes of the Revised TCM Rules.
  - c) Other minor language clarification changes were made for consistency, readability and to clarify the intent of the Revised TCM Rules language.

#### **Attachments to Compliance Filing**

12. The following documents are attached to this Compliance Filing.
  - a) Copy of Revised TCM Rules [blacklined](#) to the TCM Rule filed with the Commission on April 17, 2008;
  - b) Copy of the Revised TCM Rules [blacklined](#) to the Revised TCM Rule attached to the AESO's July 20, 2010 Letter; and
  - c) [Clean](#) copy of the Revised TCM Rules.

#### **Proposed Effective Date**

13. In accordance with Decision 2009-042, Section 20.5(4)(c) of the EUA, the Revised TCM Rules are proposed to be effective sixty (60) calendar days following the date a final order of the Commission is issued respecting directions set out in Decision 2009-042.

If you have any questions regarding this submission please contact Paul Glatthor at (403) 539-2464 or [paul.glatthor@aeso.ca](mailto:paul.glatthor@aeso.ca)

Sincerely,

*<original signed by>*

Heidi Kirrmaier  
Vice-President, Regulatory

Attachments

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<sup>7</sup> Decision 2009-042, paragraph 205(a)  
Filed with Commission: 2010-12-16

**Schedule A to the AESO’s ISO Rules Filing in Compliance with Decision 2009-042 Alberta Electric System Operator (“AESO”), Objections to ISO Rule 9.4 Transmission Constraints Management, Application Nos. 1568587, 1577949, 1577950, 1577951, 1577957, Proceeding ID 41**

**1. AESO Responses to Alberta Utilities Commission Directions in Decision 2009-042**

At paragraph 205 of Decision 2009-042, the Alberta Utilities Commission (“AUC” or “Commission”) directed the AESO to make a number of changes to the first version of the TCM Rule as filed on April 17, 2008 (the “TCM Rule”). The AESO has made the changes as directed, and the Commission’s directions and the AESO’s responses to these directions, in the context of the Revised TCM Rules, are set out in the table below.

<b>AESO Responses to Alberta Utilities Commission Directions in Decision 2009-042</b>	
<b>AUC Direction</b>	<b>AESO Response</b>
205 (a) Identify, use and fully define fundamental concepts and terms that would have an impact on a common understanding of the application of the TCM Rule.	<p>The definition of the three key terms in the original TCM Rules have been modified to align with the existing definition of “transmission constraint” in the AESO’s Consolidated Authoritative Documents Glossary, to improve the clarity of use and to reflect stakeholder comments.</p> <p>The term “real time” was not included as a new definition, however, the NERC definition was considered and subsection 9.4.1 (1) was changed to include the words “present” to further describe the relevant time period. The meaning of “real time” is the same in all cases of its use and is intended to have the commonly used meaning of the term.</p> <p>The terms “foreseeable” and “unforeseeable” are defined in the ISO tariff and have been used to replace the previously used terms “foreseen” and “unforeseen” in relation to the use of TMR in the Revised TCM Rules.</p> <p>The terms “planned” and “local load pocket” found in the original TCM Rule have been eliminated because the concepts were no longer needed given the scope of the Revised TCM Rules and the intended AESO use of TMR.</p> <p>The AESO has modified the TCM Rule to ensure that the word “effective” is used consistently and within the appropriate context in the Revised TCM Rules. The</p>

	<p>use of the word “effective” is also consistently qualified by the phrase “in mitigating the transmission constraint”, which further defines its meaning. The AESO believes that it is not appropriate to include the common dictionary meaning of the word “effective” in ISO rules. The AESO also notes that the Revised TCM Rules are applied in real time in the context of conditions that are currently unknown. Significant constraints that are anticipated in the planning stage will likely have a procedure specified in an OPP and the steps that will be ‘effective’ in managing these constraints will be consulted upon.</p>
<p>205(b) (i) Clarify the process steps that will be followed to manage congestion through the use of TMR. For example, during testimony the AESO suggested that a directive for TMR might be used in instances other than a local load pocket, while under subsection 9.4.4(a)(iv) TMR is restricted solely to local load pockets.</p>	<p>The TCM Rule language has been modified to remove references to the use of TMR to deal with local load pocket situations because that is not the only situation where TMR is an appropriate and permitted solution.</p> <p>The AESO continues to be of the view, however, that TMR is particularly well suited to deal with local load pocket situations. A local load pocket refers to a load that is somewhat isolated from the rest of the system, in that it is better served by local generation. To serve this load from the system may put the load at risk and violate reliability criteria.</p> <p>The TCM Rule has been modified to contain the more inclusive reference to the use of TMR for compliance with reliability standards and reliability criteria, which include local load pocket situations.</p>
<p>205(b) (ii) Clarify the process steps that will be followed to manage congestion by addressing what appears to be a missing step under subsection 9.4.4(a) with respect to re-dispatching DDS to protect the price signal after removing a DDS dispatch under subsection 9.4.4(a)(iii).</p>	<p>The AESO has determined, for the purposes of the Revised TCM Rules, and more specifically section 9.4.1(1)(a), that all required and appropriate DDS actions are already prescribed within the DDS sections of the ISO rules and do not need to be repeated in the Revised TCM Rules. Under the current DDS rules, generating assets are not eligible to provide DDS within a constrained area and DDS re-dispatch between upstream and downstream areas will occur as per the AESO’s existing ISO rules when a</p>

	<p>constraint occurs. The AESO has removed the separate DDS step from the Revised TCM Rules. For clarity, subsection 9.4.1 (2) has been modified to indicate the use of DDS according to the appropriate section of the ISO rules.</p>
<p>205(b) (iii) Clarify the process steps that will be followed to manage congestion by adding clarity to when the system controller's discretion is exercised under subsection 9.4.4(b) of the TCM Rule.</p>	<p>The AESO has created a new subsection 9.4.2(3) and has made revisions to 9.4.2(2) and 9.4.2(4) of the Revised TCM Rules to further define and clarify some specific abnormal conditions that may require system controller's (the AESO) to exercise discretion to act. Specifically, subsection 9.4.2 (3) states that abnormal conditions include circumstances of unusual natural risks to the interconnected electric system, and issues raised by a unique real time system configuration or reliability concerns stemming from voltage or reactive power effects.</p>
<p>205(c) Clarify the scope of the rule. The AESO can choose the scope that it wishes to apply to the TCM Rule, but once it does, the scope should be clear. The TCM Rule should either be limited to real time congestion or be expanded to include the planning stage elements related to congestion.</p>	<p>The scope of the Revised TCM Rules will be limited to real time and has modified the Revised TCM Rules to make that clear.</p> <p>Constraints not identified in the reliability assessments may arise in real time. Typically these constraints would be a result of multiple contingencies (not considered credible because it is unlikely that they will happen). Procedures to manage these constraints will be based on the Revised TCM rules but will be developed in real time based on real time studies. The real time studies can be undertaken by the system controller (SC) just before or during a constraint with the results used by the SC as appropriate.</p> <p>The Revised TCM Rules are also generic and are intended to provide guidance to the development of OPPs which specify preplanned procedures for the AESO to follow for foreseeable or known constraints that are identified through planning studies.</p>
<p>205(d) If the scope of the TCM Rule is expanded to include the planning stage, provide a description in the TCM Rule of how RAS will be administered.</p>	<p>The AESO is not expanding the scope of the Revised TCM Rules beyond real time and is currently consulting on proposed connection RAS rules and on the</p>

	<p>connection process, which will more thoroughly address RAS administration.</p>
<p>205(e) Clarify at a high level when, in real time, the AESO would move from the use of the TCM Rule to the use of TMR.</p>	<p>The AESO will continue its current practice of TMR procurement and usage. The AESO identifies a need for TMR on a system basis after having given consideration to the current or anticipated system conditions and applying reliability criteria. The price impact of the constraint is not a consideration in TMR procurement.</p> <p>TMR is an integral part of Section 9.4.1(1). Subsection 9.4.1(1)(e) of the Revised TCM Rules specifically refers to the conditions when TMR would be used.</p> <p>For clarity, use of TMR is either foreseeable or unforeseeable and is based on the application of reliability criteria.</p> <p>Foreseeable contracted TMR is dispatched when it is available and effective in managing the constraint. The AESO considers foreseeable TMR to be TMR that is required to meet forecast reliability criteria under expected operating conditions and planned transmission outages in an area. The need for this TMR must be forecast typically one to two years in advance so that TMR contracts can be reasonably procured.</p> <p>Use of directed TMR is unforeseeable. That is, it is not planned for in the planning horizon. Directed TMR is used only after a risk assessment is undertaken to ensure reliability criteria are not violated, either in the near term or in real time, and it is determined that there is a unacceptable risk to load or a risk of cascading.</p>

## 2. AESO Responses to Alberta Utilities Commission Issues in Decision 2009-042

In addition to the specific directions given by the Commission at paragraph 205 of Decision 2009-042, there were a number of other issues that the Commission indicated the AESO should address or consider in its revisions to the TCM Rules. These issues and the AESO's responses to the same, in the context of the Revised TCM Rules, are set out in the table below.

<b>AESO Responses to Alberta Utilities Commission Issues in Decision 2009-042</b>	
<b>AUC Issue</b>	<b>AESO Response</b>
<p>207. When reconsidering and revising the TCM Rule, the Commission directs the AESO to consider the purpose of section 17 of the Transmission Regulation within the legislative framework, the market design in Alberta, and the underlying policy elements. The Commission directs the AESO to address how the revised and re-filed TCM Rule meets the purpose of section 17 in this overall context.</p>	<p>The AESO has been working on TCM with industry since the <i>Transmission Regulation</i> became law in 2004. During those discussions, the AESO has been guided by the <i>Electric Utilities Act</i>, the <i>Transmission Regulation</i>, and the principles and recommendations of both the Transmission Development Policy ("TDP") and the Electricity Policy Framework, all within the context of the Alberta electricity market design.</p> <p>The AESO is of the view that the Revised TCM Rules are the best available solution to real time constraints. The Revised TCM Rules minimize price distortion, are effective and practical, work within the current market framework for all constraints and encourage fair, efficient and openly competitive ("FEOC") behaviors.</p> <p>The AESO is of the view the price signal is the appropriate method of attracting supply to the electricity market and encouraging FEOC behaviors. The Revised TCM Rules allow the price signal to perform this function.</p> <p>The AESO notes that transmission constraints impact the market supply and demand balance and the Revised TCM Rules work effectively within the current market design to restore that balance, while having a minimal impact on pool price. Almost all steps of the Revised TCM Rules are currently in use today and have been for some time.</p> <p>The AESO believes that the Revised TCM</p>

	<p>Rules incorporate a single protocol to deal with real time congestion which may occur for many reasons. The Revised TCM Rules are a market based solution compatible with the current single clearing price electricity market design that incorporates appropriate use of TMR/DDS and is preferable to all other alternatives.</p> <p>The AESO's analysis indicates that the frequency and duration of future constraints should be primarily contingency-related and accommodated within the normal operation of the electricity market without significant price impacts until planned transmission enhancements are in place.</p> <p>The AESO has a duty to facilitate the operation of a FEOC market. Constraints require the AESO to take out of market actions and the AESO strives to minimize the price distortion of those out of market actions. The AESO is of the view that the actions taken in accordance with the Revised TCM Rules will be fair, efficient and openly competitive in nature and constitute the best option, with the least price distortion, for managing transmission constraints. The AESO examined various options that could be used to manage constraints and is of the view that the Revised TCM Rules are the best "in-market" solution. The Revised TCM Rules are also consistent with the current single clearing price electricity market design and align with government policy.</p>
<p>208 The Commission notes the ENMAX proposal to base the pool price on the unconstrained merit order that would have occurred without the constraint, and pay dispatched generators with bids greater than the unconstrained SMP on an as-bid basis. Although the option proposed by ENMAX was not fully developed until Argument, the Commission understands that this alternative is generally consistent with the AESO's approach and with the market design objectives that real time congestion should not distort market</p>	<p>The AESO is aware of and understands the two different market design concepts put forward by ENMAX, specifically the pay-as-bid ("PAB") concept and the downstream clearing price ("DCP") concept. These concepts are not generally consistent with the current single clearing price electricity market design.</p> <p>The AESO continues to believe that the Revised TCM Rules are the best available solution to real time constraints. The Revised TCM Rules are expected to have a minimal price impact and level of</p>

<p>prices. The Commission considers that there may be merit in further exploring this alternative in order to determine an approach that best reflects the market design objectives, and directs the AESO to consider this alternative when revising the TCM Rule.</p>	<p>distortion, are effective, practical, work within the current market framework for all constraints and encourage FEOC behaviors.</p> <p>In the current electricity market design, real time supply demand balancing is facilitated by the price signal which elicits the appropriate real time market response to changes in supply and demand regardless of their cause. PAB and DCP do not provide an appropriate market signal for balancing purposes and create after the fact non-transparent side payments that are at odds with the single clearing price model in Alberta. The AESO is of the view that the Revised TCM Rules will provide a real time balancing function with minimal price distortion under anticipated future market conditions.</p> <p>In addition, the AESO notes that imports are currently non-dispatchable and, consistent with FEOC principles, are not eligible to set market price in the current market design or under a design that incorporated PAB pricing. Under PAB, imports would be priced at \$0 and would receive the unconstrained pool price which means that PAB does not provide the appropriate real time signal to imports and exports to adjust to changes in real time supply and demand.</p> <p>The AESO believes that PAB and DCP create an administrative out of market price with many unknowns while the Revised TCM Rules are an in market solution that are consistent with Alberta's market design, existing ISO rules, procedures and IT systems.</p> <p>The current AESO IT systems and procedures are designed to handle a single pool price, not multiple prices. Similarly, the IT systems can identify generators in a constrained area but they are not designed to track energy output in an area or multiple areas particularly when a constraint occurs unexpectedly in an unstudied part of the system. Making the required changes to the IT systems to</p>
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	<p>deliver a PAB or DCP solution would be costly and a major challenge, in addition to being a major change to the market design, for what appears to be a small benefit under DCP as explained below.</p> <p>If the prices can be published in real time as contemplated in the ENMAX DCP approach, the downstream price would be the same under DCP as under the Revised TCM Rules. If imports are paid the DCP price, then the price signal and competitive generator response would likely be the same as under the Revised TCM Rules. That said, the AESO does not see much benefit to implementing DCP. For most known constraints, most of the Alberta generation and imports are downstream of the constraint and would therefore receive the same price as under the Revised TCM Rules. The few upstream generators would not only have their volume curtailed due to the constraint but would also receive a slightly lower price for all of the rest of the energy that they produced. This is not consistent with the concept of a single price for energy in the current electricity market design.</p>
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