

AESO RAS in the Planning Stage Paper  
Stakeholder Comment Matrix  
December 3, 2009

**1. Introduction**

Stakeholder	Stakeholder Comment	AESO Response
<p><u>AltaLink</u></p>	<p>Alberta Transmission Development Policy (the Policy), Transmission Regulation (the Regulation), Alberta Department of Energy evidence (the DoE Evidence), and AUC regulatory decision have defined the principles and criteria regarding the use of RAS as a non-wires solution. Specifically:</p> <ul style="list-style-type: none"> <li>• Page 9 of Transmission Development Policy stated that “Contractual ‘must-run’ arrangements with market generators and RAS arrangements are short-term solutions. These solutions are not as reliable as building transmission facilitates for the long-term and should not be considered as a substitute for transmission or preclude the development of a robust transmission network.”</li> <li>• Section 15(3) of Transmission Regulation stated that “the ISO may make or provide for specific and limited exception to the requirement of subsection (1) and propose a non-wires solution               <ul style="list-style-type: none"> <li>(a) in areas where there is limited potential for growth of load, and the cost of the non-wires solution is materially less than the life-cycle cost of the transmission wires solution, compared over an equivalent study period</li> <li>(b) if the non-wires solution is required to ensure reliable service due to the shorter lead time of the non-wires solution, for a specified limited period of time.”</li> </ul> </li> <li>• Page 2 of Alberta Department of Energy’s rebuttal evidence regarding AESO’s 500 kV Transmission System Reinforcement (application No. 1346928) stated that “The criteria for the use of</li> </ul>	<p>The AESO is aware of the policy direction put forward in the Transmission Development Policy (TDP), the DOE evidence at the transmission hearings and the Commission TCM Decision<sup>1</sup>. The AESO is guided by such policy with regards to interconnection RAS which is used to address short term constraints on a temporary basis until transmission facilities are in place. The AESO notes that the Transmission Regulation section 15(2) permits the AESO to consider non-wires solutions such as system RAS on a specific and limited basis for a specified time period and section 15(3)(a) permits the AESO to propose a permanent non-wires solution under specific economic conditions.</p> <p>The AESO does not intend to use system RAS as an alternative to major system upgrades or key transmission paths. The anticipated use of system RAS would be the mitigation of low probability high impact events (Category C and D). The implementation of a system RAS may result in a generator or load having more limited transmission access under abnormal operating conditions. This use of system RAS is in the AESO’s view permitted under Transmission Regulation section 15(1) which requires the AESO to plan a system that is</p>

<sup>1</sup> Alberta Utilities Commission (The Commission) Decision entitled “ Alberta Electric System Operator Objections to ISO Rule 9.4 Transmission Constraints Management April 9, 2009 2009-042 (TCM Decision)

	<p>remedial action schemes (RAS) are described in the transmission policy and the Transmission Regulation, as well as in the WECC/NERC planning standards. The use of RAS arrangements must be based on these criteria and should not be applied where they are simply the lowest cost option or simply where it is 'economic to do so'."</p> <p>"RAS are generally intended to be short-term solutions. These solutions should not be considered as a substitute for transmission or preclude the development of a robust transmission network. In addition, a RAS that targets certain generations in order to manage congestion on a long-term basis would frustrate the intent of the Act (s.17) and Transmission Regulation (s.24) to provide open and fair access to generators."</p> <p>"While RAS managements have a role to play, that role does not include long-term alleviation of congestion"</p> <p>"Long-term use of RAS does not support these broad objectives and in addition, these solutions are not as reliable as building transmission facilities."</p> <ul style="list-style-type: none"> <li>• In its decision on Needs Identification Document Application regarding Southwest Alberta 240-kV Transmission System Development, AUC (then Alberta Energy and Utilities Board) stated, on Page 5, that "Reducing the use of, or reliance upon, remedial action schemes (RAS) will provide more efficient and reliable operation"</li> </ul> <p>In the introduction section, the AESO paper stated that "RAS may also be used as a permanent non-wires solution to address issues that arise on a regional or system wide basis." AltaLink disagrees with the approach of using RAS as permanent non-wires solution without regards to the principles and criteria established in the Policy, the Regulation, the DoE Evidence, and AUC decision.</p>	<p>adequate so that, on an annual basis, and at least 95% of the time, transmission of all anticipated in-merit energy can occur under abnormal operating conditions. System RAS used for this purpose is reviewed as system conditions change and may be permanently required in some circumstances.</p>
<p><b>ATCO Electric</b></p>	<p>ATCO Electric understands AESO's statutory obligations to ensure the safe and reliable operation of the electric system while providing market participants access to the transmission system to facilitate market transactions and generally agree with the approach proposed</p>	<p>Acknowledged.</p>

	by the AESO in this discussion paper for the use of RAS to facilitate the interconnection of load and generation in areas of constrained transmission system.	
<b><u>ATCO Power</u></b>	ATCO Power appreciates the AESO providing insight into their proposed internal planning and operating practices through this discussion paper. We believe it is very important for market participants to understand how the AESO applies principles to congestion in both the planning stages and in real time. Consistency and transparency in dealing with congestion is essential in order to maintain a fair, efficient and openly competitive market.	Acknowledged.
<b><u>Capital Power</u></b>	<p>It is important to ensure that any and all AESO rules are supported by legislation and regulation. The Transmission Development Policy (TDP) and the subsequent Transmission Regulation (T-Reg) clearly specifies that the AESO is to plan for an uncongested system. More recently in the Provincial Energy Strategy the Department of Energy (DOE) reaffirmed the AESO’s duty to supply adequate transmission indicating that “transmission infrastructure must be available in advance of need.”<sup>1</sup></p> <p>Capital Power is concerned that the AESO’s view of RAS as an effective alternative and/or potential permanent solution to building new transmission is not consistent with the policy direction from the DOE and that MW constrained down due to inadequate transmission ultimately impedes the development of the FEOC market.</p>	<p>The AESO agrees with Capital Power that it has a duty under regulation and policy to plan a robust transmission system.</p> <p>The AESO does not intend to use system RAS as an alternative to major system upgrades or key transmission paths. The use of system RAS is in the AESO’s view permitted under Transmission Regulation section 15(1) which requires the AESO to plan a system that is adequate so that, on an annual basis, and at least 95% of the time, transmission of all anticipated in-merit energy can occur under abnormal operating conditions. System RAS used for this purpose is reviewed as system conditions change and may be permanently required in some circumstances</p>

## 2. Purpose

Stakeholder	Stakeholder Comment	AESO Response
<b>AltaLink</b>	AltaLink agrees with the AESO’s approach of having a documented RAS strategy as it will provide clarity regarding the use and application of RAS. AltaLink believes that along with this documented strategy the AESO should also provide a review plan or RAS removal plan on all of the existing system RASes as new transmission facilities are planned.	The AESO is obligated under its own rules to review existing system RAS to determine if changes are appropriate. The AESO has an internal system studies process that it follows to help it fulfill duties regarding planning and operating the system. System studies are carried out on a periodic and an event basis. Existing system RAS are reviewed as part of those system studies and would prompt an existing system RAS to be removed if warranted. The AESO is also consulting with industry regarding the adoption of RAS standards that would require regular reporting on the operation of the most severe system RAS such as the RAS associated with inerties.
<b>ATCO Power</b>	The management of RAS in the planning stage should be a rule. A business practice is not adequate. A rule provides consistency in application; a business practice does not. Any change in RAS management is likely to be a Level 1 change that would have significant operational or financial impact on the industry and should go through a consultation process.	The Transmission Regulation section 17 requires the AESO to make rules and establish business practices respecting the operation of the transmission system. The AESO acknowledges that some overarching rules related to the management of RAS are appropriate.
<b>Capital Power</b>	The AESO Discussion Paper, RAS in the Planning Stage (“discussion paper”) indicates that the RAS business practices are intended to guide the AESO in assessing the need for RAS on a case by case basis.	<p>The AESO acknowledges that some overarching rules related to the management of RAS are appropriate. The AESO believes that the specific criteria and thresholds used when considering a RAS application are best discussed within the AESO Reliability Criteria and to some extent within the reliability standards and not within AESO rules.</p> <p>The AESO is required to review Alberta transmission planning reliability standards which</p>

<p>Capital Power appreciates the intricacies of the transmission system and understands that there are unique circumstances that cannot be foreseen in the development of an AESO rule. However, it is important that there is a high degree of transparency and certainty for all market participants in respect of the terms under which something as critical as transmission access may be curtailed as a result of temporary congestion.</p> <p>Capital Power believes it is possible to develop a comprehensive constraint management rule that is intended to address all transmission constraints, including those that arise in a planning context, that balances the AESO's desire for flexibility and the need for assurances of a fair and adequate process. The AESO has indicated that they are proceeding on the basis that the revised TCM Rule 9.4 will not be expanded to include the planning stage. Although Capital Power would prefer to see the AESO develop one comprehensive rule for addressing congestion management, provided the AESO is aware of the interplay and overlap of the rules and is consistent in its approach, one comprehensive rule may not be necessary. At a minimum the AESO rule pertaining to RAS must outline the processes and procedures that are applied in determining the assignment and operation of RAS. In addition the AESO rules must describe the specific criterion (and the relative prioritization) and thresholds that are used when considering a RAS application.</p> <p>Likewise the AESO needs to develop separate clear and transparent rules addressing the application and appropriateness of System RAS.</p> <p>Any information documents that are provided by the AESO providing further clarity in addition to AESO rules would be appreciated.</p>	<p>could mean revising the reliability criteria including providing more detail regarding the application of RAS in Alberta. Additionally, implementation of the NERC PRC-015 reliability standard requires certain things including:</p> <ul style="list-style-type: none"> <li>i) maintaining a list of RAS,</li> <li>ii) obtaining appropriate data,</li> <li>iii) maintaining a process for review of RAS.</li> </ul> <p>The combination of system studies process and processes under PRC-015 will cover RAS changes outside of customer interconnections.</p> <p>The AESO has kept the real time constraints management separate from the RAS management. All constraints ultimately occur in real time and need to be managed by the system controller (SC). The SC needs to have a procedure to follow when an unforeseeable event occurs. OPPs are area specific procedures intended to provide guidance for managing any constraint on the existing system and contain procedures for unforeseeable but possible events (contingencies) that are studied by the AESO following established reliability criteria. The SC manages congestion in real time following the OPP procedures and using the TCM Rule as guidance when there is no applicable procedure for an unforeseeable event. In the planning stage, system planners may run studies and foresee constraints that may be caused a new interconnection that require a RAS.</p>
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<p><b>TransAlta</b></p>	<p>We believe that the rules and business practices need to be finalized as a package rather than separately. Clarity of how the two fit together and what detail is required is needed to complete this process.</p> <p>We understand the identification of RAS during the planning stage for an interconnection, but have difficulty when a RAS is imposed after the developer has agreed to the interconnection and is proceeding. System studies are undertaken as part of the planning process.</p> <p>Once the “temporary” time period for a RAS that should be specified in the interconnection agreement has expired then a Customer RAS should be considered a System RAS.</p>	<p>The AESO agrees with TransAlta that RAS rules and business practices would be more clearly understood if they were presented as a package. The AESO intends to ensure that there is a comprehensive consideration of overall TCM including RAS. The AESO will consult on the RAS rules content as part of its normal rule process and expects to be able to utilize stakeholder feedback in preparing the supporting RAS information documents.</p> <p>Regarding the temporary nature of RAS, the AESO is responsible for preparing and submitting needs identification documents to the Commission which include an estimate of the timing for completion of the required facilities. The AESO notes that there are many factors which are beyond the AESO’s control which may alter the timing for completion of the requested facilities. Any customer interconnection project timeline may impact or be impacted by other customer interconnection projects and system projects, and their respective timelines. As a result, RAS requirements may change. The AESO regards interconnection RAS to be a temporary measure but can only provide an estimate as to when the RAS will no longer be required. The Customer can chose to accept the conditions of the RAS before interconnecting or can chose to wait until the facilities are in fact in place.</p>
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**TransCanada**

The paper notes RAS practices have evolved over time.

Ratepayer responsibilities to the generator owner today are much different than they were in the cost of service regime of the past. These differences make a review of RAS practices necessary for the reasons briefly described below and set out in slightly more detail in our cover letter.

The policy of unconstrained transmission access for generators was introduced so that congestion risk would not dissuade generator development in the competitive market that was being launched. Using RAS and other congestion management procedures to put this risk on generators counters the effectiveness of these policies. Financial offsets to the risk would preserve the policy intent.

Another factor to consider while reviewing RAS practices is whether the proposed practices would create perverse incentives. Having transmission a system cost and RAS impacts a generator risk does this.

We believe the need to examine the practices so that future processes are consistent with our market structure and policy should have been the purpose of this paper. We also believe a working group should conduct a thorough review of RAS practices.

The AESO agrees with TransCanada that RAS practices and processes should be consistent with our market structure and should not create perverse incentives for market participants. The AESO must also consider its duties under the EUA and the Transmission Regulation to provide safe, reliable operation of the system and reasonable system access. The policy discussion on TCM overall is intended to provide the clarity required to industry that TCE seeks.

### 3. Background

Stakeholder	Stakeholder Comment	AESO Response
<b>ATCO Power</b>	<p>The AESO states that a RAS is used to manage technical or system issues that cannot be managed by the system controller. The AESO also states if a RAS is out-of-service for maintenance work or unavailable or fails to operate, system controller actions to manage the situation will be outlined in the appropriate OPP. This would suggest that ultimately the system controller is capable of handling any event. ATCO Power fails to see the distinction the AESO is making in stating that a RAS is used for handling congestion that cannot be handled through real time operator action. The distinction to use or not use RAS in the planning stage appears to be arbitrary on the part of the AESO. Principles need to be created so participants can understand in a transparent manner why a RAS is or is not being applied.</p>	<p>RAS is an automatic action designed to protect system facilities. If a potential issue is anticipated, a RAS can be installed to insure timely response. If a RAS is known to be unavailable due to maintenance the SC has time to take preemptive actions before a constraint occurs to provide protection of system facilities. Such actions would often define operating conditions as if the constraint were already in effect thereby ensuring reliable operation. Preemptive SC actions result in a lower degree of transmission optimization compared to the use of RAS. If a RAS fails to operate, the transmission system operators and the SC will act to mitigate the issue but there is no guarantee that such action will prevent damage to system facilities. Newly approved and proposed Alberta AESO reliability standards require the AESO to investigate and report on such RAS failures as they are considered to have serious consequences.</p>
<b>TransCanada</b>	<p>We support the AESO undertaking this review as a result of the AUC proceeding but also to look at how RAS must be changed to become more workable under the current market based regime as discussed above.</p>	<p>Acknowledged.</p>

**4.0 RAS Usage in Alberta**

<b>Stakeholder</b>	<b>Stakeholder Comment</b>	<b>AESO Response</b>
	No comments received on this section.	

## 4.1 Normal and Contingency Conditions

Stakeholder	Stakeholder Comment	AESO Response
<b>TransCanada</b>	<p>We note for discussion in the stakeholder process that, for Category B events, “(t)he loss of opportunity load, opportunity interchanges, or radial customers is allowed.” A Category B event does not list the loss of a generator as an allowable consequence.</p>	<p>The AESO is of the view that the loss of a generator under a Category B event is allowed pursuant to approved Alberta reliability standard TPL-002. Appendix 1 note b of that standard provides that; “Planned or controlled interruption of electric supply to radial customers or some local network customers, connected to or supplied by the faulted element or by the affected area, may occur in certain areas without impacting the overall reliability of the interconnected transmission systems...”. The AESO believes that note b in this standard provides clarity that planned or controlled loss of a generator (e.g. RAS) is an allowable consequence of a single event affecting radial or local network customers.</p>

## 4.2 RAS Definition

Stakeholder	Stakeholder Comment	AESO Response
<p><b>Capital Power</b></p>	<p>The AESO rules currently define a RAS to mean protection schemes designed to perform preplanned corrective measures following a disturbance to provide for acceptable AIES performance or equipment protection. The Category A through D events describe increasing levels of system contingencies that may prompt the use of RAS.</p> <p>Mechanisms have been established for the provision of non-energy (ancillary) services and transmission system elements that are required for reliable operation of the grid. These mechanisms are referred to as ancillary services.<sup>2</sup></p> <p>Essentially, RAS is a generation re-dispatch arrangement and in some circumstances it is not clear as to how RAS differs from other reliability supporting services such as contingency reserves or Transmission Must Run (particularly in those situations which call for a System RAS or where an Interconnection RAS was not foreseen during the planning stage). Therefore, like any other ancillary service providers, providers of this service should be compensated in a manner that fully compensates them, including fixed costs and lost income from the energy market when the participant is directed to provide RAS. It seems prudent that compensation for RAS be discussed further given the apparent numerous circumstances under which they can arise.</p> <p><small><sup>2</sup> Section 1(1) (b) of the EUA defines ancillary services: “Ancillary services means those services required to ensure that the interconnected electric system is operated in a manner that provides a satisfactory level of service with acceptable levels of voltage and frequency”.</small></p>	<p>The AESO does not consider RAS to be an ancillary service rather we see them as special protection schemes or part of the transmission protection system. Interconnection RAS allows specific generators system access and does not typically have system wide implications. System RAS provides protection to system facilities however, the AESO does not consider system RAS to be an ancillary service. The AESO notes the Commission comments on the ancillary service and compensation in the TCM Decision which indicated that “ ... the Commission is not persuaded that the payment of compensation is similar to an ancillary service because unlike an ancillary service, the generators who are constrained down cannot physically be dispatched up to provide support to the AIES.”<sup>2</sup></p>

<sup>2</sup> TCM Decision, paragraph 139.

<p><b>TransAlta</b></p>	<p>A RAS is defined in the AESO Rules as follows. For completeness we have included the definitions of disturbance and contingency. We believe these definitions are clear in that a RAS is intended to deal with other than system normal situations. This means a RAS should not be used under N-0 and should not operate under N-0 if one has been installed to deal with other than system normal situations.</p> <p><i>“<b>remedial action scheme</b>” (RAS) means protection schemes designed to perform pre-planned corrective measures following a <b>disturbance</b> to provide for acceptable <b>AIES</b> performance or equipment protection.</i></p> <p><i>“<b>disturbance</b>” means an unplanned event which produces an abnormal system condition or the effects experienced by a power system following a <b>contingency</b>, such as high or low frequency, abnormal voltage, or oscillations in the system.</i></p> <p><i>“<b>contingency</b>” means an event occurring on the <b>AIES</b>; a “single-contingency” means the loss of a single system element under any operating condition or anticipated mode of operation.</i></p>	<p>The AESO acknowledges that the current definition of RAS does not contemplate the use of a RAS under N-0 conditions. The AESO has a duty to provide for the safe, reliable and economic operation of the system and in dealing new customer interconnections with has assigned RAS which operate under N-0 conditions on a temporary basis until facility upgrades are in place. The AESO will need to consider the RAS definitions in the context of the stakeholder discussions on RAS policies and procedures.</p>
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### 4.3 Existing RAS in Alberta

Stakeholder	Stakeholder Comment	AESO Response
<b>AltaLink</b>	It's AltaLink's view that existing RAS programs in Alberta are also subject to the principles and criteria set out in the Policy, the Regulation, the DoE Evidence, and AUC decision.	The AESO will follow the direction provided by legislation and regulation as well as consider the guidance of DOE policy and Commission Decisions in the development of RAS rules and guidelines.
<b>Capital Power</b>	The AESO has been directed to plan a congestion free system where transmission is built in advance of the need. The AESO should undertake to provide on a weekly or monthly basis, information regarding the total volume of MW in the Province that are subject to a RAS, and subsequently those MW that are curtailed due to inadequate transmission. MW constrained down due to inadequate transmission development undermines the FEOC operation of the market that an uncongested system is intended to enable. It is important that the cost of deferred transmission development is transparent and that the costs of remedying transmission constraints is charged to load customers as transmission costs rather than energy costs in order to demonstrate the need for, and net benefits of, future transmission reinforcements.	The AESO does not intend to use system RAS as an alternative to major system upgrades or key transmission paths. The implementation of a system RAS may result in a generator or load having more limited transmission access under abnormal operating conditions which is permitted under Transmission Regulation section 15(1). It is currently not the AESO's policy to compensate for RAS. The AESO regularly monitors the impact of transmission constraints on the market and undertakes annual stakeholder reviews to discuss regional congestion issues. The AESO is currently reviewing the available data and will be enhancing the information provided with more specific metrics where practical.
<b>TransAlta</b>	Based on the AESO Rules which define RAS and disturbance and contingency, the intent of a RAS is an automated system following an unplanned disturbance or contingency as noted above. TransAlta seeks to clarify that a RAS should only be used for Category B (N-1) situations and that it should not be used for Category A (N-0) conditions. Further we seek clarification of the following question. When planning an interconnection does the AESO, except in extraordinary and short term situations, plan for a RAS to operate under Category A conditions? Please describe the extraordinary and	Please refer to the AESO response to TransAlta in section 4.2 regarding the topic of using RAS under N-0 conditions. The AESO notes that a RAS is designed to provide automatic protection of system facilities. The AESO generally intends to use a RAS where SC action on a timely basis is not feasible. When planning an interconnection, the AESO undertakes studies to determine the need for and appropriate design of a

	<p>short term conditions of such an exception?</p> <p>What does "severe" mean in the phrase "severe thermal overloads"?  We would understand this to mean various combinations of a specified percentage overload above rating for a specified period of time. Typically the higher the overload the shorter the acceptable time period. This, of course, varies by the facility type whether line, transformer, switch, etc.</p> <p>The AESO needs to provide guidance as to the application of RAS schemes relative to static line capacity and emergency line capacity, and to the capacity of other transmission facilities. At one time the AESO was undertaking a review of transmission line ratings to examine the possibility of moving away from the simplistic summer/winter scheme and moving to a seasonal or monthly approach and perhaps a regional approach, e.g. North/Central/South. We believe that this review has merit and should be pursued with increased priority.</p>	<p>RAS. The AESO would not generally expect that a RAS would be required to operate under N-0 conditions. However, some parts of the AIES such as the SW are currently constrained and until new transmission facilities are in place, new interconnections may be delayed or may only be provided system access if they accept a RAS design that includes curtailment under N-0 conditions.</p> <p>Severe is intended to mean loading above emergency ratings, the outcome of which could cause equipment damage and is therefore 'severe'.</p> <p>The AESO review of facility ratings is currently underway and will be shared with stakeholders in the near future. Facility owners establish ratings in accordance with an acceptable facility ratings methodology. An emergency rating, if provided, may include both magnitude and duration. RAS application involves assessment of the worst expected conditions relative to post contingency flows. If magnitude is greater than an emergency rating, or if the overload cannot be mitigated by operation action with the duration provided by facility owners, RAS is considered. Application of RAS for instability does not necessarily involve facility ratings.</p>
<b>TransCanada</b>	<p>Only those with access to the confidential RAS information are in a position to comment on the accuracy of the statements in this section. It is however useful background information.</p>	<p>Acknowledged.</p>

## 4.4 AESO Use of RAS

Stakeholder	Stakeholder Comment	AESO Response
<b>Alberta Wind Energy Corporation</b>	<ul style="list-style-type: none"> <li>• RAS should be viewed as very temporary as part of the AESO planning process</li> <li>• It must be kept in mind that RAS is not in the control of the proponent (generator) and a high level of certainty is required on the timing and level of RAS for any given project</li> </ul>	Please refer to AESO response to AltaLink in section 1.
<b>AltaLink</b>	See our comment on Section 1 (Introduction)	Please refer to AESO response in section 1.
<b>Capital Power</b>	<p>The AESO lists numerous uses of RAS in Alberta. It is important that the AESO clearly defines the criteria it will apply when determining the need and appropriateness of RAS. It is equally important that there is transparency of AESO processes to ensure that market participants are able to make decisions regarding investment in Alberta's electricity market.</p> <p>The discussion paper refers to those situations for which the circumstances surrounding a customer interconnection may change. The AESO indicates that there may exist a need to implement solutions promptly or on an expedited basis. AESO rules should clearly outline under what circumstances this type of expedited action would be warranted. It is important that market participants interconnecting to the grid, and those already connected to the grid, are confident that they are being treated fairly and consistently. Furthermore, to the extent that situations arise outside of the market participant's control, and RAS is subsequently required, market participants should be compensated.</p>	<p>The AESO intends to develop RAS rules and business practices which transparent and helpful to market participants. The criteria that the AESO applies when determining the need and appropriateness of RAS are based on the Alberta Reliability Criteria and Alberta reliability standards. The AESO is currently consulting on the application of NERC reliability standards in Alberta and is planning to initiate a review of the AESO Reliability Criteria with stakeholders in 2010.</p> <p>The AESO acknowledges Capital Power's concern regarding the use of the expedited rules process and is currently reviewing its policies and procedures to see if further clarification can be provided to market participants regarding its use in the future. The AESO notes that with respect to interconnection RAS, there are many factors which are beyond the AESO's control which may require a RAS to remain in place longer than anticipated. The AESO expects that market participants are in the best position to assess and mitigate this risk to their specific project. Alternatively, they can choose to delay interconnection until required facilities are</p>

		<p>in place. The AESO is of the view that if a RAS is required for the reliable operation of the system for longer than anticipated, the AESO is still complying with its duty to provide reasonable system access and market participants should not be compensated .</p>
<p><b>TransAlta</b></p>	<p><i>" RAS is often used to maintain or increase the transmission system capabilities because it mitigates the transmission performance violations after a contingency occurs, by automatically and expeditiously tripping generation, load or system facilities." Page 6</i></p> <p>A RAS may also be used to runback generation to a level which eliminates the overload. The statement in the discussion paper infers the only action would be tripping the generation. Only if the RAS runback is ineffective would the generator be tripped. We would ask the AESO to consider if tripping may be appropriate to loads. In general the generator should be allowed to reduce their output to the required level within ten minutes and only if they do not do so within that time period should they be tripped.</p> <p><i>"On occasion, circumstances surrounding the customer interconnection may change in such a way that the AESO must take action to address an immediate or imminent reliability or transmission access issue. The reliability issue may arise for a number of reasons some of which impact the need for and nature of RAS such as:</i></p> <ul style="list-style-type: none"> <li><i>• Delays in transmission facilities may trigger the need for a RAS which was not contemplated at the time that the interconnection agreement was signed.</i></li> <li><i>• Customers may wish to advance their in service date and be willing to accept limited transmission access until planned facilities are in place.</i></li> <li><i>• Over time as the project develops, system conditions may change or new studies may be undertaken utilizing new data or analyzing a new system configuration any of which may reveal reliability</i></li> </ul>	<p>The AESO agrees with TransAlta that RAS design may provide for a signal to runback generation to a safe, reliable operating level if the runback can occur in a timely manner thereby avoiding the need to trip the unit. The time limits for the generation runback required by an overload condition are usually determined by the wires owner and are specified in the wires owner's facility ratings. The AESO is of the view that the wires owners are in the best position to establish the time limits within a RAS that would serve to protect their own facilities.</p>

	<p><i>issues that need to be dealt with correctly and promptly to meet reliability criteria.</i></p> <p><i>In these circumstances, the AESO intends to apply the same RAS policies and practices as would apply otherwise, ..." Page 6</i></p> <p>We agree the AESO "must take action" but we do not agree that a RAS should be imposed subsequent to agreement between the AESO and the Customer as to their interconnection requirements unless such RAS is handled as hereinafter described. With the exception of the second point above we believe that the proper treatment would be that any such RAS would be treated as if it was a System RAS. We further believe that any curtailments arising from any such RAS should provide compensation to the Customer so they are made whole.</p> <p>The second point above is an instance where the Customer changes their requested inservice date to an earlier inservice date and as such the costs and consequences of such a RAS would be with the Customer.</p> <p>We would consider a transformer limitation to be "low probability / high consequence" (page 6) and believe such requirements should be a System RAS versus a Customer RAS. For example, where a system substation with transformation between two transmission voltages has only one transformer then we would deem any RAS associated with such a situation as a System RAS.</p> <p>We note that "AESO policy is that all costs that need to be incurred to implement the system RAS aspect of the interconnection are paid for by load and not the interconnecting customer." (Page 11) and we deem this to be appropriate treatment for a System RAS.</p>	<p>The AESO recognizes TransAlta's concern regarding the application of a RAS subsequent to the signing of an interconnection agreement. The AESO has a duty to provide for the safe, reliable operation of the system and if circumstances change such that an interconnection RAS is required, the customer must either accept the RAS or be denied system access until required facilities are in place. On the question of compensation, the AESO believes that a delay in needed transmission facilities is a risk that market participants bear and there should not be compensation provided in those circumstances. As for circumstances where system conditions change, the current AESO policy is to not provide compensation to generators assigned a RAS. The AESO notes that at some point in a projects development prior to actual interconnection, a new generation unit is effectively in the same position as an existing generation unit having committed significant investments to be able to access the system. If constraints arise that are not directly attributable to the new generation unit, the AESO may need to consider treating the situation as if it were a system RAS rather than an interconnection RAS</p> <p>The AESO acknowledges TransAlta's comment that a RAS required to handle a transformer limitation could be considered a system RAS.</p>
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<p><b>TransCanada</b></p>	<p>As noted in TransCanada’s cover letter, the intended uses of RAS should be the subject of the stakeholder processes, not a position statement in the paper. Elsewhere in the paper this is the way it is portrayed so we put this inconsistency down to a mere style issue.</p> <p>Substantive issues are discussed in our responses to other segments of the paper except that we see no other place in the matrix to discuss:</p> <ul style="list-style-type: none"> <li>• the importance of determining accurately how much RAS is required, to optimize the use of RAS by arming specific quantities, and to consider how loads can assist with, and receive payment for, addressing the issues above.</li> <li>• that load could be part of the answer in more circumstances such as being able to ensure discretionary load reductions don’t cause more RAS generation to be armed than would otherwise be necessary.</li> <li>• that generators should not be exposed to the impacts of RAS without compensation when the many factors that affect RAS (as listed near the end of this section 4) are factors generally outside of generators owners control.</li> </ul>	<p>The AESO notes that it is currently applying the business practices outlined in the RAS paper. The AESO is seeking stakeholder comment on those practices and intends to document the potentially revised policies and procedures appropriately after such consultation.</p> <p>Before implementing a RAS the AESO undertakes engineering studies to determine the optimal use of RAS including the type volume and whether the RAS should be applied to generation or load or both.</p> <p>It is currently not the AESO’s policy to compensate for RAS. This position is consistent with the Commission TCM Decision which stated “there was no legislative requirement for the AESO to pay compensation to generators who are constrained down.<sup>3</sup>” The Commission also found that there is not an implied requirement “to provide for compensation to constrain down generators to ensure a FEOC market<sup>4</sup>.”</p>
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<sup>3</sup> TCM Decision 2009-042, paragraph 130.

<sup>4</sup> TCM Decision 2009-042, paragraph 138.

## 5.0 RAS and AESO Interconnection Business Practices

<b>Stakeholder</b>	<b>Stakeholder Comment</b>	<b>AESO Response</b>
<b>AltaLink</b>	See our comment on Section1 (Introduction).	Please refer to AESO response to AltaLink in section 1.
<b>Benign Energy Canada 11 Inc. – Allan Kettles</b>	Industry needs absolute crystal clear guarantees that AESO will not, and shall not use RAS as a grid planning tool as outlined in the Transmission Development Policy as has been used on occasion in the past. The TDP is clear on such ramifications.	<p>The AESO has a duty under regulation to plan a robust transmission system. RAS is expected to be used primarily to accommodate early customer interconnections. System RAS may need to be used to deal with low probability high impact events (Category C and D) or to address temporary system issues as allowed under regulation where there are exceptional circumstances which occur on a specific and limited basis.</p> <p>Please refer to AESO response to AltaLink in section 1.</p>
<b>Capital Power</b>	<p>The AESO states that existing RAS business practices have evolved over time and while the AESO is proposing an overarching rule for the use of RAS, the industry would benefit from further clarity provided by business practices.</p> <p>In Capital Power’s view it is important that the AESO rules contain detailed principles for evaluating and assessing the need for RAS from which business practices do not stray given they may evolve over time. It is important that changes to business practices over time are transparent and are carefully consulted on in order to ensure that principles agreed upon during stakeholder consultation are adhered to.</p>	<p>The AESO believes that the discussion and documentation of RAS business practices will provide clarity to stakeholders regarding constraint management principles used in the planning domain. The AESO intends to develop RAS rules and a business practice information document which together with the Transmission Reliability Criteria and Alberta reliability standards will provide stakeholders with a comprehensive and consistent set of policies and procedures which the AESO will follow in the application of RAS. Once created, the AESO will follow its well established consultation processes to document changes to RAS rules and record updates to RAS business practices as they evolve over time.</p>

<p><b>TransCanada</b></p>	<p>We note and support the AESO statement that cost allocation be considered for system RAS but note there is no principle that differentiates system and interconnection RAS. Both allow increased utilization of the transmission system to reduce or eliminate constrained operations. We submit therefore that both should be treated the same.</p> <p>We believe the AESO should consider market solutions which include paying for the service that is being provided and procuring it in the market for all RAS services and for all providers. Only in extreme circumstances should conscription be required and in the event of conscription we believe compensation is still required. This raises the question of what the appropriate compensation for conscription is but but compensation is paid for other services so a solution should be possible.</p> <p>We believe the costs of operating the system when constrained is no different than the cost of operating in unconstrained situations and that therefore the costs are properly a system cost in both instances to avoid creating perverse incentives as discussed above.</p>	<p>The AESO recognizes that there are similarities between interconnection and system RAS. The primary distinction that the AESO is making is that interconnection RAS is an option provided to new customers which permits limited access to the system before required facilities are in place to accommodate 100% of their in merit energy under normal conditions. System RAS may be either permanent or temporary and, in many cases, the generators impacted have existing system access arrangements. With system RAS, the generator being assigned the RAS is generally not directly responsible for causing the constraint and the benefits of having the RAS in place are shared by other generation and load on the system. The AESO prefers market solutions where appropriate. The AESO's view on interconnection RAS is that market solutions are often not available or viable and the AESO policy of assigning interconnection RAS on a last on first off basis is both fair and practical.</p>
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## 5.1 RAS and the Interconnection In Service Date

Stakeholder	Stakeholder Comment	AESO Response
<b>Alberta Wind Energy Corporation</b>	<ul style="list-style-type: none"> <li>It should be noted that AESO must be firm on the timing of interconnection and any associated RAS. Uncertainty when concerning multi-million dollar projects is unacceptable.</li> <li>“The order of connection is determined by the AESO’s interconnection queue management process <i>in effect at the time</i>” – The process must be clear and consistent to create business certainty.</li> </ul>	<p>The AESO has a duty under regulation to plan the transmission system and estimate the timing for availability of required facilities. The AESO cannot provide firm guarantees as to the timing of required facilities as there are many factors beyond the AESO’s control which impact project completion timing.</p> <p>The AESO agrees that the interconnection queue management process should be clear and consistent and is currently reviewing the queue process to avoid creating perverse incentives for market participants.</p>
<b>AltaLink</b>	<p>The AESO paper stated “In some case, a RAS may be permanent solution as an effective alternative to providing a long-term transmission solution.”. See our comments on Section 1 (Introduction) and Section 6 (System RAS)</p>	<p>Please refer to AESO response to AltaLink in section 1.</p>

<p><b>Capital Power</b></p>	<p>Capital Power has serious concerns with the AESO suggestion that RAS may be a permanent and effective alternative to major system upgrades or key transmission paths. This is not supported by the legislation as both Section 15(2) and (3) of the Transmission Regulation contemplate temporary non-wires solution. Capital Power is doubtful that the “specific and limited exceptions” referenced in the Transmission Regulation contemplated incumbent or new generators being subject to RAS as a matter of course going forward.</p> <p>Although the Section 15(2) of the Transmission Regulation acknowledges the potential for transitory or short-term congestion requiring that the AESO partially or fully deny access for a temporary or limited period of time, there needs to be a mechanism in place that protects market participants. For example, in the event that the AESO is unable to meet the agreed upon interconnection date and the market participant is subject to a RAS as a condition of its interconnection the market participant should be eligible for compensation as their investment decision is based on assumptions regarding their ability to participate fully in the energy market.</p>	<p>Please refer to AESO response to AltaLink in section 1.</p>
<p><b>TransAlta</b></p>	<p>RAS in terms of an interconnection agreement is intended to be a temporary solution to a transmission issue. We believe the AESO should put forth a date by which the interconnection issue will be fixed. If this date passes the AESO should provide generators compensation for generation that is unable to reach the grid. The generator has taken the risks stated by the interconnection agreement past this point and it becomes the responsibility &amp; cost of the AESO.</p>	<p>Please refer to AESO response to Alberta Wind Energy Corporation in section 5.1.</p>

## 5.2 Considerations in proposing an Interconnection RAS

<b>Stakeholder</b>	<b>Stakeholder Comment</b>	<b>AESO Response</b>
<b>AltaLink</b>	AltaLink agrees with the AESO’s approach of using interconnection RAS on a temporary basis as a reasonable alternative to otherwise denying access to the customer to the AIES. However, given the complexity of some RASes, AltaLink is of the opinion that there should be a limit to how many interconnection RASes are incorporated in a coordinated fashion.	Acknowledged.
<b>ATCO Electric</b>	In the interest of ensuring that RAS schemes provide the same level of reliability as other protection systems, do not compromise the reliability or restrict the operation of the electric system, or impose safety hazards to customers, the public or operating personnel, we would suggest with the support of stakeholders involved, that the AESO consider the development of a technical standards to guide the deployment of future RAS schemes. In addition to defining functionality and performance, there should also be some emphasis placed on areas of operability and maintainability of RAS facilities.	The AESO use of RAS is undertaken in a manner consistent with NERC standards and existing AESO protection standards. .
<b>Capital Power</b>	It is important that any technical and operational considerations are clearly outlined in AESO rules such that the process for assessing and evaluating the need for RAS is consistent and transparent.	Please refer to AESO response to Capital power in section 5.0.

### 5.2.1 Interconnection RAS technical requirements

Stakeholder	Stakeholder Comment	AESO Response
AltaLink	See our comments on Section 5.2	Please refer to AESO response to AltaLink in section 5.2.

## 5.2.2 Interconnection RAS operational requirements

Stakeholder	Stakeholder Comment	AESO Response
<b>AltaLink</b>	See our comments on Section 5.2	Please refer to AESO response to AltaLink in section 5.2.
<b>TransAlta</b>	The AESO's definition for system RAS vs local RAS are unclear. It appears that number of effective RAS options is the key criteria. We would suggest that other criteria be applied. Specifically if it is not caused by a new load or generator in a time period specified by the transmission planning model that it always be considered a System RAS.	Please refer to AESO response to TransCanada in section 5.0. The AESO notes that constraints are not always identified through transmission planning studies and yet the cause of the constraint can be directly related to a new interconnection. The AESO considers TransAlta's suggested criteria for defining interconnection RAS to be too restrictive and may unduly penalize existing generation and load.

### 5.2.3 Interconnection RAS and the interconnection agreement

Stakeholder	Stakeholder Comment	AESO Response
<b>Alberta Wind Energy Corporation</b>	<ul style="list-style-type: none"> <li>It is imperative that the Customer be made aware of any possible constraints and associated RAS as early in the process as possible.</li> </ul>	The AESO agrees that this is important.
<b>AltaLink</b>	See our comments on Section 5.2	Please refer to AESO response to AltaLink in section 5.2.
<b>ATCO Electric</b>	The fourth bullet should clarify that “ <b>Other</b> market participants will not be provided...”	The AESO agrees that ATCO Electric’s proposed change provides clarity to the statement and will revise the wording when used in the future.
<b>Capital Power</b>	<p>AESO is a “common carrier”, in that it is required to provide system access to all market participants wishing to exchange electric energy.<sup>3</sup> The general rule for common carriers is that, in the circumstance where there is insufficient capacity to serve all customers, all customers of a particular class of service, (e.g. Supply Transmission Service (STS)) are curtailed pro rata.<sup>4</sup> In Capital Power’s view, all generators who subscribe for STS service are members of a common class of customers and are required to be treated similarly and without discrimination. Capital Power believes that the requirement for new generators in congested areas to provide RAS service is likewise contrary to common carrier obligations, and suggests that incumbent generators do indeed have some transmission rights. By having met the requirement of being at or less than the SMP every generator has an equal right or opportunity to provide energy into the system and have a transmission system available that will accommodate its dispatch. No generator has a superior right by virtue of its location.</p> <p><sup>3</sup> s. 29, EUA</p> <p><sup>4</sup> E.g. NEB Compendium of Terms “Common Carrier. A pipeline company that is obligated to ship all product offered to it for transmission, without contract and usually by monthly nominations. In the event that capacity is not available to meet all requests, services are prorated amongst users.”</p>	The AESO agrees with Capital Power that STS customers, for example, should be treated similarly and without discrimination. In accordance with policy, the AESO’s proposed TCM rule uses reverse merit order followed by pro rata dispatch to provide existing and new generation an equal opportunity to access the system when the SC can manage constraints in real time. When a new generator applies to interconnect to the system and a RAS is required to protect system facilities, the automatic nature of the required protection means that system access cannot be granted through the offers in the merit order due to time constraints on the effective action. Furthermore, the AESO ‘s experience is that the pro rata assignment of RAS to multiple generators who are effective in relieving the constraint increases operational complexity and costs and is therefore infeasible or inappropriate as a temporary solution. The current AESO policy is to assign the RAS to the new generator who has the option to either accept the limited system access conditions or wait until the required facilities are in

		place.
<b>TransAlta</b>	<p><i>"The period of time under which a RAS may be used is temporary and may span a few months or several years." Page 9</i></p> <p>Any Customer RAS should have a sunset provision which defines what "temporary" means. In our view this should not exceed three years from the inservice date of the Customer RAS. To be clear this is from the inservice date of the RAS and given the application and approval lead times for interconnection through the AESO and AUC processes this provides several years ahead of the inservice date. Overall the time period from awareness of the problem to the end of the sunset period would likely be six years or more.</p> <p>If the constraint has not been remedied by such time then in our view any such RAS would be treated as if it was a System RAS. We further believe that any curtailments arising from any such RAS should provide compensation to the customer so they are made whole.</p> <p>Further, any Need Application for a Customer project, generation or load, which includes a Customer RAS must either have had a Need Application already filed with the AUC to alleviate the constraint or one must be filed within 90 days of the filing date of the Need Application for a Customer project.</p> <p>We believe that these actions provide clarity to the investor that "temporary" is indeed temporary and that the constraint will be alleviated within a reasonable time or they will be compensated for a RAS which exists after the "temporary" period limit of three years.</p>	<p>The AESO understands that new generators would like to have more certainty around when an assigned interconnection RAS would be removed. The AESO has a duty to plan the system and provide estimates of the timing for completion of needed system facilities' that would remove the RAS requirement. The AESO cannot provide firm guarantees as to the timing of required facilities as there are many factors beyond the AESO's control which impact project completion timing. The AESO expects that market participants are in the best position to assess and mitigate this risk to their specific project. Alternatively, they can choose to delay interconnection until required facilities are in place. The AESO is of the view that if a RAS is required for the reliably operation of the system for longer than anticipated, the AESO is still complying with its duty to provide reasonable system access and market participants should not be compensated.</p> <p>The AESO is reviewing its interconnection practices in an effort to streamline the process. The AESO does not believe that it is necessary or appropriate to link the preparation of a needs identification document prepared under section 34(1) of the EUA (Alleviation of Constraints) to a customer Needs identification Document.</p>

### 5.3 Potential alternatives when RAS is not appropriate

Stakeholder	Stakeholder Comment	AESO Response
<b>Capital Power</b>	<p>Capital Power believes that the AESO needs to provide as much transparency as possible when making determinations about the use of RAS or some other method for dealing with potential system issues that arise from an inadequate transmission system. The possible options that are available to the AESO as well as the criteria the AESO uses to make determinations regarding the appropriate method for dealing with congestion should be clearly stated. RAS as well as the reduction of path ratings can have significant impacts on a market participants business. The congestion-related risks associated with investing in Alberta's electricity market must be made known to market participants in order to ensure efficient market outcomes and an appropriate level of reliability.</p>	<p>The AESO believes that the discussion and documentation of RAS business practices will provide clarity to stakeholders regarding constraint management principles used in the planning domain. The AESO intends to develop RAS rules and a business practice information document which together with the Transmission Reliability Criteria and Alberta reliability standards will provide stakeholders with a comprehensive and consistent set of policies and procedures which the AESO will follow in the application of RAS.</p>

## 6.0 System RAS

Stakeholder	Stakeholder Comment	AESO Response
<b>AltaLink</b>	<p>AltaLink has several comments on this section as follows:</p> <ul style="list-style-type: none"> <li>• The AESO Paper indicated that “mitigation of Category C and D performance events are often candidates for system RAS”. The paper went on saying “the decision must be made with due regard for the costs to meet the reliability criteria, impact on stakeholders and the risks associated with not meeting the Reliability Criteria.” AltaLink submits that AESO must meet the requirements set out under Transmission Regulation Section 15(3)(a) and (b), and be consistent with the policy direction outlined in the Policy and the DoE Evidence, as well as AUC decision regarding the use of RAS as non wires solution.</li> <li>• In the last paragraph of Page 10, the AESO paper stated “As long as the total system RAS impact does not cause the performance standard to be violated, the AESO considers that the application of system RAS is appropriate and consistent with government policy”. AltaLink disagrees with this approach based on principles and criteria set out in the Policy, the Regulation, the DoE Evidence and AUC decision regarding the use of RAS.</li> <li>• In the same paragraph the AESO paper stated that “the AESO expects in those cases that AUC approval would take into account the cost of the system RAS solution including the cost of restricting transmission access relative to the cost of alternative solutions”. AltaLink’s view is that this expectation is not consistent with the DoE Evidence regarding the economic analysis in the case of using RAS as non-wires solutions. See our comment on Section 1 (Introduction).</li> </ul>	<p>Please refer to AESO response to AltaLink in section 1.</p>

<p><b>Capital Power</b></p>	<p>If the term “local” is going to be applied within the context of a business practice or a rule it must be a defined term so that all market participants have a common understanding of the term.</p> <p>Capital Power agrees that System RAS (permanent or temporary) costs are costs that are incurred as an alternative to a wires solution and would therefore be appropriately paid for by parties responsible for all transmission costs under the regulation. Capital Power however does not understand how the AESO justifies compensating generators for costs incurred due to System RAS and not for costs incurred due to Interconnection RAS. Specifically, those Interconnection RAS where the RAS was assigned after the interconnection occurred or if it was not identified in the planning stage. The Act does not differentiate between “local” and system wide transmission constraints. Section 17 (b) of the EUA stipulates that the AESO must:</p> <p><i>“...facilitate the operation of markets for electric energy in a manner that is fair and open and that gives all market participants wishing to participate in those markets and to exchange electric energy a reasonable opportunity to do so.”</i></p> <p>Capital Power would like more clarity as to how the AESO will determine what are “effective” generators and under what conditions the AESO would seek market based solutions as an alternative to assigning a RAS. The AESO indicates that they would make this determination on a case by case basis, but this does not preclude the AESO from developing and making public decision making criteria, thresholds or their methodology. Hopefully, this will be the subject of further consultation.</p>	<p>The AESO will fully define key terms used in AESO rules and will consider the need to define the term “local” if it is used in an ISO rule. The AESO notes that the WECC Bulk Electric System Definition Task Force is proposing a revision to the Bulk Electric System definition that may impact the AESO use of the term “local”.</p> <p>Please refer to the AESO response to TransCanada in section 5 regarding the AESO views on distinction between interconnection RAS and system RAS.</p> <p>The criteria that the AESO currently applies when determining the need and appropriateness of RAS are based on the Alberta Reliability Criteria and Reliability Standards. The AESO is currently consulting on NERC reliability standards and is planning to initiate a review of the AESO Reliability Criteria with stakeholders in 2010. The AESO intends to review the determination of “effective” generation within those discussions.</p>
<p><b>TransAlta</b></p>	<p>System RAS costs including the costs of constraining down needed generators should be paid for by load as advocated.</p>	<p>Please refer to the AESO response to TransCanada in section 4.4.</p>
<p><b>TransCanada</b></p>	<p>We support the use of System RAS subject to the issues raised previously in this matrix being addressed satisfactorily.</p>	<p>Acknowledged.</p>

## 7.0 Consistency with Market Policy and Transmission Regulations

Stakeholder	Stakeholder Comment	AESO Response
<b>TransCanada</b>	<p>We are pleased the paper indicates a willingness to consider alternative interpretations of legislation and policy as may be provided by stakeholders as we may have some differing interpretations to those expressed in the paper.</p> <p>Among these is our view that there is no policy that is so specific as to differentiate between types of RAS schemes and that we believe these may (and should) therefore be treated similarly.</p> <p>We look forward to participating in an AESO lead stakeholder working group and to further other stakeholder consultation processes as may be necessary to resolve the issues raised here and others as may become apparent.</p>	<p>Please refer to the AESO response to TransCanada in section 5.</p>

## 7.1 Regulatory Authority

Stakeholder	Stakeholder Comment	AESO Response
	No comments received on this section.	

## 7.2 Reliability Criteria

Stakeholder	Stakeholder Comment	AESO Response
<b>ATCO Electric</b>	This section makes reference to the WECC Reliability management System. Is this document still valid with the implementation of Reliability Standards?	The WECC Reliability management System will be terminated when replacement standards are approved by the Commission. The remaining reliability standards related to RMS are scheduled to be filed with the Commission in Q1 2010.
<b>TransAlta</b>	We are unsure of the practical application of the Reliability Criteria for planning in terms of required redundancy in terms of, for example, double circuit versus single circuit lines and dual versus single transformer bulk system substations. Such planning criteria would impact on the need for RAS to cover single contingencies.	The Alberta reliability standards provide performance requirements. AESO Reliability criteria provide some guidance and review of the AESO reliability criteria is planned for 2010.

### 7.3 DOE Policy Alignment

Stakeholder	Stakeholder Comment	AESO Response
<p><b>Capital Power</b></p>	<p>The AESO continues to try and use the TDP to justify the use of merit order re-dispatch to resolve congestion during abnormal conditions. The Transmission Regulation defines “abnormal operating conditions” as follows:<sup>5</sup></p> <p style="padding-left: 40px;"><i>“abnormal operating conditions” includes conditions where transmission facilities are out of service, emergency conditions exist, construction or commissioning of transmission facilities occurs or transmission facility maintenance cannot be coordinated with generating unit outages;”</i></p> <p>In Capital Power’s view, the circumstances which constitute “abnormal operating conditions” are short-term and ephemeral in nature, not the situation where there is a significant lag between transmission build and generation development. A failure of the AESO to provide an adequate transmission system is not one of the circumstances contemplated in the TDP as constituting “abnormal operating conditions”. In addition, in a growing economy, transmission constraints are very likely to become more, rather less common, and can hardly be characterized as “abnormal”.</p> <p>Furthermore this statement can not be considered in isolation. The TDP clearly indicates that the AESO should manage transmission constraints without impacting pool price.<sup>6</sup></p> <p><i>...In our market model, it is critical in the relatively few cases where transmission constraints are not removed; real time congestion arrangements should not set or distort market prices.</i></p> <p>It is clearly enunciated that policy separation of transmission and the energy markets is essential.</p>	<p>The AESO will follow the direction provided by legislation and regulation as well as consider the guidance of DOE policy and Commission Decisions in the development of RAS rules and guidelines. The Transmission Regulation section 15(1) requires the AESO to plan a transmission system that is adequate so that, on an annual basis and at least 95% of the time, transmission of all anticipated in-merit energy can occur when operating under abnormal operating conditions. The AESO is also guided by the TDP which states on page 8 that “Given the lumpiness of transmission additions, the 95% criterion is intended to be a guideline and not an absolute number” and “real-time congestion will be resolved by merit order re-dispatch, followed, if necessary, by pro-rata curtailment ...”. The AESO in fulfilling its duty to direct the safe, reliable and economic operation of the system is proposing to use merit order re-dispatch where possible to resolve constraints whatever their cause. As stated in the TCM Decision, “the Commission does not consider that the use of the EMMO dispatch and RMO curtailment in the TCM rule offends subsections 17(b) or 17(c) of the EUA in the context that the AESO has proposed to use the TCM rule for unforeseen congestion that is infrequent and of short duration. However, if real time congestion management methods overly distort market prices or allow the undue exercise of market power, the</p>

	<sup>5</sup> AR 86/2007 <sup>6</sup> (Page 8, TDP)	Commission supports the AESO's use of TMR.” <sup>5</sup>
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## 7.4 Policy Application and Rule Development

Stakeholder	Stakeholder Comment	AESO Response
AltaLink	<p><b><u>RAS as non-wires solution</u></b></p> <p>See our comments on Section 1 (Introduction) and Section 6 (System RAS)</p>	Please refer to the AESO response in sections 1 and 6.
Capital Power	<p><b><u>Use of Interconnection RAS for new customers</u></b></p> <p>Capital Power does not agree with the AESO application of Interconnection RAS. See comments in Section 5.2.3.</p> <hr/> <p><b><u>RAS as non-wires solution</u></b></p> <p>Capital Power does not agree with the AESO interpretation of Section 15(2) and (3) of the Transmission Regulation. See comments in Section 5.1.</p> <hr/> <p><b><u>Denying system access</u></b></p> <p>The AESO duty to direct the safe, reliable and economic operation of the system (Section 17 (b)) does not override its mandate to provide system access service as outlined in Section 29 of the EUA. The AESO is obliged to satisfy both mandates and does not have the ability to permanently deny system access to any participant. It is mandated to plan the system to enable all in-merit generation to access the system. So long as a market participant provides the AESO with sufficient notice to interconnect, a requirement to provide a RAS is discriminatory against that participant.</p> <hr/> <p><b><u>RAS and congestion management</u></b></p>	<p>Please refer to the AESO response Capital Power in section 5.2.3.</p> <p>Please refer to the AESO response Capital Power in section 5.1.</p> <p>The AESO understands its duties as set out under the EUA and the Transmission Regulation including its duty to plan a robust transmission system. As allowed by section 15(3) of the Transmission Regulation, assigning a RAS to a connecting customer may be required if the connecting customer wishes to be connected before the required facilities are in place.</p>

<sup>5</sup> TCM Decision 2009-042, paragraph 114.

<p>The Transmission Regulation is infinitely clear; it is critical that real time congestion arrangements do not set or distort market prices. To the extent that Capital Power is confident that the real time congestion management rule not yet proposed by the AESO does not distort market prices than it would seem appropriate that it be used to manage congestion in place of RAS.</p> <p>However, the Discussion Paper indicates the AESO intention to apply reverse merit order dispatch. Capital Power continues to advocate for pro-rata curtailment and will not support a reverse merit order approach that results in the distortion of energy prices.</p> <p>Congestion is a transmission issue and should be dealt with outside of the market for energy. Generators that are dispatched down should receive payments outside of the merit order, just as generators who are to be dispatched on to provide TMR receive payments for services they provide outside of the merit order. Both of these services can be properly characterized as services being offered outside of the merit order, as they are being provided to supplement the inadequate transmission system that has occurred as a result of the delay of building transmission. This treatment of services is likely to have the least impact on Pool price. Furthermore, Capital Power would note that the DDS program implemented to deal with the impact of transmission constraints within the energy market has been given a chance to work but has not been successful. Solutions to address these issues outside of the market should now be explored.</p> <hr/>	<p>The AESO notes that it is the TDP and not the Transmission Regulation that states that “in the relatively few cases where transmission constraints are not removed, real time congestion arrangements should not set or distort market prices.” The Transmission Regulation requires the AESO to establish rules and practices to manage real time congestion and the Commission TCM Decision on the proposed TCM Rule 9.4 for managing real time constraints has been issued. The AESO is preparing its response to the Commission directions in that Decision regarding the amendment and re-filing of the TCM Rule. A RAS would not be used to manage congestion when a real time operational approach could be used, however, it may be that a RAS is the only alternative for reliably managing a constraint. Additionally, it is intended that where practical, the real time constraints management rules will be employed after a RAS has activated which would result in the participant affected by the RAS being treated similarly to all participants affected by the constraint.</p> <p>DDS is a price reconstitution mechanism designed to mitigate the impact of TMR dispatch. Its use is not related to RAS but the AESO points out that the AESO analysis presented in the AESO paper Quick Hits A Six Month Review<sup>6</sup> indicates that the DDS market is operating as designed.</p>
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<sup>6</sup> AESO paper entitled Quick Hits A Six Month Review July 3, 2009.

**Multiple RAS**

Capital Power would like further clarity as to what is meant by the statement that the AESO has adopted a policy of not applying multiple RAS or creating a pro-rata application of a RAS to multiple generators.

Capital Power believes that the adoption of such policies should be undertaken only after adequate stakeholder consultation. It is unclear as

The AESO policy statement was made within the context of the current practice of assigning interconnection RAS to the last interconnecting customer. If the AESO were to attempt to implement a multiple RAS solution that applied RAS action to all effective parties in a constrained area based on a reverse merit order or pro rata allocation rather than following the current practice, existing generation or load would incur RAS costs and more limited system access as well as the new interconnecting customer.

The AESO notes that the application of a sequential procedure for a number of RAS currently exists on the system. The sequential RAS procedure has developed over time as more customers have been connected to a constrained area. This is different from the operationally complex application of multiple RAS to a new constraint where several effective generators or load receive simultaneous or rotating curtailments which the AESO does not support.

RAS is not used to manage constraints in the KEG area. The AESO has been consistent in its management of constraints through real time operator action applying a pro rata application of curtailment based on STS levels, a practice that was agreed upon with industry prior to the development of the proposed TCM Rule 9.4. As stated in its letter of July 21, 2009, the AESO will be applying the proposed TCM Rule 9.4 to

<p>to what principles the AESO evaluated when making this determination. Capital Power would like some clarity as to when this policy was adopted by the AESO as it seems to be inconsistent with current AESO practices.</p> <p>For example, the AESO recently endorsed generator upgrades at KH1 &amp; 2. In its endorsement letter that was filed with the AUC as part of TransAlta’s application the AESO indicated that “...with the Edmonton to Calgary transmission upgrade not in place, a 5% generation curtailment below the maximum capability of all Genesee units and Keephills Units 1 and 2 may be required during periods of high north to south power flows.”<sup>7</sup></p> <p>This assignment of a RAS is inconsistent with the AESO adoption of a policy that pro-rata curtailment will not be considered. Furthermore AESO Operating Policy and Procedure 517 also contemplates the pro-rata curtailment:</p> <p><i>In a circumstance when the SC has to constrain the sum of the generation output of two or more generators in the KEG area to a specified level, the curtailment level of each of the generators will be determined by the SC pro-rata based on the STS level of each generator.</i></p> <p>It appears that the AESO has not been consistent in its methods for applying RAS and anything other than pro-rata assignment of curtailments supports the view that incumbent market participants have preferential access to transmission.</p> <hr/> <p><b><u>Ineffective RAS or other exceptions</u></b></p> <p>The criteria that the AESO uses to evaluate the effectiveness of a RAS and the need for exceptions to the common practice must be clearly outlined for market participants in AESO rules. See comments Section 5.3.</p> <hr/>	<p>existing OPP’s on a phased in basis and will revise OPP 517 (KEG area) to align it with the proposed TCM Rule. In the interim, until reverse merit order dispatch can be implemented, the AESO anticipates that some form of pro rata curtailment that is fair to the effective generating units will need to be applied during periods of high north to south power flows.</p> <p>Please refer to the AESO response Capital Power in section 5.3.</p>
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	<p><b><u>Documented criteria for RAS</u></b></p> <p>Clear and transparent rules are essential to the FEOC operation of the market. See comments in Section 2.</p>	<p>Please refer to the AESO response Capital Power in section 2.</p>
<p><b>Load Coalition</b></p>	<p>The AESO's duty to manage power system reliability is paramount, and deserves due respect by industry participants.</p> <p>However the traditional practice of assigning a RAS scheme to the newest participant appears to be at variance with the fundamental policy that "there are no explicit transmission rights." [2003 Transmission Development Policy Paper, p.8].</p> <p>The traditional practice appears to create a different level of system access for new vs. incumbent market participants. There does not appear to be any basis in law for the traditional practice, which is a matter of concern.</p> <p>As well, this practice appears to create a perverse incentive for existing participants to impede transmission system development to maintain their competitive advantage as an incumbent, which is clearly not in the public interest.</p> <p>While it appears technically reasonable that multiple simultaneously-operating RAS schemes not be used to manage transmission congestion in a single area, it is not clear why equitably rotating such a scheme among affected parties is unreasonable. By 'sharing the pain', all parties would be aligned in their desire to see the constraint eliminated, which would assist in expediting transmission development.</p> <p>It would be helpful if the AESO could give this concern due consideration, and provide stakeholders with a balanced technical and legal assessment. This would further establish a common understanding among stakeholders, and facilitate progress.</p>	<p>The AESO believes that the current interconnection practice provides all market participants equal access to the system once the required facilities are in place to handle 100% of their in merit energy. In the interim, the AESO is often in a position to offer limited access on a temporary basis if a RAS is in place. The AESO believes that its current practice of assigning the RAS to the new interconnecting party is fair and equitable for all market participants given the available options. Using the merit order or a pro rata assignment of RAS to multiple effective generators or equitably rotating among multiple effective generators is, in the AESO's view, too operationally complex and too costly given the temporary nature of the issue.</p>
<p><b>TransAlta</b></p>	<p><b><u>RAS and Congestion Management</u></b></p> <p>A RAS scheme once in place can be triggered by events and situations not contemplated at the time the RAS was studied and designed. For example, system changes and load changes, even at considerable distance from the transmission facility subject to the RAS, can result in increased line flows and trigger the RAS. This can be under a Category A situation. We consider these to be inadvertent and unintentional triggering of a RAS. Such situations cross over to where RAS operate and when the more appropriate treatment would be TCM Rule 9.4. By our observation the longer a RAS is in place the more likely such inadvertent triggering of a RAS will occur.</p>	<p>The AESO intends to use TCM Rule 9.4 whenever real time SC action is possible. The AESO is aware that circumstances may change such that a RAS no longer is needed to serve its original purpose but can be required to mitigate a new constraint issue. The AESO may need to consider whether the new application of the RAS is in the nature of a system RAS. The AESO will seek further industry input on the system RAS and interconnection RAS distinction and the appropriate compensation for assigning a system RAS.</p>

	<p><b><u>Multiple RAS</u></b></p> <p>We do not understand the context of "requires the AESO to impose RAS costs and more limited system access on existing generators or load." found on page 13.</p> <p>Overall we would request that the AESO elaborate on Multiple RAS preferably with examples. It appears to us that the concern is attempting to use RAS to pro-rata allocate a curtailment. We would point out that for clarity a distinction should be made that this is not the sequential application of RAS which may affect the same element. For example, sequential RAS where you would curtail generator one first and then if the overload persists then curtail generator two.</p> <p><b><u>Ineffective RAS or other exceptions</u></b></p> <p>We consider that where the need for a RAS arises after an interconnection agreement is signed to be a System RAS and not a Customer RAS.</p> <p><b><u>Documented criteria for RAS</u></b></p> <p>Given the AESO's plans for revising the Interconnection Process and allow the studies and creation of the Customer Proposal to be undertaken by Qualified Consultants we would think that a guidance and informational document would be highly valuable in enabling such consultants to more fully understand the AESO's practices and procedures regarding RAS.</p>	<p>The AESO statement on page 13 was made within the context of the current practice of assigning interconnection RAS to the last interconnecting customer. If the AESO were to attempt to implement a multiple RAS solution rather than following the current practice, existing effective generation or load would incur RAS costs and more limited system access as well as the new interconnecting customer. The AESO notes that the application of a sequential procedure for a number of RAS currently exists on the system. The sequential RAS procedure has developed over time as more customers have been connected to a constrained area. This is different from the operationally complex application of multiple RAS to a new constraint where several effective generators or load receive simultaneous or rotating curtailments which the AESO does not support.</p> <p>Please refer to the AESO response TransAlta in section 5.1.</p> <p>Acknowledged.</p>
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## 8.0 Summary

Stakeholder	Stakeholder Comment	AESO Response
<b>ATCO Power</b>	Most of the statements on how the AESO will manage RAS contain the word 'may'. ATCO Power would like the AESO to provide more clarity around the use of the word 'may' in each context. As written, it is impossible to understand the AESO's intended actions and some of the messages appear conflicting.	The AESO will continue to consult with stakeholders regarding the development of RAS rules and practices and will provide this clarity in the final proposed rules and guidelines.
<b>TransAlta</b>	Far more clarity in terms of criteria that will be used to determine cost allocation on a case by case basis is required. Generally we would submit that once the timeline used for transmission build in the interconnection agreement has passed this should be deemed a System RAS and all costs including lost generation costs should be paid for by load.	Please refer to the AESO response to TransAlta in section sections 5.1 and 6.
<b>TransCanada</b>	<p>From our comments on individual sections it is obvious we disagree with the conclusion that the status quo is the appropriate course of action.</p> <p>We recommend a working group deal with this, that RAS services should be procured with appropriate compensation provided and that RAS costs are properly a system cost.</p>	The AESO will continue to consult with stakeholders regarding the development of RAS rules and practices and will consider the use of a working group in the future if it is effective and appropriate.

## 9.0 Next Steps

Stakeholder	Stakeholder Comment	AESO Response
<b>AltaLink</b>	It's AltaLink's view that the use of system RAS as non-wires solution without regards to the specific requirements as set out in the Regulation and the Policy will have negative impact on provisions of reasonable transmission access and supporting a fair, efficient and competitive market.	Please refer to the AESO response to AltaLink in section 1.
<b>ATCO Power</b>	ATCO Power appreciates the efforts of the AESO in creating this much needed discussion paper on RAS. As mentioned at the stakeholder meeting, we are concerned with the ordering of the series of discussion papers. In addition we are concerned with the approach the AESO outlined in a July 21, 2009 letter on its website regarding pending ISO rules and OPPs related to transmission constraints management and remedial action schemes. ATCO Power would appreciate the AESO holding a stakeholder consultation on the high level principles of transmission congestion and how they should be applied in both the <b>planning phase and in real time.</b>	The AESO will be engaging stakeholders in the preparation of the AESO response to the Commission TCM Decision in the near future.
<b>TransAlta</b>	The preparation of RAS guidelines and standards is an important requirement given the AESO's interconnection process redesign which would have others than the AESO undertaking the studies and preparing the Interconnection Proposal which would include any requirements for RAS for an interconnection. These documents must be a high priority.	Acknowledged.