Stakeholder Comment and Rationale Form

AESO AUTHORITATIVE DOCUMENT PROCESS

Stakeholder Consultation Draft
2010-06-11

Alberta Reliability Standard – VAR-001-AB-1a Voltage and Reactive Control

NOTE: The AESO is asking market participants to give an initial indication of their support for, or opposition to, the specific Alberta Reliability Standard variances to the NERC requirements referenced below. Such an initial indication assists in the AESO's practical understanding of the receptivity of the industry to the proposed changes, and in that regard the AESO thanks, in advance, all market participants who choose to respond. With regard to the specific standard changes and their implications, such responses are without prejudice to the rights of market participants under the Act, any regulations, or related decisions of the Commission.

Date of Request for Comment [yyyy/mm/dd]: 2010-06-11	Contact: Jerry Mossing
Period of Consultation [yyyy/mm/dd]: 2010-06-11 through 2010-07-09	Phone: 403-539-2496
Comments From: TransAlta	E-mail: ars_comments@aeso.ca
Date [yyyy/mm/dd]: 2010-06-11	

Listed below is the summary of changes for the proposed new, removed or amended sections of the standard. Please refer back to the Letter of Notice under the "Attachments to Letter of Notice" section to view the proposed content changes to the standard. Please double-click on the check box for either "Support" or "Oppose" and/or place your comments / reasons for position underneath (if any).

1. Definitions	Comments	Rationale and/or Alternate Proposal
(a) New "**aggregated generating facilities**" means an aggregation of generating units, including any reactive power resources, which are: (i) designated by the ISO; and (ii) situated in the same proximate location at one or more point of connections.	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	

1. Definitions	Comments	Rationale and/or Alternate Proposal
"**voltage regulating system**" means the equipment that automatically controls the reactive power resources to regulate the voltage level at any collector bus.	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	The text in the drafted standards and comment matrix does not show defined terms in bold and this makes it somewhat difficult to fully interpret the intention of the AESO in using particular language.
(b) Removals	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	
(c) Amendments	☐ Support ☐ Support with language suggestions ☒ Oppose *Insert Comments / Reason for Position (if any)*	Applicability: TransAlta believes this standard should only be applicable to TFO's who operates the transmission systems and provides transmission services in its area (the term of Transmission Operator under the NERC registration criteria. ') and not generators that are registered as a TFO's by AESO because of their generation interconnection facilities. TransAlta requests AESO to re-examine the applicability section of this standard or provide clarity as to how a generator registered as a TFO could comply

2. Alberta Reliability Standards	Comments	Rationale and/or Alternate Proposal
(a) New Alberta Variances The provisions within the proposed Alberta Reliability Standard *VAR-001-AB-1a: Voltage and Reactive Control*, are derived from NERC VAR-001-1a with suitable revisions for the responsible entities within Alberta. An Alberta variance is a change from the NERC Reliability Standard that the AESO has determined is material. Specifically, the following provisions have been added, replacing existing		

2. Alberta Reliability Standards	Comments	Rationale and/or Alternate Proposal
NERC VAR-001-1a requirements.		
R1 The ISO must make rules for monitoring and controlling voltage levels and MVar flows within the transmission system, including consulting with TFOs and transmission operators adjacent to Alberta as appropriate in the development of such ISO rules.	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	
R2. The ISO and each TFO must develop, maintain, and implement procedures, for monitoring and controlling voltage levels and MVar flows within the transmission system, including consulting with each other, neighboring TFOs and, as appropriate, transmission operators adjacent to Alberta.	☐ Support ☐ Support with language suggestions ☒ Oppose *Insert Comments / Reason for Position (if any)*	Applicability: TransAlta believes this standard should only be applicable to TFO's who operates the transmission systems and provides transmission services in its area (the term of Transmission Operator under the NERC registration criteria. ') and not generators that are registered as a TFO's by AESO because of their generation interconnection facilities. TransAlta requests AESO to re-examine the applicability section of this standard or provide clarity as to how a generator registered as a TFO could comply
R3 The ISO must operate with sufficient reactive power resources available within Alberta to protect the voltage levels of the transmission system under normal and contingency conditions. This includes, without limitation, consideration of the transmission system share of the reactive requirements of interconnections.	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	
R4 The ISO may establish and publish criteria on its website that exempts generating units from compliance with any or all of the directives in requirements R5 and R6.3. **R4.1** The ISO must maintain a list of generating units and wind	☐ Support ☐ Support with language suggestions ☒ Oppose	We think the "may" should be replaced by "must". Transparency and clarity are required for the rationale of any

2. Alberta Reliability Standards	Comments	Rationale and/or Alternate Proposal
aggregated generating facilities in Alberta that are exempt from following voltage level directives or reactive power requirements in the ISO rules. **R4.2.** The ISO must inform each GFO when its generating unit(s) is included on the list referred to in requirement R4.1.	*Insert Comments / Reason for Position (if any)*	exempted units.
R5. The ISO must issue directives to the operator of a generating unit that specify the following: a) voltage level on the high voltage side of the transformer at the point of connection between each generating unit and the TFO's facilities; or b) the reactive power to be achieved by the generating unit.	☐ Support ☐ Support with language suggestions ☒ Oppose *Insert Comments / Reason for Position (if any)*	In R4. a)in our opinion "the high voltage side of the transformer at the point of connection" is not appropriate based on the following considerations: It should be the generator terminals for synchronous generators or the LV side of system step-up transformer for the wind power facilities. Our rationale is as follows: 1. The wording suggested in R4.a) does not match the wording in the section 3.2 of OPP 702. The section 3.2 of OPP 702 states that "….(the "interface" is the generator terminals for synchronous generators and low voltage side of the system step-up transformer for wind power facilities." To adjust system voltages the SC will direct GFOs to raise or lower their voltage by a specific amount using either the generator transformer OLTC (On-Load Tap Changer) or adjusting the generator interface voltage."
" 'R6. The ISO must know the status of all transmission reactive power resources, voltage regulators and power system stabilizers.	☐ Support ☐ Support with language suggestions ☐ Oppose	

2. Alberta Reliability Standards	Comments	Rationale and/or Alternate Proposal
	Insert Comments / Reason for Position (if any)	
R7 Each TFO must know the status of all transmission reactive power resources, voltage regulators and power system stabilizers within its service area.	☐ Support ☐ Support with language suggestions ☒ Oppose *Insert Comments / Reason for Position (if any)*	Applicability: TransAlta believes this standard should only be applicable to TFO's who operates the transmission systems and provides the transmission services in its area (the term of TOP 's in the states) and not generators that are registered as a TFO's by AESO because of their interconnection facilities. TransAlta requests AESO to re-examine the applicability section of this standard or provide
R8 The ISO, when notified by an operator of a generating unit of the loss of automatic voltage regulator control or by an operator of an aggregated generating facility of the loss of voltage regulating system control, must issue a directive to the operator to maintain or change either its voltage or reactive power.	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	
R9 The ISO must, when it determines it is necessary, regulate transmission voltage and reactive power flow by issuing directives to TFOs to operate the devices necessary to do so.	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	
R10 The ISO must maintain system operating limits by issuing directives to TFOs and operators of generating units for the operation of capacitive and inductive reactive power resources with respect to, without limitation, the following: • reactive power generation • voltage • transmission line switching • reactive power resource switching, • load shedding	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	

2. Alberta Reliability Standards	Comments	Rationale and/or Alternate Proposal
R11 The ISO must make arrangements such that there are sufficient reactive power resources to support voltage under first contingency conditions. **R11.1** The ISO must make arrangements such that reactive power resources are available in locations within Alberta such that the resources can be applied effectively and as soon as practical when a contingency occurs pursuant to R12.	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	
R12 The ISO must take action to restore system operation within interconnection reliability operating limits or system operating limits established by the ISO in the event of a violation resulting from reactive power resource deficiencies.	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	
R13 The ISO must, after reviewing with the GFO regarding necessary step-up transformer off-load tap changes, provide documentation to the GFO specifying the required tap changes, a timeframe for making the changes, and technical justification for these changes.	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	
R14 The ISO must issue directives necessary to prevent voltage collapse in the event of reactive power resource deficiencies including without limitation to reduce load.	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	
(b) Removals (Alberta Variances) An Alberta variance is a change from the NERC Reliability Standard that the AESO has determined is material. Specifically, the following provisions are deemed as Alberta variances and have been removed from the existing NERC VAR-001-1a requirements. NERC requirement R5 was deleted as NERC requires the Purchase-Selling Entity to arrange for reactive resources to satisfy the reactive requirements identified by its Transmission Service Provider. This	☐ Support ☐ Support with language suggestions ☐ Oppose	

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requirement was deleted as the ISO ensures the reactive power requirements are met in Alberta.	*Insert Comments / Reason for Position (if any)*	
(c) Amendments (Alberta Variances) The following revisions have been made throughout this proposed reliability standard: - Identified the responsible entities in Alberta. - Applied a consistent writing style and added clarity. - Changed passive terms such as “shall” to “must”. - Developed measures specific to the requirements.	☐ Support ☐ Support with language suggestions ☐ Oppose *Insert Comments / Reason for Position (if any)*	
(d) Other *(Stakeholders wishing to comment on specific provisions are requested to copy the provision into this area and provide comments)*		In reviewing VAR-001-AB-1a, VAR-002-AB-1.1b it appears that a number of changes have been made to the standards since the last time they were reviewed and approved by the working group and the ARC. It appears that a number of the changes are a result of the AESO's proposed removal of OPP 702 and the incorporation of portions of that OPP into these two standards. As a general observation, it appears that the result of this additional OPP language has resulted in standard that is much more specific and far reaching than the NERC version of the standard. TransAlta's position is that these standards should not be approved until such a time as the AESO can provide a complete package that would show how OPP 702 is to be mapped into any of the VAR Standards and the ISO rules, which portions of the OPP are to be retired, and the draft of the Information Document dealing with Voltage Control. This is especially critical when the AESO

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		proposes to eliminate an entire document, such as OPP 702. TransAlta needs to better understand where and how some of the key elements of OPP 702 (17 Feb 2010) will be treated going forward when implementing standard VAR-002-AB-1, Some excerpts from OPP-702 Section 3.2 are below: Generators must be capable of operating continuously in automatic voltage regulation mode between the generating unit's lagging and leading reactive power obligations. Generator automatic voltage regulators must be capable of maintaining voltage at the generator interface as prescribed in the AESO Generation and Load Interconnection Standards.(the "interface" is the generator terminals for synchronous generators and low voltage side of the system step-up transformer for wind power facilities) To adjust system voltages the SC will direct GFOs to raise or lower their voltage by a specific amount

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		using either the generator transformer OLTC (On-Load Tap Changer) or adjusting the generator interface voltage. This action will result in a change in VAr output from the generator. The SC will ensure the desired voltage level is attained. Under normal operating conditions and subject to any operating agreements with the AESO, the SC will direct voltage such that reactive power is within the unit obligation or within 0.9 power factor lagging and 0.95 power factor leading based on gross MW output of generating units. The SC will issue directives for generator voltage adjustments directly to the generator operator. It is preferred that the SC directs generators to adjust their voltage level rather than their VAr output so that confusion about the generator control modes is avoided. The addition of portions of an OPP into Reliability Standards has a number of

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		ramifications that need to be carefully considered. The move from an OPP into a reliability standard means that those sections of the OPP would then be subject to audit. This must be carefully considered from three points of view: 1) Is the OPP worded such that it can be audited against and what are the appropriate measures 2) The additional workload that will result from the need to create an audit trail where one was not previously required. 3) The implications of creating a standard more specific and broader reaching than the NERC standards. At all the applicable places in this standard we recommend that a NERC requirement not be split into a number of AESO sub-requirements. We recommend that bullets be used instead to prevent an increase of any penalty coverage, as compared to what was envisaged by NERC. We understand one of the principles of the TOAD process is to eliminate duplication among authorative documents, however there are additional ramifications when moving into reliability standards that must be considered and we believe it is very

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		important that they are fully vetted at the working group level within the standards development process. For these reasons we believe it is necessary to send both of these standard back to the working group and ARC as part of a complete review of the VAR standards and the associated issues surrounding OPP 702.