

Date of Request for Comment: <u>November 25, 2016</u> Period of Comment: <u>November 25, 2016</u> through <u>January 6, 2017</u> Comments From: <u>Capital Power</u> Date [yyyy/mm/dd]: <u>2017/01/06</u>	Contact: <u>Grant Berry</u> Phone: <u>780-392-5294</u> Email: <u>gberry@capitalpower.com</u>
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Please place your comments/reasons for position (if any), in response to the questions set out below, in the following matrix.

Questions	Stakeholder Comments and/or Alternate Proposal
<p>The AESO is seeking comments from stakeholders with regard to the following matters:</p> <ol style="list-style-type: none"> 1. Do you agree or disagree that proposals 1 through 13 presented in the Section 502.11 Discussion Paper represent the minimum technical requirements for substations? If you disagree, please provide comments. 2. Are any of the proposals in the Section 502.11 Discussion Paper unclear? If yes, please indicate the proposal number and describe how the clarity of the proposal could be improved. 	<p>Capital Power appreciates the opportunity to review the AESO’s Proposed New Substation Rule - Section 502.11 of the ISO Rules and provides the following comments.</p> <p><u>Question 1</u></p> <p>Capital Power disagrees with proposals #6 and #11 as written and provides the following comments and recommendations:</p> <ul style="list-style-type: none"> • <u>Proposal #6 (b)</u> indicates that the AESO recommends BSL needs to be specified for 300kV & higher. However, switching impulse tests for HV equipment is typically not performed for 362kV or lower class equipment. If required, this will add additional and unnecessary cost to equipment purchase. This also creates conflict with the BSL listed in p.15 Proposal #6 (j) for 240/260kV class equipment. Capital Power recommends removal of “BSL” for all 240/260kV equipment. • <u>Proposal #11 (d): single-pole CB for 240/260 & 500kV subs:</u> The 1-pole 500kV CB is common due to phase-to-phase distance. However, 1-pole CB is not common for 240/260kV unless 1-pole tripping/reclosing or control switching is required. For all our applications (mainly transformer & bus protection), 3-pole (Single mech) 240/260/345kV breakers are typically used for significantly lower cost than 1-pole breakers. Capital Power recommends that the wording be revised to 3-pole breakers for 240/260kV unless otherwise specified by the AESO in the functional specification. • <u>Proposal #11 (e) max breaker operating time:</u> Typical North American circuit switchers do not have high speed operating times (2-3 cycles). Recommend to remove Circuit Switchers. Typically, 300kV 3-pole dead-tank breakers rated 3 cycles are used for Alberta substations. The new 2.5 cycle (formerly 3 cycles) requirement for 240/260kV breaker will significantly increase (+40%) breaker cost because 362kV breakers will be required. Capital Power recommends to use 3 cycles

	<p>for 240/260kV. If not acceptable, please provide reasons for changing to 2.5 cycles from 3 cycles.</p> <ul style="list-style-type: none"> • <u>Proposal #6 (i) substation equipment operating voltage range:</u> The proposed voltage range table appears to be incorrect for 240/260kV. Capital Power is developing a wind farm in Central Alberta and planning to connect to existing Tinchebray Sub 972S which is south of Whitefish Lake & South of Sagitawah – not north of Whitefish Lake & Sagitawah as indicated in the table #6 (i). The nominal operating voltage at Tinchebray is 255kV, which is outside the normal operating bounds of 234kV-252kV. Please confirm how the AESO will treat anomalies to the identified system voltages. <p>The title MCOV is confusing because MCOV is understood to be used for surge arrester rating. Capital Power recommends either differentiating between MCOV and Emergency continuous maximum kV or confirming the definition of MCOV.</p> <ul style="list-style-type: none"> • <u>Proposal #6 (j) BIL & BSL:</u> Please explain why the BIL level of disconnect switch (Assuming air-break) is lower than CB, CT/VT. For 240/260kV, BIL for switch is 900kV as BIL for CB, CT/VT is 1050kV. Since arcing will be created during switch operations, it has been traditional practice to use the same BIL for switches and other HV equipment. In addition, lowering switch BIL will typically decrease the switch isolation distance which is regulated by Alberta Electric Utility Code (AEUC – safety code). The concern is the lower BIL switch may not provide sufficient safe isolation distance for workers. Recommend same BIL for switches, CBs, CTs/VTs. BSL is usually not a concern for equipment class 300kV and below. • <u>Proposal #6 (l): minimum BIL for MV & LV equipment:</u> Please clarify the BIL requirements for the last two rows of equipment (Transformers, shunt reactor bushings, CTs, VTs, busbars). Are these requirements for outdoor equipment? If so, Capital Power recommends addition of the word “outdoor”. <p><u>Question 2</u></p> <p>Capital Power seeks the following clarifications:</p> <ul style="list-style-type: none"> • <u>Section 1, Executive Summary, 2nd paragraph:</u> Please explain why AESO put the 69kV class equipment with other distribution equipment (13.8, 25, 34.5kV). There are still 69kV substations & power lines in service in Alberta and 69kV equipment is still treated by electrical equipment vendors as transmission class equipment. Will the AESO require all new 69kV substation be built to 138kV specification? Capital Power proposes the addition of 69kV equipment specification. <p>Does the AESO anticipate that no future transmission substations will be required for operation at voltages between 25kV and less than 100kV? If so, please confirm. If not, please comment on how the AESO proposes to address future substations connecting at voltages between 25kV and less than 100kV.</p>
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