Transmission Rules/Towers Review Working Group

Meeting Minutes – Dec 4th, 2014

Time: 9:30 am to 3:00 pm

Location: AESO Offices, 2500 330 5th Ave SW, Room 2538

Attendance List:

Attended	Name	Company	Email
X	[redacted]	AESO	[redacted]
X		AESO	
		AESO	
X		AESO	
X		AltaLink	
X		AltaLink	
X-CC		EPCOR	
		ENMAX	
X		ENMAX	
		ATCO Electric	
X		ATCO Electric	
		ATCO Electric	
		TFCMC	
X		UCA	

CC = via Conference Call

1	Review of Needs List • Item 92: Revision to rule 14 to acknowledge use of alternate forms of lightning protection: Revision of Section 14 subsection 8) was read. Everyone in WG is in agreement with the wording. Item declared complete. • Item 97: Comments on Meeting Minutes: Date needs to be changed on last meeting minutes to Nov 13th. **Action Item**: AESO ([redacted]) to re-issue minutes with revised date. • Item 105 Loading Cost Comparison Report: Will be reviewed when we review reports • Item 108: Regarding revisions to the ID document acknowledging swing clearance on long spans where existing right of way requirements may be excessive. **Action Item**: AESO ([redacted]) will send out proposed revised wording for the requirements and the ID in a week Dec 11th. • Item 112 Galloping Draft Report: Will be reviewed when we review reports • Item 113 Conductor Sizing Draft Report: Will be reviewed when we review reports • Item 114 Optimized Conductor Report: Will be reviewed when we review reports • Item 119: AESO ([redacted]) reviewed proposed directive to AltaLink for undertaking a study of galloping mitigation devices. Discussion proceeded – AltaLink ([redacted]) expressed a number of concerns with the direction as currently written.

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	UCA ([redacted]) reported that his inquiries with Dr. Havard regarding availability EPRI report on the effectiveness of anti-galloping devices and for observer training for reporting galloping. Apparently, the EPRI did not publicly issue their report due to threats of legal action. However, Dr. Havard has some training videos which might be available. **Action Item:** AESO ([redacted]) will meet in January and come up with more of a "holistic" directive to address some of AltaLInk's concerns. **Action Item:** UCA ([redacted]) to inquire about availability of observer training videos. • Item 120: Request to review rule 19 – right of way standards: EPCOR ([redacted]) reviewed the rewording that was proposed from previous meeting and he said it looks good. Item declared complete. [EPCOR] did suggest some expansion of the description in the ID document, however, and agreed to provide his suggestions. **Action Item:** EPCOR ([redacted]) to provide AESO ([redacted]) with suggested revisions to ID document for inclusion with rule 19. • Item 123: UCA's rough evaluation of cost savings if galloping requirements are removed sent out to WG. Savings were considered small. Item declared complete. • Item 124: AltaLink ([redacted]) and ATCO ([redacted]) will send all their comments on phase to phase air gaps for 240kV to [AESO]. See discussion on galloping report. • Item 125: Summary of TFO Responsibility Definition not received by all WG members. **Action Item**: AltaLink ([redacted]) will send to the WG by Dec 5th • Item 126: Clean version of UCA proposal for rule 12 (1) d was provided and reviewed by WG. No further comments. Item declared complete
2	Review of Status of Reports • Item 112: Report S1, Galloping Cost Impact: Draft is still sitting on FTP site. Some feedback has been received from TFOs and AESO. Prior to placing the next revision for review, AESO ([redacted]) requested feedback on derivation of phase to phase air gap from AltaLink and ATCO. May result in alterations in report. UCA ([redacted]) noted that phase to phase air gaps are an ongoing issue with widely varying assumptions and distances. Identified the need to standardize these. WG agreed to put table in ID document. AESO ([redacted]) noted that requests had been received for review of draft galloping report. Altalink not comfortable with sharing draft report at this time, debating internally. Also noted that comments regarding the galloping provision for RA and RB towers could be misleading. **Action Item:** AESO ([redacted]) revising S1 galloping draft report conclusions to acknowledge that the RA and RB were designed for galloping based upon CIGRE methods which were industry standard at the time (and probably remain standard today). The Havard galloping methods were incorporated later in the tower design process and were applied to the RC and RD towers which were developed later in the process. • Item 105: S2 Loading Cost Comparison report: AESO ([redacted]) has received some feedback and waiting for feedback from ATCO and Altalink (end of next week Dec 12th). **Action Item**: AESO ([redacted]) will incorporate all changes and re-issue for WG review prior to next meeting. Some discussion about the interpretation of rules requiring nonlinear analysis of structures. No

	agreement reached on interpretation of existing CSA on this item; UCA ([redacted]) noted that it will be a requirement in the next issue of CSA. AltaLink ([redacted]) observed that it would probably be another year following that before it could be incorporated into AEUC and, until that time, would not be mandatory. WG agreed that non-linear analysis should be mandatory. **Action item**: AESO ([redacted]) to find a place in rules to incorporate nonlinear analysis into the 502.2 rules so that its use will be mandatory in Alberta. Once that is done WG members to review and provide comments. • Item 113: S3 240kV Conductor Sizing Report: Some discussion of progress. UCA ([redacted]) expressed concern that we need a firm date for completion of this work, it seems to be drifting; AESO ([redacted]) responded that process is iterative; Planning provides loads based on assumed two-bundle conductor – [AESO] determines single conductor based on optimization or contingency loads provided by planning – changes loads due to impedance and system load redistribution; repeat. Current workload for planners results in slow turnaround. There also appears to be some discrepancy between the contingency loads established by the planners and the stated "line rating" in the DBM for some projects. The WG reminded that they were still not clear on the meaning of the reference terms for short, medium, and long term as used in the regional plans. **Action Item**: AESO ([redacted]) to intervene with planners to push for completion of their studies for single (unbundled) conductor. AESO ([redacted]) to report to WG on the time horizon (number of years) for terms: short, medium, long. • Item 114 S4: Optimized Conductor – 240kV: AESO ([redacted]) reiterated the scope of this project is to evaluate the current practice which requires design of all 240kV circuits to withstand conductor temperatures of 100 degrees C. Does this over-ride conductor optimization? Effectively, this cannot be properly evaluated until the S3 report is completed. [AESO] recommended that the two reports be combined as they are closely related. **Action Item:** AESO ([redacted]) will start work using assumed outcomes on the S3 report. If the assumptions prove correct, this will permit some progress. However, final draft will require validation against outcomes from S3 report. • S5 Report on history of Meteorological Load Development: AESO ([redacted]) noted that a preliminary draft report had been completed. This was forwarded to [UCA] for review due to his knowledge of the activities which were performed in the development of the weather loading maps in his former role as a technical consultant to the AESO. [AESO] advised that he intended to table this for WG review immediately after any revisions prompted by [UCA]'s preliminary review. **Action Item**: UCA ([redacted]) to review preliminary draft before being sent to WG for review and comments. By end of next week should have draft tabled (Dec 12th)
3	Changes of rules and IDs • WG went over document and reviewed all changes made to rules and ID. • **Action Item:** AESO ([redacted]) will update introduction paragraph to section 19 on ID. EPCOR ([redacted]) will send comments to AESO ([redacted]) which will be incorporated. Then reissue final copy once all changes have been made. Include the reasoning for consideration of both CSA and AEUC.
4	AESO Wind Loading Maps (request for clarification of wind loads near Pincher Creek) AltaLink has come forward with a request for the WG to review the 100yr Return wind maps due to

	some evident problems with the contours in the Pincher Creek area. Also some clarity issues with 50 year return map. • **Action Item**: : AESO ([redacted]) to investigate where we can get non-PDF version to be modified, if the map has to be re-created from scratch it will be a lot of work. Then [AESO] to review and update the maps with contours correctly shown and labeled.
5	Review of Outstanding Items from the Meeting with the Transmission Facilities Cost Monitoring Committee Member (TFCMC), [CCA] • Next two meetings with [CCA] have been scheduled with AESO ([redacted])