

Annual Report on Costs Incurred as a Result of Mitigating Transmission Constraints

Date: June 16, 2016
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1. Background

The following report has been prepared pursuant to subsection 4(2) of Section 302.1 of the ISO rules, *Real Time Constraint Management* (“Section 302.1”), which requires the Alberta Electric System Operator (“AESO”) to: “monitor and publicly report on the costs incurred as a result of mitigating constraints on an annual basis.”

Prior to the effective date of revised Section 302.1, the AESO prepared two previous annual reports pursuant to Direction No. 3 of Commission Decision 2013-135, which directed the AESO to “monitor and report on the cost of using the TCM Rule to the Commission on at least an annual basis”¹, as follows:

- the AESO posted the 2014 Annual Report using the “LTP Theoretical”², “Ex Post based on Estimated Constrained Down Generation (“CDG”)”³, and “Ex Post based on Nominal CDG”⁴ methods to estimate costs;
- the AESO posted the 2015 Annual Report using the “LTP Theoretical” and “Ex Post based on Estimated CDG” methods only to estimate costs, as the “Ex Post based on Nominal CDG” method is less representative of market outcomes. The same two methods are used in this 2016 annual report.

2. Costs of the TCM Rule

2.1 Determination of Constrained Down Generation

Table 1 below summarizes annual CDG volume and estimated costs for the years 2011 through 2015.

¹ Decision 2013-135, ATCO Power Ltd. and ENMAX Energy Corporation, Complaints by ATCO Power Ltd. and Enmax Corporation regarding ISO rule Section 302.1: Real time Transmission Constraint Management (April 5, 2013) at para. 197(3).

² Using the “LTP Theoretical” method, the cost of “Nominal CDG” is simulated using a distribution of price impacts from a variety of dispatch levels. Nominal CDG refers to the constraint limit size without consideration of energy that would be in merit. For the duration of a constraint, the size of the constraint limit is used as a proxy for the volume of CDG.

³ Using the “Ex Post based on Estimated Constrained Down Generation” method involves calculating CDG using actual event merit orders and CDG based on the amount of in-merit CDG assets in the area where CDG takes place. An “unconstrained SMP” value is estimated by assuming that CDG is not in place. Another SMP value is calculated assuming CDG exists. The difference in those SMP values is multiplied by Alberta interconnected electric system demand to estimate the cost of CDG.

⁴ Using the “Ex Post Based on Nominal CDG” method involves calculating CDG using actual event merit orders and nominal CDG. An “unconstrained SMP” value is estimated by assuming nominal CDG is not in place. Another SMP value is calculated assuming CDG exists. The difference in those SMP values is multiplied by Alberta interconnected electric system demand to estimate the cost of CDG.

Table 1: CDG Volume and Cost Estimate

Year	CDG Volume (GWh)		Cost (Million Dollars)		
	Nominal	Estimated*	Method 1	Method 2	Method 3
2011	142	108	264	171	111
2012	164	84	238	200	105
2013	126	103	199	305	264
2014	169	149	90	-	58
2015	26	26	9	-	29

*Estimated CDG volume is only available for 2011 onwards due to data availability.

The lower cost reflected in the 2015 row of Table 1 is due to decreases in both CDG volume and pool price during 2015.

Note that there were no transmission constraint rebalancing costs incurred between the November 26, 2015 effective date of the revised TCM Rule and December 31, 2015. There have been two constraint events in 2016 to date, involving a relatively small volume of CDG at a negligible total cost of \$0.39 for the two events.

2.2 Transmission Must Run

Table 2 below summarizes transmission must run costs for the years 2011 through 2015.

Year	Contracted TMR Costs	Conscripted TMR	Total TMR Costs
2011	\$28.3	\$5.8 ⁵	\$34.1
2012	\$3.7	\$24.0	\$27.7
2013	\$2.7	\$8.6	\$11.3
2014	\$0.5	\$4.9	\$5.4
2015	\$0.4	\$9.5	\$9.9

⁵ The cost of TMR for the years 2011 and 2013 has been adjusted since the June 2015 report, as settlement has been completed and actuals are now available. For 2011, values have been adjusted downward from \$6.4M to \$5.8M. For 2013, values have been adjusted upward from \$8.1M to \$8.6M.

2.3 Total Cost of Using the TCM Rule

Table 3 below summarizes the total cost of using the TCM rule for the years 2011 through 2015.

Year	Method 1	Method 3
2011	\$298	\$145
2012	\$266	\$133
2013	\$210	\$275
2014	\$95	\$63
2015	\$19	\$39