UNDERTAKING JT2.24

Undertaking

TO PROVIDE THE DRIVERS FOR THE DECLINE IN THE PGS, INCLUDING WATER LEVELS AND WHAT THE OTHER DRIVERS ARE, AND EXPLAINING AS BEST AS POSSIBLE THE PERCENTAGE THAT EACH OF THEM CAUSES FOR THE DECLINE.

Response

The overall decline in Sir Adam Beck Pump Generating Station ("PGS") utilization during 2018 and 2019, as compared to prior periods, is largely explained by the additive impacts of higher water flows on the Niagara River and market conditions. High water flows limit OPG's ability to use water generated by the PGS on-peak at the Sir Adam Beck 1 and 2 Generating Stations ("SAB 1" and "SAB 2") and lead to SEAL[1] constraints as a result of high crossover[2] and downstream elevations, as noted in JT2.22.

Under high flows, water generated by the PGS cannot be incrementally generated at SAB 1 and SAB 2, which produce approximately 6 to 7 times more energy from the same unit of water than the PGS. The inability to leverage this multiplying effect decreases the overall efficiency of PGS cycling and increases the market price spreads required for economic operations. Reflecting these conditions, in approximately 91% of hours[3] the forward-looking economic assessment of the PGS described in JT2.26 determined PGS cycling as uneconomic.

The continued high water flows in 2018 and 2019 also resulted in an overall higher volume of water downstream of Niagara Falls. In approximately 50% of hours,[4] OPG took mitigating on-peak action to generate and lessen the impact of the high volume of water going over Niagara Falls on the downstream operation of tourist vessels and the potential risk to public safety and property. In these instances, incremental generation from the PGS on-peak would counter the mitigating action and result in additional water going over Niagara Falls.

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[1] IESO Market Manual 7, System Operations, p. 3.
[2] The crossover is the intersection point of the Power Canal, the three underground tunnels and the intake/discharge for the PGS.
[3] Presented in JT2.22, Chart 1 and 2, column "Uneconomic Operation".
[4] Presented in JT2.22, Chart 1 and 2, column "Downstream Elevation".

The crossover elevation is another key determinant in the management of water and generation at SAB 1 and SAB 2. The crossover is impacted by the high Niagara River flows described above and also by market conditions leading to spill at SAB 1 and SAB 2.[5] The high crossover in 2018 and 2019 resulted in on-peak SEAL considerations as described in JT2.22, which accounted for approximately 72% of hours.[6] Under these conditions, incremental generation from the PGS on-peak would add to the crossover and would not be supported from a safety and asset protection perspective.

[5] Consistent with an overall lower Hourly Ontario Energy Price in 2018 and 2019, during 29% of all on-peak hours, predispatch prices indicated an expectation of SBG conditions and spill at SAB 1 and SAB 2.
[6] Presented in JT2.22, Chart 1 and 2, column “Crossover Elevation”.