UNDERTAKING JT1.13

Undertaking

WITH REFERENCE TO SEC-04, PART B, TO CONFIRM WHETHER THE ESTIMATED LOSSES IF THE PUMP WAS OPERATIONAL ARE SIMILAR TO COLUMN XII IN THE ATTACHMENT, FORECASTE REVENUE IN THE NEXT ON-PEAK PERIOD; TO ADVISE HOW DECISIONS ON UTILIZATION WOULD BE AUDITED.

Response

OPG understands the undertaking is asking, with reference to Ex. L-H-SEC-04, Attachment 1, whether the forecasted revenue in the next on-peak period provided in column VII ("Forecast revenues in next on-peak period (before GRC costs)") is calculated similarly to the estimated losses provided in column XII ("Estimated loss if pump was operated") by using pre-dispatch prices rather than forecast prices used by operators to make decisions regarding PGS utilization, and to advise how OPG's decision-making on PGS utilization could be verified (Tr. Tech. Conf., April 4, 2024, p. 77, lines 27-28, p. 78, lines 1-17).

The values in both column VII and column XII of Ex. L-H-SEC-04, Attachment 1 are calculated using average pre-dispatch prices from the IESO's 3-hour ahead pre-dispatch results. These results are available for historical periods and can be used to verify the reasonableness of OPG's decision-making regarding the operation of the PGS. With reference to this information, such verification can be achieved by:

   i)   Recalculating the break-even pump and generation prices using the formulas described in Ex. L-H-ED-02, part b);
   ii) Determining if the pump or generation decision is economic by comparing the applicable break-even prices to the respective pre-dispatch prices available for the evaluated hour; and
   iii) Verifying that actual PGS utilization for the evaluated hour aligns with the economic determination from ii).

1   **UNDERTAKING JT1.15**

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3   **Undertaking**

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5   TO PROVIDE DETAIL INCLUDING MATHEMATICAL CALCULATIONS ON THE
6   CALCULATION IN XIII, IN COLUMN P OF THE EXCEL SHEET ENTITLED
7   "ESTIMATED LOSS IF PUMP WAS OPERATED."

8

9

10   **Response**

11

12   OPG understands the undertaking is asking to provide the mathematical calculations
13   for column XII "Estimated loss if pump was operated" of Ex. L-H-SEC-04, Attachment
14   1, and to advise of any factors that would not allow the calculation to be performed
15   using the information set out at that reference (Tr. Tech. Conf., April 4, 2024, p. 81,
16   lines 21-28, p. 82, line 1).

17

18   The economic loss expressed in column XII is dependent on its cause as denoted in
19   the "Reason" column: (i) "Economic Loss due to inability to recover pumping costs" or
20   (ii) "Economic loss due to inability to economically generate." The example below
21   illustrates the calculation of the loss in column XII for the above reason (i). For the
22   above reason (ii), a loss is first calculated for each hour in the next on-peak period
23   using the same formula as shown below, but reflecting forecast revenues calculated
24   using the next on-peak pre-dispatch HOEP for that hour less the average forecast
25   replacement costs. These next on-peak hourly losses are then averaged to derive the
26   forecasted loss associated with the inability to economically generate for the above
27   reason (ii).

28

29   ***Example based on 1/1/18 Hour 14***
30   Compare costs to revenues where:

31

32   Sum of costs as shown in columns VIII-X:

33

34   = PGS pump costs + SAB I and II opportunity cost[1]
35   = $[(EF_{PGSPUMP} \times (HOEP + LC)) + (EF_{SAB} \times (HOEP - GRC))] \times EF_{PGSPUMPCMS}$
36   = $[EF_{PGSPUMP} \times (\$38.08 + LC) + EF_{SAB} \times (\$38.08 - \$14.40)] \times EF_{PGSPUMPCMS}$
37   = $3,466

38

39   Revenues shown in column VII, less GRC cost:

40

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[1] As described in Ex. L-H-SEC-04, part (b), during a pump decision, if pumping the PGS has no downstream impact at SAB I and II, the SAB I and II opportunity cost is set to zero.

1 = PGS generation revenue + SAB I and II generation revenue[2]

2 = [EF_{PGSGEN} x (avg on-peak pre-disp HOEP - GRC) + EF_{SAB} x (avg on-peak pre-disp HOEP - GRC)]

3 x $EF_{PGSCMSGEN}$

4 = [EF_{PGSGEN} x ($42.40 - $5.60) + EF_{SAB} x ($42.40 - $14.40)] x $EF_{PGSCMSGEN}$

5 = $2,782

6

7 Economic loss in column XII: $3,466 - $2,782 = $684

8

9 As explained in Ex. L-H-SEC-04 part (b), efficiency factors ("EF") required to perform

10 the above calculations have not been provided in Ex. L-H-SEC-04, Attachment 1 due

11 to commercial sensitivity relating to offer information that could impact OPG as a

12 market participant or competition in the IESO administered market. Similarly, load

13 charges ("LC") have not been provided as providing them would allow the calculation

14 of efficiency factors.

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[2] As described in Ex. L-H-SEC-04 part (b), during a generation decision, if generating at the PGS has no downstream impact at SAB I and II, the SAB I and II generation revenue is set to zero.

UNDERTAKING JT1.16

Undertaking

TO PROVIDE THE MATHEMATICAL CALCULATIONS FOR FORECAST REVENUE ACCOUNT COLUMN VII, AND NEXT ON-PEAK PERIOD BEFORE GRP COSTS.

Response

OPG understands that the undertaking refers to "GRC" costs.

The values in column VII "Forecast revenues in next on-peak period (before GRC costs)" of Ex. L-H-SEC-04, Attachment 1 were calculated using the same revenue formula as provided in Ex. JT1.15, with GRC set to zero.