

UNDERTAKING J9.1

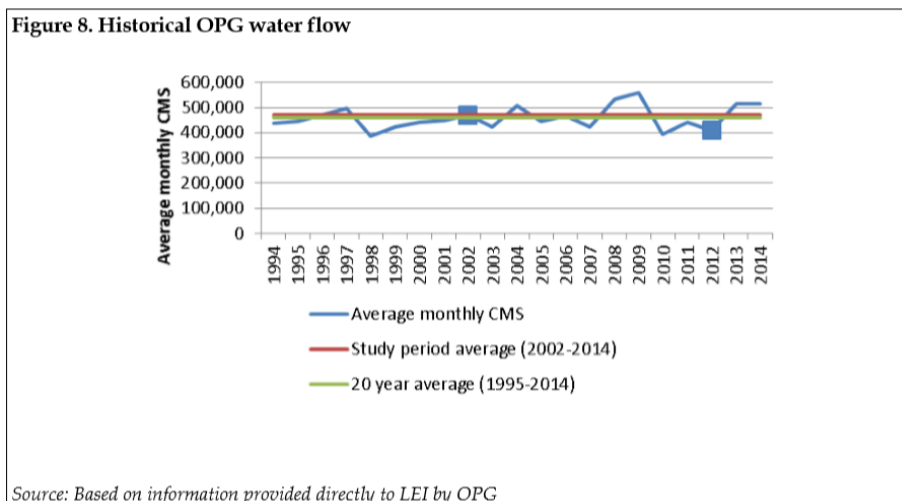
Undertaking

To provide trend line for average water flows over the 2002-2014 period.

Response

The following response was provided by LEI.

Figure 8 of LEI's 2016 TFP Study (page 18) compares 2002-2014 average annual water flow level to the longer-term level (20-year average) from 1994-2014.



As shown in Figure 8, OPG's average water flows during the study period of 2002-2014 were within 1%-difference of the twenty-year average (1994-2014).

The actual MWh of electricity generated by OPG and the Output Index values and annual rates of change for OPG's regulated hydroelectric generation over the study timeframe were presented in LEI's work papers, which was filed as "Attachment 1: Model A: OPG industry TFP model v2016 final.xlsx" in OPG's response to Board Staff Interrogatory #246 (EB-2016-0152, Exhibit L, Tab 11.1, Schedule 1, Staff-246, filed 2016-10-26).

The requested information on OPG's trends are documented in Figure 1 below. The OPG-specific net generation (MWh)-based output index had an average trend of -0.87% over the study period of 2002-2014. In comparison, over the same study period of 2002-

1 2014, LEI's hydroelectric industry composite had an average output index trend of
 2 -0.64% (based on Figure 27 of LEI's 2016 TFP Study, page 42).
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Figure 1. OPG-specific input, output and TFP index growth rates using the average growth method

Quantity Sub-indexes Growth rates			
Year	Input Index Growth	Output Index Growth	TFP Index Growth
2002-2003	0.86%	-2.31%	-3.17%
2003-2004	0.35%	6.27%	5.92%
2004-2005	-0.13%	-5.42%	-5.28%
2005-2006	1.33%	2.48%	1.15%
2006-2007	0.22%	-3.99%	-4.21%
2007-2008	1.47%	12.62%	11.15%
2008-2009	-1.38%	-3.04%	-1.66%
2009-2010	-0.45%	-17.19%	-16.75%
2010-2011	-7.27%	-0.68%	6.59%
2011-2012	0.09%	-6.47%	-6.55%
2012-2013	0.29%	6.42%	6.13%
2013-2014	0.14%	0.91%	0.77%
AVERAGE	-0.37%	-0.87%	-0.49%

Source: Attachment 1: Model A: OPG industry TFP model v2016 final, provided by LEI for OPG's response to Board Staff Interrogatory #246 (EB-2016-0152, Exhibit L, Tab 11.1, Schedule 1, Staff-246, filed 2016-10-26).

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