

UNDERTAKING J20.3

Undertaking

To provide the revenue requirement impact over the five years for OPG to achieve 2014 median reflected in Hackett report for its Finance benchmark.

Response

Chart 1 below provides the mathematical calculation of the estimated nuclear revenue requirement (cost) impact against the 2014 median value for Finance in each of the 5 years of the IR Term. This undertaking response also incorporates Undertaking J20.4, which is a similar request for the mathematical calculation of the ECS cost impact, shown in Chart 1. For completeness, Chart 1 also provides the mathematical calculation of the estimated nuclear revenue requirement impact if IT and HR cost categories were similarly adjusted to achieve the 2014 median result. This provides a comprehensive view across all benchmarked groupings that were part of the Hackett study. In Chart 1, negative values are costs above the median and positive values are costs below the median.

For Finance, ECS and HR, these calculations are based on the 2017-2021 annual forecast OPG values provided in Ex. L-6.7-1 Staff-169 and Ex. L-6.7-1 Staff-170. As noted in Ex. L-6.7-1 Staff-169 (c), OPG does not forecast IT End Users. As such, also shown in Chart 2 below, OPG conservatively used the nuclear portion of the number of IT End Users reflected in the Hackett cost benchmarking study for 2014.

Chart 1
 Revenue Requirement Impact - Corporate Cost Benchmarking ('\$M)

	2017	2018	2019	2020	2021	Total IR Period
Finance	\$ (4)	\$ (4)	\$ (5)	\$ (2)	\$ (4)	\$ (19)
ECS	\$ (62)	\$ (62)	\$ (63)	\$ (58)	\$ (62)	\$ (307)
HR Cost	\$ 6	\$ 6	\$ 6	\$ 5	\$ 4	\$ 27
IT Cost	\$ 75	\$ 79	\$ 79	\$ 80	\$ 81	\$ 395
Total	\$ 15	\$ 19	\$ 17	\$ 25	\$ 20	\$ 95

1 Chart 2 below provides the four 2014 comparator median values and the forecast
 2 values for OPG over the IR term.

Chart 2
Annual Forecast information

	2014 Median	2017	2018	2019	2020	2021
Finance as a %	0.66	0.78	0.78	0.81	0.71	0.77
ECS as a %	1.07	2.84	2.85	2.95	2.58	2.81
HR per employee	\$3,350	\$2,659	\$2,661	\$2,695	\$2,781	\$2,839
IT Cost per End User	14,995	8,202	7,897	7,816	7,734	7,652

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 5 As noted by Mr. Mauti at Tr. Vol. 20, p. 26, lines 13 to 21 and p. 28, lines 22 to 24, this
 6 mathematical computation is not a benchmarking exercise. For instance, as noted in
 7 Ex. L-6.7-1 Staff-169 and Ex. L-6.7-1 Staff-170, the OPG values used represent an
 8 estimate based on information available to OPG in the normal course of business, not
 9 having been vetted against Hackett Group’s specific taxonomy. Moreover, it is
 10 reasonable to expect the peer median value to change over a period of up to 7 years,
 11 from 2014 to 2021. In OPG’s view, using a static median does not represent a valid
 12 comparison. It is likely that inflationary cost pressures would increase the median value
 13 over this period. This is consistent with Hackett’s approach of escalating peer
 14 performance by 2% per year, from 2010 to 2014, in their study (Ex. F3-1-1, Att. 1,
 15 p. 6).

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 17 Understanding the drivers around a comparison of the company’s position to the
 18 median for any benchmarked cost category is necessary for the appropriate
 19 interpretation of the benchmarking results. The discussion by Mr. Mauti at Tr. Vol. 21,
 20 p. 127, line 8 through p. 130, line 26 is an example of such considerations with respect
 21 to the ECS benchmarking results.

1 **UNDERTAKING J20.4**

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3 **Undertaking**

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5 To provide the cost impact over the five years for OPG to achieve 2014 median
6 reflected in Hackett report for the ECS benchmark.
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11 **Response**

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14 Please refer to J20.3.

1 **UNDERTAKING J20.5**

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3 **Undertaking**

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5 To provide, on an order of magnitude, if the final negotiated less payments for 700
6 University track to budgeted amounts in the 2016-2018 Business Plan.

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9 **Response**

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11 Please see Tr. Vol. 20, p. 41, lines 22-28, p. 42, lines 1-13.

1 **UNDERTAKING J20.7**

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3 **Undertaking**

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5 To show in Ex. C2-1-2, Chart 3 the consideration of income tax impacts

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8 **Response**

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10 This undertaking followed an exchange between Mr. Buonaguro and Mr. Kogan at Tr.
11 Vol. 20, p. 100, line 6 to p. 102, line 27, in relation to income tax impacts associated
12 with the comparison of estimated pre-tax amounts collected from ratepayers for nuclear
13 liabilities for the period from April 1, 2008 to December 31, 2016 and the pre-tax
14 amounts expended by OPG on nuclear liabilities in the form of segregated fund
15 contributions and internally funded expenditures during that period, as shown in Ex. C2-
16 1-2, Chart 3. In this response, OPG provides, in Charts 1-3 below, a comparison of
17 these amounts on an after-tax basis.¹ This information is presented for the period from
18 April 1, 2005 to December 31, 2021 covered by Ex. C2-1-2 and related Ex. J20.8.
19 Specifically, Charts 1-3 below correspond to the pre-tax comparisons in Ex. C2-1-2,
20 Chart 3 and 4 for the April 1, 2008 to December 31, 2016 and April 1, 2005 to March 31,
21 2008 periods, respectively, and in Ex. J20.8, Chart 1 for the 2017-2021 period.

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23 Chart 1 indicates that the estimated after-tax amounts recovered over the period from
24 April 1, 2008 to December 31, 2016 are lower than the after-tax amounts expended by
25 OPG by approximately \$7M (line 14) for the prescribed facilities and are higher by
26 approximately \$115M (line 24) for the Bruce facilities, for a net overall excess of
27 amounts recovered over amounts expended of approximately \$108M (line 26).

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29 For the period from April 1, 2005 to March 31, 2008, at line 26, Chart 2 indicates that
30 the after-tax proxy amounts collected from ratepayers through interim rates set by the
31 Province are in the order of \$1B lower than the after-tax amounts expended by OPG
32 (specifically, \$262M for the prescribed facilities at line 12 and \$732M for the Bruce
33 facilities at line 24).

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35 For the 2017-2021 period, Chart 3 indicates that the after-tax amounts proposed for
36 recovery (or recording in deferral and variance accounts) are lower than the after-tax
37 amounts projected to be expended by OPG by approximately \$475M for the prescribed

¹ The estimated amounts presented in this response represent the net value to OPG of the difference between after-tax amounts collected from ratepayers and after-tax amounts expended for nuclear liabilities for the applicable periods, excluding any time value of money considerations. In order to convert this into a hypothetical amount that would need to be exchanged between ratepayers and OPG so as to bring this difference to zero, these amounts would need to be grossed-up for taxes at the tax rate in effect during the period of such an exchange, currently at 25% and therefore resulting in a gross-up factor of $25\% / (1 - 25\%)$.

1 facilities (line 12) and are higher by approximately \$793M for the Bruce facilities (line
2 22), for a net overall excess of amounts to be recovered over amounts to be expended
3 of approximately \$317M (line 24).
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5 Over the full period from April 1, 2005 to December 31, 2021, the estimated after-tax
6 amounts collected would be lower than the after-tax amounts expended by
7 approximately \$744M for the prescribed facilities and higher by approximately \$176M
8 for the Bruce facilities, for a net "shortfall" in amounts collected of approximately \$568M.
9 As of December 31, 2016, this "shortfall" stands at approximately \$885M.

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Chart 1
After-Tax Amounts Collected Versus Amounts Expended for Nuclear Liabilities (\$M)
April 1, 2008 to December 31, 2016²

Line No.	Description	Apr 1 to Dec 31 2008	2009	2010	Jan 1 to Feb 28 2011	Mar 1 to Dec 31 2011	2012	2013	Jan 1 to Oct 31 2014	Nov 1 to Dec 31 2014	2015	2016	Total
Prescribed Facilities													
1	Total Amounts Recovered (pre-tax) (Ex. C2-1-2, Chart 3, line 5)	147.4	192.4	190.5	36.6	113.8	286.3	208.6	180.7	37.0	198.5	157.0	1,748.8
2	Reduction in Regulatory Income Taxes for Forecast Contributions to Segregated Funds and Forecast Internally Funded Expenditures on Nuclear Liabilities	(32.1)	(58.6)	(48.2)	(7.3)	(49.8)	(43.9)	(43.2)	(51.0)	(10.7)	(63.5)	(63.8)	(472.1)
3	(Under)Over Recovery Due to Differences Between Approved and Actual Nuclear Production	2.4	4.2	4.4	(0.4)	3.1	1.7	5.3	3.2	(0.4)	4.4	3.0	31.0
4	Total Reduction in Regulatory Income Taxes (line 2 + line 3)	(29.7)	(54.4)	(43.8)	(7.7)	(46.7)	(42.2)	(37.9)	(47.8)	(11.0)	(59.1)	(60.8)	(441.1)
5	Regulatory Income Taxes on Amounts Recovered ((line 1 + line 4) x tax rate / (1-tax rate))	54.1	62.0	59.9	10.4	24.2	81.4	56.9	44.3	8.6	46.5	32.1	480.4
6	Total Regulatory Income Taxes (line 4 + line 5)	24.5	7.7	16.1	2.7	(22.5)	39.1	19.0	(3.5)	(2.4)	(12.6)	(28.7)	39.3
7	Total Amounts Recovered (after-tax) (line 1 + line 6)	171.8	200.1	206.6	39.4	91.3	325.4	227.7	177.2	34.6	185.9	128.3	1,788.0
8	Total Amounts Expended (pre-tax) (Ex. C2-1-2, Chart 3, line 8)	76.3	188.3	210.4	35.5	178.2	181.0	158.1	186.7	50.2	257.9	267.0	1,789.6
9	Reduction in Income Taxes for Contributions to Segregated Funds and Internally Funded Expenditures on Nuclear Liabilities (line 8 x tax rate)	(24.0)	(58.4)	(61.0)	(9.4)	(47.2)	(45.3)	(39.5)	(46.7)	(12.5)	(64.5)	(66.7)	(475.3)
10	Income Taxes on Amounts Recovered (line 7 x tax rate)	54.1	62.0	59.9	10.4	24.2	81.4	56.9	44.3	8.6	46.5	32.1	480.4
11	Total Income Taxes (line 9 + line 10)	30.1	3.6	(1.1)	1.0	(23.0)	36.1	17.4	(2.4)	(3.9)	(18.0)	(34.7)	5.1
12	Total Amounts Expended (after-tax) (line 8 + line 11)	106.4	191.9	209.3	36.5	155.2	217.1	175.5	184.3	46.3	239.9	232.3	1,794.7
13	Excess of Amounts Recovered over Amounts Expended - Prescribed Facilities (pre-tax) (line 1 - line 8)	71.1	4.1	(19.9)	1.2	(64.4)	105.3	50.5	(6.0)	(13.2)	(59.4)	(110.0)	(40.9)
14	Excess of Amounts Recovered over Amounts Expended - Prescribed Facilities (after-tax) (line 7 - line 12)	65.4	8.1	(2.7)	2.9	(63.9)	108.3	52.2	(7.2)	(11.7)	(54.0)	(104.0)	(6.7)
Bruce Facilities													
15	Actual Bruce Lease Net Revenues Impact (Ex. C2-1-2, Chart 3, line 10)	311.5	(32.6)	(68.6)	(8.5)	89.5	70.5	142.4	81.2	20.5	173.6	231.6	1,011.2
16	Regulatory Income Tax Impact (line 15 x tax rate / (1 - tax rate))	143.2	(14.6)	(28.0)	(3.1)	32.3	23.5	47.5	27.1	6.8	57.9	77.2	369.7
17	Total Amounts Recovered (after-tax) (line 15 + line 16)	454.7	(47.2)	(96.6)	(11.6)	121.8	94.0	189.9	108.3	27.4	231.5	308.8	1,380.9
18	Total Amounts Expended (pre-tax) (Ex. C2-1-2, Chart 3, line 13)	331.1	237.9	133.2	24.2	125.4	130.5	145.5	15.0	14.3	21.3	74.1	1,252.5
19	Reduction in Income Taxes for Contributions to Segregated Funds and Internally Funded Expenditures on Internally Funded Expenditures (line 18 x tax rate)	(104.3)	(73.7)	(38.6)	(6.4)	(33.2)	(32.6)	(36.4)	(3.8)	(3.6)	(5.3)	(18.5)	(356.5)
20	Income Taxes on Amounts Recovered (line 17 x tax rate)	143.2	(14.6)	(28.0)	(3.1)	32.3	23.5	47.5	27.1	6.8	57.9	77.2	369.7
21	Total Income Taxes (line 19 + line 20)	38.9	(88.4)	(66.6)	(9.5)	(1.0)	(9.1)	11.1	23.3	3.3	52.6	58.7	13.3
22	Total Amounts Expended (after-tax) (line 18 + line 21)	370.0	149.5	66.6	14.7	124.4	121.4	156.6	38.3	17.6	73.8	132.8	1,265.7
23	Excess of Amounts Recovered over Amounts Expended - Bruce Facilities (pre-tax) (line 15 - line 18)	(19.6)	(270.5)	(201.8)	(32.7)	(35.9)	(60.0)	(3.0)	66.2	6.2	152.4	157.5	(241.3)
24	Excess of Amounts Recovered over Amounts Expended - Bruce Facilities (after-tax) (line 17 - line 22)	84.7	(196.8)	(163.2)	(26.3)	(2.7)	(27.4)	33.3	70.0	9.8	157.7	176.0	115.2
25	Total Excess of Amounts Recovered over Amounts Expended (pre-tax) (line 13 + line 23)	51.5	(266.4)	(221.7)	(31.5)	(100.3)	45.3	47.5	60.2	(7.0)	92.9	47.5	(282.1)
26	Total Excess of Amounts Recovered over Amounts Expended (after-tax) (line 14 + line 24)	150.1	(188.6)	(165.9)	(23.4)	(66.6)	80.9	85.5	62.8	(1.9)	103.6	72.0	108.5

Note 1: For the purposes of simplifying this analysis, regulatory income taxes on amounts recorded in the Bruce Lease Net Revenues Variance Accounts are assumed to be collected from, or repaid to, ratepayers in the period the variance entry arises, at the tax rate of that period.

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² The following tax rates in effect during the corresponding periods were applied in the analysis: 2008 – 31.50%, 2009 – 31.00%, 2010 – 29.00%, 2011 – 26.50%, 2012 onwards – 25.00%.

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Chart 2
Proxy After-Tax Amounts Collected Versus Expended for Nuclear Liabilities (\$M)
April 1, 2005 to March 31, 2008³

Line No.	Description	Reference	Apr 1 to Dec 31 2005	2006	2007	Jan 1 to Mar 31 2008	Total
Prescribed Facilities							
1	Pre-tax Proxy Amounts Recovered	Ex. C2-1-2, Chart 4, line 1	132	156	225	53	566
2	Reduction in Proxy Regulatory Income Taxes for Contributions to Segregated Funds and Internally Funded Expenditures on Nuclear Liabilities	line 6 x tax rate	(72)	(116)	(79)	(13)	(281)
3	Regulatory Income Taxes on Proxy Amounts Recovered	(line 1 + line 2) x tax rate / (1-tax rate)	31	21	75	18	145
4	Total Proxy Regulatory Income Taxes	line 2 + line 3	(42)	(95)	(4)	5	(136)
5	After-tax Proxy Amounts Recovered	line 1 + line 4	90	61	221	57	429
6	Total Amounts Expended (pre-tax)	Ex. C2-1-2, Chart 4, line 4	212	340	233	43	828
7	Reduction in Income Taxes for Contributions to Segregated Funds and Internally Funded Expenditures on Nuclear Liabilities	line 6 x tax rate	(72)	(116)	(79)	(13)	(281)
8	Income Taxes on Proxy Amounts Recovered	line 5 x tax rate	31	21	75	18	145
9	Total Income Taxes	line 7 + line 8	(42)	(95)	(4)	5	(136)
10	Total Amounts Expended (after-tax)	line 6 + line 9	171	245	229	47	692
11	Excess of Proxy Amounts Recovered over Amounts Expended - Prescribed Facilities (pre-tax)	line 1 - line 6	(80)	(184)	(8)	10	(262)
12	Excess of Proxy Amounts Recovered over Amounts Expended - Prescribed Facilities (after-tax)	line 5 - line 10	(80)	(184)	(8)	10	(262)
Bruce Facilities							
13	Pre-tax Proxy Amounts Recovered	Ex. C2-1-2, Chart 4, line 6	87	114	179	34	414
14	Reduction in Proxy Regulatory Income Taxes for Contributions to Segregated Funds and Internally Funded Expenditures on Nuclear Liabilities	line 18 x tax rate	(59)	(85)	(207)	(37)	(388)
15	Regulatory Income Taxes on Proxy Amounts Recovered	(line 13 + line 14) x tax rate / (1-tax rate)	14	15	(14)	(2)	14
16	Total Proxy Regulatory Income Taxes	line 14 + line 15	(45)	(69)	(221)	(39)	(374)
17	After-tax Proxy Amounts Recovered	line 13 + line 16	42	45	(42)	(5)	39
18	Total Amounts Expended (pre-tax)	Ex. C2-1-2, Chart 4, line 9	174	248	606	117	1,145
19	Reduction in Income Taxes for Contributions to Segregated Funds and Internally Funded Expenditures on Internally Funded Expenditures	line 18 x tax rate	(59)	(85)	(207)	(37)	(388)
20	Income Taxes on Proxy Amounts Recovered	line 17 x tax rate	14	15	(14)	(2)	14
21	Total Income Taxes	line 19 + line 20	(45)	(69)	(221)	(39)	(374)
22	Total Amounts Expended (after-tax)	line 18 + line 21	129	179	385	79	771
23	Excess of Proxy Amounts Recovered over Amounts Expended - Bruce Facilities (pre-tax)	line 13 - line 18	(87)	(134)	(427)	(84)	(732)
24	Excess of Proxy Amounts Recovered over Amounts Expended - Bruce Facilities (after-tax)	line 17 - line 22	(87)	(134)	(427)	(84)	(732)
25	Total Excess of Proxy Amounts Recovered over Amounts Expended (pre-tax)	line 11 + line 23	(167)	(318)	(435)	(74)	(994)
26	Total Excess of Proxy Amounts Recovered over Amounts Expended (after-tax)	line 12 + line 24	(167)	(318)	(435)	(74)	(994)

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³ The following tax rates in effect during the corresponding periods were applied in the analysis: 2005 to 2007 – 34.12%, 2008 – 31.50%.

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Chart 3
After-Tax Amounts Expected to Be Collected Versus Expended for Nuclear Liabilities (\$M)
January 1, 2017 to December 31, 2021⁴

Line No.	Description	Reference	2017 Plan	2018 Plan	2019 Plan	2020 Plan	2021 Plan	Total
Prescribed Facilities								
1	Total Pre-tax Revenue Requirement Impact	Ex. J20.8, Chart 1, line 3	152.1	147.9	156.6	144.3	78.8	679.7
2	Reduction in Regulatory Income Taxes for Forecast Contributions to Segregated Funds and Forecast Internally Funded Expenditures on Nuclear Liabilities	line 6 x tax rate	(58.9)	(61.2)	(53.7)	(58.5)	(56.5)	(288.8)
3	Regulatory Income Taxes on Amounts Forecast to Be Recovered	(line 1 + line 2) x tax rate / (1-tax rate)	31.1	28.9	34.3	28.6	7.5	130.3
4	Total Regulatory Income Taxes	line 2 + line 3	(27.8)	(32.3)	(19.4)	(29.9)	(49.0)	(158.5)
5	Total After-tax Revenue Requirement Impact <i>(Ex. J21.2, Chart 1, line 5)</i>	line 1 + line 4	124.2	115.6	137.2	114.3	29.8	521.3
6	Total Amounts Forecast to Be Expended (pre-tax)	Ex. J20.8, Chart 1, line 6	235.6	244.7	214.9	234.1	225.8	1,155.2
7	Forecast Reduction in Income Taxes for Contributions to Segregated Funds and Internally Funded Expenditures on Nuclear Liabilities	line 6 x tax rate	(58.9)	(61.2)	(53.7)	(58.5)	(56.5)	(288.8)
8	Income Taxes on Amounts Forecast to Be Recovered	line 5 x tax rate	31.1	28.9	34.3	28.6	7.5	130.3
9	Total Forecast Income Taxes	line 7 + line 8	(27.8)	(32.3)	(19.4)	(29.9)	(49.0)	(158.5)
10	Total Amounts Forecast to Be Expended (after-tax)	line 6 + line 9	207.8	212.5	195.5	204.2	176.8	996.7
11	Excess of Amounts Proposed for Recovery over Forecast Amounts Expended - Prescribed Facilities (pre-tax)	line 1 - line 6	(83.5)	(96.8)	(58.3)	(89.8)	(147.0)	(475.4)
12	Excess of Amounts Proposed for Recovery over Forecast Amounts Expended - Prescribed Facilities (after-tax)	line 5 - line 10	(83.5)	(96.8)	(58.3)	(89.8)	(147.0)	(475.4)
Bruce Facilities								
13	Total Bruce Lease Net Revenues Impact	Ex. J20.8, Chart 1, line 11	144.8	140.5	146.3	154.0	150.9	736.5
14	Regulatory Income Tax Impact	line 13 x tax rate / (1-tax rate)	48.3	46.8	48.8	51.3	50.3	245.5
15	Total After-tax Revenue Requirement Impact <i>(Ex. J21.2, Chart 1, line 8)</i>	line 13 + line 14	193.1	187.4	195.1	205.3	201.2	982.1
16	Total Amounts Forecast to Be Expended (pre-tax)	Ex. J20.8, Chart 1, line 14	(16.0)	(9.2)	2.4	(21.2)	(31.1)	(75.1)
17	Forecast Increase (Reduction) in Income Taxes for Contributions to Segregated Funds and Internally Funded Expenditures on Nuclear Liabilities	line 16 x tax rate	4.0	2.3	(0.6)	5.3	7.8	18.8
18	Income Taxes on Amounts Recovered	line 15 x tax rate	48.3	46.8	48.8	51.3	50.3	245.5
19	Total Income Taxes	line 17 + line 18	52.3	49.1	48.2	56.6	58.1	264.3
20	Total Amounts Forecast to Be Expended (after-tax)	line 16 + line 19	36.3	40.0	50.6	35.4	27.0	189.2
21	Excess of Amounts Proposed for Recovery over Forecast Amounts Expended - Bruce Facilities (pre-tax)	line 13 - line 16	160.8	149.7	143.9	175.2	182.0	811.6
22	Excess of Amounts Proposed for Recovery over Forecast Amounts Expended - Bruce Facilities (after-tax)	line 15 - line 20	156.8	147.4	144.5	169.9	174.2	792.9
23	Total Excess of Amounts Proposed for Recovery over Forecast Amounts Expended (pre-tax)	line 11 + line 21	77.3	52.9	85.7	85.3	35.0	336.2
24	Total Excess of Amounts Proposed for Recovery over Forecast Amounts Expended (after-tax)	line 12 + line 22	73.3	50.6	86.2	80.0	27.2	317.4

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⁴ A tax rate of 25.00% was applied in this analysis, consistent with Ex. F4-2-1 Table 3a, line 29.

1 **UNDERTAKING J20.11**

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3 **Undertaking**

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5 To produce a high level estimate of the revenue requirement and Payment Amounts
6 impacts if Unit 2 not in-service in test period.

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11 **Response**

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13 The total estimated impact on the nuclear revenue requirement of the hypothetical
14 scenario that removes the proposed Darlington Unit 2 refurbishment capital in-service
15 amounts in 2020 and 2021 is a decrease of approximately \$721M over the 2017-2021
16 IR Term. Including the impact on the carryback of regulatory tax losses between
17 individual years of the IR Term, the estimated annual impacts comprising the total
18 impact of \$721M are as follows: an increase of approximately \$33M in 2017, \$59M in
19 2018, and \$78M in 2019, and a decrease of approximately \$421M in 2020 and \$470M
20 in 2021, as shown in Chart 1 below. The increases in revenue requirement in 2017-
21 2019 relate to removal of capital cost allowance tax deductions.

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23 Chart 2 and Chart 3 below provide additional details requested on the resulting rate
24 base changes, in the same format as Ex. N2-1-1.
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Chart 1
Nuclear Revenue Requirement Impact of Removing Forecast Darlington Unit 2 Refurbishment In-Service Amounts in 2020 and 2021

Line No.		2017	2018	2019	2020	2021	Total
1	Net Plant Rate Base Decrease ¹	-	-	-	(4,127.1)	(4,597.5)	
2	Weighted Average Cost of Capital ²	6.80%	6.66%	6.63%	6.61%	6.60%	
3	Cost of Capital Amount (line 1 x line 2)	-	-	-	(272.7)	(303.5)	(576.2)
4	Decrease in Depreciation Expense ³	-	-	-	(128.9)	(147.3)	(276.2)
5	Capital Cost Allowance	129.2	189.3	247.3	249.7	229.7	1,045.2
6	Net Increase (Decrease) in Regulatory Taxable Income ⁴	129.2	189.3	247.3	(56.8)	(115.4)	393.6
7	Income Tax Impact (line 6 x 25% / (1 - 25%))	43.1	63.1	82.4	(18.9)	(38.5)	131.2
8	Regulatory Loss Carryback	11.5	(31.1)	(5.5)	-	25.1	-
9	Total Revenue Requirement (line 3 + line 4 + line 7 + line 8)	54.5	32.0	77.0	(420.5)	(464.1)	(721.2)

¹ From Chart 2, line 9

² As shown in Ex. N2-1-1 Chart 1, line 2

³ As shown in Ex. L-2.2-1 Staff-9, Att. 1

⁴ Calculated as: line 1 x 49% proposed equity thickness x 8.78% ROE value + line 4 + line 5

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Chart 2
Impact of Forecast Darlington Unit 2 Refurbishment In-Service Amounts on Net Plant Rate Base

Line No.		Reference	2017	2018	2019	2020	2021
1	Gross Plant In-service - Opening Balance		-	-	-	-	4,799.8
2	Gross Plant In-service - Additions	Ex. D2-2-10, Table 2, line 1	-	-	-	4,799.8	0.4
3	Gross Plant In-service - Closing Balance	line 1 + line 2	-	-	-	4,799.8	4,800.2
4	Accumulated Depreciation - Opening Balance		-	-	-	-	128.9
5	Accumulated Depreciation - Additions	Ex. L2.2-1 Staff-9, Att 1	-	-	-	128.9	147.3
6	Accumulated Depreciation - Closing Balance	line 4 + line 5	-	-	-	128.9	276.2
7	Net Plant In-service - Opening Balance	line 1 + line 4	-	-	-	-	4,670.9
8	Net Plant In-service - Closing Balance	line 3 - line 6	-	-	-	4,670.9	4,524.0
9	Net Plant Rate Base Impact	Note 1	-	-	-	4,127.1	4,597.5

¹ As the in-service addition of \$4,777.7M for the return to service of the refurbished Darlington Unit 2 is forecast in mid February 2020 (see Ex. B3-3-1, Table 2, Note 3), it is assigned a 10.5/12 weighting in that year. Therefore, the 2020 net plant rate base amount is calculated as 10.5/12 x 4,777.7M + ((line 2 - \$4,777.7M) - (line 4 - line 6))/2. For 2021, the net plant rate base amount is calculated as (line 7 + line 8)/2. These net plant rate base values are also found at Ex. L-4.3-2 AMPCO-077, Att. 1, Table 1a, line 1b.

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Chart 3
Changes in Nuclear Net Rate Base

Line No.	Reference	2017	2018	2019	2020	2021
N2 Update						
1	Darlington Refurbishment Program - Net Plant Rate Base	611.9	601.5	586.7	4,699.1	5,154.5
2	Total Nuclear Net Plant Rate Base	2,916.4	2,909.2	2,804.8	6,805.2	7,252.5
3	Total Nuclear Rate Base	3,627.9	3,606.9	3,476.2	7,453.8	7,887.0
N2 Update, Less 2020 & 2021 Darlington Unit 2 Refurbishment In-Service Additions						
4	Darlington Refurbishment Program - Net Plant Rate Base	611.9	601.5	586.7	571.9	557.0
5	Total Nuclear Net Plant Rate Base	2,916.4	2,909.2	2,804.7	2,678.0	2,654.9
6	Total Nuclear Rate Base	3,627.9	3,606.9	3,476.2	3,326.7	3,289.4
7	Nuclear Rate Base Decrease	(0.0)	(0.0)	(0.0)	(4,127.1)	(4,597.5)

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6 OPG does not believe that the undertaking postulates a reasonable scenario. As OPG
 7 indicated during the hearing, OPG is now ten years into the Darlington Refurbishment
 8 Program (DRP), and has completed both the Initiation and Definition Phases of the
 9 DRP. OPG has put tremendous effort into preparing the Release Quality Estimate for
 10 the DRP and the Unit 2 Execution Estimate. These estimates are high confidence
 11 estimates with a high degree of cost and schedule certainty and with adequate
 12 contingency based on the class of estimate. In addition, independent experts have
 13 given testimony that OPG has reasonably and prudently prepared for the DRP (see, for
 14 example, Ex. D2-2-11, p. 8 and Ex. M1, p. 6). Now that OPG is already approximately
 15 \$2.9B into the program, OPG believes that it has completed enough work and at a level
 16 of quality to adequately support that the cost and schedule estimates set out in its
 17 Application are reasonable and should be reflected in the 2017-2021 revenue
 18 requirement set in this proceeding (see Tr. Vol. 1, p. 67).