

UNDERTAKING J15.11

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Undertaking

To update Ex. E2-1-2, Table 1 (Comparison of Production Forecast – Nuclear) for 2016 actuals.

Response

An update of Ex. E2-1-2, Table 1 to include 2016 actual production values is provided in Attachment 1.

Numbers may not add due to rounding.
 Privileged and confidential. Prepared in contemplation of litigation.

Update to E2-1-2 Table 1
 Comparison of Production Forecast - Nuclear

Line No.	Business Unit	2013 Budget (a)	(c)-(a) Change (b)	2013 Actual (c)	(g)-(c) Change (d)	2014 OEB (e)	(g)-(e) Change (f)	2014 Actual (g)	(k)-(g) Change (h)	2015 OEB Approved ¹ (i)	(k)-(i) Change (j)	2015 Actual (k)
Darlington NGS												
1	TWh	26.9	(1.8)	25.1	2.9	27.1	0.9	28.0	(4.7)	25.0	(1.7)	23.3
2	Unit Capability Factor (%)	88.8	(5.9)	82.9	9.0	93.5	(1.6)	91.9	(15.0)	86.3	(9.4)	76.9
3	PO Days	144.4	0.1	144.5	(52.4)	77.1	15.0	92.1	174.8	188.0	78.9	266.9
4	FEPO Days	0.0	39.8	39.8	(39.8)	0.0	0.0	0.0	7.7	0.0	7.7	7.7
5	FLR (%)	1.5	3.3	4.8	(3.3)	1.3	0.3	1.5	3.4	1.0	3.9	4.9
6	FLR Days Equivalent	19.7	41.8	61.5	(41.0)	14.6	5.9	20.5	36.9	12.7	44.7	57.4
Pickering NGS												
7	TWh	21.1	(1.5)	19.6	0.5	21.9	(1.8)	20.1	1.1	21.6	(0.4)	21.2
8	Unit Capability Factor (%)	79.2	(5.5)	73.7	1.6	79.9	(4.6)	75.3	4.1	82.1	(2.8)	79.4
9	PO Days	303.5	(82.7)	220.8	64.1	292.9	(8.0)	284.9	65.2	287.9	62.2	350.1
10	FEPO Days	0.0	167.6	167.6	(112.2)	0.0	55.4	55.4	(14.8)	0.0	40.6	40.6
11	FLR (%)	8.1	1.6	9.7	1.0	7.8	3.0	10.7	(7.8)	5.5	(2.6)	2.9
12	FLR Days Equivalent	152.4	21.4	173.8	24.2	147.0	51.0	198.0	(146.3)	104.5	(52.8)	51.7
Totals												
13	Unit Capability Factor (%)	84.3	(5.7)	78.6	5.7	87.6	(3.3)	84.3	(6.3)	84.0	(6.0)	78.0
14	PO Days	447.9	(82.6)	365.3	11.7	370.0	7.0	377.0	239.9	475.9	141.0	616.9
15	FEPO Days	0.0	207.4	207.4	(152.0)	0.0	55.4	55.4	(7.1)	0.0	48.3	48.3
16	FLR (%)	4.5	2.5	7.0	(1.5)	4.1	1.5	5.6	(1.6)	3.1	0.8	3.9
17	FLR Days Equivalent	172.1	63.2	235.3	(16.8)	161.6	56.9	218.5	(109.4)	117.2	(8.1)	109.1
18	Total TWh	48.0	(3.3)	44.7	3.4	49.0	(0.9)	48.1	(3.5)	46.6	(2.1)	44.5

Line No.	Business Unit	2015 Actual (a)	(e)-(a) Change (b)	2016 Budget (c)	(c)-(e) Change (d)	2016 Actual (e)	(g)-(e) Change (f)	2017 Plan (g)	(i)-(g) Change (h)	2018 Plan (i)	(k)-(i) Change (j)	2019 Plan (k)
Darlington NGS												
19	TWh	23.3	2.4	26.0	(0.4)	25.6	(6.6)	19.0	0.2	19.3	0.4	19.7
20	Unit Capability Factor (%)	76.9	12.6	91.1	(1.6)	89.5	(4.4)	85.1	0.9	86.0	1.7	87.8
21	PO Days ³	266.9	(156.8)	111.0	(0.9)	110.1	43.3	153.4	(10.1)	143.3	(19.2)	124.1
22	FEPO Days	7.7	(7.7)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	FLR (%)	4.9	(2.5)	1.0	1.3	2.3	(1.3)	1.0	(0.0)	1.0	0.0	1.0
24	FLR Days Equivalent	57.4	(27.6)	12.7	17.0	29.8	(20.4)	9.4	0.1	9.5	0.2	9.7
Pickering NGS												
25	TWh	21.2	(1.3)	20.8	(0.9)	19.9	(0.9)	19.1	0.1	19.2	0.2	19.4
26	Unit Capability Factor (%)	79.4	(4.1)	77.6	(2.4)	75.2	(3.7)	71.5	0.5	72.0	0.6	72.6
27	PO Days	350.1	19.2	401.6	(32.3)	369.3	172.3	541.6	(10.8)	530.8	(13.7)	517.2
28	FEPO Days	40.6	52.9	0.0	93.5	93.5	(93.5)	0.0	0.0	0.0	0.0	0.0
29	FLR (%)	2.9	1.2	5.0	(0.9)	4.1	0.9	5.0	(0.0)	5.0	0.0	5.0
30	FLR Days Equivalent	51.7	18.5	89.7	(19.5)	70.2	12.2	82.4	0.5	83.0	0.7	83.6
Totals												
31	Unit Capability Factor (%)	78.0	4.7	84.6	(2.0)	82.7	(4.9)	77.8	0.7	78.5	(39.5)	39.0
32	PO Days ³	616.9	(137.5)	512.6	(33.2)	479.4	215.6	695.0	(20.8)	674.1	(32.9)	641.3
33	FEPO Days	48.3	45.2	0.0	93.5	93.5	(93.5)	0.0	0.0	0.0	0.0	0.0
34	FLR (%)	3.9	(0.8)	2.8	0.3	3.1	(0.1)	3.0	(0.0)	3.0	(0.0)	3.0
35	FLR Days Equivalent	109.1	(9.1)	102.4	(2.4)	100.0	(8.1)	91.8	0.6	92.5	0.9	93.4
36	Total TWh	44.5	1.0	46.8	(1.2)	45.6	(7.5)	38.1	0.4	38.5	0.6	39.0

Line No.	Business Unit	2019 Plan (a)	(c)-(a) Change (b)	2020 Plan (c)	(e)-(c) Change (d)	2021 Plan (e)
Darlington NGS						
37	TWh	19.7	(1.9)	17.7	(1.1)	16.6
38	Unit Capability Factor (%)	87.8	(8.4)	79.4	11.5	90.9
39	PO Days ³	124.1	64.1	188.2	(131.9)	56.2
40	FEPO Days	0.0	0.0	0.0	0.0	0.0
41	FLR (%)	1.0	3.2	4.2	(1.2)	3.0
42	FLR Days Equivalent	9.7	28.4	38.1	(13.1)	25.0
Pickering NGS						
43	TWh	19.4	0.3	19.6	(0.8)	18.8
44	Unit Capability Factor (%)	72.6	0.8	73.4	(2.8)	70.6
45	PO Days	517.2	(18.3)	498.9	63.9	562.8
46	FEPO Days	0.0	0.0	0.0	0.0	0.0
47	FLR (%)	5.0	0.0	5.0	(0.0)	5.0
48	FLR Days Equivalent	83.6	1.2	84.9	(3.5)	81.4
Totals						
49	Unit Capability Factor (%)	39.0	37.2	76.2	2.8	79.0
50	PO Days ³	641.3	45.8	687.1	(68.1)	619.0
51	FEPO Days	0.0	0.0	0.0	0.0	0.0
52	FLR (%)	3.0	1.6	4.6	(0.6)	4.0
53	FLR Days Equivalent	93.4	29.6	122.9	(16.6)	106.3
54	Total TWh	39.0	(1.7)	37.4	(2.0)	35.4

Notes:
 1 OEB Approved nuclear production in 2014 is 49.0 TWh per EB-2013-0321 Decision with Reasons p. 39.
 2 OEB Approved nuclear production in 2015 is 46.6 TWh per EB-2013-0321 Decision with Reasons p. 39.
 3 PO days excludes planned outage days for Darlington units out of service during Darlington refurbishment.

1 **UNDERTAKING J15.13**

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3 **Undertaking**

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5 Ref: L-5.1-5 CCC-24

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7 Provide the updated revenue impact of the outage based on the Ex. N3-1-1 impact
8 statement.

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12 **Response**

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14 Please see Attachment 1 to this undertaking response. Attachment 1 updates the
15 Revenue Impact of Outage column from Ex. L-5.1-5 CCC-024 Attachment 1 based on
16 the proposed nuclear payment amounts reflected in Ex. N3-1-1.

17
18 Please note that the formulas used to calculate total production and total revenue
19 impacts for Darlington in 2020 were incorrect in Ex. L-5.1-5 CCC-024 and have been
20 corrected in the updated table, consistent with Undertaking JT2.14. The corrected
21 formulae result in total 2020 production increasing from 14.8TWh to 18.1TWh. To be
22 clear, however, there is no change in total production impact in 2020 as a result of
23 updating the table to reflect the nuclear payment amounts proposed in Ex. N3-1-1.

Year		Outage	Unit Affected	Description	Outage Duration (days)	Forecast Production (TWh) Impact Due to Outage	Revenue Impact of Outage (\$M)
2017	Pickering	P1711	Unit 1	Planned Outage	204.9	2.6	195.0
		P1742	Unit 4	Mid-Cycle Outage	43.0	0.5	40.9
		P1751	Unit 5	Planned Outage	160.7	2.0	153.2
		P1761	Unit 6	Planned Outage	133.0	1.7	126.8
		Total				541.6	6.8
	Darlington	D1711	Unit 1	Planned Outage	108.4	2.3	177.5
		DNRU2	Unit 2	Refurbishment Outage	365.0	7.8	597.6
		D1731-PD	Unit 3	Planned Derate	2.5	0.1	4.1
		D1732	Unit 3	PHT Pump Motor Outage	20.0	0.4	32.7
		D1741-PD	Unit 4	Planned Derate	2.5	0.1	4.1
		D1742	Unit 4	PHT Pump Motor Outage	20.0	0.4	32.7
	Total				518.4	11.1	848.7
	Total 2017				1,060.0	17.9	1,364.6
	2018	Pickering	P1812	Unit 1	Mid-Cycle Outage	43.0	0.5
P1841			Unit 4	Planned Outage	144.1	1.8	141.1
P1871			Unit 7	Planned Outage	193.5	2.4	189.8
P1881			Unit 8	Planned Outage	150.2	1.9	147.3
Total				530.8	6.6	520.4	
Darlington		D1811	Unit 1	PHT Pump Motor Outage	20.0	0.4	33.7
		DNRU2	Unit 2	Refurbishment Outage	365.0	7.8	614.9
		D1831	Unit 3	Planned Outage	103.3	2.2	174.0
		D1841	Unit 4	PHT Pump Motor Outage	20.0	0.4	33.7
		Total				508.3	10.9
Total 2018				1,039.1	17.5	1,376.6	
2019	Pickering	P1911	Unit 1	Planned Outage	128.5	1.6	135.8
		P1942	Unit 4	Mid-Cycle Outage	43.0	0.5	45.4
		P1951	Unit 5	Planned Outage	165.6	2.1	175.3
		P1961	Unit 6	Planned Outage	180.1	2.2	190.7
		Total				517.2	6.5
	Darlington	D1911	Unit 1	PHT Pump Motor Outage	20.0	0.4	36.4
		D1912-PD	Unit 1	Planned Derate	2.5	0.1	4.5
		DNRU2	Unit 2	Refurbishment Outage	365.0	7.8	663.6
		P1931-PD	Unit 3	Planned Derate	2.5	0.1	4.5
		D1941	Unit 4	Planned Outage	99.1	2.1	180.2
Total				489.1	10.5	889.2	
Total 2019				1,006.3	16.9	1,436.4	
2020	Pickering	P2012	Unit 1	Mid-Cycle Outage	43.0	0.5	47.2
		P2041	Unit 4	Planned Outage	164.5	2.0	180.7
		P2071	Unit 7	Planned Outage	102.5	1.3	112.8
		P2081	Unit 8	Planned Outage	188.9	2.4	208.0
		Total				498.9	6.2
	Darlington	D2011	Unit 1	Planned Outage	108.2	2.3	204.6
		DNRU2	Unit 2	Refurbishment Outage	45.0	1.0	85.1
		D2022-PD	Unit 2	Planned Derate	2.5	0.1	4.7
		D2021	Unit 2	Post Refurb Mini Outage	55.0	1.2	104.0
		DNRU3	Unit 3	Refurbishment Outage	321.0	6.9	606.9
		D2042-PD	Unit 4	Planned Derate	2.5	0.1	4.7
		D2041	Unit 4	PHT Pump Motor Outage	20.0	0.4	37.8
		Total				554.2	11.9
Total 2020				1,053.1	18.1	1,596.5	
2021	Pickering	P2111	Unit 1	Planned Outage	150.5	1.9	172.5
		P2141	Unit 4	Vacuum Building Outage	30.0	0.4	34.4
		P2151	Unit 5	Planned Outage	179.7	2.2	206.4
		P2161	Unit 6	Planned Outage	112.6	1.4	129.3
		P2162	Unit 6	Vacuum Building Outage	30.0	0.4	34.5
		P2171	Unit 7	Vacuum Building Outage	30.0	0.4	34.5
		P2181	Unit 8	Vacuum Building Outage	30.0	0.4	34.5
		Total				562.8	7.0
	Darlington	DNRU1	Unit 1	Refurbishment Outage	200.0	4.3	394.4
		D2121	Unit 2	Post Refurb Mini Outage	31.2	0.7	61.5
		D2122-PD	Unit 2	Planned Derate	2.5	0.1	4.9
		DNRU3	Unit 3	Refurbishment Outage	365.0	7.8	719.8
		D2142-PD	Unit 4	Planned Derate	2.5	0.1	4.9
D2141		Unit 4	PHT Pump Motor Outage	20.0	0.4	39.4	
Total				621.2	13.3	1,225.1	
Total 2021				1,184.0	20.3	1,871.0	