

## COMPARISON OF BASE OM&A – NUCLEAR

### 1.0 PURPOSE

This evidence presents period-over-period comparisons of base OM&A costs for the nuclear facilities for 2013-2021, in support of the approval of OPG's forecast base OM&A costs for the test period.

### 2.0 OVERVIEW

Base OM&A costs are forecast to increase from 2015 Actual to 2021 Plan by \$116.7M. The primary drivers for this increase are purchased services and labour escalation reflecting collective agreement provisions. Purchased services increase to fund work programs to maintain asset reliability and address equipment aging issues. Labour costs are discussed further in Ex. F4-3-1.

Period-over-period changes are presented in Ex. F2-2-2 Table 1. Net reportable variances and period-over-period changes (10 per cent or greater at the function level, subject to a minimum materiality limit of \$1M) are discussed below.

### 3.0 PERIOD-OVER-PERIOD CHANGES – TEST YEARS

#### 2017 Plan versus 2016 Budget

Planned base OM&A in 2017 is \$1,210.6M, which is \$8.8M (0.7 per cent) higher than the 2016 Budget amount of \$1,201.8M.

The reportable variances are as follows:

- There is an increase in the base OM&A associated with the Tritium Removal Facility at Darlington station (+\$3.3M or 18.8 per cent increase) primarily due to an incremental refrigeration system outage.

- 1       • There is an increase in the base OM&A associated with Other Support (+\$21.9M or  
2       178 per cent increase) primarily reflecting a negative \$15.4M labour price variance<sup>1</sup> in  
3       the 2016 Budget. No similar variance was budgeted in Nuclear direct OM&A in 2017  
4       onwards as the impact was included in centrally-held pension and OPEB costs.

5

6       **2018 Plan versus 2017 Plan**

7       Planned base OM&A in 2018 is \$1,226.0M, which is \$15.3M (1.3 per cent) higher than the  
8       2017 Plan amount of \$1,210.6M.

9

10      The increase is primarily due to higher Pickering Station costs (+\$10.0M or 2.2 per cent  
11      increase) and Darlington Station costs (+\$6.9M or 2.3 per cent increase).

12

13      There are no reportable variances.

14

15      **2019 Plan versus 2018 Plan**

16      Planned base OM&A in 2019 is \$1,248.4M, which is \$22.4M (1.8 per cent) higher than the  
17      2018 Plan amount of \$1,226.0M.

18

19      The increase is primarily due to higher support (e.g., Engineering, IMS) costs (+\$9.3M or 2.1  
20      per cent increase), Darlington Station costs (+\$8.4M or 2.7 per cent increase) and Pickering  
21      Station costs (+\$4.7M or 1.0 per cent increase).

22

23      There are no reportable variances.

24

25      **2020 Plan versus 2019 Plan**

26      Planned base OM&A in 2020 is \$1,264.7M, which is \$16.4M (1.3 per cent) higher than the  
27      2019 Plan amount of \$1,248.4M.

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<sup>1</sup> The labour price variance is the difference between the final amount of pension and OPEB current service cost charged to the Nuclear business unit in the budget versus the initial estimate reflected in the standard labour rates.

1 The increase is primarily due to higher support (e.g., Engineering, IMS) costs (+\$13.4M or  
2 2.9 per cent increase).

3

4 The reportable variances are as follows:

- 5 • There is an increase in the base OM&A associated with the Darlington Site and  
6 Support Services (+\$2.1M variance or 10.5 per cent increase) primarily due to  
7 increase in inventory obsolescence.
- 8 • There is an increase in the base OM&A associated with the Inspection and  
9 Maintenance Services (+\$5.4M variance or 12.3 per cent increase) primarily due to  
10 increase in base labour to support increased system health, plant and tool  
11 maintenance initiatives as well as new project starts.

12

### 13 **2021 Plan versus 2020 Plan**

14 Planned base OM&A in 2021 is \$1,276.3M, which is \$11.6M (0.9 per cent) higher than the  
15 2020 Plan amount of \$1,264.7M.

16

17 The increase is primarily due to higher support costs (+\$8.7M or 1.8 per cent increase).

18

19 The reportable variances are as follows:

- 20 • There is an increase in the base OM&A associated with the Pickering Work  
21 Management (+\$2.1M variance or 10.1 per cent increase) primarily due to the  
22 increased outage planning due to the higher number of planned outage days in 2021  
23 compared to 2020, mainly due to the planned Vacuum Building Outage.
- 24 • There is a decrease in the base OM&A associated with the Darlington Work  
25 Management (-\$2.1M variance or 15.9 per cent decrease) due to no scheduled  
26 planned outages that qualify for an outage shift premium.
- 27 • There is a decrease in the base OM&A associated with Projects and Modifications (-  
28 \$2.0M variance or 33.1 per cent decrease) primarily due to a decrease in support  
29 required for the project portfolio work activities.

30

### 31 **4.0 PERIOD-OVER-PERIOD CHANGES – BRIDGE YEAR**

1

2 **2016 Budget versus 2015 Actual**

3 Budget base OM&A in 2016 is \$1,201.8M, which is \$42.2M (3.6 per cent) higher than the  
4 2015 Actual amount of \$1,159.6M.

5

6 The increase is primarily due to higher Pickering Station costs (+\$27.0M or 6.4 per cent  
7 increase) and Darlington Station costs (+\$15.8M or 5.3 per cent increase).

8

9 The reportable variances are as follows:

- 10
- 11 • There is an increase in the base OM&A associated with Darlington Site and Support  
12 Services (+\$2.6M variance or 15.9 per cent increase) primarily due to expected  
13 station discovery work and regular staff budget in 2016, which were not incurred in  
14 2015.
  - 14 • There is an increase in the base OM&A associated with the Operations component of  
15 Pickering Operations and Maintenance (+\$11.3M variance or 10.1 per cent increase)  
16 primarily due to spending to improve plant operations in areas of reliability and human  
17 performance.
  - 18 • There is an increase in the base OM&A associated with Pickering Work Management  
19 (+\$1.9M variance or 10.2 per cent increase) primarily due to work management being  
20 under compliment in 2015.
  - 21 • There is an increase in base OM&A associated with Engineering (+\$16.4M or 10.1  
22 per cent increase) primarily due to work related to Pickering Extended Operations  
23 and strategic research and development costs.
  - 24 • There is an increase in the base OM&A associated with Inspection and Maintenance  
25 Services (+\$13.2M or 38.8 per cent increase) primarily due to higher labour as a  
26 result of 2015 attrition and movement of resources in 2015 from base OM&A activities  
27 to support outage extensions.
  - 28 • There is an increase in the base OM&A associated with Security and Emergency  
29 Services (+\$12.1M variance or 14.8 per cent increase) primarily due to transfer in of  
30 security trainers from Corporate and other security officers, transfer in of fleet

1 maintenance from Supply Chain and higher purchased services for Fire Hazard  
2 Assessment and Emergency Management.

- 3 • There is an increase in the base OM&A associated with Fleet Operations and  
4 Maintenance (+\$7.8M variance or 12.3 per cent increase) primarily due to increased  
5 radiation protection support and emergent work.
- 6 • There is an increase in the base OM&A associated with Projects and Modifications  
7 (+\$1.0M variance or 16.6 per cent increase) primarily due to increased support  
8 required for the project portfolio work activities.
- 9 • There is a decrease in the base OM&A associated with Other Support (-\$55.6M or  
10 128.4 per cent decrease) primarily due to the negative labour price variance in 2016.

## 11

### 12 **5.0 PERIOD-OVER-PERIOD CHANGES – HISTORICAL YEARS**

#### 13

#### 14 **2015 Actual versus 2015 OEB Approved<sup>2</sup>**

15 Actual Base OM&A in 2015 was \$1,159.6M, which was \$5.6M (0.5 per cent) higher than the  
16 2015 OEB Approved Budget of \$1,154.0M.

17

18 The increase was primarily due to higher Engineering and Decommissioning and Nuclear  
19 Waste Management costs, partially offset by lower Pickering operations and maintenance  
20 costs.

21

22 The reportable variances are as follows:

- 23 • Pickering Operations Site and Support Services (+\$8.1M or 15.4 per cent increase)  
24 primarily reflecting an increase to the inventory obsolescence provision of \$11.7M.
- 25 • Nuclear Services eliminated (-\$73.7M or 100.0 per cent decrease) with groups  
26 restructured to other organizations to improve alignment with key business areas.  
27 Nuclear Regulatory Affairs and Stakeholder Relations groups from Nuclear Services  
28 to new Decommissioning and Nuclear Waste Management organization (+\$45.4  
29 variance) and Radiation Safety, Fleet Improvement, and Generation Planning groups

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<sup>2</sup> As OEB Approved adjustments shown on Ex. F2-1-1 Table 2 were made at the aggregate Nuclear OM&A level, the figures presented here are 2015 Plan (from EB-2013-0321) rather than 2015 OEB Approved.

- 1 from Nuclear Services to Fleet Operations and Maintenance (+\$37.2M variance or  
2 142.6 per cent increase).
- 3 • Darlington Work Management (-\$1.8M or 12.3 per cent decrease) primarily due to  
4 lower outage shift premiums to regular employees.
  - 5 • Darlington Site and Support Services (-\$2.2M or 11.8 per cent decrease) primarily  
6 due to transfer out of the Chemistry and Environmental Compliance group to other  
7 business units.

8

9 **2015 Actual versus 2014 Actual**

10 Actual Base OM&A in 2015 was \$1,159.6M, which was \$32.5M (2.9 per cent) higher than the  
11 2014 Actual of \$1,127.1M.

12

13 The increase was primarily due to Darlington Station costs (+\$18.8M or 6.7 per cent  
14 increase), Engineering (+\$14.0M or 9.5 per cent increase), Security and Emergency Services  
15 (+\$6.1M or 8.0 per cent increase) and Decommissioning and Nuclear Waste Management  
16 (+\$5.3M or 13.3 per cent increase), partially offset by Pickering Continued Operations costs  
17 (-\$6.0M or 100.0 per cent decrease).

18

19 The reportable variances are as follows:

- 20 • Decommissioning and Nuclear Waste Management (+\$5.3M or 13.3 per cent  
21 increase) primarily due to higher CNSC License fees and planning activities for the  
22 end of commercial operations at Pickering.
- 23 • Darlington Operations costs (+\$9.2M or 11.6 per cent increase) primarily due to  
24 increase in the number of regular operations staff.
- 25 • Darlington Site and Support Services (-\$2.5M or 13.5 per cent decrease) as there  
26 was a reduction in the inventory obsolescence provision in 2015.
- 27 • Pickering Continued Operations (-\$6.0M or 100 per cent decrease) due to completion  
28 of all base outage expenditures on the program in 2014.

29

1 **2014 Actual versus 2014 OEB Approved<sup>3</sup>**

2 Actual Base OM&A in 2014 was \$1,127.1M, which was \$24.0M (2.1 per cent) lower than the  
3 2014 Budget of \$1,151.1M.

4

5 The decrease was primarily due to lower station operations and maintenance costs, and  
6 lower Security and Emergency Services and Engineering costs.

7

8 The reportable variances are as follows:

- 9 • Pickering Operations Site and Support Services (+\$12.6M or 24.1 per cent increase)  
10 primarily reflects higher inventory obsolescence (+\$17.3M), partly offset by reduced  
11 labour costs due to vacancies (-\$1.2M), purchased services budget allocated to  
12 maintenance activities (-\$2.2M), and lower other costs primarily related to lower travel  
13 costs (-\$1.3M).
- 14 • Pickering Continued Operations (-\$5.2M or 46.5 per cent decrease) primarily due to  
15 base work programs for Continued Operations being reduced to fund project OM&A  
16 related Continued Operations costs.
- 17 • Projects and Modifications (+\$1.6M or 29.5 per cent increase) primarily due to  
18 internal staff supporting outage work rather than using previously planned external  
19 contractors.
- 20 • Security and Emergency Services (-\$9.3M or 10.9 per cent decrease) primarily  
21 reflecting lower planned labour and transfer of staff to the corporate People and  
22 Culture group in OPG.
- 23 • Nuclear Services eliminated (-\$73.9M or 100.0 per cent decrease) with groups  
24 restructured to other organizations to improve alignment with key business areas.  
25 Nuclear Regulatory Affairs and Stakeholder Relations groups from Nuclear Services  
26 moved to new Decommissioning and Nuclear Waste Management organization  
27 (+\$40.0M). Radiation Safety, Fleet Improvement, and Generation Planning groups  
28 from Nuclear Services moved to Fleet Operations and Maintenance (+\$34.1M or  
29 123.4 per cent increase).

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<sup>3</sup> As OEB Approved adjustments shown on Ex. F2-1-1 Table 2 were made at the aggregate Nuclear OM&A level, the figures presented here are 2014 Plan (from EB-2013-0321) rather than 2014 OEB Approved.

1

2 **2014 Actual versus 2013 Actual**

3 Actual Base OM&A in 2014 was \$1,127.1M, which was \$0.5M lower than the 2013 Actual of  
4 \$1,127.7M.

5

6 Pickering Station costs increased by \$24.9M (6.0 per cent increase) which were offset by  
7 decreased Support costs of \$27.8M (6.3 per cent decrease).

8

9 The reportable variances are as follows:

- 10 • Pickering Site and Support Services (+\$14.1M or 28.0 per cent increase) primarily  
11 reflects an increase in the provision for inventory obsolescence and an inventory  
12 writeoff.
- 13 • Darlington Site and Support Services (+\$3.1M or 20.1 per cent increase) primarily  
14 due to an increase in the inventory obsolescence provision in 2014.
- 15 • Nuclear Services eliminated (-\$75.0M variance or 100.0 per cent decrease) with  
16 groups restructured to other organizations to improve alignment with key business  
17 areas. Nuclear Regulatory Affairs and Stakeholder Relations groups from Nuclear  
18 Services moved to new Decommissioning and Nuclear Waste Management  
19 organization (+\$40.0M variance). Radiation Safety, Fleet Improvement, and  
20 Generation Planning groups from Nuclear Services moved to Fleet Operations and  
21 Maintenance (+\$31.2M variance or 102.1 per cent increase).
- 22 • Other Support (-\$16.9M variance or 27.8 per cent decrease) due to 2013 inventory  
23 write-off.
- 24 • Pickering Continued Operations (-\$3.9M variance or 39.4 per cent decrease) due to  
25 reduced work.
- 26 • Darlington Work Management (-\$2.5M variance or 16.3 per cent decrease) as there  
27 was one outage in 2014, compared to two outages in 2013, which resulted in less  
28 outage shift premiums to regular employees.
- 29 • Tritium Removal Facilities (-\$1.8M variance or 10.5 per cent decrease) primarily due  
30 to no planned refrigeration system outage in 2014.

31



1    **2013 Actual versus 2013 Budget**

2    Actual Base OM&A in 2013 was \$1,127.7M, which was \$12.0M (1.1 per cent) lower than the  
3    2013 Budget of \$1,139.6M. The decrease was primarily due to lower station Support  
4    Services, Engineering, and Security and Emergency Services costs. The reportable  
5    variances are as follows:

- 6       • Darlington Site and Support Services (-\$2.4M or 13.2 per cent decrease) primarily  
7       reflecting lower than expected discovery work.
- 8       • Pickering Continued Operations (-\$2.7M or 21.4 per cent decrease) primarily  
9       reflecting base work programs for Continued Operations being reduced and offset by  
10      project related work for Pickering Continued Operations.
- 11      • Other Support (+\$18.4M or 43.6 per cent increase) primarily reflecting an unbudgeted  
12      inventory write-off (+\$17.6M).

Table 1  
 Comparison of Nuclear Base OM&A by Function (\$M)

Line No.	Business Unit	2013 Budget	(c)-(a) Change <sup>1</sup>	2013 Actual	(g)-(c) Change <sup>1</sup>	2014 OEB Approved <sup>2</sup>	(g)-(e) Change <sup>1</sup>	2014 Actual	(k)-(g) Change <sup>1</sup>	2015 OEB Approved <sup>2</sup>	(k)-(i) Change <sup>1</sup>	2015 Actual
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
<b>Stations</b>												
1	Operations & Maintenance	574.1	(12.2)	561.9	19.0	599.4	(18.5)	580.9	17.8	613.7	(15.0)	598.7
2	- Operations	179.5	0.3	179.9	8.2	200.0	(11.9)	188.1	12.7	211.2	(10.5)	200.7
3	- Maintenance	394.6	(12.5)	382.1	10.8	399.5	(6.6)	392.8	5.1	402.5	(4.5)	398.0
4	Work Management	36.0	(1.4)	34.6	(3.3)	31.5	(0.1)	31.4	0.1	33.3	(1.8)	31.5
5	Site and Support Services	70.4	(4.4)	66.0	<b>17.3</b>	70.4	<b>12.9</b>	83.3	(6.3)	71.1	5.9	77.0
6	Tritium Removal Facility	18.3	(0.8)	17.5	<b>(1.8)</b>	16.5	(0.8)	15.6	1.2	17.8	(1.1)	16.8
7	Pickering Continued Operations	12.6	<b>(2.7)</b>	9.9	<b>(3.9)</b>	11.2	<b>(5.2)</b>	6.0	<b>(6.0)</b>	0.0	0.0	0.0
8	Pickering Extended Operations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	<b>Total Stations</b>	711.4	(21.5)	690.0	27.2	729.0	(11.8)	717.2	6.8	735.9	(11.9)	724.0
<b>Support<sup>3</sup></b>												
10	Engineering	153.4	(4.5)	148.8	(1.2)	152.2	(4.6)	147.6	14.0	149.7	11.9	161.6
11	Projects & Modifications	6.6	<b>0.7</b>	7.4	(0.4)	5.4	<b>1.6</b>	6.9	(0.6)	5.8	0.5	6.3
12	Nuclear Services	75.1	(0.1)	75.0	<b>(75.0)</b>	73.9	<b>(73.9)</b>	0.0	0.0	73.7	<b>(73.7)</b>	0.0
13	Fleet Operations and Maintenance	30.2	0.4	30.5	<b>31.2</b>	27.6	<b>34.1</b>	61.7	1.6	26.1	<b>37.2</b>	63.3
14	Security and Emergency Services	84.2	(4.3)	79.9	(4.2)	85.0	<b>(9.3)</b>	75.7	6.1	83.6	(1.8)	81.8
15	Inspection & Maintenance Services	36.5	(1.1)	35.4	(1.2)	35.7	(1.5)	34.2	(0.2)	35.3	(1.4)	34.0
16	Decommissioning & Nuclear Waste Mgmt <sup>4</sup>	0.0	0.0	0.0	40.0	0.0	40.0	40.0	<b>5.3</b>	0.0	45.4	45.4
17	Other Support	42.3	<b>18.4</b>	60.7	<b>(16.9)</b>	42.3	1.4	43.8	(0.5)	43.9	(0.6)	43.3
18	<b>Total Support</b>	428.2	9.5	437.7	(27.8)	422.1	(12.2)	409.9	25.7	418.1	17.5	435.6
19	<b>Total Base OM&amp;A</b>	1139.6	(12.0)	1127.7	(0.5)	1151.1	(24.0)	1127.1	32.5	1154.0	5.6	1159.6

Line No.	Business Unit	2015 Actual	(c)-(a) Change <sup>1</sup>	2016 Budget	(e)-(c) Change <sup>1</sup>	2017 Plan	(g)-(e) Change <sup>1</sup>	2018 Plan	(i)-(g) Change <sup>1</sup>	2019 Plan	(k)-(i) Change <sup>1</sup>	2020 Plan
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
<b>Stations</b>												
20	Operations & Maintenance	598.7	41.9	640.6	(6.0)	634.7	10.3	644.9	12.8	657.7	(1.6)	656.1
21	- Operations	200.7	10.6	211.4	1.8	213.1	10.9	224.0	1.6	225.7	(5.9)	219.8
22	- Maintenance	398.0	31.3	429.2	(7.7)	421.5	(0.6)	420.9	11.1	432.0	4.3	436.3
23	Work Management	31.5	2.6	34.1	(0.1)	34.0	(0.4)	33.6	0.5	34.1	0.4	34.5
24	Site and Support Services	77.0	(2.6)	74.4	(1.5)	72.9	6.1	79.0	0.9	79.9	3.9	83.8
25	Tritium Removal Facility	16.8	0.9	17.7	<b>3.3</b>	21.0	0.9	21.9	(1.1)	20.8	0.3	21.1
26	Pickering Continued Operations	0.0	<b>(0.0)</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	Pickering Extended Operations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	<b>Total Stations</b>	724.0	42.8	766.8	(4.2)	762.5	16.8	779.4	13.1	792.5	3.0	795.5
<b>Support<sup>3</sup></b>												
29	Engineering	161.6	<b>16.4</b>	178.0	0.5	178.5	2.0	180.5	3.3	183.8	3.7	187.5
30	Projects & Modifications	6.3	<b>1.0</b>	7.4	(0.6)	6.8	<b>(1.0)</b>	5.8	0.1	5.8	0.1	5.9
31	Nuclear Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	Fleet Operations and Maintenance	63.3	<b>7.8</b>	71.0	(4.8)	66.2	(3.0)	63.2	1.4	64.6	0.9	65.5
33	Security and Emergency Services	81.8	<b>12.1</b>	93.9	(2.9)	91.0	0.2	91.2	2.2	93.4	2.1	95.5
34	Inspection & Maintenance Services	34.0	<b>13.2</b>	47.2	(2.9)	44.2	(1.8)	42.4	1.7	44.2	<b>5.4</b>	49.6
35	Decommissioning & Nuclear Waste Mgmt	45.4	4.5	49.9	2.0	51.8	2.2	54.0	0.5	54.5	1.1	55.6
36	Other Support	43.3	<b>(55.6)</b>	(12.3)	<b>21.9</b>	9.6	(0.0)	9.6	0.1	9.7	0.1	9.7
37	<b>Total Support</b>	435.6	(0.6)	435.0	13.1	448.1	(1.5)	446.6	9.3	455.9	13.4	469.2
38	<b>Total Base OM&amp;A</b>	1,159.6	42.2	1,201.8	8.8	1,210.6	15.3	1,226.0	22.4	1,248.4	16.4	1,264.7

Line No.	Business Unit	2020 Plan	(c)-(a) Change <sup>1</sup>	2021 Plan
		(a)	(b)	(c)
<b>Stations</b>				
39	Operations & Maintenance	656.1	(0.7)	655.5
40	- Operations	219.8	(1.2)	218.5
41	- Maintenance	436.3	0.6	436.9
42	Work Management	34.5	(0.0)	34.5
43	Site and Support Services	83.8	2.6	86.4
44	Tritium Removal Facility	21.1	1.0	22.1
45	Pickering Extended Operations	0.0	0.0	0.0
46	<b>Total Stations</b>	795.5	2.9	798.4
<b>Support<sup>3</sup></b>				
47	Engineering	187.5	4.3	191.8
48	Projects & Modifications	5.9	<b>(2.0)</b>	4.0
49	Nuclear Services	0.0	0.0	0.0
50	Fleet Operations and Maintenance	65.5	0.7	66.1
51	Security and Emergency Services	95.5	2.5	98.0
52	Inspection & Maintenance Services	49.6	3.1	52.7
53	Decommissioning & Nuclear Waste Mgmt	55.6	0.3	55.8
54	Other Support	9.7	(0.2)	9.5
55	<b>Total Support</b>	469.2	8.7	477.9
56	<b>Total Base OM&amp;A</b>	1,264.7	11.6	1,276.3

Notes:

- 1 Bold italic font indicates variance of 10% or greater.
- 2 As OEB Approved adjustments shown on Ex. F2-1-1 Table 2 were made at the aggregate Nuclear OM&A level, the figures presented here are 2014 Plan and 2015 Plan (from EB-2013-0321) rather than 2014 OEB Approved and 2015 OEB Approved, respectively.
- 3 Nuclear Support includes expenditures for Pickering Continued Operations and Pickering Extended Operations. See Ex. F2-2-1 Table 1, Notes 1 and 2.
- 4 Beginning in 2014, Nuclear Waste & Decommissioning is reported separately rather than being included under "Other Support".