

Numbers may not add due to rounding.

Filed: 2016-05-27  
EB-2016-0152  
Exhibit D2  
Tab 1  
Schedule 3  
Table 1

Table 1  
Capital Project Listing - Nuclear Operations Facility Projects  
Projects > \$20M Total Project Cost<sup>1</sup>

Line No.	Facility	Project Name	Project Number	Category	Start Date	Final In-Service Date	Total Project Cost <sup>2</sup> (M\$)	Partial/Devmt Release (\$M)	Initial Full Release (\$M)	Superceding Full Release (\$M)	In-Service 2016 (\$M)	In-Service 2017 (\$M)	In-Service 2018 (\$M)	In-Service 2019 (\$M)	In-Service 2020 (\$M)	In-Service 2021 (\$M)
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)
<b>ONGOING PROJECTS FROM EB-2013-0321</b>																
1	DN	Operations Support Building Refurbishment <sup>3</sup>	25619	Sustaining	Mar-09	Oct-15	62.7		53.0	62.7	3.6	0.0	0.0	0.0	0.0	0.0
2	DN	Class II Uninterruptible Power Supply Replacement <sup>4</sup>	31412	Sustaining	Jan-11	Jun-25	55.1	31.1			7.0	6.5	9.4	6.5	1.6	7.6
3	DN	Fukushima Phase 1 Beyond Design Basis Event Emergency Mitigation Equipment <sup>4,5</sup>	31508	Regulatory	Sep-11	Sep-17	52.9	51.9			17.0	13.8	0.0	0.0	0.0	0.0
4	DN	Improve Maintenance Facilities at Darlington	31717	Sustaining	Aug-07	Oct-13	43.2		43.2		0.8	0.0	0.0	0.0	0.0	0.0
5	DN	Secondary Control Area Air Conditioning Unit Replacement <sup>4</sup>	33621	Sustaining	Feb-09	Apr-17	28.3	25.8			10.3	6.1	0.0	0.0	0.0	0.0
6	DN	Chiller Replacement to Reduce CFC Emissions	33631	Regulatory	Jan-04	Jan-13	30.0		30.0		0.0	1.2	0.0	0.0	0.0	0.0
7	DN	Major Pump-sets Vibration Monitoring System Upgrades <sup>4</sup>	33819	Sustaining	Mar-06	Jul-21	23.8	9.6			0.0	0.0	5.2	4.6	4.5	4.4
8	DN	Shutdown System Computer Aging Management <sup>4</sup>	33955	Sustaining	Nov-06	May-16	20.3		20.3		2.0	0.0	0.0	0.0	0.0	0.0
9	DN	Standby Generator Controls Replacement	33973	Sustaining	Dec-06	May-17	39.6	32.4			17.9	8.7	0.0	0.0	0.0	0.0
10	DN	Digital Control Computer Replacement / Refurbishment / Upgrades	33977	Sustaining	Sep-03	Dec-18	24.9		22.1	24.9	0.0	2.0	1.8	0.0	0.0	0.0
11	DN	Auxiliary Heating System <sup>3</sup>	34000	Regulatory	Mar-06	Apr-16	99.5		99.5		94.2	0.1	0.0	0.0	0.0	0.0
12	DN	Primary Heat Transport Pump Motor Capital Spares <sup>4</sup>	36001	Sustaining	Sep-11	May-15	30.8		12.0	30.8	0.0	0.0	0.0	0.0	0.0	0.0
13	PN	Unit 1 & 4 Fuel Channel East Pressure Tube Shift/Reconfigure <sup>6</sup>	41023 49247	Sustaining	Nov-09	Mar-16	38.6		28.8	38.6	17.0	0.0	0.0	0.0	0.0	0.0
14	PN	Pickering A Fuel Handling Single Point of Vulnerability Equipment Reliability Improvement	46634	Sustaining	Feb-11	Mar-16	27.3		27.3		3.8	2.5	0.0	0.0	0.0	0.0
15	PN	Fukushima Phase 1 Beyond Design Basis Event Emergency Mitigation Equipment <sup>4,5</sup>	49158 49299	Regulatory	Sep-11	Aug-16	58.0	47.2			21.0	10.5	0.5	0.0	0.0	0.0
16	SEC	Physical Barrier System	25609	Regulatory	Nov-05	Dec-13	67.2		49.5	67.2	0.5	0.0	0.0	0.0	0.0	0.0
17		<b>Subtotal</b>					702.2				195.1	51.5	16.9	11.2	6.0	12.0
<b>COMPLETED/DEFERRED/CANCELLED FROM EB-2013-0321</b>																
18	PN	PB Standby Generator Governor Upgrade	49109	Sustaining	Oct-05	Jan-15	22.8		23.3		0.0	0.0	0.0	0.0	0.0	0.0
19	PN	Modify/Replace Fiber Reinforced Plastic Components During 2010 Vacuum Building Outage	49285	Sustaining	Nov-09	Jun-10	17.7		12.8	24.5	0.0	0.0	0.0	0.0	0.0	0.0
20	ENG	Feeder Repair by Weld Overlay	62568	Value Enhancing	May-09	Deferred	0.0		53.2		0.0	0.0	0.0	0.0	0.0	0.0
21		<b>Subtotal</b>					40.5				0.0	0.0	0.0	0.0	0.0	0.0
<b>PROJECTS NOT IN EB-2013-0321</b>																
22	DN	Restore Emergency Service Water and Firewater Margins	31518	Sustaining	Dec-12	Sep-16	47.1	28.4			2.1	0.0	33.8	0.0	0.0	0.0
23	DN	Station Roofs Replacement	31524	Sustaining	Nov-12	Deferred	38.3	0.8			0.0	15.5	8.0	0.1	0.0	0.0
24	DN	Powerhouse Water Air Conditioning Units Replacement	31532	Sustaining	Oct-12	Dec-19	20.0	11.3			0.0	4.8	3.8	3.0	5.2	0.2
25	DN	Water Treatment Plant Replacement	31535	Sustaining	Oct-12	Deferred	57.8	5.2			0.0	0.0	0.0	49.9	0.5	0.0
26	DN	Transformer Multi-Gas Analyzer Installation	31542	Sustaining	Oct-12	Mar-18	22.7		22.7		6.0	3.5	1.6	0.1	0.0	0.0
27	DN	Radiation Detection Equipment Obsolescence	31544	Sustaining	Jan-14	Dec-21	46.9	1.2			0.0	6.6	10.2	9.5	1.7	0.8
28	DN	Condenser Circulating Water and Low Pressure Service Water Travelling Screens Replacement	31552	Sustaining	May-13	Jun-18	37.6	27.5			10.6	8.4	7.2	0.1	0.0	0.0
29	DN	Shutdown Cooling Heat Exchanger Replacement	31710	Sustaining	Nov-12	May-19	56.1	38.8			15.8	9.9	14.3	0.9	0.0	0.0
30	DN	Neutron Over-Power & Ion Chamber Amplifier Replacement (Reactor Regulating System, Shutdown System 1 & Shutdown System 2)	31716	Sustaining	Jul-13	Jul-22	17.7	5.5			0.0	0.0	0.0	1.0	2.3	0.0
31	DN	Zebra Mussel Mitigation Improvements	38948	Sustaining	Nov-12	Jul-16	21.5		21.5		18.9	1.0	0.0	0.0	0.0	0.0
32	DN	Hot Road Interchange Upgrade	73706	Value Enhancing	Nov-13	Dec-16	28.6		31.0		22.4	0.0	0.0	0.0	0.0	0.0
33	DN	OH180 Aging Management Hardware Installation	80022	Sustaining	Dec-14	Dec-22	47.2	1.4			0.0	0.0	7.9	5.7	5.5	5.6
34	DN	Digital Control, Common Process and Sequence of Events Monitoring Computer Aging Management	80078	Regulatory	Nov-15	Jun-25	47.3	1.7			0.0	0.0	0.0	0.0	1.6	6.0
35	DN	Generator Stator Core Spare	80111	Sustaining	Sep-15	Jul-19	35.0		35.0		0.0	0.0	0.0	32.0	0.0	0.0
36	DN	Vault Cooling Coil Replacement	82816	Regulatory	Dec-15	Sep-20	26.3	11.9			6.9	2.4	1.3	3.8	2.9	0.0
37	DN	Primary Heat Transport Pump Motor Replacement/Overhaul <sup>7</sup>	73566 80144	Sustaining	May-15	Dec-22	129.5	53.8			14.8	11.0	13.0	17.0	19.2	0.0
38	PN	Pickering B Fuel Handling Reliability Modifications	40976	Sustaining	Aug-12	Jul-17	37.3	30.9			11.5	7.9	4.2	0.0	0.0	0.0
39	PN	Fukushima Phase 2 Beyond Design Basis Event Emergency Mitigation Equipment	41027	Regulatory	Oct-12	Jun-17	46.3	5.8			7.3	22.5	0.0	0.0	0.0	0.0
40	PN	Machine Delivered Scrapie	66600	Value Enhancing	Feb-14	May-17	24.9	14.1	0.0	0.0	18.9	1.5	0.0	0.0	0.0	0.0
41		<b>Subtotal</b>					788.0				135.1	95.0	105.3	123.1	38.9	12.6
42		<b>Total</b>									330.2	146.5	122.2	134.3	44.9	24.6
<b>DIVISION TOTALS:</b>																
43		<b>Darlington</b>									250.2	101.5	117.5	134.3	44.9	24.6
44		<b>Pickering</b>									79.4	45.0	4.7	0.0	0.0	0.0
45		<b>Nuclear Support Divisions</b>									0.5	0.0	0.0	0.0	0.0	0.0
46		<b>Total</b>									330.2	146.5	122.2	134.3	44.9	24.6

- Notes:
- 1 Projects with expenditures during Test Period OR In-Service Amounts in Bridge or Test Period, AND Completed/Deferred Projects (from EB-2013-0321 or subsequent).
  - 2 Total Project Cost reflects BC5 amounts, with the exception of Completed/Deferred/Cancelled Projects (for which actual costs are shown).
  - 3 Projects from Ex. D2-2-1 Table 7 in EB-2013-0321.
  - 4 Projects from Ex. D2-1-3 Table 2 in EB-2013-0321.
  - 5 Projects 31508, 49158 and 49299 are combined in a single Business Case Summary.
  - 6 Projects 41023 and 49247 are combined in a single Business Case Summary. Project 49247 is from Ex. D2-1-3 Table 2 in EB-2013-0321
  - 7 Projects 73566 and 80144 are combined in a single Business Case Summary

Numbers may not add due to rounding.

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Exhibit D2  
Tab 1  
Schedule 3  
Table 2a

Table 2a  
Capital Project Listing - Nuclear Operations Facility Projects  
Projects \$5M - \$20M Total Project Cost<sup>1</sup>

Line No.	Facility	Project Name	Project Number	Category	Project Description	Start Date	Final In-Service Date	Total Project Cost <sup>2</sup>	In-Service 2016 (\$M)	In-Service 2017 (\$M)	In-Service 2018 (\$M)	In-Service 2019 (\$M)	In-Service 2020 (\$M)	In-Service 2021 (\$M)
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
		ONGOING PROJECTS FROM EB-2013-0321												
1	DN	DN Passive Auto-Catalytic Recombiners	31306	Regulatory	Install passive auto-catalytic recombiners for long-term post-accident hydrogen mitigation.	Dec-09	Jun-16	5.8	1.7	0.0	0.0	0.0	0.0	0.0
2	DN	DN Active Liquid Waste System Upgrade	31403	Regulatory	Add aeration and chemical addition to the active liquid waste management system to ensure compliance with discharge criteria.	Nov-09	Dec-17	12.1	1.5	1.0	0.0	0.0	0.0	0.0
3	DN	DN Pressurizer Heaters & Controllers Replacement Project	31422	Sustaining	Replace electrical heaters in pressurizers that are at the end of their expected life.	Apr-11	Dec-19	14.5	3.2	2.5	0.0	0.0	0.7	0.0
4	DN	DN F/H Inverter Replacement	31426	Sustaining	Replace obsolete inverters providing power to operate critical fuel handling components.	Nov-11	Dec-18	14.4	2.6	5.3	2.6	0.0	0.0	0.0
5	DN	DN Replacement of EPS Uninterruptible Power Supply	33258	Sustaining	Replace life-expired uninterruptible power supplies to the emergency power system.	Feb-10	Nov-17	16.6	1.7	3.4	2.3	0.0	0.0	0.0
6	DN	Replacement of Obsolete Computer Components	33509	Sustaining	Replace obsolete components of the digital control computers.	Jun-00	Jul-16	9.1	0.4	0.3	0.0	0.0	0.0	0.0
7	DN	DN Installation of partial discharge monitors	33623	Sustaining	Provide a means of assessing stator winding conditions in the Main Generator and Primary Heat Transport Pump Motors.	May-07	Jan-14	7.1	0.1	0.0	0.0	0.0	0.0	0.0
8	DN	FH Computer Replacement	33815	Sustaining	Replace obsolete components of the fuel handling system control computers.	Aug-05	Nov-17	14.8	1.1	1.2	1.1	0.0	0.0	0.0
9	DN	DN MOT Capital Spares	36002	Sustaining	Mitigate the risk of a forced outage due to Main Output Transformer failure by acquiring two spare transformer phases to facilitate a planned refurbishment programme.	Aug-11	Jul-16	8.3	7.6	0.0	0.0	0.0	0.0	0.0
10	IMS	OPGN Pressure Tube to Calandria Tube Gap	66255	Value Enhancing	Develop capability to directly measure the gap between the pressure tube and the calandria tube.	Feb-10	Sep-14	17.5	0.0	0.0	0.0	0.0	0.0	0.0
11	IMS	IMS CIGAR Gap System and Drive Reliability	66594	Sustaining	Improve the reliability, operability and functionality of CIGAR (Channel Inspection and Gauging Apparatus for Reactors) system..	Jun-12	Jun-17	11.7	4.5	4.9	0.0	0.0	0.0	0.0
12	PN	PB Main Generator AVR and Protective Relay Upgrade	40680	Sustaining	Replace analog automatic voltage regulator and electromechanical protective relays with new digital devices.	Feb-10	Jun-15	18.8	0.1	0.0	0.0	0.0	0.0	0.0
13	PN	PB EPG Protective Relays	40691	Sustaining	Replace obsolete Emergency Power Generator protective relays with new digital relays to improve availability.	Feb-12	May-19	11.0	4.4	1.0	2.5	2.7	0.0	0.0
14	PN	Standby Generator Reliability	40972	Sustaining	Improve reliability and availability of the unit 012/034 Standby Generators (SG) by addressing obsolescence, lack of spare parts, maintenance and performance issues.	Apr-12	Nov-17	13.8	5.8	5.9	0.0	0.0	0.0	0.0
15	PN	PA Passive Auto-Catalytic Recombiners	46605	Regulatory	Install passive auto-catalytic recombiners for long-term post-accident hydrogen mitigation.	Jan-10	May-14	14.4	0.1	0.0	0.0	0.0	0.0	0.0
Table continues on Ex. D2-1-3 Table 2b														

Notes:

- 1 Projects with expenditures during Test Period OR In-Service Amounts in Bridge or Test Period, AND Completed/Deferred Projects (from EB-2013-0321 or
- 2 "Total Project Cost" reflects BCS amounts, with the exception of Completed/Deferred Projects (for which actual costs are shown).

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Tab 1  
Schedule 3  
Table 2b

Table 2b  
Capital Project Listing - Nuclear Operations Facility Projects  
Projects \$5M - \$20M Total Project Cost<sup>1</sup>

Line No.	Facility	Project Name	Project Number	Category	Project Description	Start Date	Final In-Service Date	Total Project Cost <sup>2</sup> (\$M)	In-Service 2016 (\$M)	In-Service 2017 (\$M)	In-Service 2018 (\$M)	In-Service 2019 (\$M)	In-Service 2020 (\$M)	In-Service 2021 (\$M)
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
ONGOING PROJECTS FROM EB-2013-0321 (Continued from Ex. D2-1-3 Table 2a)														
16	PN	PB SG/EPG Fire Detection Upgrade and CO2 Suppression Removal	49116	Sustaining	Ensure fire compliance for the Standby Generator, Standby Generator Oil Pump and Emergency Water & Power System buildings including a reliable and maintainable fire detection system.	Feb-10	Jul-16	10.7	1.2	0.2	0.0	0.0	0.0	0.0
17	PN	PB RBSW Dechlorination & MISA Cleanup	49132	Regulatory	Replace temporary dechlorination system for the Reactor Building Service Water discharge with a permanent system with improved sampling points.	May-11	Oct-16	14.1	13.5	0.6	0.0	0.0	0.0	0.0
18	PN	PB Replacement of Containment Box-up Monitors	49134	Sustaining	Replace obsolete ventilation exhaust radioactivity monitors	Dec-10	May-15	8.8	0.2	0.0	0.0	0.0	0.0	0.0
19	PN	PN Fire Code Compliance for Relocatable Structures in Un-Zoned Area for Pickering Station	49146	Regulatory	Ensure compliance with Canadian Standards Association N293-07 Fire Protection for CANDU Nuclear Plants for relocatable structures in the unzoned area.	Dec-11	Jul-16	16.0	12.4	0.3	0.0	0.0	0.0	0.0
20	PN	PB LP Spindles Refurbishment Cap Spares	49150	Sustaining	Refurbish existing Pickering A low pressure spindles to allow use in Pickering B and support turbine maintenance strategy through 2020.	Aug-11	Aug-14	4.3	0.0	0.0	0.0	0.0	0.0	0.0
21	PN	PB Replacement of Obsolete Instrumentation and Control Equipment	49154	Sustaining	Replace critical obsolete instrumentation and control equipment.	Aug-11	Jun-18	6.8	1.0	1.2	0.3	0.0	0.0	0.0
22	PN	PN Standby Boiler Capacity Improvement	49267	Regulatory	Provide reliable backup heating steam.	Dec-08	Nov-15	6.4	0.1	0.0	0.0	0.0	0.0	0.0
23	PN	PN Administration Building Rehab	49284	Sustaining	Complete rehabilitation of the Administration Building to support operations and post-operations activities.	Oct-09	Nov-14	19.4	0.3	0.0	0.0	0.0	0.0	0.0
24	PN	PA Class II Emergency Lighting	49296	Regulatory	Upgrade emergency lighting to meet electrical codes and address employee safety concerns.	Aug-11	Jul-15	6.1	0.1	0.0	0.0	0.0	0.0	0.0
25		<b>Subtotal</b>						<b>282.7</b>	<b>63.8</b>	<b>28.0</b>	<b>8.8</b>	<b>2.7</b>	<b>0.7</b>	<b>0.0</b>
Table continues on Ex. D2-1-3 Table 2c														

Notes:

- Projects with expenditures during Test Period OR In-Service Amounts in Bridge or Test Period, AND Completed/Deferred Projects (from EB-2013-0321 or subsequent).
- "Total Project Cost" reflects BCS amounts, with the exception of Completed/Deferred Projects (for which actual costs are shown).

Table 2c  
Capital Project Listing - Nuclear Operations Facility Projects  
Projects \$5M - \$20M Total Project Cost<sup>1</sup>

Line No.	Facility	Project Name	Project Number	Category	Project Description	Start Date	Final In-Service Date	Total Project (\$M)	In-Service 2016 (\$M)	In-Service 2017 (\$M)	In-Service 2018 (\$M)	In-Service 2019 (\$M)	In-Service 2020 (\$M)	In-Service 2021 (\$M)
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
		COMPLETED/CANCELLED PROJECTS FROM EB-												
26	DN	DN F/H RAB Independent Power and Control System	31428	Sustaining	Provide independent power and control to the Reactor Area Bridge to increase opportunities to perform fuel handling system maintenance.	Dec-11	Jul-13	5.5	0.0	0.0	0.0	0.0	0.0	0.0
27	DN	FH Power Track Improvement	31438	Sustaining	Install a video surveillance system to monitor operation and condition of the fuel handling power track system.	May-07	Nov-12	16.2	0.0	0.0	0.0	0.0	0.0	0.0
28	DN	DN Suit and Maintenance Communication Replacement	34006	Sustaining	Replace the suit and maintenance communication system, which provides multi-party voice communication for personnel working in clean and radioactive areas.	Feb-11	Cancelled	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	DN	DN Feeder Replacement ALARA/Optimization	34008	Sustaining	Provide tooling and capability to optimize feeder replacements, fuel channel reconfiguration and single fuel channel replacements while minimizing dose.	Aug-09	Jan-14	14.0	0.0	0.0	0.0	0.0	0.0	0.0
30	DN	RM Replacement Tooling (Transfer to MFA when project complete)	34111	Sustaining	Develop tooling for the replacement of reactivity mechanisms.	Oct-01	Mar-12	8.5	0.0	0.0	0.0	0.0	0.0	0.0
31	IMS	Upper Feeder Cabinet Inspection Robot	66266	Sustaining	Develop robotic tooling to perform visual inspections in the feeder insulation cabinets.	Jun-06	Apr-11	5.0	0.0	0.0	0.0	0.0	0.0	0.0
32	IMS	ANDE/CIGAR Hybrid	66423	Sustaining	Increase the speed of fuel channel inspections by integrating the ANDE (Advanced Non-Destructive Examination) probe with the CIGAR (Channel Inspection and Gauging Apparatus for Reactors) delivery system.	Apr-09	Nov-13	9.9	0.0	0.0	0.0	0.0	0.0	0.0
33	IMS	Multiple Simultaneous Inspections for Feeders	66533	Value Enhancing	Develop tooling to perform thickness measurements on multiple feeders concurrently with less passes to reduce the amount of time required to perform inspections.	Dec-10	Cancelled	0.5	0.0	0.0	0.0	0.0	0.0	0.0
34	PN	PB Airlocks System Relief Valve Replacements for Regulatory Compliance	40673	Sustaining	Replace obsolete airlock relief valves with new seismically qualified valves and add an alternative air supply to ensure containment is maintained.	Sep-09	Aug-12	6.5	0.0	0.0	0.0	0.0	0.0	0.0
35	PN	PA ECI Strainer Capacity Margin (Capital)	40984	Regulatory	Improve capacity of the emergency coolant injection system strainers to improve design margins.	May-12	May-13	5.3	0.0	0.0	0.0	0.0	0.0	0.0
36	PN	Pickering 1&4 Turbine Governor System Upgrade	41013	Sustaining	Replace the existing turbine mechanical governors with new hydraulic pressure converters including new auxiliary components for turbine monitoring and control.	Jun-12	Cancelled	17.5	0.0	0.0	0.0	0.0	0.0	0.0
37	PN	PB EPG Control Upgrade	49110	Sustaining	Replace obsolete emergency power generator controls to ensure availability.	Mar-06	Dec-11	15.9	0.0	0.0	0.0	0.0	0.0	0.0
38	PN	PB Powerhouse Office Facilities (Capital)	49126	Sustaining	Upgrade offices inside the powerhouse to meet HVAC (heating, ventilation and air conditioning), building and fire codes.	May-09	Cancelled	6.7	0.0	0.0	0.0	0.0	0.0	0.0
39	PN	Pickering VBO Valve Replacement Program	49137	Sustaining	Replace life-expired negative pressure containment and emergency coolant injection valves during the Vacuum Building Outage.	Jun-10	Jun-10	7.9	0.0	0.0	0.0	0.0	0.0	0.0
40	PN	Pickering Fish Diversion System	49280	Regulatory	Install full barrier screen in Pickering inlet channel to divert fish and reduce fish mortality per CNSC requirements.	Feb-09	Jul-11	10.5	0.0	0.0	0.0	0.0	0.0	0.0
41	PN	PA Fixed Area Gamma Monitor Replacements	49282	Sustaining	Replace obsolete fixed area gamma monitors.	Nov-09	Dec-12	6.1	0.0	0.0	0.0	0.0	0.0	0.0
42	PN	PA PH Emerg Vent Syst Long Term Fix	49283	Sustaining	Replace obsolete programmable logic controllers and revise logic	Jun-07	Dec-11	4.4	0.0	0.0	0.0	0.0	0.0	0.0
43	PN	PB Radioactive Emission Reduction (EV-005)	79140	Sustaining	Improve the radioactive emissions monitoring and control performance per CNSC Power Reactor Operating License requirements.	Mar-99	Jun-12	10.6	0.0	0.0	0.0	0.0	0.0	0.0
44		Subtotal						151.0	0.0	0.0	0.0	0.0	0.0	0.0
Table continues on Ex. D2-1-3 Table 2d														

## Notes:

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Table 2d  
Capital Project Listing - Nuclear Operations Facility Projects  
Projects \$5M - \$20M Total Project Cost<sup>1</sup>

Line No.	Facility	Project Name	Project Number	Category	Project Description	Start Date	Final In-Service Date	Total Project Cost <sup>2</sup>	In-Service 2016 (\$M)	In-Service 2017 (\$M)	In-Service 2018 (\$M)	In-Service 2019 (\$M)	In-Service 2020 (\$M)	In-Service 2021 (\$M)
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
		<b>PROJECTS NOT IN EB-2013-0321</b>												
45	DN	DN Dryer PLC Replacement	31420	Sustaining	Replace obsolete programmable logic controllers.	Feb-14	Mar-22	12.2	0.0	0.0	2.7	0.0	2.6	1.1
46	DN	DN Containment Button-up Activity Monitors Replacement	31432	Regulatory	Replace aging and obsolete radioactivity monitors used to button up the Negative Pressure Containment System on high activity.	Nov-13	Oct-19	8.0	0.0	1.2	1.8	2.8	0.8	0.0
47	DN	DN Computer Upgrade for HWMS (TRF/SUP)	31436	Sustaining	Upgrade obsolete Heavy Water Management System computers that control Tritium Removal Facility and Station Upgrader operations.	Oct-12	Feb-16	5.9	3.7	0.0	0.0	0.0	0.0	0.0
48	DN	DN Replacement of Obsolete Online Chemistry Analysers	31520	Sustaining	Replace obsolete online chemistry analysers	Oct-12	Nov-17	10.6	4.3	4.3	0.0	0.0	0.0	0.0
49	DN	DN RRS Logic Module Redesign	31534	Sustaining	Redesign the Regulator Regulating System logic modules to address spurious rod movements as well as addressing obsolescence of current modules.	Dec-13	May-26	9.9	0.0	0.0	0.0	0.0	0.0	5.3
50	DN	DN Feedwater Chemistry Control Improvements	31548	Sustaining	Install improved feedwater chemistry monitoring and connections for portable filtration.	Nov-13	Nov-22	10.3	0.0	2.2	1.8	2.1	0.0	0.0
51	DN	DN Fukushima Phase 2 Beyond Design Basis Event Emergency Mitigation Equipment	32202	Regulatory	Provide capability to respond to Beyond Design Basis Events following the events at Fukushima Daiichi Nuclear Power Plant	Sep-11	Dec-17	28.0	6.9	7.6	0.1	0.0	0.0	0.0
52	DN	DN EPG Power Turbine Capital Spare	36004	Regulatory	Purchase a spare Emergency Power Generator power turbine to mitigate risk of engine failure.	May-13	Mar-17	8.1	0.0	4.5	0.0	0.0	0.0	0.0
53	DN	DN CSA Sewage Line and Sump Emergency Connections	38466	Sustaining	Replace corroded and degraded sewage piping from Central Services Area and add emergency connections to allow sewage truck to empty sump in emergencies.	Jul-13	Dec-17	7.9	0.0	6.4	0.1	0.0	0.0	0.0
54	DN	DN ESW Pipe and Component Replacement	73397	Sustaining	Replacement of degraded Emergency Service Water piping, valves and tanks during the 2015 Vacuum Building Outage.	Feb-14	Sep-15	6.7	0.3	0.0	0.0	0.0	0.0	0.0
55	DN	DN Large Steam Generator LCV Replacement	80023	Sustaining	Install new large Steam Generator level control valve actuators, valve trims and positioners to address operational and maintenance issues with current valves.	Jan-15	Oct-22	16.3	0.0	0.0	2.7	2.5	2.6	0.0
56	DN	DN R22 Refrigerant ACU Replacement	80036	Regulatory	Replace 51 air conditioning/dehumidifying units containing refrigerant R22 with units using approved non-ozone depleting refrigerant.	Jan-16	Oct-21	14.9	0.0	0.0	3.9	4.1	3.8	0.0
57	DN	DN Feeder Scanner Replacement (CMFA)	80070	Sustaining	Replace permanent feeder scanner equipment with portable system that can be setup outside of containment prior to use.	May-14	Mar-19	8.0	0.0	1.8	1.8	3.4	0.0	0.0
58	DN	DN FHA and FSSA Modifications	80151	Regulatory	Implement modifications required for compliance to Canadian Standards Association N293-07 Fire Protection for Nuclear Power Plants identified in the updated Fire Hazard Assessment and Fire Safe Shutdown Analysis prepared during the Integrated Safety Review and committed in the Integrated Implementation Plan.	Nov-15	Jan-19	6.8	0.0	0.0	0.5	4.7	0.0	0.0
59	DN	DN Irradiated Fuel Discharge Mechanism Major Component Replacement	82841	Sustaining	Replace the shuttle cylinders and other major components of the Irradiated Fuel Discharge system which are approaching end of design life.	Nov-15	Dec-22	5.9	0.0	0.0	0.0	0.0	0.0	5.2
Table continues on Ex. D2-1-3 Table 2e														

## Notes:

- 1 Projects with expenditures during Test Period OR In-Service Amounts in Bridge or Test Period, AND Completed/Deferred Projects (from EB-2013-0321 or
- 2 "Total Project Cost" reflects BCS amounts, with the exception of Completed/Deferred Projects (for which actual costs are shown).

Table 2e  
 Capital Project Listing - Nuclear Operations Facility Projects  
 Projects \$5M - \$20M Total Project Cost<sup>1</sup>

Line No.	Facility	Project Name	Project Number	Category	Project Description	Start Date	Final In-Service Date	Total Project Cost <sup>2</sup>	In-Service 2016 (\$M)	In-Service 2017 (\$M)	In-Service 2018 (\$M)	In-Service 2019 (\$M)	In-Service 2020 (\$M)	In-Service 2021 (\$M)
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
		PROJECTS NOT IN EB-2013-0321 (Continued from Ex. D2-1-3 Table 2d)												
60	DN	DN Station Lighting Retrofit	31516	Sustaining	Replace obsolete fluorescent lighting in powerhouse with new efficient LED lights.	Dec-12	Deferred	11.4	0.0	0.0	0.0	0.0	0.0	0.0
61	DN	DN T/G Lube Oil Purifier Replacement	31536	Sustaining	Replace obsolete turbine lubricating oil purifier used to remove contaminants and metal from lubricating oil during operation.	Nov-12	Apr-17	7.0	2.0	1.0	0.0	0.0	0.0	0.0
62	DN	DN TRF CRS TOSS/Turbine Replacement	31701	Sustaining	Replace the Tritium Removal Facility Cryogenic Refrigeration System turbine oil supply system and hydrogen expander turbine with a dynamic gas bearing (oil-free) turbine	Jan-14	May-17	7.9	0.0	7.0	0.0	0.0	0.0	0.0
63	DN	DN Vapour Recovery Button-Up Valve Replacements	31706	Sustaining	Replace aging vapour recovery containment button-up valves with new design less prone to passing.	Dec-13	Jun-18	13.2	0.0	2.6	5.1	2.6	0.0	0.0
64	DN	TRF Tritium Emissions Reduction Project	38942	Sustaining	Install an adsorbent dryer system and improved stack monitoring to reduce tritium emissions	Oct-12	Jun-17	7.1	0.0	5.5	0.0	0.0	0.0	0.0
65	DN	DN Standby Generators Protective Relay Replacement	80063	Sustaining	Replace 51 air conditioning/dehumidifying units containing refrigerant R22 with units using approved non-ozone depleting refrigerant.	-	Jun-21	9.9	0.0	0.0	0.0	1.8	3.7	1.8
66	DN	DN X-750 Spacer Retrieval CMFA	82949	Regulatory	Develop tooling for the retrieval of fuel channel spacers during unit refurbishment.	Sep-15	Nov-18	6.4	5.5	0.1	0.0	0.0	0.0	0.0
67	PN	PB Machine Guarding Improvement on Low Risk Equipment (Capital)	40983	Regulatory	Install machine guarding on equipment to comply with Ministry of Labour requirements.	Nov-12	Dec-16	6.1	0.9	0.0	0.0	0.0	0.0	0.0
68	PN	PN Replacement of Obsolete Online Chemistry Analysers	40985	Sustaining	Replace obsolete online chemistry analyzers.	Oct-12	Jun-17	18.5	6.1	6.0	0.5	0.0	0.0	0.0
69	PN	Pickering PDM Program Review Project (Capital)	41030	Sustaining	Install predictive maintenance monitoring equipment and cabling on critical equipment to improve reliability.	Jan-13	Dec-18	10.6	0.0	4.4	3.3	0.1	0.0	0.0
70	PN	PN Emergency Power Generator Engine Replacement	41043	Sustaining	Replace the Emergency Power Generator gas turbine engines.	Dec-14	Jun-17	18.3	6.5	5.0	0.1	0.0	0.0	0.0
71	PN	PA SG Protective Relay Upgrade	41044	Sustaining	Replace obsolete electromechanical protective relays with digital units.	Jan-14	May-17	7.7	4.2	1.8	0.4	0.0	0.0	0.0
72	PN	PB Screenhouse Trash Bar Screen Replacement	49140	Sustaining	Upgrade trash bar screens to handle the debris currently experienced from Lake Ontario.	Mar-11	Jun-15	7.7	0.3	0.0	0.0	0.0	0.0	0.0
73	PN	PA Replacement of U1, U4 and IFB-A Stack Monitors	49298	Sustaining	Replace obsolescent stack monitors with monitors used in Pickering B.	Nov-12	Dec-17	9.8	4.5	2.4	0.0	0.0	0.0	0.0
74	PN	PA Firewater Buried Ring Header Replacement	80069	Sustaining	Proactively replace buried sections of the Pickering Units 1 to 4 fire water header subject to frequent failures due to poor material selection.	Nov-14	Dec-17	12.0	5.1	5.2	0.7	0.0	0.0	0.0
75	SEC	Security Project A	25918	Regulatory	Security Protected	Oct-15	Jul-16	9.9	8.8	0.0	0.0	0.0	0.0	0.0
76	SEC	SES Station Personnel Emergency Accounting	80027	Regulatory	Install automated emergency personnel accounting systems in Darlington and Pickering.	Dec-14	Dec-16	9.0	2.9	0.0	0.0	0.0	0.0	0.0
77		Subtotal						331.7	61.9	68.8	25.5	24.1	13.5	13.3
78		Total						765.3	125.6	96.8	34.3	26.8	14.2	13.3
		DIVISION TOTALS:												
79		Darlington							42.5	57.8	26.5	23.9	14.2	13.3
80		Pickering							66.9	34.1	7.8	2.8	0.0	0.0
81		Nuclear Support Divisions							16.2	4.9	0.0	0.0	0.0	0.0
82		Total							125.6	96.8	34.3	26.8	14.2	13.3

## Notes:

- 1 Projects with expenditures during Test Period OR In-Service Amounts in Bridge or Test Period, AND Completed/Deferred Projects (from EB-2013-0321 or subsequent).  
 2 "Total Project Cost" reflects BCS amounts, with the exception of Completed/Deferred Projects (for which actual costs are shown).

Numbers may not add due to rounding.

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EB-2016-0152

Exhibit D2

Tab 1

Schedule 3

Table 3

Table 3  
Capital Project Listing - Nuclear Operations Facility Projects  
Projects < \$5M Total Project Cost<sup>1</sup>

Line No.	Sponsoring Division	Number of Projects	Total Project Cost (\$M)	Average Cost Of All Projects (\$M)	In-Service 2016 (\$M)	In-Service 2017 (\$M)	In-Service 2018 (\$M)	In-Service 2019 (\$M)	In-Service 2020 (\$M)	In-Service 2021 (\$M)
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1	Darlington NGS	28	96.4	3.4	38.7	22.1	8.0	4.2	0.8	0.7
2	Pickering NGS	30	81.5	2.7	18.5	6.9	3.3	0.0	0.0	0.0
3	Nuclear Support Divisions <sup>2</sup>	13	10.4	0.8	0.4	2.0	3.6	0.0	0.0	0.0
4	<b>Total</b>	71	188.2	2.7	57.6	31.0	14.9	4.2	0.8	0.7

Notes:

- 1 Projects with expenditures during Test Period, or In-Service Amounts in Bridge or Test Period.
- 2 Nuclear Support Divisions with capital projects includes Engineering, Inspection and Maintenance Services, and Security & Emergency Services.

Numbers may not add due to rounding.

Updated: 2016-11-10  
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Tab 1  
Schedule 3  
Table 4

Table 4  
Comparison of In-Service Capital Additions - Nuclear Operations (\$M)

Line No.	Business Unit	2013 Budget	(c)-(a) Change	2013 Actual	(g)-(c) Change	2014 OEB Approved	(g)-(e) Change	2014 Actual	(k)-(g) Change	2015 OEB Approved	(k)-(i) Change	2015 Actual
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
1	Darlington NGS	89.9	(10.0)	79.9	(48.8)	43.8	(12.8)	31.1	75.9	7.7	99.3	107.0
2	Pickering NGS	53.6	41.3	94.9	(26.2)	48.8	19.9	68.7	3.0	12.5	59.1	71.7
3	Nuclear Support Divisions <sup>1</sup>	17.4	10.2	27.6	(1.6)	6.4	19.6	26.0	(22.9)	0.7	2.4	3.1
4	Subtotal	160.8	41.6	202.4	(76.7)	99.1	26.7	125.7	56.0	20.9	160.9	181.8
5	Supplemental In-Service Forecast <sup>2</sup>	0.0	0.0	0.0	0.0	37.9	(37.9)	0.0	0.0	99.1	(99.1)	0.0
6	Total Portfolio In-Service Forecast	160.8	41.6	202.4	(76.7)	137.0	(11.3)	125.7	56.0	120.0	61.7	181.8
7	Minor Fixed Assets	19.9	(9.7)	10.2	12.6	21.3	1.6	22.9	(0.5)	21.7	0.6	22.3
8	Total In-Service Capital Additions	180.7	31.9	212.6	(64.0)	158.3	(9.7)	148.6	55.5	141.7	62.4	204.1

Line No.	Business Unit	2015 Actual	(c)-(a) Change	2016 Budget	(e)-(c) Change	2017 Plan	(g)-(e) Change	2018 Plan	(i)-(g) Change	2019 Plan	(k)-(i) Change	2020 Plan
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
9	Darlington NGS	107.0	224.5	331.4	(150.1)	181.3	(29.4)	152.0	10.4	162.4	(102.4)	60.0
10	Pickering NGS	71.7	93.2	164.9	(78.9)	86.0	(70.2)	15.8	(13.0)	2.8	(2.8)	0.0
11	Nuclear Support Divisions <sup>1</sup>	3.1	13.9	17.1	(10.1)	6.9	(3.3)	3.6	(3.6)	0.0	0.0	0.0
12	Subtotal	181.8	331.6	513.4	(239.1)	274.3	(102.9)	171.4	(6.2)	165.2	(105.3)	60.0
13	Supplemental In-Service Forecast <sup>2</sup>	0.0	(47.4)	(47.4)	136.1	88.7	35.1	123.8	(68.8)	55.0	150.7	205.7
14	Total Portfolio In-Service Forecast	181.8	284.3	466.0	(103.0)	363.0	(67.7)	295.2	(75.0)	220.2	45.4	265.6
15	Darlington New Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.3	15.3
16	Minor Fixed Assets	22.3	8.7	31.0	(5.0)	26.0	(6.0)	20.0	(0.9)	19.1	0.4	19.5
17	Total In-Service Capital Additions	204.1	292.9	497.0	(108.0)	389.0	(73.7)	315.2	(75.9)	239.3	61.1	300.4

Line No.	Business Unit	2020 Plan	(c)-(a) Change	2021 Plan
		(a)	(b)	(c)
18	Darlington NGS	60.0	(21.3)	38.7
19	Pickering NGS	0.0	0.0	0.0
20	Nuclear Support Divisions <sup>1</sup>	0.0	0.0	0.0
21	Subtotal	60.0	(21.3)	38.7
22	Supplemental In-Service Forecast <sup>2</sup>	205.7	(48.0)	157.6
23	Total Portfolio In-Service Forecast	265.6	(69.3)	196.3
24	Darlington New Fuel	15.3	(15.3)	0.0
25	Minor Fixed Assets	19.5	(0.1)	19.3
26	Total In-Service Capital Additions	300.4	(84.8)	215.6

Notes:

- 1 Includes Engineering, Inspection and Maintenance Services, and Security & Emergency Services.  
2 Supplemental forecast to reconcile BCS in-service estimates to final business plan (see Ex. D2-1-3, Section 4.0).



Table 5a  
Capital Project Listing - Nuclear Operations  
Portfolio Projects (Unallocated)<sup>1</sup>

Line No.	Project Name	Category	Potential Start Date
	(a)	(b)	(c)
	<b>Darlington NGS - Projects With Potential Cost &lt; \$20M</b>		
1	DN Obsolete Programmable Logic Controller Replacement	Regulatory	2015
2	DN Critical Safety Parameter Monitoring Display Modifications	Regulatory	2015
3	DN Tritium Removal Facility Cold Box Vacuum System Obsolescence	Sustaining	2015
4	DN In-Bay Fuel Inspection Capability Improvements	Value Enhancing	2015
5	DN Standby Generators Protective Relay Replacement	Sustaining	2015
6	DN Fire Resistant Fluid Pump Improvement	Sustaining	2015
7	DN Group II Pressure Transmitter Replacement	Sustaining	2015
8	DN Fire Hazard Assessment and Fire Safe Shutdown Assessment Modifications	Regulatory	2015
9	DN R22 Refrigerant Air Conditioning Unit Replacement	Regulatory	2015
10	DN Glycol Chiller Temperature Control Valve Replacement	Sustaining	2015
11	DN Irradiated Fuel Discharge Mechanism Shuttle Cylinder Capital Spares	Sustaining	2015
12	DN Entry Control System Replacement	Sustaining	2015
13	DN Liquid Zone Control Valve Positioner Replacement	Sustaining	2015
14	Darlington Security Lighting Standard Replacement	Sustaining	2015
15	DN Class 1 Rectifier Replacement	Sustaining	2016
16	DN Revenue Metering Upgrades	Regulatory	2016
17	DN Main Power Output and Class IV Transformer Control Cabinet Wiring Replacement	Sustaining	2016
18	DN Replace Shutdown System 1 Rod Ready Switches	Sustaining	2016
19	DN Post-Accident Water Cooling System Heat Exchanger Replacement	Sustaining	2016
20	DN Fuel Handling Computer Software Release	Sustaining	2016
21	DN Annunciation Modifications and Post-Accident Monitoring Configuration Management	Regulatory	2016
22	DN Fuel Handling Trolley Major Auxiliary Component Replacement	Sustaining	2016
23	DN TRF Analyzer and Cryogenic Temperature Equipment Replacement	Sustaining	2016
24	DN Class 1 Component Fatigue Monitoring	Regulatory	2016
25	DN Tritium Removal Facility Drain and Purge System Compressor Replacement	Sustaining	2016
26	DN Fuelling Machine Trolley D2O Heat Exchanger Capital Spare	Sustaining	2016
27	DN Fuel Handling Window Annunciation Replacement	Sustaining	2016
28	DN Liquid Injection Shutdown System Ball Position Detection System Replacement	Sustaining	2016
29	DN Fuel Handling Head Major Component Replacement	Regulatory	2016
30	DN Main Boiler Feed Pump Motor Capital Spare	Sustaining	2016
31	DN Shutdown System Trip and Display Test Computer Channelized 48VDC Power Supply	Sustaining	2016
32	DN Irradiated Fuel Discharge Mechanism Major Component Replacement	Sustaining	2016
33	DN Facilities Buildings Rehabilitation	Sustaining	2016
34	DN 64453 - PC90 Single Point Vulnerability Enhancement and Obsolescence	Sustaining	2016
35	DN Fuel Handling Power and Signal Cable Catenary Replacement	Regulatory	2016
36	DN Low Pressure Service Water Pump Motor Capital Spare	Sustaining	2016
37	DN Fuel Handling Power Track Coupling Frame Replacement	Sustaining	2016
38	DN Buried Piping Sacrificial Anode Replacement	Sustaining	2016
39	DN Fuelling Machine Head Pressure Boundary Peripheral Replacement	Sustaining	2016
40	Darlington Digital Control Computer/Common Process/Sequence of Events Monitoring Computers	Sustaining	2016
41	DN Major Pump Set Vibration Monitoring Phase 2	Sustaining	2016
42	DN Fuel Handling Motor Replacement	Sustaining	2016
43	DN Powered (Air or Motor) Damper Refurbishment	Sustaining	2016
44	DN Facility Support Services A - Salt Shed	Sustaining	2017
45	DN Facility Support Services B - Grounds Maintenance Building	Sustaining	2017
46	DN Tritium Removal Facility Cryogenic Refrigeration System Room Infrared Flame Detection	Sustaining	2017
47	DN Reactor Auxiliary Bay Humidification System Replacement	Sustaining	2017
48	DN Generator Hydrogen Cooler Spares	Sustaining	2018
	<b>Darlington NGS - Projects With Potential Cost ≥ \$20M</b>		
49	DN Fuel Handling Computer Input/Output Subsystem and Interprocessor Communication Replacement	Sustaining	2015
50	DN Main Power Output Protection System Replacement	Sustaining	2015
51	DN Engineering & Services Support Building and Darlington Learning Centre Roof Replacement	Sustaining	2016
52	DN Rapid Delivery Machine	Value Enhancing	2016
53	DN Emergency Coolant Injection Hydraulic Control Circuit Replacement	Sustaining	2016
54	DN Public Address System Upgrade	Sustaining	2016
55	DN Copper Piping Replacement	Sustaining	2016
56	DN Site Bridge Rehabilitation	Sustaining	2016
57	DN Powerhouse Upper Level Service Water Piping Replacement	Sustaining	2016
58	DN Workforce Training and Testing Facilities	Sustaining	2018
	Table continues on Ex. D2-1-3 Table 5b		

Notes:

- 1 Projects with potential expenditures during Test Period.

Table 5b  
Capital Project Listing - Nuclear Operations  
Portfolio Projects (Unallocated)<sup>1</sup>

Line No.	Project Name	Category	Potential Start Date
	(a)	(b)	(c)
	<b>Pickering NGS - Projects With Potential Cost &lt; \$20M</b>		
59	PN Emergency Communication System Replacement	Sustaining	2015
60	PA Single Fuel Channel Replacement Capability	Sustaining	2016
61	PN Stator Cooling Water Alkalization and Make-up Deoxygenation	Sustaining	2016
62	PN P58 Reactor Face Inspection and Maintenance Platform	Sustaining	2016
63	PN P58 Buried Blowdown Piping Replacement	Sustaining	2016
64	PN P14 Digital Control Computer System Monitor	Sustaining	2016
65	PN P58 Critical Heat Exchanger Capital Spares	Sustaining	2016
66	PB Fuel Handling Reliability Improvement Phase 2	Sustaining	2017
67	PA 034 Standby Generator 2 and 3 Governor Upgrade	Sustaining	2017
68	PA Analog Chart Recorder Replacement	Sustaining	2017
69	PB UDM Fuel Push Tool	Sustaining	2017
70	PB Tritium Monitor Replacement	Regulatory	2017
	<b>Pickering NGS - Projects With Potential Cost &gt; \$20M</b>		
71	Pickering 58 Digital Control Computer Hardware Modernization	Sustaining	2015
72	PN P58 Critical Heat Exchanger Replacement	Sustaining	2016
73	PA Unit 1 Main Generator Stator Core Replacement	Sustaining	2017
	<b>Inspection &amp; Maintenance Services - Projects With Potential Cost &lt; \$20M</b>		
74	IMS Wet In-Channel Camera System	Value Enhancing	2017
75	IMS Remote Feeder Cabinet Inspection Tool	Sustaining	2017
	<b>Security and Emergency Services - Projects With Potential Cost &lt; \$20M</b>		
76	CNSC Emergency Management Data System	Regulatory	2016
	<b>Security and Emergency Services - Projects With Potential Cost &gt; \$20M</b>		
77	Security Training Facility	Regulatory	2015

Notes:

- 1 Projects with potential expenditures during Test Period.

Table 6  
Capital Projects - Nuclear Operations  
Listing of Business Case Summaries Filed

Line No.	Facility	Business Case Summary (BCS) Title	Project Number	BCS Approval Date	Project Stage	BCS Status	BCS Status in EB-2013-0321
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
		<b>ONGOING PROJECTS FROM EB-2013-0321</b>					
1	DN	Operations Support Building Refurbishment	25619	Aug-15	Execution	Full	Definition Full
2	DN	Class II Uninterruptible Power Supplies Replacement	31412	Sep-15	Execution	Partial	Definition Full
3	DN PN	Fukushima Phase 1 Beyond Design Basis Event Emergency Mitigation Equipment	31508 49158 49299	May-15	Execution	Partial	Execution Partial
4	DN	Improve Maintenance Facilities	31717	Mar-12	Execution	Full	Execution Partial
5	DN	Secondary Control Area Air Conditioning Unit Replacement	33621	Aug-15	Execution	Partial	Execution Partial
6	DN	Chiller Replacement to Reduce CFC Emissions	33631	Sep-10	Execution	Full	Execution Full
7	DN	Major Pump-sets Vibration Monitoring System Upgrades	33819	Oct-15	Execution	Partial	Execution Partial
8	DN	Shutdown System Computer Aging Management	33955	Feb-15	Execution	Superceding	Execution Full
9	DN	Standby Generator Controls Replacement	33973	May-15	Execution	Partial	Execution Partial
10	DN	Digital Control Computer Replacement / Refurbishment / Upgrades	33977	Jun-13	Execution	Superceding	Execution Full
11	DN	Auxiliary Heating System	34000	Jul-15	Execution	Partial	Execution Partial
12	DN	Primary Heat Transport Pump Motor Capital Spares	36001	May-13	Execution	Superceding	Execution Full
13	PN	Unit 1 & 4 Fuel Channel East Pressure Tube Shift Reconfigure	41023 49247	Sep-14	Execution	Superceding	N/A
14	PN	Pickering A Fuel Handling Single Point of Vulnerability Equipment Reliability Improvement	46634	May-12	Execution	Full	Execution Partial
		<b>COMPLETED/DEFERRED/CANCELLED FROM EB-2013-0321</b>					
15	PN	Pickering B Standby Generator Governor Upgrade	49109	Mar-07	Execution	Full	Execution Full
16	PN	Modify/Replace Fiber Reinforced Plastic Components During 2010 Vacuum Buiding Outage	49285	Apr-10	Complete	Complete	Superceding
17	ENG	Feeder Repair by Weld Overlay	62568	May-09	Deferred	Full (OM&A)	Full (OM&A)
		<b>PROJECTS NOT IN EB-2013-0321</b>					
18	DN	Restore Emergency Service Water and Firewater Margins	31518	Feb-14	Definition	Full	N/A
19	DN	Station Roofs Replacement	31524	Nov-12	Deferred	Partial	N/A
20	DN	Powerhouse Water Air Conditioning Units Replacement	31532	Feb-15	Definition	Partial	N/A
21	DN	Water Treatment Plant Replacement	31535	Oct-12	Definition	Full	N/A
22	DN	Transformer Multi-Gas Analyzer Installation	31542	May-15	Execution	Full	N/A
23	DN	Radiation Detection Equipment Obsolescence	31544	Jan-14	Definition	Partial	N/A
24	DN	Condenser Circulating Water and Low Pressure Service Water Travelling Screens Replacement	31552	Jun-15	Execution	Partial	N/A
25	DN	Shutdown Cooling Heat Exchanger Replacement	31710	Apr-14	Execution	Partial	N/A
26	DN	Neutron Overpower & Ion Chamber Amplifier Replacement (Reactor Regulating System, Shutdown System 1 & Shutdown System 2)	31716	Oct-15	Definition	Partial	N/A
27	DN	Zebra Mussel Mitigation Improvements	38948	Oct-15	Execution	Partial	N/A
28	DN	Highway 401 and Holt Road Interchange	73706	Nov-13	Execution	Full	N/A
29	DN	OH180 Aging Management Hardware Installation	80022	Dec-14	Definition	Full	N/A
30	DN	Digital Control, Common Process and Sequence of Events Monitoring	80078	Nov-15	Definition	Partial	N/A
31	DN	Generator Stator Core Spare	80111	Sep-15	Execution	Full	N/A
32	DN	Vault Cooling Coil Replacement	82816	Dec-15	Execution	Partial	N/A
33	DN	Primary Heat Transport Pump Motor Replacement/Overhaul <sup>7</sup>	73566	Jul-15	Execution	Partial	N/A
34	PN	Pickering B Fuel Handling Reliability Modifications	40976	Jun-15	Execution	Partial	N/A
35	PN	Fukushima Phase 2 Beyond Design Basis Event Emergency Mitigation Equipment	41027	Aug-15	Execution	Partial	N/A
36	IMS	Machine Delivered Scrape	66600	Jul-15	Execution	Partial	N/A

Table 7  
Capital Projects - Nuclear Operations  
Status of Projects \$5M and Greater with 2014 and 2015 In-Service Dates in EB-2013-0321

Line No.	Project Number	Project Name	In-Service Date at Time of EB-2013-0321 Application	Project Stage at Time of EB-2013-0321 Application	Current Project Status	
					Project Status	Projected/Actual In-Service Date
	(a)	(b)	(c)	(d)	(e)	(f)
1	25619	Operations Support Building Refurbishment	Sep-15	Defintion	Close-out	Oct-15
2	31306	Passive Auto-Catalytic Recombiners	Sep-15	Execution	Execution	Jun-16
3	31403	Active Liquid Waste System Upgrade	Jan-14	Execution	Execution	Dec-17
4	31422	Pressurizer Heaters & Controllers Replacement	Jun-15	Execution	Execution	Aug-19
5	31508	Fukushima Phase 1 Beyond Design Basis Event Emergency Mitigation Equipment	Dec-15	Execution	Execution	Dec-17
6	31717	Improve Maintenance Facilities	Oct-14	Execution	Close-out	Dec-13
7	33509	Replacement of Obsolete Computer Components	Jul-14	Execution	Execution	Feb-17
8	33621	Secondary Control Area Air Conditioning Unit Replacement	Oct-14	Execution	Execution	Apr-17
9	33623	Installation of Partial Discharge Monitors	Feb-14	Execution	Complete	Jan-14
10	33955	Shutdown System Computer Aging Management	Jun-14	Execution	Execution	May-16
11	33977	Digital Control Computer Replacement / Refurbishment / Upgrades	Sep-14	Execution	Execution	Dec-18
12	34000	Auxiliary Heating System	Apr-15	Execution	Execution	Apr-16
13	40680	Main Generator Automatic Voltage Regulator and Protective Relay Upgrade	Dec-14	Execution	Execution	Jun-15
14	40691	Emergency Power Generator Protective Relays	Dec-15	Execution	Execution	Dec-17
15	40984	PA ECI Strainer Capacity Margin (Capital)	Jan-14	Execution	Complete	May-13
16	46605	Passive Auto-Catalytic Recombiners	May-14	Execution	Close-out	May-14
17	49116	Standby and Emergency Power Generator Fire Detection Upgrade and CO2 Suppression Removal	Apr-14	Execution	Execution	Jul-16
18	49134	Pickering B Containment Box-up Monitors Replacement	Aug-14	Execution	Execution	May-15
19	49247	Unit 1 & 4 Fuel Channel East Pressure Tube Shift	Jan-14	Execution	Execution	Mar-16
20	49267	Standby Boiler Capacity Improvement	Oct-14	Execution	Execution	Nov-15
21	49296	Pickering A Class II Emergency Lighting	Dec-14	Execution	Execution	Jul-15
22	66255	Pressure Tube to Calandria Tube Gap	Apr-14	Execution	Close-out	Sep-14
23	66533	Multiple Simultaneous Inspections for Feeders	Apr-14	Execution	Cancelled	Aug-14
24	66594	Channel Inspection and Gauging Apparatus (CIGAR) Gap System and Drive Reliability	Dec-15	Execution	Execution	Jun-17
25	49158 49299	Fukushima Phase 1 Beyond Design Basis Event Emergency Mitigation Equipment	Dec-15	Execution	Execution	Dec-17