

**UNDERTAKING JT2.1**

**Undertaking**

To provide additional information with respect to Environmental Defence interrogatory 5, issue 4.7, as set out in Mr. Elson's letter.

**Response**

OPG provides the following in response to Mr. Elson's letter of April 14, 2014:

- a) The requested information has already been provided by OPG in its earlier interrogatory response. When interest and escalation are included, the total high confidence estimate of the DRP is \$12.9B. This is the expected amount to be expended by the end of the project and, as OPG has stated, it is in nominal dollars or dollars of the year of expenditure.
- b) Confirmed.
- c) i) OPG expects to be able to finance the DRP at the OEB-approved after-tax cost of capital in place at the time of the Darlington Refurbishment Project.  
ii) At this time, OPG does not have an explicit commitment from the Ontario Electricity Financial Corporation to provide financing for the DRP. However, OPG expects to finance DRP through corporate debt issued to the Ontario Electricity Financial Corporation. OPG's sources of equity are its retained earnings and equity investment from its Shareholder.
- d) OPG's response to Ex. L-4.7-6 ED-005 (f) has provided the requested information. The total cost of the DRP is the basis of the estimate of 3.2 cents/kWh shown in the table provided. This LUEC calculation includes interest and escalation (see also responses to Ex. L-4.7-1 Staff-031 and Ex. L-4.10-17 SEC-055).

**UNDERTAKING JT2.2****Undertaking**

To provide additional information with respect to Environmental Defence interrogatory 11, issue 4.12, as set out in Mr. Elson's letter.

**Response**

a) The table below provides the requested break-out based on the amounts included in Exhibit D2-2-1, Attachment 5 for OPG's high confidence estimate (excluding interest and escalation) in 2013 and 2014 dollars.

| \$M               |                                     | 2013\$   | 2014\$   |
|-------------------|-------------------------------------|----------|----------|
| RFR               | OPG Project Management              | 690      | 704      |
|                   | Contractor Cost                     |          |          |
|                   | Contingency                         |          |          |
| Fuel Handling     | OPG Project Management              | 83       | 85       |
|                   | Contractor Cost                     |          |          |
|                   | Contingency                         |          |          |
| Steam Generators  | OPG Project Management              | 63       | 64       |
|                   | Contractor Cost                     |          |          |
|                   | Contingency                         |          |          |
| Turbine Generator | OPG Project Management              | 195      | 199      |
|                   | Contractor Cost                     |          |          |
|                   | Contingency                         |          |          |
| Balance of Plant  | OPG Project Management              | 216      | 220      |
|                   | Contractor Cost                     |          |          |
|                   | Contingency                         |          |          |
| Other Costs       | Islanding                           |          |          |
|                   | System Shutdown                     |          |          |
|                   | Operations & Maintenance Support    | 863      | 880      |
|                   | Facilities & Infrastructure         | 560      | 571      |
|                   | Waste Management                    | 10       | 10       |
|                   | New Fuel                            | 132      | 135      |
|                   | Insurance                           | 114      | 116      |
|                   | Regulatory, i.e. ISR, EA, IIP       | 80       | 82       |
|                   | Licensing (CNSC Fees)               | 73       | 74       |
|                   | Contingency                         |          |          |
|                   | Retube Waste Containers (Provision) | 220      | 224      |
|                   | Management Reserve                  | 828      | 845      |
|                   |                                     | \$10,000 | \$10,200 |

**Notes:**

1. 2013\$ estimate based on Exhibit D2-2-1, Attachment 5
2. 2014\$ assumed 2% inflation
3. OPG Project Management includes both Program and Project level

b) At a 50% cost overrun, applied to the selected projects, and through the application of the contract model used in each of the contracts, the estimated point-estimate for the DRP, is less than \$10.0 billion due to contingency and management reserve contained within OPG's high confidence estimate. At a 100% cost overrun, the project related contingency and management reserve are exhausted resulting in a projected cost overrun of \$200 million above OPG's high confidence estimate. Note that for all scenarios, OPG maintains approximately [REDACTED] in Program level contingency (as noted in note 3 of Part C) of IR ED-011).

c) Cost overrun scenarios including interest and escalation are provided below.

|      | Total DRP Cost |         |                            | Total LUEC (1)  |                 |
|------|----------------|---------|----------------------------|-----------------|-----------------|
|      | 2013\$B        | 2014\$B | Incl. Interest & Esc.(\$B) | 2013\$<br>¢/kWh | 2014\$<br>¢/kWh |
| 50%  | 10.0           | 10.2    | 12.9                       | 7.8             | 7.9             |
| 100% | 10.2           | 10.4    | 13.1                       | 7.9             | 8.0             |
| 150% | 11.1           | 11.3    | 14.3                       | 8.1             | 8.2             |
| 200% | 12.1           | 12.3    | 15.5                       | 8.4             | 8.5             |
| 250% | 13.1           | 13.3    | 16.8                       | 8.7             | 8.9             |

Notes:

1. LUEC excludes fixed Corporate Overheads for Pension and Other Post Employment Benefits, base estimate is 7.8 ¢/kWh (2013\$) or 7.9 ¢/kWh (2014\$).

**UNDERTAKING JT2.3****Undertaking**

To provide a percentage breakout of contract values by fixed price, target price and any other structure in the contracts for the table provided in response to GEC Interrogatory 2.

**Response**

The following table provides, by major project, life cycle contractor estimates based on the overall estimate as provided in Ex. D2-2-1, Attachment 5.

|                   |                                                           | 2013<br>\$M | %  |
|-------------------|-----------------------------------------------------------|-------------|----|
| RFR               | Tooling (Fixed Price)                                     | 357         |    |
|                   | Mock-up (Fixed Price)                                     | 38          |    |
|                   | Owner Specified Materials (Cost Plus)                     | 165         |    |
|                   | Definition Phase (Target Price/ Fixed Fee)                | 142         |    |
|                   | Execution Phase (Target Price/ Fixed Fee)                 |             |    |
| Fuel Handling     | Defueling - Engineering Services (Fixed/Firm Price)       | 16          |    |
|                   | Defueling – Eng. Services (Misc. Reimbursables)           | 2           |    |
|                   | Fuel Handling (Target Price)                              |             |    |
| Steam Generators  | Fixed Price                                               | 60          | 54 |
|                   | Target Price/ Fixed Fee                                   | 30          | 27 |
|                   | EPC Other                                                 | 21          | 19 |
| Turbine Generator | Eng. Services & Equipment Supply (Fixed Price)            | 200         |    |
|                   | Eng. Services & Equipment Supply (Target Price)           | 142         |    |
|                   | Installation - Definition Phase (Target Price/ Fixed Fee) | 29          |    |
|                   | Installation – Execution Phase (Target Price/ Fixed Fee)  |             |    |
|                   | EPC Other                                                 | 33          |    |
| Balance of Plant  | EPC Time and Material/Target Price                        |             |    |

**UNDERTAKING JT2.4**

**Undertaking**

To obtain cost information with respect to other environmental budgetary programs, in addition to any monitoring already identified in the existing interrogatory response.

**Response**

The estimated 2014 - 2015 costs for environmental programs at Darlington, incremental to the monitoring identified in interrogatory response L-4.9-12 LOW-001, is provided in the table below.

| Environmental Program Costs*                                      | Total Estimate \$M<br>2014-2015 |
|-------------------------------------------------------------------|---------------------------------|
| Refurbishment environment support (labour)                        | 2.1                             |
| Environmental governance and compliance management                | 1.1                             |
| Waste, effluent, and chemical management                          | 1.2                             |
| Groundwater monitoring                                            | 0.3                             |
| Sampling and analysis for chemical waste, groundwater wells       | 0.8                             |
| Biodiversity studies and monitoring                               | 0.2                             |
| Chemistry laboratory support for environmental monitoring         | 2.2                             |
| Stack and filter testing emission verification                    | 0.4                             |
| Radiological Environmental Monitoring Program (per CSA N288.4-10) | 1.0                             |
| <b>Total</b>                                                      | <b>9.2</b>                      |

In addition to the above, each contractor working on the DRP is required to implement an Environmental Management plan applicable to their work activities. These plans are developed by the contractor based on the Nuclear Projects – Environmental Requirements Guideline (N-GUID-09701-10013) and reviewed and accepted by OPG staff. Each contractor's plans will include applicable monitoring requirements to ensure their activities conform to the environmental effluent and emission limits for Darlington NGS. OPG cannot provide the additional amounts to protect the environment, associated with these contracts, as they are included within the general costs of the particular project.

**UNDERTAKING JT2.5**

**Undertaking**

To provide an anticipated date for conclusion of talks with the Department of Fisheries.

**Response**

Work is currently underway to submit an application for an authorization to Fisheries and Oceans Canada in support of the Darlington Refurbishment project and the continued operation of the facility. It is anticipated that this application will be submitted by the end of June, 2014. Once submitted, Fisheries and Oceans Canada will assess the application and define any offsets which may be required to compensate for any residual effects. It is our understanding that Fisheries and Oceans Canada have up to 90 days from the date they deem our application complete to issue an authorization with any terms and conditions. If the authorization identifies the need for offset, OPG will build the requirements into our business planning process and develop implementation plans accordingly.

**UNDERTAKING JT2.6**

**Undertaking**

To explain the discrepancy between budgeted and actual amounts for Darlington refurbishment project, definition phase.

**Response**

The Definition Phase Planning Activities capital cost for 2013 is \$92.3M below the 2013 budget of \$422.0M. Major contributors include the delay of Retube and Feeder Replacement ("RFR") Mock up and Tooling milestones into 2014, deferred work across other major contracts to align with project approvals and contract awards; partially offset by higher engineering costs related to Integrated Safety Report follow up activities, Component Condition Assessment reviews and Modification Design Report support.

**UNDERTAKING JT2.7**

**Undertaking**

To provide a summary report or other available internal data regarding details of component condition assessments.

**Response**

As part of the DRP feasibility assessment and scope definition process, OPG assessed the condition and aging management practices of all significant safety-related and production-related systems.

A total of 2,841 CCAs have been completed. These 2,841 CCAs resulted in the identification of 704 scope items, 98 of which are included in the DRP scope.

The attached table lists all 704 CCA based scope items.

### CCA Field Activities

|    | SCI   | DSR       | CCA    | Field Activity                                                                                                  | Current Status | Current Owner |
|----|-------|-----------|--------|-----------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 1  | 20000 | TS0510-1  | 000076 | DNGS Structures: Perform Inspections for Reactor Building Structure                                             | OPEN           | Refurb        |
| 2  | 20000 | TS0510-2  | 000077 | DNGS Structures: Perform Inspections for the Reactor Buidling Internal Structures                               | OPEN           | Refurb        |
| 3  | 20000 | TS0510-3  | 000083 | DNGS Structures: Perform Inspections for the Civil Structures Located in Central Service Area-Nuclear           | OPEN           | Refurb        |
| 4  | 20000 | TS0510-4  | 000086 | DNGS Structures: Perform Inspections for Civil Structures Located in Central Control Area                       | OPEN           | Refurb        |
| 5  | 20000 | TS0510-6  | 000090 | DNGS Structures: Perform Inspections on Pumphouse                                                               | OPEN           | Refurb        |
| 6  | 20000 | TS0510-8  | 000094 | DNGS Structures: Inspections on EPS Buildings                                                                   | OPEN           | Refurb        |
| 7  | 20000 | TS0510-9  | 000084 | DNGS Structures: Perform Inspections For Turbine Hall and Turbine Auxiliary Bay                                 | OPEN           | Refurb        |
| 8  | 20000 | TS0510-10 | 000085 | DNGS Structures: Perform Inspections for Central Service Area                                                   | OPEN           | Refurb        |
| 9  | 20000 | TS0510-11 | 000078 | DNGS Structures: Perform Inspections for the Civil Structures in the Reactor Auxiliary Bay (RAB)                | OPEN           | Refurb        |
| 10 | 20000 | TS0510-12 | 000079 | DNGS Structures: Perform Inspections for the Civil Structures in Fuelling Facilities Auxiliary Areas (FFAA)     | OPEN           | Refurb        |
| 11 | 20000 | TS0510-14 | 000080 | DNGS Structures: Perform Inspections for Irradiated Fuel Area                                                   | OPEN           | Refurb        |
| 12 | 20000 | TS0510-15 | 000081 | DNGS Structures: Perform Inspections for Fuel Handling and Service Area                                         | OPEN           | Refurb        |
| 13 | 20000 | TS0510-16 | 000076 | DNGS Structures: Repair/Replacement of Reactor Building Structures (Contingency)                                | OPEN           | Refurb        |
| 14 | 20000 | TS0510-17 | 000077 | DNGS Structures: Repair/Replacement of Reactor Building Internal Structures (Contingency)                       | OPEN           | Refurb        |
| 15 | 20000 | TS0510-22 | 000090 | DNGS Structures: Repair/Replacement of Damaged Items in Pump-House for all Four Units (Contingency)             | OPEN           | Refurb        |
| 16 | 20000 | TS0510-24 | 000094 | DNGS Structures: Repair or Replacement of the Items Found to be Unacceptable in EPS Building                    | OPEN           | Refurb        |
| 17 | 20000 | TS0510-28 | 000080 | DNGS Structures: Repair/Replacement of Civil Structures Located in Irradiated Fuel Area (Contingency)           | OPEN           | Refurb        |
| 18 | 20000 | TS0510-29 | 000081 | DNGS Structures: Repair/Replacement of Civil Structures Located in Fuel Handling and Service Area (Contingency) | OPEN           | Refurb        |
| 19 | 20000 | TS1710-2  | 000087 | Repair or Replacement of Turbine Support Structure Spring Sets - Trombik Supports (contingency)                 | OPEN           | Refurb        |
| 20 | 22000 | TS0510-5  | 000087 | DNGS Structures: Perform Inspections for Turbine Supporting Structure in All 4 Units                            | OPEN           | Refurb        |
| 21 | 27140 | TS0510-7  | 000092 | DNGS Structures: Perform Inspections on Pipes, Ducts Encasements Structures                                     | OPEN           | Refurb        |
| 22 | 27140 | TS0510-23 | 000092 | DNGS Structures: Repair/Replacement of Pipes, Ducts, and Encasements (Contingency)                              | OPEN           | Refurb        |
| 23 | 32000 | TS1070-3  | 000023 | Moderator & Auxiliaries System-Part 2: Replacement of Isolating Valves                                          | OPEN           | Refurb        |
| 24 | 32100 | TS1450-1  | 000013 | OVERHAUL SEAT RING AND DISK FOR MODERATOR CHECK VALVES                                                          | OPEN           | Refurb        |
| 25 | 32100 | TS0080-4  | 000012 | Replace DELORO Disc Hard Facing w/STELLITE 6 for MV20, 27 & 29 in All Units                                     | OPEN           | Refurb        |
| 26 | 32100 | TS0080-10 | 000003 | Contingency - Moderator Pumps                                                                                   | OPEN           | Refurb        |
| 27 | 33100 | TS0090-1  | 001148 | Overhaul and Inspect Select Main HT Pumps                                                                       | OPEN           | Refurb        |
| 28 | 33100 | TS0090-7  | 001198 | Replace Cable Associated w/PHT Trip Pressure Switches                                                           | OPEN           | Refurb        |
| 29 | 33100 | TS0320-1  | 001149 | Refurbish All PHT Pump Motors                                                                                   | OPEN           | Refurb        |
| 30 | 33100 | TS0090-2  | 001156 | Inspect Two Representative PHT Loop Isolation/Interconnect MOVs                                                 | OPEN           | Refurb        |
| 31 | 33100 | TS0090-12 | 001148 | Contingency - Refurbish All PHT pumps                                                                           | OPEN           | Refurb        |
| 32 | 33100 | TS0090-9  | 001156 | Repack all PHT Loop Isolation/Interconnect MOVs                                                                 | OPEN           | Refurb        |
| 33 | 33100 | TS0090-13 | 001156 | Contingency - Overhaul / replace PHT loop/interconnect MOVs                                                     | OPEN           | Refurb        |

### CCA Field Activities

|    | SCI   | DSR       | CCA    | Field Activity                                                                                               | Current Status | Current Owner |
|----|-------|-----------|--------|--------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 34 | 33300 | TS0100-5  | 000162 | DNGS Primary Heat Transport Pressure and Inventory Control: Replace Non-Return Valve 33840-NV21 in All Units | OPEN           | Refurb        |
| 35 | 33300 | TS0100-2  | 000156 | DNGS Primary Heat Transport Pressure and Inventory Control: U2 Bleed Cooler                                  | OPEN           | Refurb        |
| 36 | 33300 | TS0100-6  | 000153 | DNGS Primary Heat Transport Pressure and Inventory Control: Extend Inspection of Pressurizers (Contingency)  | OPEN           | Refurb        |
| 37 | 33300 | TS0100-7  | 000153 | DNGS Primary Heat Transport Pressure and Inventory Control: Clean Sludge Deposits from Pressurizer           | OPEN           | Refurb        |
| 38 | 33300 | TS0100-8  | 000156 | DNGS Primary Heat Transport Pressure and Inventory Control: Repair/Replace Bleed Cooler                      | OPEN           | Refurb        |
| 39 | 33400 | TS0110-2  | 001467 | Inspect Representative SDC MOVs                                                                              | OPEN           | Refurb        |
| 40 | 33400 | TS0110-8  | 001471 | Repack Manual Valves (x32)                                                                                   | OPEN           | Refurb        |
| 41 | 33400 | TS0110-7  | 001467 | Repack All MOVs (x52)                                                                                        | OPEN           | Refurb        |
| 42 | 33400 | TS0110-13 | 001467 | Contingency for MOVs                                                                                         | OPEN           | Refurb        |
| 43 | 33400 | TS0110-15 | 001471 | Contingency for Manual Valves                                                                                | OPEN           | Refurb        |
| 44 | 33800 | TS0090-4  | 001233 | Inspect Collection Tank, Vent Condenser Tank, and Collection Tank Coolers on U2                              | OPEN           | Refurb        |
| 45 | 33800 | TS0090-14 | 001233 | Contingency - Extend Collection Tank Inspection to the Rest of the Units                                     | OPEN           | Refurb        |
| 46 | 34100 | TS0070-3  | 000797 | Contingency - End Shield Cooling Expansion Tanks                                                             | OPEN           | Refurb        |
| 47 | 34100 | TS0070-1  | 000797 | Inspect End Shield Cooling Expansion Tanks                                                                   | OPEN           | Refurb        |
| 48 | 34300 | TS0150-2  | 001441 | Inspect Civil Structure of Emergency Coolant Injection Storage Tank                                          | OPEN           | Refurb        |
| 49 | 34300 | TS0150-8  | 001441 | Contingency - ECI Water Storage Tank                                                                         | OPEN           | Refurb        |
| 50 | 34410 | TS0460-13 | 002741 | DNGS Irradiated Fuel Bay Systems: Replacement of HX's for LE                                                 | OPEN           | Refurb        |
| 51 | 35220 | TS0400-8  | 002608 | Reactor Area Bridges and Carriages: Replace all Power Cables for RA Bridges and Carriages                    | OPEN           | Refurb        |
| 52 | 35220 | TS0400-9  | 002609 | Reactor Area Bridges and Carriages: Replace all Signal Cables for RA Bridges and Carriages                   | OPEN           | Refurb        |
| 53 | 35220 | TS0400-11 | 002613 | Reactor Area Bridges and Carriages: Coarse Bridge Motor and Coarse Carriage Motor Replacement                | OPEN           | Refurb        |
| 54 | 35220 | TS0400-12 | 002615 | Reactor Area Bridges and Carriages: Limit Switches used in Conjunction w/RA Bridge and Carriage Equipment    | OPEN           | Refurb        |
| 55 | 35220 | TS0400-13 | 002903 | Reactor Bridges and Carriages: Replacement of Ball Screws and Jack Assemblies                                | OPEN           | Refurb        |
| 56 | 35220 | TS0400-14 | 002914 | Reactor Area Bridges and Carriages: Carriage Speed Reducers                                                  | OPEN           | Refurb        |
| 57 | 35220 | TS0400-19 | 002920 | Reactor Area Bridges and Carriages: RAB Cross Shaft and Pillow Block Bearings                                | OPEN           | Refurb        |
| 58 | 35220 | TS0400-22 | 002909 | Reactor Area Bridges and Carriages: Replacement of X and Y Drive Components                                  | OPEN           | Refurb        |
| 59 | 35700 | TS0430-8  | 002718 | FH Trolley: Replace all PTK Chains, PTK Cables, and All Support Rolls                                        | OPEN           | Refurb        |
| 60 | 38300 | TS0290-5  | 001017 | Vapour Recovery Valves                                                                                       | OPEN           | Refurb        |
| 61 | 38300 | TS1370-2  | 001011 | Vapour Recovery - Part 3: Refurbish/Overhaul all the Dryers                                                  | OPEN           | Refurb        |
| 62 | 41800 | TS0680-1  | 000585 | Moisture Separator Reheater: Internal Inspection of System MOVs                                              | OPEN           | Refurb        |
| 63 | 41800 | TS0680-4  | 000583 | Moisture Separator Reheater: Overhaul Non-Return Valves                                                      | OPEN           | Refurb        |
| 64 | 44100 | TS0610-2  | 001505 | Main Condensate System: Baseline Inspection of One Bank of LP Heaters                                        | OPEN           | Refurb        |
| 65 | 44100 | TS0610-3  | 001510 | Main Condensate System: UT Inspection of the Condenser Support Struts                                        | OPEN           | Refurb        |
| 66 | 44100 | TS0610-17 | 001505 | Main Condensate System: LP Heaters - expanded inspections with repair as required (Contingency)              | OPEN           | Refurb        |

### CCA Field Activities

|    | SCI   | DSR       | CCA    | Field Activity                                                                                                                                                       | Current Status | Current Owner |
|----|-------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 67 | 44100 | TS0610-18 | 001510 | Main Condensate System: FAC of all condenser support struts in Unit 2 Refurb outage - repair as required and expand inspections to subsequent units as appl.         | OPEN           | Refurb        |
| 68 | 44100 | TS0610-22 | 001510 | Main Condensate System: Deflection Plate Installation on support struts around CSDVs (Contingency)                                                                   | OPEN           | Refurb        |
| 69 | 49200 | TS0480-1  | 003524 | Replace EPG2 Degraded Gas Generator                                                                                                                                  | OPEN           | Refurb        |
| 70 | 50000 | TS0980-2  | 002050 | Low and Medium Voltage Cables Replacement: Perform Aging Assessment for Selected Low Voltage Cables                                                                  | OPEN           | Refurb        |
| 71 | 51500 | TS0570-20 | 001296 | Main Power Output System: For the MOT Transformers - Overhaul/Replacement of the MOT 500kV Bushings (Unit 2 only)                                                    | OPEN           | Refurb        |
| 72 | 51500 | TS0570-21 | 001296 | Main Power Output System: MOT Transformers - Possibility of Additional Work Required in the Transformer                                                              | OPEN           | Refurb        |
| 73 | 51500 | TS0570-22 | 001305 | Main Power Output System: UST Transformers - Complete Inspection at Beginning of Refurb Outage                                                                       | OPEN           | Refurb        |
| 74 | 51500 | TS0570-23 | 001296 | Main Power Output System: MOT Transformers - Actions to remanufactre the Transformers (Contingency)                                                                  | OPEN           | Refurb        |
| 75 | 51500 | TS0570-24 | 001305 | Main Power Output System: UST Transformers - Actions to remanufactre the Transformers (Contingency)                                                                  | OPEN           | Refurb        |
| 76 | 51500 | TS0570-7  | 001323 | Main Power Output System: Replace multiple components for the MOT, UST and SST at the transformer terminal & switchyard (Unit 2 only - see the component list below) | OPEN           | Refurb        |
| 77 | 53300 | TS0170-1  | 000337 | Emergency Power System: Replacement of the Motor Starters Feeding the Vault Coolers for Unit 2 only                                                                  | OPEN           | Refurb        |
| 78 | 53500 | TS0540-1  | 000049 | Class II Power System: Perform a Normal MCC Clean Test                                                                                                               | OPEN           | Refurb        |
| 79 | 57000 | TS0990-1  | 003160 | Electrical Penetration (Signal and Power) Modules Replacement: Critical Containment Penetrations Locations                                                           | OPEN           | Refurb        |
| 80 | 63700 | TS0220-5  | 000304 | Darlington Reactor Regulating: Replace All RRS Flux Detectors                                                                                                        | OPEN           | Refurb        |
| 81 | 63700 | TS0220-15 | 000402 | Darlington Reactor Regulating: Reactivity Worth Check                                                                                                                | OPEN           | Refurb        |
| 82 | 68200 | TS0240-7  | 000779 | Replacement of Flow Elements                                                                                                                                         | OPEN           | Refurb        |
| 83 | 68200 | TS0350-5  | 003439 | SDS1 Trip Computer Modification                                                                                                                                      | OPEN           | Refurb        |
| 84 | 68200 | TS0350-7  | 003441 | SDS1 Display / Test Computer Modification                                                                                                                            | OPEN           | Refurb        |
| 85 | 68231 | TS0240-10 | 000785 | Shutdown System 1 Process: Replace All 228 Vertical Flux Detectors                                                                                                   | OPEN           | Refurb        |
| 86 | 68300 | TS0260-8  | 000847 | Shutdown System 2 Process: Replace all SDS2 In-Core Flux Detectors                                                                                                   | OPEN           | Refurb        |
| 87 | 68300 | TS0350-6  | 003440 | SDS2 Trip Computer Modification                                                                                                                                      | OPEN           | Refurb        |
| 88 | 68300 | TS0350-8  | 003442 | SDS2 Display / Test Computer Modification                                                                                                                            | OPEN           | Refurb        |
| 89 | 69000 | TS0360-2  | 000729 | I/O Subsystem Cabling and Transfer of Control Relay Condition Assessment                                                                                             | OPEN           | Refurb        |
| 90 | 69000 | TS0360-8  | 003461 | Replace WIBA terminal connectors (Contingency)                                                                                                                       | OPEN           | Refurb        |
| 91 | 72000 | TS0630-3  | 000557 | Service Water System: Replacement of LPSW NV's during VBO                                                                                                            | OPEN           | Refurb        |
| 92 | 72000 | TS0880-25 | 001964 | Bundled Commodity Group: Emergency Service Water System - Replacement of FP 4000 and Bristol Canada 5453 Series                                                      | OPEN           | Refurb        |
| 93 | 72800 | TS0180-1  | 002726 | Replacement/Repair of Buried Piping on Service Water Systems                                                                                                         | OPEN           | Refurb        |
| 94 | 73200 | SI0040-1  | 002458 | Powerhouse Steam Venting System                                                                                                                                      | OPEN           | Refurb        |
| 95 | 73720 | TS0280-1  | 002192 | Vault Cooler Coil Refurbishment                                                                                                                                      | OPEN           | Refurb        |
| 96 | 75100 | TS0650-3  | 002503 | Compressed Air System: Manual Disphragm Valves                                                                                                                       | OPEN           | Refurb        |
| 97 |       | TS1570-1  | 003485 | VAULT COOLING FAN MOTOR REPLACEMENT                                                                                                                                  | OPEN           | Refurb        |
| 98 |       | TS2250-1  | 000014 | 32110-NV37 / 32510-NV11 INSPECTION                                                                                                                                   | OPEN           | Refurb        |
| 99 | 9000  | TS0950-13 | 000393 | Minor Modifitcations: AA/CA/SA Logic Module Modification                                                                                                             | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                             | Current Status | Current Owner |
|-----|-------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 100 | 9000  | TS0950-14 | 000393 | Minor Modifitcations: AA/CA/SA Logic Module Modification                                                                   | OPEN           | Station       |
| 101 | 20000 | TS0510-18 | 000078 | DNGS Structures: Repair/Replacement of Civil Structures Located in Reactor Auxiliary Bay (RAB) (Contingency)               | OPEN           | Station       |
| 102 | 20000 | TS0510-19 | 000083 | DNGS Structures: Repair/Replacement of Civil Structures Located in Central Service Area (Contingency)                      | OPEN           | Station       |
| 103 | 20000 | TS0510-20 | 000087 | DNGS Structures: Repair or Replacement of Turbine Supporting Structures for All 4 Units                                    | OPEN           | Station       |
| 104 | 20000 | TS0510-25 | 000079 | DNGS Structures: Repair/Repalcement of Civil Structures Located in Fuelling Facilities Auxiliary Areas (Contingency)       | OPEN           | Station       |
| 105 | 20000 | TS0510-26 | 000084 | DNGS Structures: Repair/Replacement of Civil Structures Located in Turbine Hall and Turbine Auxiliary Bay (Contingency)    | OPEN           | Station       |
| 106 | 20000 | TS0510-27 | 000085 | DNGS Structures: Repair/Repalcement of Civil Structures Located in Central Service Area (CSA) Buildings                    | OPEN           | Station       |
| 107 | 20000 | TS0510-30 | 000086 | DNGS Structures: Repair/Replacement of Civil Structures Located in Central Control Area (Contingency)                      | OPEN           | Station       |
| 108 | 21000 | TS0120-4  | 000167 | Darlington Airlocks And Transfer Chambers: Replacement of All the Flow Regulating Valves                                   | OPEN           | Station       |
| 109 | 21000 | TS0120-5  | 000244 | Darlington Airlocks And Transfer Chambers: Replacement of the Pressure Regulating Valves                                   | OPEN           | Station       |
| 110 | 21000 | TS0120-6  | 000246 | Darlington Airlocks And Transfer Chambers: Replacement of Pneumatic Actuators                                              | OPEN           | Station       |
| 111 | 21000 | TS0120-7  | 000258 | Darlington Airlocks And Transfer Chambers: Repalcement of Control Valves                                                   | OPEN           | Station       |
| 112 | 21000 | TS0120-8  | 002057 | Darlington Airlocks And Transfer Chambers: Replacement of Check Valves                                                     | OPEN           | Station       |
| 113 | 21000 | TS0120-1  | 002050 | Darlington Airlocks and Transfer Chambers: Inspection/Assessment of the Power and Control Cables                           | OPEN           | Station       |
| 114 | 21000 | TS0120-9  | 002052 | Darlington Airlocks and Transfer Chambers: Inspection/Assessment of the Power and Control Cables (Contingency)             | OPEN           | Station       |
| 115 | 22000 | TS0510-21 | 000084 | DNGS Structures: Re-Roofing for the Whole Powerhouse                                                                       | OPEN           | Station       |
| 116 | 22000 | TS1710-1  | 000087 | Inspect Turbine Support Structure Spring Sets - Trombik Supports                                                           | OPEN           | Station       |
| 117 | 31810 | TS0240-3  | 000762 | Shutdown System 1 Process: Replace the Seals and Sealant for 32 Shutoff Rods in 4 Units                                    | OPEN           | Station       |
| 118 | 32000 | TS0080-1  | 000003 | Inspect One Moderator Pump                                                                                                 | OPEN           | Station       |
| 119 | 32000 | TS0080-2  | 000063 | Inspect Temperature Elements                                                                                               | OPEN           | Station       |
| 120 | 32000 | TS0080-3  | 000713 | Remove and Inspect One CG Recombiner Outlet Cooler                                                                         | OPEN           | Station       |
| 121 | 32000 | TS0080-5  | 000721 | Replace Level Switches LS254/255/256/257 on All Units                                                                      | OPEN           | Station       |
| 122 | 32000 | TS0080-6  | 000104 | Replace Pressure Regulating Valve 63230-PRV4                                                                               | OPEN           | Station       |
| 123 | 32000 | TS0080-7  | 000041 | Replace the U3 and U4 Recombination Units                                                                                  | OPEN           | Station       |
| 124 | 32000 | TS0080-8  | 000059 | Repace MCR/SCA Handswitches Associated w/Moderator System                                                                  | OPEN           | Station       |
| 125 | 32000 | TS0080-9  | 000715 | Refurbish Valves V39 and V40 on All Units                                                                                  | OPEN           | Station       |
| 126 | 32000 | TS1070-1  | 000111 | Moderator and Auxiliaries System - Part 2: Repalce Obsolete Moderator Auxiliary Pump Set Vibration Monitoring Transmitters | OPEN           | Station       |
| 127 | 32100 | TS0880-8  | 000063 | Bundled Commodity Group: Moderator Auxiliaries System - Replacement of Temperature Elements                                | OPEN           | Station       |
| 128 | 33000 | TS0880-44 | 001128 | Bundled Commodity Group: Primary Heat Transport Pressure Inventory Control - Continue Replacement of SGM Signal Converters | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                                                                | Current Status | Current Owner |
|-----|-------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 129 | 33100 | TS0090-6  | 001225 | Inspect One MOV on PHT Purification Circuit                                                                                                                   | OPEN           | Station       |
| 130 | 33100 | TS0090-10 | 001154 | Replace Gaskets and Replace Balance Line Orifice Plates as Required in All 4 Units                                                                            | OPEN           | Station       |
| 131 | 33100 | TS0090-11 | 001420 | Perform Reverse Engineering for Bach Simpson PHT Level Indicators                                                                                             | OPEN           | Station       |
| 132 | 33100 | TS1030-1  | 001424 | Primary Heat Transport and Auxiliaries System - Part 2: Replace Helium Cover Gas                                                                              | OPEN           | Station       |
| 133 | 33100 | TS1030-2  | 001152 | Primary Heat Transport and Auxiliaries System - Part 2: Replace PHT Pump Motor Filters                                                                        | OPEN           | Station       |
| 134 | 33100 | TS1030-3  | 001208 | Primary Heat Transport and Auxiliaries System - Part 2: Resolve Obsolescence Issue for PHT Pump Motor Vibration Signal Conditioning Modules                   | OPEN           | Station       |
| 135 | 33100 | TS1030-4  | 001151 | Primary Heat Transport and Auxiliaries System - Part 2: Test the PHT Jacking Oil Pump Motors, Replace Bearing, and Perform Minor Refurbishment Every 15 years | OPEN           | Station       |
| 136 | 33100 | TS1030-5  | 001207 | Primary Heat Transport and Auxiliaries System - Part 2: PE/CE Resolve Obsolescence of PHT Pump Vibration Transducers                                          | OPEN           | Station       |
| 137 | 33100 | TS1030-6  | 001260 | Primary Heat Transport and Auxiliaries System - Part 2: Complete PE Evaluation for Replacement PHT Pump Motor Speed Transmitter                               | OPEN           | Station       |
| 138 | 33300 | TS0100-4  | 000161 | DNGS Primary Heat Transport Pressure and Inventory Control: Inspection of System AOVs                                                                         | OPEN           | Station       |
| 139 | 33300 | TS0100-1  | 000153 | DNGS Primary Heat Transport Pressure and Inventory Control: Characterize The Sludge Pressurizer                                                               | OPEN           | Station       |
| 140 | 33300 | TS1090-1  | 000283 | Primary Heat Transport Pressure and Inventory Control - Part 2: Replace PIC Pressureizer Heaters                                                              | OPEN           | Station       |
| 141 | 33300 | TS1090-2  | 000228 | Primary Heat Transport Pressure and Inventory Control - Part 2: Implement PMO Recommendations for PIC Pressureizer PIC Controllers                            | OPEN           | Station       |
| 142 | 33320 | TS0490-1  | 000154 | Bleed Condenser Inspection                                                                                                                                    | OPEN           | Station       |
| 143 | 33330 | TS0330-1  | 000284 | Replace All Pressurizer Heaters Rectifiers                                                                                                                    | OPEN           | Station       |
| 144 | 33330 | TS0340-1  | 000283 | Replace All Pressurizer Heaters                                                                                                                               | OPEN           | Station       |
| 145 | 33400 | TS0880-18 | 001478 | Bundled Commodity Group: Shutdown Cooling System - Replacement of Hand Controllers                                                                            | OPEN           | Station       |
| 146 | 33400 | TS0880-20 | 001489 | Bundled Commodity Group: Shutdown Cooling System - Replacement of Temperature Controllers                                                                     | OPEN           | Station       |
| 147 | 33400 | TS0880-30 | 001475 | Bundled Commodity Group: Shutdown Cooling - Replacement of Vibration Transducers                                                                              | OPEN           | Station       |
| 148 | 33410 | TS0110-5  | 003094 | Instrument Tubing for Shutdown System                                                                                                                         | OPEN           | Station       |
| 149 | 33410 | TS0110-6  | 001489 | Replacement of Temperature Controllers                                                                                                                        | OPEN           | Station       |
| 150 | 33410 | TS0110-9  | 001475 | Replacement of Transducers                                                                                                                                    | OPEN           | Station       |
| 151 | 33410 | TS0110-10 | 001478 | Replacement of Hand Controllers                                                                                                                               | OPEN           | Station       |
| 152 | 33410 | TS0110-11 | 001479 | Replace D10A Hand Switches in MCR                                                                                                                             | OPEN           | Station       |
| 153 | 33410 | TS0110-12 | 003494 | Replace the Vibration Monitoring Instrumentation                                                                                                              | OPEN           | Station       |
| 154 | 33410 | TS0110-16 | 001465 | Contingency for HX                                                                                                                                            | OPEN           | Station       |
| 155 | 33800 | TS0880-2  | 001420 | Bundled Commodity Group: Primary Heat Transport Auxiliaries System - Replacement of Bach Simpson PHT Level Indicators                                         | OPEN           | Station       |
| 156 | 34100 | TS1550-1  | 000803 | CCA 803 End Shield Cooling - Replace/Inspect 34110-PV50 & PV51                                                                                                | OPEN           | Station       |
| 157 | 34200 | TS0210-15 | 000366 | Negative Pressure Containment: Rebuild or Replace All 3 Pumps (Contingency)                                                                                   | OPEN           | Station       |
| 158 | 34200 | TS0210-17 | 000371 | Negative Pressure Containment: Replace NPC Vacuum System TK 1-3 (Contingency)                                                                                 | OPEN           | Station       |
| 159 | 34200 | TS0210-1  | 000364 | Negative Pressure Containment: Inspection of Main Vacuum Pumps                                                                                                | OPEN           | Station       |
| 160 | 34200 | TS0210-2  | 000366 | Negative Pressure Containment: Inspection of Vacuum System Recirculation Pump                                                                                 | OPEN           | Station       |
| 161 | 34200 | TS0210-3  | 000370 | Negative Pressure Containment: Inspect HX2 in the Next 5 Years                                                                                                | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                            | Current Status | Current Owner |
|-----|-------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 162 | 34200 | TS0210-4  | 000371 | Negative Pressure Containment: Inspect the Internals of TK1-4 using a Fibrescope                                          | OPEN           | Station       |
| 163 | 34200 | TS0210-9  | 000449 | Negative Pressure Containment: Initiate ECR for Containment Activity Monitor Replacement                                  | OPEN           | Station       |
| 164 | 34200 | TS0210-13 | 000485 | Negative Pressure Containment: Upgrade Containment Leakage Rate Test Equipment                                            | OPEN           | Station       |
| 165 | 34200 | TS0210-19 | 000375 | Negative Pressure Containment: Inspect All Type I and Type II Diaphragms                                                  | OPEN           | Station       |
| 166 | 34200 | TS0880-17 | 000446 | Bundled Commodity Group: Negative Pressure Containment - One Time Replacement of Hand Switches                            | OPEN           | Station       |
| 167 | 34200 | TS1170-1  | 003202 | Negative Pressure Containment - Part 2: Replacement of Equipment                                                          | OPEN           | Station       |
| 168 | 34200 | TS1170-2  | 000377 | Negative Pressure Containment - Part 2: Repalce Lower Seal Ring                                                           | OPEN           | Station       |
| 169 | 34300 | TS0150-5  | 003491 | Inspection of NVs < 3"                                                                                                    | OPEN           | Station       |
| 170 | 34300 | TS0150-14 | 001600 | Contingency for ECI Equipment Room Sump Pit                                                                               | OPEN           | Station       |
| 171 | 34300 | TS0880-1  | 001558 | Bundled Commodity Group: Emergency Coolant Injection                                                                      | OPEN           | Station       |
| 172 | 34300 | TS0880-31 | 001670 | Bundled Commodity Group: Emergency Coolant Injection - Replacement of Hand Switches                                       | OPEN           | Station       |
| 173 | 34320 | TS0150-1  | 001456 | Internal Inspection 10 Representative Valves                                                                              | OPEN           | Station       |
| 174 | 34320 | TS0150-3  | 001600 | Inspection of the Sump Pit                                                                                                | OPEN           | Station       |
| 175 | 34320 | TS0150-6  | 001454 | Motor Replacement for Heating Water Cooling Pump                                                                          | OPEN           | Station       |
| 176 | 34320 | TS0150-9  | 001452 | Replace Lubricating Pump/Motor Set                                                                                        | OPEN           | Station       |
| 177 | 34320 | TS0150-10 | 001534 | Clean The Filter and Replace It                                                                                           | OPEN           | Station       |
| 178 | 34320 | TS0150-11 | 001558 | Replacement of All Indicators                                                                                             | OPEN           | Station       |
| 179 | 34320 | TS0150-12 | 001670 | Replace Handswitches                                                                                                      | OPEN           | Station       |
| 180 | 34320 | TS0150-13 | 001683 | Replacement - Replacement of All Temperature Transmitters                                                                 | OPEN           | Station       |
| 181 | 34320 | TS1120-1  | 002093 | Emergency Coolant Injection - Part 2: Update HPU Overhaul PM for ECI System                                               | OPEN           | Station       |
| 182 | 34320 | TS1120-2  | 002094 | Emergency Coolant Injection - Part 2: Update the HPU Overhaul PM to Replace the ECI System ACC's                          | OPEN           | Station       |
| 183 | 34400 | TS0880-39 | 003227 | Bundled Commodity Group: DNGS Irradiated Fuel Bay Systems - Replacement of Temperature Controllers                        | OPEN           | Station       |
| 184 | 34400 | TS0880-40 | 003214 | Bundled Commodity Group: DNGS Irradiated Fuel Bay Systems - Replacement of Bach Simpson Flow Indicators                   | OPEN           | Station       |
| 185 | 34400 | TS0880-41 | 003216 | Bundled Commodity Group: DNGS Irradiated Fuel Bay Systems - Replacement of Flow Transmitters and Temperature Transmitters | OPEN           | Station       |
| 186 | 34400 | TS0880-42 | 003229 | Bundled Commodity Group: DNGS Irradiated Fuel Bay Systems - Replacement of Bach Simpson Temperature Meters                | OPEN           | Station       |
| 187 | 34410 | TS0460-1  | 002738 | DNGS Irradiated Fuel Bay Systems: Inspection of Filter Units (Contingency)                                                | OPEN           | Station       |
| 188 | 34410 | TS0460-2  | 002739 | DNGS Irradiated Fuel Bay Systems: Inspection of Current Condition of the Flexible Gasket (Contingency)                    | OPEN           | Station       |
| 189 | 34410 | TS0460-3  | 002742 | DNGS Irradiated Fuel Bay Systems: Inspection of Current Condition of the Flexible Gasket - Next Walkdown of IFB System    | OPEN           | Station       |
| 190 | 34410 | TS0460-4  | 003227 | DNGS Irradiated Fuel Bay Systems: Procure Replacements for Temperature Controllers                                        | OPEN           | Station       |
| 191 | 34410 | TS0460-5  | 002745 | DNGS Irradiated Fuel Bay Systems: Replacement of all Pump Motors for LE                                                   | OPEN           | Station       |
| 192 | 34410 | TS0460-6  | 003213 | DNGS Irradiated Fuel Bay Systems: Identify and Procure Replacement of Flow Meters                                         | OPEN           | Station       |
| 193 | 34410 | TS0460-7  | 003214 | DNGS Irradiated Fuel Bay Systems: Identify replacements for the Flow Indicators                                           | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                           | Current Status | Current Owner |
|-----|-------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 194 | 34410 | TS0460-8  | 003216 | DNGS Irradiated Fuel Bay Systems: Conduct a Study to Indentify Replacements for Flow Transmitters                        | OPEN           | Station       |
| 195 | 34410 | TS0460-9  | 003220 | DNGS Irradiated Fuel Bay Systems: Procure 4 Spare Check Valves                                                           | OPEN           | Station       |
| 196 | 34410 | TS0460-10 | 003229 | DNGS Irradiated Fuel Bay Systems: Procure Replacements for the Bach Simpson Model-1624 Temperature Meters                | OPEN           | Station       |
| 197 | 34410 | TS0460-11 | 002738 | DNGS Irradiated Fuel Bay Systems: Possibility of Replacement of all the Filter Units (Contingency)                       | OPEN           | Station       |
| 198 | 34410 | TS0460-12 | 002739 | DNGS Irradiated Fuel Bay Systems: Possibility of Replacement of IX Columns (Contingency)                                 | OPEN           | Station       |
| 199 | 34410 | TS0460-14 | 002744 | DNGS Irradiated Fuel Bay Systems: MMOD Required to Modify P3 P6                                                          | OPEN           | Station       |
| 200 | 34410 | TS0460-15 | 002739 | DNGS Irradiated Fuel Bay Systems: Preparation of the Ion Exchange Column                                                 | OPEN           | Station       |
| 201 | 34410 | TS0460-16 | 002745 | DNGS Irradiated Fuel Bay Systems: Procure 1 Spare Motor for EOL for Each CID                                             | OPEN           | Station       |
| 202 | 34710 | TS0260-3  | 000853 | Shutdown System 2 Process: Replace LISS Poison Tank Ball Position Level Alarm System                                     | OPEN           | Station       |
| 203 | 34800 | TS0200-3  | 000438 | Liquid Zone Control System: Replace the Recombination Units                                                              | OPEN           | Station       |
| 204 | 34800 | TS0200-6  | 000187 | Liquid Zone Control System: Replacement of Some Valves (Contingency)                                                     | OPEN           | Station       |
| 205 | 34800 | TS0880-5  | 000190 | Bundled Commodity Group: Liquid Zone Control System - Replacement of Rosemount Transmitters                              | OPEN           | Station       |
| 206 | 34810 | TS0200-1  | 000190 | Liquid Zone Control System: Replace Rosemount Transmitters                                                               | OPEN           | Station       |
| 207 | 34810 | TS0200-2  | 000414 | Liquid Zone Control System: Complete Aging Assessment of Zone Control Units                                              | OPEN           | Station       |
| 208 | 34880 | TS1250-1  | 000292 | Annulus Gas System - Part 2: Moisture Probe Replacements                                                                 | OPEN           | Station       |
| 209 | 35000 | TS0950-36 | 003227 | Minor Modifitcations: Replacement Of Irradiated Fuel Bay Temperature Controllers                                         | OPEN           | Station       |
| 210 | 35100 | TS0380-1  | 002022 | New Fuel Transfer: Electric Motor Operated Actuators                                                                     | OPEN           | Station       |
| 211 | 35100 | TS0380-5  | 001828 | New Fuel Transfer: Motor Operated Valves                                                                                 | OPEN           | Station       |
| 212 | 35100 | TS0380-6  | 002022 | New Fuel Transfer: Obtain Spares                                                                                         | OPEN           | Station       |
| 213 | 35210 | TS0450-2  | 002681 | FM Head: Charge Tube Axial Assembly and Charge Tube Axial Input Drive                                                    | OPEN           | Station       |
| 214 | 35210 | TS0450-3  | 002683 | FM Head: Ram Assembly and Ram Input Drive                                                                                | OPEN           | Station       |
| 215 | 35210 | TS0450-8  | 002684 | FM Head: Fuelling Machine Head Magazine and Drives                                                                       | OPEN           | Station       |
| 216 | 35210 | TS0450-9  | 002685 | FM Head: Fuelling Machine Head Homing and Locking Assembly                                                               | OPEN           | Station       |
| 217 | 35210 | TS0450-10 | 002840 | FM Head: Motors Mounted on the Fuelling Machine Head                                                                     | OPEN           | Station       |
| 218 | 35210 | TS0450-12 | 002373 | FM Head: Inspect all Ancillary Ports (Contingency)                                                                       | OPEN           | Station       |
| 219 | 35220 | TS0400-10 | 002610 | Reactor and Service Area Bridges and Carriages: Perform an Engineering Study of the Junction Box Assemblies              | OPEN           | Station       |
| 220 | 35220 | TS0400-16 | 003122 | Reactor and Service Area Bridges and Carriages: Perform an Obsolescence Study and Procure and Replace all Relays         | OPEN           | Station       |
| 221 | 35220 | TS0400-17 | 002614 | Reactor and Service Area Bridges and Carriages: Replace and Procure General Purpose Relays Used for Bridge Control Units | OPEN           | Station       |
| 222 | 35220 | TS0400-20 | 002610 | Reactor and Service Area Bridges and Carriages: Inpsect JB's and Replace All Liquid Connectors                           | OPEN           | Station       |
| 223 | 35220 | TS0400-23 | 002903 | Service Area Bridges and Carriages: Replacement of One SAB Ball Screw and Jack Assembly                                  | OPEN           | Station       |
| 224 | 35230 | TS0410-1  | 002601 | D2O Auxiliaries: Several Types (3 Cat ID's) of Solenoid Valves                                                           | OPEN           | Station       |
| 225 | 35230 | TS0410-2  | 003056 | D2O Auxiliaries: Replace Air Actuated Valve                                                                              | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                           | Current Status | Current Owner |
|-----|-------|-----------|--------|----------------------------------------------------------------------------------------------------------|----------------|---------------|
| 226 | 35230 | TS0410-3  | 003166 | D2O Auxiliaries: One Type of Solenoid Valves                                                             | OPEN           | Station       |
| 227 | 35230 | TS0410-4  | 002555 | D2O Auxiliaries: D2O Cooler (Contingency)                                                                | OPEN           | Station       |
| 228 | 35230 | TS0410-5  | 002555 | D2O Auxiliaries: Tube Replacement May Be Required (Contingency)                                          | OPEN           | Station       |
| 229 | 35230 | TS0410-6  | 002570 | D2O Auxiliaries: Replace 24 Pumps/Seals/Motors                                                           | OPEN           | Station       |
| 230 | 35230 | TS0410-7  | 002592 | D2O Auxiliaries: Trolley Power Cabling to the D2O/Air/FI Equipment (Contingency)                         | OPEN           | Station       |
| 231 | 35230 | TS0410-8  | 002592 | D2O Auxiliaries: Cable Replacement May Be Required (Contingency)                                         | OPEN           | Station       |
| 232 | 35230 | TS0410-9  | 002593 | D2O Auxiliaries: Performance Testing of the Trolley Control Cabling                                      | OPEN           | Station       |
| 233 | 35230 | TS0410-10 | 002593 | D2O Auxiliaries: Cable Replacement May Be Required (Contingency)                                         | OPEN           | Station       |
| 234 | 35250 | TS0390-3  | 003058 | FH Air Auxiliary: Trolley Based Mechanical Air Dryer Including Towers                                    | OPEN           | Station       |
| 235 | 35250 | TS0390-4  | 003057 | FH Air Auxiliary: Air Compressor/Motors                                                                  | OPEN           | Station       |
| 236 | 35250 | TS0390-5  | 003059 | FH Air Auxiliary: Replacement of Aftercoolers                                                            | OPEN           | Station       |
| 237 | 35260 | TS0440-1  | 002605 | FH Flow Injection: Flow Control Valves in the Flow Injection Circuit                                     | OPEN           | Station       |
| 238 | 35260 | TS0440-2  | 002606 | FH Flow Injection: Actuator Motors for Remote Connectors on the Flow Injection System                    | OPEN           | Station       |
| 239 | 35260 | TS0440-3  | 003061 | FH Flow Injection: Air Operated Valves on the Flow Injection System                                      | OPEN           | Station       |
| 240 | 35260 | TS0440-4  | 003063 | FH Flow Injection: Non Return Valves on the Flow Injection System                                        | OPEN           | Station       |
| 241 | 35260 | TS0440-5  | 003064 | FH Flow Injection: Physical Inspection of Fixed Connectors                                               | OPEN           | Station       |
| 242 | 35260 | TS0440-6  | 003064 | FH Flow Injection: Refurbishment of Fixed Connectors (Contingency)                                       | OPEN           | Station       |
| 243 | 35320 | TS0470-1  | 002019 | IF Transfer: Disassemble and Inspect the Defected Conveyors                                              | OPEN           | Station       |
| 244 | 35320 | TS0470-2  | 002019 | IF Transfer: Replacement of Speed Reducers                                                               | OPEN           | Station       |
| 245 | 35320 | TS0470-3  | 001870 | IF Transfer: Disassemble the Air Actuated Valve, Check Condition, and Replace the O-Ring and Seals       | OPEN           | Station       |
| 246 | 35320 | TS0470-4  | 002021 | IF Transfer: Replace all Actuators and Speed Reducers                                                    | OPEN           | Station       |
| 247 | 35320 | TS0470-5  | 002026 | IF Transfer: Interbay Door - Inspect the Sprocket, Door, Door Guide Rails, and Wheel for Wear and Damage | OPEN           | Station       |
| 248 | 35320 | TS0470-6  | 002026 | IF Transfer: Perform Overhaul of the Interbay Doors                                                      | OPEN           | Station       |
| 249 | 35320 | TS0470-7  | 002699 | IF Transfer: Port Pressure Switch for the Fuel Reception Bay                                             | OPEN           | Station       |
| 250 | 35320 | TS0470-8  | 002900 | IF Transfer: Leak Collection Tanks (Contingency)                                                         | OPEN           | Station       |
| 251 | 35320 | TS0470-9  | 001860 | IF Transfer: Purchase Life Time Spare Parts and Valve from ITT                                           | OPEN           | Station       |
| 252 | 35320 | TS0470-10 | 001899 | IF Transfer: Replacement of all Check Valves                                                             | OPEN           | Station       |
| 253 | 35320 | TS0470-11 | 002024 | IF Transfer: Replacement of Shuttle Cylinders                                                            | OPEN           | Station       |
| 254 | 35320 | TS0470-12 | 002900 | IF Transfer: Replacement of all Leak Collection Tanks (Contingency)                                      | OPEN           | Station       |
| 255 | 35700 | TS0430-1  | 002712 | FH Trolley: Fixed Power Cables                                                                           | OPEN           | Station       |
| 256 | 35700 | TS0430-2  | 002713 | FH Trolley: Perform a Visual Inspection and Megger Testing on Cables and Connections                     | OPEN           | Station       |
| 257 | 35700 | TS0430-5  | 002931 | FH Trolley: Trolley Catenary Supports                                                                    | OPEN           | Station       |
| 258 | 35700 | TS0430-9  | 002710 | FH Trolley: Procure and Replace all Terminal Blocks in the Trolley                                       | OPEN           | Station       |
| 259 | 35700 | TS0430-15 | 002930 | FH Trolley: Replacement of Catenary Mechanical Components (Contingency)                                  | OPEN           | Station       |
| 260 | 35700 | TS0430-3  | 002905 | FH Trolley: Powertrack Cable Riser and Coupling Frame Assembly                                           | OPEN           | Station       |
| 261 | 35700 | TS0430-4  | 002930 | FH Trolley: Mechanical Components of the Catenary                                                        | OPEN           | Station       |
| 262 | 35700 | TS0430-6  | 002712 | FH Trolley: Change Fixed Power Cables from Trolley (Contingency)                                         | OPEN           | Station       |
| 263 | 35700 | TS0430-7  | 002713 | FH Trolley: Fixed Signal Cables (Contingency)                                                            | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                            | Current Status | Current Owner |
|-----|-------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 264 | 35700 | TS0430-10 | 002716 | FH Trolley: Source and Replace Trolley Coarse, Fine and Lock Motors                                                       | OPEN           | Station       |
| 265 | 35700 | TS0430-11 | 002717 | FH Trolley: Change Rectifier Assembly                                                                                     | OPEN           | Station       |
| 266 | 35700 | TS0430-14 | 002905 | FH Trolley: Repair and/or Reinforce the Riser and Coupling Frame Welds (Contingency)                                      | OPEN           | Station       |
| 267 | 35700 | TS0430-16 | 002931 | FH Trolley: Inspection of the Frame and Attachment Hardware for Corrosion (Contingency)                                   | OPEN           | Station       |
| 268 | 35700 | TS0430-17 | 002938 | FH Trolley: Replace Trolley Drive Wheels and Coarse and Fine Drive Gear Box                                               | OPEN           | Station       |
| 269 | 35700 | TS0430-18 | 002712 | FH Trolley: Replace all Catenary Power Cables                                                                             | OPEN           | Station       |
| 270 | 35700 | TS0430-19 | 002713 | FH Trolley: Replace all Catenary Signal Cables                                                                            | OPEN           | Station       |
| 271 | 35710 | TS1330-1  | 003533 | FH Trolley Additional Scope: Rails which the Fuelling machine Trolleys Drive                                              | OPEN           | Station       |
| 272 | 36100 | TS0670-3  | 001004 | Main Steam                                                                                                                | OPEN           | Station       |
| 273 | 36100 | TS1150-1  | 000995 | Main Steam - Part 2: Flowsan and Overhaul Boiler Blowdown                                                                 | OPEN           | Station       |
| 274 | 36100 | TS1150-2  | 001004 | Main Steam - Part 2: Inspection of Boiler Steam Isolation Valves                                                          | OPEN           | Station       |
| 275 | 36400 | TS0670-5  | 000593 | Main Steam: Overhaul/Replace Containment Isolation Valves                                                                 | OPEN           | Station       |
| 276 | 36700 | TS0270-5  | 002135 | Steam Generator Emergency Cooling System (SGECS): Overhaul/Replace 367110-NV23, NV28 and 72800-NV136, NV138 (Contingency) | OPEN           | Station       |
| 277 | 36700 | TS0880-3  | 002126 | Bundled Commodity Group: Steam Generator Emergency Cooling System - Replacement of Existing Bach Simpson Indicators       | OPEN           | Station       |
| 278 | 36700 | TS0880-6  | 002129 | Bundled Commodity Group: Steam Generator Emergency Cooling System - Replacement of Main Steam Temperature Transmitters    | OPEN           | Station       |
| 279 | 36700 | TS0880-15 | 002112 | Bundled Commodity Group: Steam Generator Emergency Cooling System                                                         | OPEN           | Station       |
| 280 | 36700 | TS0880-27 | 002115 | Bundled Commodity Group: Steam Generator Emergency Cooling System - Replacement of all Main Steam Pressure Alarm Units    | OPEN           | Station       |
| 281 | 36710 | TS0270-1  | 002112 | Steam Generator Emergency Cooling System (SGECS): Replace Hand Switches                                                   | OPEN           | Station       |
| 282 | 36710 | TS0270-2  | 002115 | Steam Generator Emergency Cooling System (SGECS): Replace All Main Steam Pressure Alarm Units                             | OPEN           | Station       |
| 283 | 36710 | TS0270-3  | 002126 | Steam Generator Emergency Cooling System (SGECS): Replace the Existing Bach Simpson Indicators                            | OPEN           | Station       |
| 284 | 36710 | TS0270-4  | 002129 | Steam Generator Emergency Cooling System (SGECS): Replace Main Steam Temperature Transmitters                             | OPEN           | Station       |
| 285 | 36710 | TS0270-6  | 002135 | Steam Generator Emergency Cooling System (SGECS): Inspect 36710-NV23, NV28 and 72800-NV136, NV138                         | OPEN           | Station       |
| 286 | 38300 | TS0290-4  | 001138 | Vapor Recovery: Repalce Limit Switches                                                                                    | OPEN           | Station       |
| 287 | 38300 | TS1220-1  | 001132 | Vapour Recovery - Part 2: Replace Vapour Dryer Heater Components                                                          | OPEN           | Station       |
| 288 | 38300 | TS1220-2  | 001015 | Vapour Recovery - Part 2: Replace 012/034-38350-PV3/4/14/15, and 1/2/3/4-38310-PV2/21/19/129 w/A New Design               | OPEN           | Station       |
| 289 | 38300 | TS1220-3  | 001019 | Vapour Recovery - Part 2: Monitor Performance of New Moisture Elements                                                    | OPEN           | Station       |
| 290 | 41800 | TS0680-6  | 000585 | Moisture Separator Reheater: Expand Scope of Inspection of MOVs and Repair as Required                                    | OPEN           | Station       |
| 291 | 43000 | TS0590-17 | 000698 | Boiler Feedwater System: Pressure Regualting Valves                                                                       | OPEN           | Station       |
| 292 | 43000 | TS0880-23 | 000656 | Bundled Commodity Group: Boiler Feed Water System - Replacement of Flow Controllers                                       | OPEN           | Station       |
| 293 | 43000 | TS0590-1  | 000148 | Boiler Feedwater System: Pneumatic Pressure Controllers                                                                   | OPEN           | Station       |
| 294 | 43000 | TS0590-2  | 000210 | Boiler Feedwater System: Lube Oil Pumps for ABFPs                                                                         | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                                     | Current Status | Current Owner |
|-----|-------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 295 | 43000 | TS0590-3  | 000671 | Boiler Feedwater System: Internal Inspection of Gland Seal Strainers (Contingency)                                                 | OPEN           | Station       |
| 296 | 43000 | TS0590-5  | 000755 | Boiler Feedwater System: Overhaul of Actuators Not Being Upgraded                                                                  | OPEN           | Station       |
| 297 | 43000 | TS0590-6  | 000756 | Boiler Feedwater System: Perform Internal Inspection of a Representative Sample of 43000-NVs                                       | OPEN           | Station       |
| 298 | 43000 | TS0590-9  | 000937 | Boiler Feedwater System: MBFP Auxiliary Oil Pumps                                                                                  | OPEN           | Station       |
| 299 | 43000 | TS0590-10 | 000937 | Boiler Feedwater System: Pump Motor Bearings                                                                                       | OPEN           | Station       |
| 300 | 43000 | TS0590-11 | 000938 | Boiler Feedwater System: Gland Seal Water Pumps                                                                                    | OPEN           | Station       |
| 301 | 43000 | TS0590-12 | 000939 | Boiler Feedwater System: BFP Main Lube Oil Pumps                                                                                   | OPEN           | Station       |
| 302 | 43000 | TS0590-13 | 003177 | Boiler Feedwater System: Replace Level Switches That Provide Logic Input for the Boiler Feedwater Gland Seal Water Collection Tank | OPEN           | Station       |
| 303 | 43000 | TS0590-15 | 000677 | Boiler Feedwater System: MCR and SCA Hand Switches                                                                                 | OPEN           | Station       |
| 304 | 43000 | TS0590-16 | 000678 | Boiler Feedwater System: Alarm Unit Switches                                                                                       | OPEN           | Station       |
| 305 | 43000 | TS0590-19 | 000680 | Boiler Feedwater System: BFP Speed Transducers                                                                                     | OPEN           | Station       |
| 306 | 43000 | TS0590-20 | 000753 | Boiler Feedwater System: Main Boiler Feed Pumps                                                                                    | OPEN           | Station       |
| 307 | 43000 | TS0590-21 | 003200 | Boiler Feedwater System: Air Check Valves                                                                                          | OPEN           | Station       |
| 308 | 43000 | TS0590-23 | 000871 | Boiler Feedwater System: Manual Bypass Valves                                                                                      | OPEN           | Station       |
| 309 | 43000 | TS0590-27 | 000938 | Boiler Feedwater System: Overhaul Gland Seal Water Pumps                                                                           | OPEN           | Station       |
| 310 | 43000 | TS0590-28 | 000755 | Boiler Feedwater System: Overhaul and Replacement of MOVs                                                                          | OPEN           | Station       |
| 311 | 43000 | TS0590-29 | 000755 | Boiler Feedwater System: Upgrade Obsolete Limitorque SMC Actuators                                                                 | OPEN           | Station       |
| 312 | 43000 | TS0590-31 | 000939 | Boiler Feedwater System: Replace Pumps and Couplings                                                                               | OPEN           | Station       |
| 313 | 43200 | TS0590-18 | 000131 | Boiler Feedwater System: Replace All Heat Exchangers                                                                               | OPEN           | Station       |
| 314 | 43200 | TS0590-22 | 000671 | Boiler Feedwater System: Gland Seal Strainer Replacement (Contingency)                                                             | OPEN           | Station       |
| 315 | 44000 | TS0610-1  | 001502 | Main Condensate System: Internal Inspection of a Sample of NVs (Contingency)                                                       | OPEN           | Station       |
| 316 | 44000 | TS0610-16 | 001502 | Main Condensate System: Overhaul/Replacement of Main CE Pump Discharge Check Valves                                                | OPEN           | Station       |
| 317 | 44000 | TS0880-24 | 001567 | Bundled Commodity Group: Main Condensate System - Replacement of Electronic Controllers                                            | OPEN           | Station       |
| 318 | 44000 | TS0610-4  | 001511 | Main Condensate System: Main Condensate CEP Isolation Valves                                                                       | OPEN           | Station       |
| 319 | 44000 | TS0610-5  | 001647 | Main Condensate System: Replace Heater Drains Level Switches                                                                       | OPEN           | Station       |
| 320 | 44000 | TS0610-6  | 002439 | Main Condensate System: Replacement of Valves Before Restart of Refurbishment                                                      | OPEN           | Station       |
| 321 | 44000 | TS0610-7  | 002790 | Main Condensate System: Condition Assessment of Valves for Both Dearator Relief Valves and Feedwater                               | OPEN           | Station       |
| 322 | 44000 | TS0610-8  | 001539 | Main Condensate System: Change Request for Bearing Replacements and Motor Operator Overhauls                                       | OPEN           | Station       |
| 323 | 44000 | TS0610-9  | 001619 | Main Condensate System: Replace all Electronic Controller 64453 PC90 (D/A Pressure Control)                                        | OPEN           | Station       |
| 324 | 44000 | TS0610-10 | 001567 | Main Condensate System: Replace all Electronic Controller                                                                          | OPEN           | Station       |
| 325 | 44000 | TS0610-11 | 002444 | Main Condensate System: Replace Unit 4 Heater Gaskets                                                                              | OPEN           | Station       |
| 326 | 44000 | TS0610-12 | 002448 | Main Condensate System: Obtain Spares for Obsolete Transmitters                                                                    | OPEN           | Station       |
| 327 | 44000 | TS0610-13 | 002871 | Main Condensate System: Overhaul/Replacement of all Elastomers for MV4                                                             | OPEN           | Station       |
| 328 | 44000 | TS0610-19 | 001511 | Main Condensate System: Replace all 36 CEP/MVs                                                                                     | OPEN           | Station       |
| 329 | 44000 | TS0610-20 | 002790 | Main Condensate System: Replace/Repair DA and Heater AOVs                                                                          | OPEN           | Station       |
| 330 | 44000 | TS1060-1  | 001645 | Main Condensate System - Part 2: Main Condensate Heater Drains Level Control Valves                                                | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                                                  | Current Status | Current Owner |
|-----|-------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 331 | 44500 | TS0880-26 | 001619 | Bundled Commodity Group: Main Condensate System - Replacement of Electronic Controllers                                                         | OPEN           | Station       |
| 332 | 48100 | TS1080-2  | 000566 | Moisture Separator Reheater - Part 2: MSR Crit 1 2 Solenoid Valves                                                                              | OPEN           | Station       |
| 333 | 48100 | TS1080-3  | 003521 | Moisture Separator Reheater - Part 2: Level Controllers in MSR                                                                                  | OPEN           | Station       |
| 334 | 49100 | TS0580-1  | 003525 | DNGS Standby Generators                                                                                                                         | OPEN           | Station       |
| 335 | 49100 | TS0580-2  | 001383 | DNGS Standby Generators: Update Bill of Materials w/An Available Pressure Switch                                                                | OPEN           | Station       |
| 336 | 49100 | TS0580-3  | 001354 | DNGS Standby Generators: Replace Bladder in the Accumulator                                                                                     | OPEN           | Station       |
| 337 | 50310 | TS0530-2  | 000141 | Darlington Class I Power: Re-Enable The MCR Annunciation and Repair/Replace the MDS                                                             | OPEN           | Station       |
| 338 | 50320 | TS0540-2  | 000047 | Class II Power System: UPS Replacement                                                                                                          | OPEN           | Station       |
| 339 | 50320 | TS1050-1  | 000057 | Class II Power System - Part 2: Replace Class II 45 VDC Group 1 Power Supplies                                                                  | OPEN           | Station       |
| 340 | 50330 | TS0550-1  | 001531 | Class III Power System: OH180 Recommended Maintenance                                                                                           | OPEN           | Station       |
| 341 | 50340 | TS0560-6  | 003244 | Class IV Power System: Complete the Tapchanger Bypass Modification                                                                              | OPEN           | Station       |
| 342 | 50340 | TS0560-2  | 000204 | Class IV Power System: Fuses in 13.8kV VT and in 120/208 VAC FDP-s                                                                              | OPEN           | Station       |
| 343 | 50340 | TS0560-3  | 001732 | Class IV Power System: Revise NK38-CMI-53230-10001                                                                                              | OPEN           | Station       |
| 344 | 50340 | TS0560-4  | 000245 | Class IV Power System: Implement the OH180 Recommended Maintenance                                                                              | OPEN           | Station       |
| 345 | 50340 | TS0560-5  | 003126 | Class IV Power System: Replace the Pressure Devices on the Transformer and Revise Model Work Order 1971220 Used for the Transformer Maintenance | OPEN           | Station       |
| 346 | 50340 | TS0560-8  | 000201 | Class IV Power System: Create inspection of These Blocking Switches                                                                             | OPEN           | Station       |
| 347 | 50390 | TS0170-2  | 003044 | Emergency Power System: Replacement of the Hand Switches                                                                                        | OPEN           | Station       |
| 348 | 51000 | TS0570-1  | 000073 | Main Power Output System: Concrete Dykes for Tranformers (Contingency)                                                                          | OPEN           | Station       |
| 349 | 51000 | TS0570-3  | 001296 | Main Power Output System: Implement Recommendation of the Dielectric Study of the MOT Transformers                                              | OPEN           | Station       |
| 350 | 51000 | TS0570-5  | 001305 | Main Power Output System: Tranformer Oil Coolers                                                                                                | OPEN           | Station       |
| 351 | 51000 | TS0570-6  | 001313 | Main Power Output System: Implement Recommendation of the Dielectric Study of the Transformers                                                  | OPEN           | Station       |
| 352 | 51000 | TS0570-8  | 001287 | Main Power Output System: Replace all IPB Cooling Dampers                                                                                       | OPEN           | Station       |
| 353 | 51000 | TS0570-9  | 001312 | Main Power Output System: Replace all UST and SST VT Fuses                                                                                      | OPEN           | Station       |
| 354 | 51000 | TS0570-10 | 001314 | Main Power Output System: Replace All IPB Pneumatic Cylinders                                                                                   | OPEN           | Station       |
| 355 | 51000 | TS0570-11 | 001315 | Main Power Output System: Replace All IPB Solenoid Valves                                                                                       | OPEN           | Station       |
| 356 | 51000 | TS0570-12 | 001316 | Main Power Output System: Replace All IPB Temperature Switches                                                                                  | OPEN           | Station       |
| 357 | 51000 | TS0570-13 | 001317 | Main Power Output System: Replace All IPG Position Switches                                                                                     | OPEN           | Station       |
| 358 | 51000 | TS0570-14 | 001318 | Main Power Output System: Order Set of Spares for the Generator Auto Synchronizing Unit and Replace All 600 Volt Fuses on the VTs               | OPEN           | Station       |
| 359 | 51000 | TS0570-15 | 001320 | Main Power Output System: Replace All LPSW to IPB Flow Switches                                                                                 | OPEN           | Station       |
| 360 | 51000 | TS0570-16 | 001322 | Main Power Output System: Replace All IPB Pressure Switch                                                                                       | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                                                          | Current Status | Current Owner |
|-----|-------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 361 | 51000 | TS0570-17 | 000073 | Main Power Output System: Repair Dyke Area and Rail Tracks Based on the Inspection (Contingency)                                                        | OPEN           | Station       |
| 362 | 51000 | TS0570-19 | 001292 | Main Power Output System: Replace all Voltage Transformers                                                                                              | OPEN           | Station       |
| 363 | 52500 | TS0570-25 | 001313 | Main Power Output System: SST TRANSFORMERS - Midlife Overhaul/Replacement of 500kV Bushings and Intrusive Inspection                                    | OPEN           | Station       |
| 364 | 52500 | TS0570-26 | 001313 | Main Power Output System: SST Transformers - Actions to remanufactre the Transformers (Contingency)                                                     | OPEN           | Station       |
| 365 | 53200 | TS0560-9  | 001732 | Class IV Power System: Replace the Control Cabineton the Side of the Transformer                                                                        | OPEN           | Station       |
| 366 | 56000 | TS1200-1  | 003529 | Building Electrical Serices - Part 2: Replace Existing Fluorescent Lighting                                                                             | OPEN           | Station       |
| 367 | 56100 | TS0910-1  | 003529 | Fluorescent Lamp Fixtures                                                                                                                               | OPEN           | Station       |
| 368 | 60215 | TS0730-1  | 002617 | Public Address Equipment System                                                                                                                         | OPEN           | Station       |
| 369 | 60215 | TS0920-1  | 002617 | Replace PA System                                                                                                                                       | OPEN           | Station       |
| 370 | 60252 | TS0140-1  | 000507 | Emergency Communications System: Replacement of 2 Battery Chargers                                                                                      | OPEN           | Station       |
| 371 | 60252 | TS0140-2  | 000760 | Emergency Communications System: Upgrade/Replacement of Emergency Communications System                                                                 | OPEN           | Station       |
| 372 | 62100 | TS0120-2  | 000134 | Darlington Airlocks And Transfer Chambers: Replacement of non EQ Pressure Switches on Containment Airlocks, Transfer Chamber, and Confinement Bulkheads | OPEN           | Station       |
| 373 | 63106 | TS0130-1  | 002850 | Replacement of Impulse Line Tubing                                                                                                                      | OPEN           | Station       |
| 374 | 63500 | TS0420-2  | 002382 | FH Control: Replace the FH Control Computer                                                                                                             | OPEN           | Station       |
| 375 | 63500 | TS0420-3  | 002382 | FH Control: Perform Study on Need of Computer Replacement to Reach Life Extension Target of 2050                                                        | OPEN           | Station       |
| 376 | 63500 | TS0420-4  | 002384 | FH Control: Replace The Power Supplies of FH Control Computer (FHCC)                                                                                    | OPEN           | Station       |
| 377 | 63500 | TS0420-5  | 002384 | FH Control: Replacement of All Power Supplies (FH ACE System, I/O System, FHCC, etc.)                                                                   | OPEN           | Station       |
| 378 | 63500 | TS0420-6  | 003531 | FH Control: FH Control Computer - Interprocessor Communication                                                                                          | OPEN           | Station       |
| 379 | 63500 | TS0420-7  | 003531 | FH Control: Replace all Ethernet Interface and Associated Components                                                                                    | OPEN           | Station       |
| 380 | 63500 | TS0420-8  | 003532 | FH Control: Review the Spare Situation for Peripheral Interface                                                                                         | OPEN           | Station       |
| 381 | 63500 | TS0420-9  | 003532 | FH Control: Repair Defective Spares or Purchase Modules Not Covered by Project 16-33815 (Contingency)                                                   | OPEN           | Station       |
| 382 | 63500 | TS0420-10 | 003532 | FH Control: Replacement of Various Peripheral Devices                                                                                                   | OPEN           | Station       |
| 383 | 63500 | TS0420-11 | 003532 | FH Control: Perform Study on Need to Replace Various Peripheral Devices (Contingency)                                                                   | OPEN           | Station       |
| 384 | 63500 | TS0420-12 | 003532 | FH Control: Repalce Various Peripheral Devices (Contingency)                                                                                            | OPEN           | Station       |
| 385 | 63500 | TS0420-13 | 002383 | FH Control: Replace the I/O Subsystem and Associated Components and Cables                                                                              | OPEN           | Station       |
| 386 | 63500 | TS0420-14 | 003083 | FH Control: Replair the Defective ACE MFMs                                                                                                              | OPEN           | Station       |
| 387 | 63500 | TS0420-15 | 003083 | FH Control: Reprogram FPGA of All FH ACE Multi-Function Modules                                                                                         | OPEN           | Station       |
| 388 | 63500 | TS0420-18 | 002381 | FH Control: Identify and Purchase Replacement Control Relays                                                                                            | OPEN           | Station       |
| 389 | 63500 | TS0420-19 | 003531 | FH Control: Procurement of Life-Time Spares for DZ11 Serial Multiplexer Module for Interprocessor Communication                                         | OPEN           | Station       |
| 390 | 63500 | TS0420-21 | 002383 | FH Control: Procurement of Life-Time Spares for the Multiplexer                                                                                         | OPEN           | Station       |
| 391 | 63500 | TS0420-22 | 003083 | FH Control: Procurement of Life-Time Spares for FH ACE                                                                                                  | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                                             | Current Status | Current Owner |
|-----|-------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 392 | 63500 | TS0420-23 | 003531 | FH Control: Procurement of Life-Time Spare for the Ethernet Interface Module                                                               | OPEN           | Station       |
| 393 | 63700 | TS0220-7  | 000393 | Darlington Reactor Regulating: Replace all Logic Control and 'Too Many Adjusters Driving Out' Modules                                      | OPEN           | Station       |
| 394 | 63700 | TS0220-10 | 000409 | Darlington Reactor Regulating: Replace Control Absorber Clutch Power Supplies                                                              | OPEN           | Station       |
| 395 | 63700 | TS0220-11 | 000407 | Darlington Reactor Regulating: Existing PM's to Replace Subcomponents                                                                      | OPEN           | Station       |
| 396 | 67989 | TS0740-1  | 003490 | Radiation Monitors and Samplers: Replace Labserco Tritium                                                                                  | OPEN           | Station       |
| 397 | 67989 | TS0740-2  | 003493 | Radiation Monitors and Samplers: Replace Liquid Effluent Monitoring System                                                                 | OPEN           | Station       |
| 398 | 67989 | TS0740-3  | 000489 | Radiation Monitors and Samplers: Replace Radiation Monitors and Detectors                                                                  | OPEN           | Station       |
| 399 | 67989 | TS0740-4  | 000490 | Radiation Monitors and Samplers: Replace Computers and Modicons for the Stack Monitor System                                               | OPEN           | Station       |
| 400 | 67989 | TS0740-5  | 000494 | Radiation Monitors and Samplers: Annual Calibration for 16 Liquid Effluent Gamma Monitor                                                   | OPEN           | Station       |
| 401 | 67989 | TS0740-6  | 002272 | Radiation Monitors and Samplers: Panel Gas Chromatograph                                                                                   | OPEN           | Station       |
| 402 | 67989 | TS0740-7  | 002641 | Radiation Monitors and Samplers: Replace R22 Devices                                                                                       | OPEN           | Station       |
| 403 | 68000 | TS0350-2  | 003435 | Replacement of the SDS2 Trip Computer (Item #1)                                                                                            | OPEN           | Station       |
| 404 | 68000 | TS0350-3  | 003436 | Replacement of the SDS2 Trip Computer (Item #1)                                                                                            | OPEN           | Station       |
| 405 | 68000 | TS0350-4  | 003437 | Replacement of the SDS2 Trip Computer (Item #1)                                                                                            | OPEN           | Station       |
| 406 | 68200 | TS0240-2  | 002789 | Shutdown System 1 Process: Replace Shutoff Rod Clutch Power Supplies on all Units                                                          | OPEN           | Station       |
| 407 | 68200 | TS0240-4  | 000777 | Shutdown System 1 Process: Replace and Procure Ion Chamber Detectors for Life Extension                                                    | OPEN           | Station       |
| 408 | 68200 | TS0240-5  | 000790 | Shutdown System 1 Process: Replace Relay Cards and Diodes                                                                                  | OPEN           | Station       |
| 409 | 68200 | TS0240-9  | 000783 | Shutdown System 1 Process: Replace Ion Chamber Amplifiers                                                                                  | OPEN           | Station       |
| 410 | 68300 | TS0260-4  | 000856 | Shutdown System 2 Process: Replace all Electronic Amplifiers                                                                               | OPEN           | Station       |
| 411 | 68300 | TS0260-7  | 002942 | Shutdown System 2 Process: Identify an Acceptable Replacement for the LISS Flow Indicators                                                 | OPEN           | Station       |
| 412 | 69000 | TS0360-1  | 003459 | DC&M Computer Spares - High Priority Miscellaneous Equipment Replacement                                                                   | OPEN           | Station       |
| 413 | 69000 | TS0360-4  | 000709 | DC&M Computer Spares - Class II ATS Relay Replacement                                                                                      | OPEN           | Station       |
| 414 | 69000 | TS0360-5  | 000732 | DC&M Computer Spares - Keyboards and Electronics Assessment                                                                                | OPEN           | Station       |
| 415 | 69000 | TS0360-6  | 003467 | DC&M Computer Spares - Miscellaneous Equipment                                                                                             | OPEN           | Station       |
| 416 | 69000 | TS0360-9  | 003462 | DC&M Computer Spares - Keyboard and Electronics Replacement                                                                                | OPEN           | Station       |
| 417 | 69100 | TS0360-3  | 000710 | Computer Spares Acquisition Strategy and Implementation: Replace the DCC, CP, and SEM CPUs                                                 | OPEN           | Station       |
| 418 | 71000 | TS0600-1  | 000910 | Circulating Water System: Perform CCW Screen Was Pumps Condition Assessment (Contingency)                                                  | OPEN           | Station       |
| 419 | 71000 | TS0600-2  | 000972 | Circulating Water System: Inspection of Vacuum Priming Tanks (Contingency)                                                                 | OPEN           | Station       |
| 420 | 71000 | TS0600-3  | 000916 | Circulating Water System: Vacuum Priming Pump Condition Assessment (Contingency)                                                           | OPEN           | Station       |
| 421 | 71000 | TS0600-4  | 000999 | Circulating Water System: Inspect CD Waterbox Isolation MOVs                                                                               | OPEN           | Station       |
| 422 | 71000 | TS0600-5  | 001000 | Circulating Water System: Performance Engineering, Water Management Section to Evaluate a Successful Execution of WO 2106838 (Contingency) | OPEN           | Station       |
| 423 | 71000 | TS0600-10 | 001000 | Circulating Water System: Frazil Ice Recirculation Protection Gate (Contingency)                                                           | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                                                        | Current Status | Current Owner |
|-----|-------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 424 | 72000 | TS0630-4  | 000558 | Service Water System: Replacement of LPSW Check Valve 0-72100-NV409                                                                                   | OPEN           | Station       |
| 425 | 72000 | TS0630-5  | 003151 | Replacement of copper lines on Service Water Systems                                                                                                  | OPEN           | Station       |
| 426 | 72100 | TS0630-1  | 003142 | Service Water System: Inspections on PULSW Motorized Bypass Valve (Contingency)                                                                       | OPEN           | Station       |
| 427 | 72100 | TS0630-2  | 000609 | Service Water System: Inspect and Reassess LPSW Travelling Screens (Contingency)                                                                      | OPEN           | Station       |
| 428 | 72200 | TS0620-1  | 000517 | Recirculating Cooling Water System                                                                                                                    | OPEN           | Station       |
| 429 | 72300 | TS0630-9  | 003142 | Service Water System: Overhaul/ Replacement of MV51 (Contingency)                                                                                     | OPEN           | Station       |
| 430 | 72800 | TS0180-7  | 002090 | Overhaul of Valves/Actuators                                                                                                                          | OPEN           | Station       |
| 431 | 72800 | TS0180-8  | 002667 | Overhaul or Replace EWS Steam Generator Injection Valves                                                                                              | OPEN           | Station       |
| 432 | 72800 | TS0180-2  | 002726 | Investigate New Technologies in Industry for Pipe Repair                                                                                              | OPEN           | Station       |
| 433 | 72800 | TS0180-4  | 002038 | Resolve Obsolescence of Vibration Transducers for ESW Pumps                                                                                           | OPEN           | Station       |
| 434 | 72800 | TS0180-5  | 002038 | Replace Vibration Monitoring System                                                                                                                   | OPEN           | Station       |
| 435 | 72800 | TS0180-6  | 001964 | Replace Pressure Controllers                                                                                                                          | OPEN           | Station       |
| 436 | 72800 | TS0180-9  | 002735 | Overhaul of 012-72800-MV112, 034-72800-MV292 and 1 to 4-72800-MV129, MV131 Actuators                                                                  | OPEN           | Station       |
| 437 | 72800 | TS1270-1  | 001965 | Emergency Service Water - Part 2: Replace Unit 0 Supply Pressure Control PCVs and Their Isolating Valves                                              | OPEN           | Station       |
| 438 | 72800 | TS1270-2  | 001966 | Emergency Service Water - Part 2: Inspect/Replace the TRV Temperature Element                                                                         | OPEN           | Station       |
| 439 | 73100 | TS0690-1  | 003495 | Powerhouse Heating And Construction Boiler: Copmprehensive Inspection of the Deaerator                                                                | OPEN           | Station       |
| 440 | 73100 | TS0690-2  | 003508 | Powerhouse Heating And Construction Boiler: Boilerhouse Project Construction - Replacement of Level Control Components                                | OPEN           | Station       |
| 441 | 73100 | TS0690-3  | 003512 | Powerhouse Heating And Construction Boiler: Boilerhouse Project Construction - Replacement/Refurbishment of the Entire Boilerhouse Building Structure | OPEN           | Station       |
| 442 | 73100 | TS0690-4  | 003516 | Powerhouse Heating And Construction Boiler: Boilerhouse Project Construction - Repalcement of All Heat Tracing Lines                                  | OPEN           | Station       |
| 443 | 73100 | TS0690-5  | 003520 | Powerhouse Heating And Construction Boiler: Boilerhouse Project Construction - Initiate PM Program for Transformer Oil Samples                        | OPEN           | Station       |
| 444 | 73100 | TS0690-6  | 002322 | Powerhouse Heating And Construction Boiler: Boilerhouse Project Construction - Overhaul and Ensure Fully Functional Valves                            | OPEN           | Station       |
| 445 | 73100 | TS0690-7  | 002330 | Powerhouse Heating And Construction Boiler                                                                                                            | OPEN           | Station       |
| 446 | 73100 | TS0690-8  | 002325 | Powerhouse Heating And Construction Boiler: Boilerhouse Project Construction - Replacement of Piping                                                  | OPEN           | Station       |
| 447 | 73100 | TS0690-9  | 002329 | Powerhouse Heating And Construction Boiler: Boilerhouse Project Construction - Replacement of PCs                                                     | OPEN           | Station       |
| 448 | 73100 | TS0690-10 | 003517 | Powerhouse Heating And Construction Boiler: Boilerhouse Project Construction - Replacement of All Pipe Supports/Brackets                              | OPEN           | Station       |
| 449 | 73100 | TS0690-11 | 003518 | Powerhouse Heating And Construction Boiler: Boilerhouse Project Construction - Replacement of Steam Trap Internals                                    | OPEN           | Station       |
| 450 | 73100 | TS0880-9  | 002187 | Bundled Commodity Group: Reactor Vault Fuelling Duct Atmosphere Cooling - Replacement of all TEs                                                      | OPEN           | Station       |
| 451 | 73100 | TS1180-1  | 002320 | Powerhouse Heating and Construction Boiler - Part 2: Inspect Steam MOVs                                                                               | OPEN           | Station       |
| 452 | 73100 | TS1180-2  | 002320 | Powerhouse Heating and Construction Boiler - Part 2: Overhaul/Replace Valves (Contingency)                                                            | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                                   | Current Status | Current Owner |
|-----|-------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 453 | 73200 | TS0700-3  | 002527 | Powerhouse Heating and Ventilation: Inspection of Select Dampers                                                                 | OPEN           | Station       |
| 454 | 73200 | TS0700-1  | 002517 | Powerhouse Heating and Ventilation: Conduct Inspection/Replacement to Quantify Degradation of the Outage Replacement Dampers     | OPEN           | Station       |
| 455 | 73200 | TS0700-2  | 002526 | Powerhouse Heating and Ventilation: Replacement of ACUs                                                                          | OPEN           | Station       |
| 456 | 73200 | TS0700-4  | 002547 | Powerhouse Heating and Ventilation: Update Related PMs and Procedures                                                            | OPEN           | Station       |
| 457 | 73200 | TS0700-5  | 002541 | Powerhouse Heating and Ventilation: Overhaul/Replacement of all the PRVs                                                         | OPEN           | Station       |
| 458 | 73200 | TS0700-6  | 003312 | Powerhouse Heating and Ventilation: Conduct Inspection of the Morotized Dampers                                                  | OPEN           | Station       |
| 459 | 73200 | TS0700-7  | 002521 | Powerhouse Heating and Ventilation: Inspections on Select Dampers (Contingency)                                                  | OPEN           | Station       |
| 460 | 73200 | TS0700-8  | 003320 | Powerhouse Heating and Ventilation: Replace Signal Selectors)                                                                    | OPEN           | Station       |
| 461 | 73200 | TS0700-9  | 002517 | Powerhouse Heating and Ventilation: Replacement of Dampers (Contingency)                                                         | OPEN           | Station       |
| 462 | 73200 | TS0700-10 | 002527 | Powerhouse Heating and Ventilation: Replacement of Dampers (Contingency)                                                         | OPEN           | Station       |
| 463 | 73200 | TS0700-11 | 003312 | Powerhouse Heating and Ventilation: Contingency for Item #6                                                                      | OPEN           | Station       |
| 464 | 73200 | TS0700-12 | 003320 | Powerhouse Heating and Ventilation: Replacement of Dampers (Contingency)                                                         | OPEN           | Station       |
| 465 | 73220 | TS1240-1  | 002458 | Powerhouse Ventilation-B (PSVS) - Part 2: Refurbishment of Dampers                                                               | OPEN           | Station       |
| 466 | 73700 | TS0880-21 | 002193 | Bundled Commodity Group: Reactor Vault Fuelling Duct Atmosphere Cooling - Replacement of all TCs                                 | OPEN           | Station       |
| 467 | 73700 | TS0880-22 | 003473 | Bundled Commodity Group: Reactor Vault Fuelling Duct Atmosphere Cooling - Replacement of all TCs                                 | OPEN           | Station       |
| 468 | 73720 | TS0280-8  | 003071 | Reactor Vault And Fuelling Duct Atmosphere Cooling: Perform Investigation on Components                                          | OPEN           | Station       |
| 469 | 73720 | TS0280-2  | 002193 | Reactor Vault And Fuelling Duct Atmosphere Cooling: Replace all TCs in all Units                                                 | OPEN           | Station       |
| 470 | 73720 | TS0280-3  | 002187 | Reactor Vault And Fuelling Duct Atmosphere Cooling: Replace all Temperature Elements (TE)                                        | OPEN           | Station       |
| 471 | 73720 | TS0280-4  | 002191 | Reactor Vault And Fuelling Duct Atmosphere Cooling: Replace, Calibrate, and Function Test the Temperature Transmitters           | OPEN           | Station       |
| 472 | 73720 | TS0280-6  | 003071 | Reactor Vault And Fuelling Duct Atmosphere Cooling: Address Limit Switches on Dampers and Inspect Mechanical Linkages in Dampers | OPEN           | Station       |
| 473 | 73720 | TS0280-9  | 003071 | Reactor Vault And Fuelling Duct Atmosphere Cooling: Replacement of All Back Draft Dampers                                        | OPEN           | Station       |
| 474 | 73750 | TS0160-1  | 000310 | Emergency Filtered Air Discharge System: Inspect Motor Operated Valves                                                           | OPEN           | Station       |
| 475 | 73750 | TS0160-2  | 000360 | Emergency Filtered Air Discharge System                                                                                          | OPEN           | Station       |
| 476 | 73750 | TS0160-3  | 000350 | Emergency Filtered Air Discharge System: Update PMO for Maintenance Strategy                                                     | OPEN           | Station       |
| 477 | 73750 | TS0160-4  | 000703 | Emergency Filtered Air Discharge System: Update PMO Database to Include Maintenance Strategy                                     | OPEN           | Station       |
| 478 | 73750 | TS0160-5  | 000332 | Emergency Filtered Air Discharge System: Setup Maintenance Activities and Update PMO                                             | OPEN           | Station       |
| 479 | 73750 | TS0160-6  | 000339 | Emergency Filtered Air Discharge System: Replacement of 4 Moisture Probes and Transmitters for EFADS                             | OPEN           | Station       |
| 480 | 73750 | TS0160-7  | 000701 | Emergency Filtered Air Discharge System: Setup Maintenance Activities and Update PMO                                             | OPEN           | Station       |
| 481 | 73750 | TS0160-8  | 002071 | Emergency Filtered Air Discharge System: Initiate ECR to Replace EFADS Computer and Associated Components                        | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                                              | Current Status | Current Owner |
|-----|-------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 482 | 73750 | TS0160-9  | 000310 | Emergency Filtered Air Discharge System: Overhauling or Replacement for the MOVs (Contingency for Item #1)                                  | OPEN           | Station       |
| 483 | 73800 | TS0710-12 | 002274 | Air Conditioning System-Miscellaneous Buildings: Inspection/Replacement of the Dampers (C 1/2 Equip Rms) (Contingency)                      | OPEN           | Station       |
| 484 | 73800 | TS0710-13 | 002275 | Air Conditioning System-Miscellaneous Buildings: Inspection/Replacement of the Dampers (RB A/C Systems) (Contingency)                       | OPEN           | Station       |
| 485 | 73800 | TS0710-1  | 002285 | Air Conditioning System-Miscellaneous Buildings: Flammable Storage Building                                                                 | OPEN           | Station       |
| 486 | 73800 | TS0710-2  | 002286 | Air Conditioning System-Miscellaneous Buildings: Control Valve Pneumatic Dampers (Contingency)                                              | OPEN           | Station       |
| 487 | 73800 | TS0710-3  | 002287 | Air Conditioning System-Miscellaneous Buildings: Safety Related ACU LPSW/Glycol Control Valves (Contingency)                                | OPEN           | Station       |
| 488 | 73800 | TS0710-4  | 002266 | Air Conditioning System-Miscellaneous Buildings: Moisture Switches                                                                          | OPEN           | Station       |
| 489 | 73800 | TS0710-5  | 002290 | Air Conditioning System-Miscellaneous Buildings: Moisture Switches                                                                          | OPEN           | Station       |
| 490 | 73800 | TS0710-6  | 002261 | Air Conditioning System-Miscellaneous Buildings: Inspection and Functional Checks for TSs                                                   | OPEN           | Station       |
| 491 | 73800 | TS0710-7  | 002253 | Air Conditioning System-Miscellaneous Buildings: Replacement of ACU                                                                         | OPEN           | Station       |
| 492 | 73800 | TS0710-8  | 002264 | Air Conditioning System-Miscellaneous Buildings: Control Equipment Under SCI 73940 (RB A/C Systems)                                         | OPEN           | Station       |
| 493 | 73800 | TS0710-9  | 002267 | Air Conditioning System-Miscellaneous Buildings: Replace Obsolete Moisture Transmitters                                                     | OPEN           | Station       |
| 494 | 73800 | TS0710-10 | 002262 | Air Conditioning System-Miscellaneous Buildings: Implement PMIDs for Temperature Controllers                                                | OPEN           | Station       |
| 495 | 73800 | TS0710-11 | 002276 | Air Conditioning System-Miscellaneous Buildings: Digital Output Controller (CI 1/2 Equip Rms)                                               | OPEN           | Station       |
| 496 | 73800 | TS0710-14 | 002285 | Air Conditioning System-Miscellaneous Buildings: Replace/Refurbish Dampers (Contingency)                                                    | OPEN           | Station       |
| 497 | 73800 | TS0710-15 | 002286 | Air Conditioning System-Miscellaneous Buildings: Replace/Refurbish Dampers (Contingency)                                                    | OPEN           | Station       |
| 498 | 73800 | TS0710-16 | 002266 | Air Conditioning System-Miscellaneous Buildings: Replace/Refurbish Dampers (Contingency)                                                    | OPEN           | Station       |
| 499 | 73800 | TS0710-17 | 002274 | Air Conditioning System-Miscellaneous Buildings: Replace/Refurbish Dampers (Contingency)                                                    | OPEN           | Station       |
| 500 | 73800 | TS0710-18 | 002274 | Air Conditioning System-Miscellaneous Buildings: Replace/Refurbish Dampers (Contingency)                                                    | OPEN           | Station       |
| 501 | 73800 | TS0720-1  | 002227 | Miscellaneous Building And Structures Heating And Ventilation: Replace Modulating Dampers for EPS Building                                  | OPEN           | Station       |
| 502 | 73800 | TS0720-2  | 002229 | Miscellaneous Building And Structures Heating And Ventilation: Replace Control Valve                                                        | OPEN           | Station       |
| 503 | 73800 | TS0720-3  | 002233 | Miscellaneous Building And Structures Heating And Ventilation: Replace the Air Intake Balancing Dampers for EPS EWS Control Equipment Rooms | OPEN           | Station       |
| 504 | 73800 | TS0720-4  | 002234 | Miscellaneous Building And Structures Heating And Ventilation: Replace the Fire Dampers Serving the Flammable Storage Area                  | OPEN           | Station       |
| 505 | 73800 | TS0720-5  | 002232 | Miscellaneous Building And Structures Heating And Ventilation: Replace Control Relays                                                       | OPEN           | Station       |
| 506 | 73800 | TS0720-6  | 002238 | Miscellaneous Building And Structures Heating And Ventilation: Replace Transformers on the Power Supply                                     | OPEN           | Station       |
| 507 | 73800 | TS0720-7  | 002982 | Miscellaneous Building And Structures Heating And Ventilation: Position Switches of Fire Dampers and Ventilation Dampers                    | OPEN           | Station       |
| 508 | 73800 | TS0720-8  | 002986 | Miscellaneous Building And Structures Heating And Ventilation: Inspections on Dampers                                                       | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                                                                          | Current Status | Current Owner |
|-----|-------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 509 | 73800 | TS0720-9  | 002986 | Miscellaneous Building And Structures Heating And Ventilation: Replacement of Dampers in Chlorination Room in the WTP (Contingency)                                     | OPEN           | Station       |
| 510 | 73900 | TS0190-3  | 001842 | Darlington HVAC System For Main Control Room & Secondary Control Area: Sample Inspection/Replacement to Quantify Degradations and Determine Scope of Outage Replacement | OPEN           | Station       |
| 511 | 73900 | TS0190-2  | 002396 | Darlington HVAC System For Main Control Room & Secondary Control Area: Inspection and Cleaning of 0-73930-HX4                                                           | OPEN           | Station       |
| 512 | 73900 | TS0190-4  | 001864 | Darlington HVAC System For Main Control Room & Secondary Control Area: 12-year Replacement PM Implemented for the PRV's                                                 | OPEN           | Station       |
| 513 | 73900 | TS0190-5  | 001867 | Darlington HVAC System For Main Control Room & Secondary Control Area: Sample Inspection/Replacement to Quantify Degradations and Determine Scope of Outage Replacement | OPEN           | Station       |
| 514 | 73900 | TS0190-6  | 001878 | Darlington HVAC System For Main Control Room & Secondary Control Area: MV Component Numbers                                                                             | OPEN           | Station       |
| 515 | 73900 | TS0190-8  | 001978 | Darlington HVAC System For Main Control Room & Secondary Control Area: Sample Inspection/Replacement to Quantify Degradations and Determine Scope of Outage Replacement | OPEN           | Station       |
| 516 | 73900 | TS0190-9  | 002240 | Darlington HVAC System For Main Control Room & Secondary Control Area: Return Humidification System Returned to Service                                                 | OPEN           | Station       |
| 517 | 73900 | TS0190-10 | 002396 | Darlington HVAC System For Main Control Room & Secondary Control Area: Humidification System Returned to Service                                                        | OPEN           | Station       |
| 518 | 73900 | TS0190-11 | 002396 | Darlington HVAC System For Main Control Room & Secondary Control Area: Clean/Replace the Listed Heat Exchanger Coil Internals                                           | OPEN           | Station       |
| 519 | 73900 | TS0190-12 | 002407 | Darlington HVAC System For Main Control Room & Secondary Control Area: Replace Electrostatic Precipitator and Add to F1/F2 Maintenance PM Once Installed                | OPEN           | Station       |
| 520 | 73900 | TS0190-13 | 003478 | Darlington HVAC System For Main Control Room & Secondary Control Area: Replacement of All Valve Assemblies During Refurb Outage                                         | OPEN           | Station       |
| 521 | 73900 | TS0190-14 | 001842 | Darlington HVAC System For Main Control Room & Secondary Control Area: Replace Fire Dampers Found Degraded                                                              | OPEN           | Station       |
| 522 | 74000 | TS0640-1  | 000096 | Water Treatment Plant: Inspection of the WTP Structure                                                                                                                  | OPEN           | Station       |
| 523 | 74000 | TS0640-2  | 001187 | Water Treatment Plant: Inspection of 2 Tanks w/4 Immersion Heaters                                                                                                      | OPEN           | Station       |
| 524 | 74000 | TS0640-3  | 001192 | Water Treatment Plant: Replacement of the WTP PLCs for EOL                                                                                                              | OPEN           | Station       |
| 525 | 74000 | TS0640-4  | 001184 | Water Treatment Plant: Replace External Insulation and Inner Rubber Liner in Each of the Three Filters                                                                  | OPEN           | Station       |
| 526 | 74000 | TS0640-5  | 001185 | Water Treatment Plant: Internally Reline Each of the Ion Exchangers                                                                                                     | OPEN           | Station       |
| 527 | 74000 | TS0640-6  | 001196 | Water Treatment Plant: Replace 10 NPS C.S Overhead Exhaust Lines                                                                                                        | OPEN           | Station       |
| 528 | 74000 | TS0640-8  | 001187 | Water Treatment Plant: Replace Immersion Heaters                                                                                                                        | OPEN           | Station       |
| 529 | 75100 | TS0650-4  | 001057 | Compressed Air System: Implement OH180 Recommended Maintenance as per NK38-CORR-60800-0284309                                                                           | OPEN           | Station       |
| 530 | 78000 | TS0660-1  | 000469 | Fire Protection System: Replace the Obsolete Conventional Fire Alarm Panels                                                                                             | OPEN           | Station       |
| 531 | 78300 | TS0660-2  | 000707 | Fire Protection System: Replace Diaphragm of the Foam Concentraet Tanks                                                                                                 | OPEN           | Station       |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                           | Current Status | Current Owner |
|-----|-------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 532 | 79700 | TS0300-1  | 001774 | Replace the Aactive Liquid Waste Collection Tank Liners                                                                  | OPEN           | Station       |
| 533 | 79720 | TS1040-1  | 002077 | Active Liquid Waste System - Part 2: CSA Active Liquid Waste Collection System Pneumatic Valves                          | OPEN           | Station       |
| 534 |       | TS1690-1  | 002608 | Replacement of Power cables for the Service Area Bridges and Carriages                                                   | OPEN           | Station       |
| 535 |       | TS1690-2  | 002609 | Replacement of Signal Cables for the Service Area Bridges and Carriages                                                  | OPEN           | Station       |
| 536 |       | TS1690-3  | 002909 | Replacement of all X and Y drive components for Service Area Bridges and Carriages                                       | OPEN           | Station       |
| 537 |       | TS1690-4  | 003026 | Procurement of 4 spare motors for the Service Area Bridges and Carriages                                                 | OPEN           | Station       |
| 538 |       | TS1690-5  | 002903 | Procurement of 4 spare Ball screw and Jack assemblies for the Reactor Area Bridges                                       | OPEN           | Station       |
| 539 |       | TS1690-6  | 002903 | Procurement of 8 spare Ball Screw and Jack Assemblies for the Service Area Bridges                                       | OPEN           | Station       |
| 540 |       | TS1810-1  | 002257 | Miscellaneous A/C: Create PM for fan function and calibration check                                                      | OPEN           | Station       |
| 541 |       | TS1860-1  | 001008 | Negative Pressure Containment: Piping condition assessment                                                               | OPEN           | Station       |
| 542 |       | TS1910-1  | 001162 | Main HT Hand Controllers                                                                                                 | OPEN           | Station       |
| 543 |       | TS1920-1  | 001258 | Main HT Pump Motor Mount Labyrinth Air Pressure Switches                                                                 | OPEN           | Station       |
| 544 |       | TS1960-1  | 000526 | Service Water: Initiate PM for LPSW Pump Motors                                                                          | OPEN           | Station       |
| 545 |       | TS1980-1  | 000863 | SDS2: Prepare NICR for Conductivity Analyzer                                                                             | OPEN           | Station       |
| 546 |       | TS2000-1  | 002580 | Startup Instrumentation: PE evaluation for alarm module                                                                  | OPEN           | Station       |
| 547 |       | TS2040-1  | 002711 | FH Trolley: Clean, inspect and adjust brakes                                                                             | OPEN           | Station       |
| 548 |       | TS2100-1  | 002749 | IFB: Inspect strainers                                                                                                   | OPEN           | Station       |
| 549 |       | TS2260-1  | 001535 | Inspect nozzles of 0-34330-HX1 and HX2                                                                                   | OPEN           | Station       |
| 550 |       | TS2280-1  | 003085 | DUCTWORK INSPECTION DURING COIL REPLACEMENT                                                                              | OPEN           | Station       |
| 551 | 21000 | TS0120-3  | 000142 | Darlington Airlocks And Transfer Chambers: Replacement of Seals on Emergency Doors                                       | CLOSED         |               |
| 552 | 30000 | TS0880-4  | 001683 | Bundled Commodity Group: Emergency Coolant Injection - Replacement of Temperature Transmitters                           | CLOSED         |               |
| 553 | 31700 | TS0210-12 | 000466 | Negative Pressure Containment: Replacement of All Reactivity Mechanism Deck (RMD) Seals                                  | CLOSED         |               |
| 554 | 31770 | TS0220-16 | 000402 | Darlington Reactor Regulating: Inspection of Worm Gear Boxes                                                             | CLOSED         |               |
| 555 | 32000 | TS1070-2  | 000023 | Moderator and Auxiliaries System - Part 2: Inspection of Manual Valves                                                   | CLOSED         |               |
| 556 | 32000 | TS0880-10 | 000721 | Bundled Commodity Group: Moderator an Auxiliary System - Replace Level Switches                                          | CLOSED         |               |
| 557 | 32000 | TS0880-12 | 000059 | Bundled Commodity Group: Moderator an Auxiliary System - Replace MCR/SCA Hand Switches                                   | CLOSED         |               |
| 558 | 32000 | TS0880-32 | 000104 | Bundled Commodity Group: Moderator Auxiliaries System - Replacement of Pressure Regulating Valve                         | CLOSED         |               |
| 559 | 33000 | TS0880-43 | 001253 | Bundled Commodity Group: Primary Heat Transport Auxiliaries System - Replacement of Hand Switches                        | CLOSED         |               |
| 560 | 33000 | TS0880-46 | 000285 | Bundled Commodity Group                                                                                                  | CLOSED         |               |
| 561 | 33100 | TS0100-3  | 002844 | DNGS Primary Heat Transport Pressure and Inventory Control: One-Time Inspection of Piping System                         | CLOSED         |               |
| 562 | 33100 | TS0090-5  | 001156 | Inspect MOV Inter-Gate Overpressure Lines                                                                                | CLOSED         |               |
| 563 | 33100 | TS0090-15 | 001225 | Contingency - Overhaul/Replace MOVs                                                                                      | CLOSED         |               |
| 564 | 33200 | TS0090-3  | 001276 | Inspect One Representative PHT Purification Strainer                                                                     | CLOSED         |               |
| 565 | 33300 | TS0100-9  | 002844 | DNGS Primary Heat Transport Pressure and Inventory Control: Replacement of Pipe Sections for 33310 - L62, L37, and 33320 | CLOSED         |               |
| 566 | 33300 | TS0100-10 | 000161 | DNGS Primary Heat Transport Pressure and Inventory Control: Replacement of Select AOVs                                   | CLOSED         |               |
| 567 | 33400 | TS0110-4  | 003075 | Inspect Flow Orifices (x28)                                                                                              | CLOSED         |               |
| 568 | 33400 | TS0880-14 | 001479 | Bundled Commodity Group: Shutodwn Cooling System                                                                         | CLOSED         |               |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                                                                                                    | Current Status | Current Owner |
|-----|-------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 569 | 33410 | TS0110-1  | 001465 | Video Inspection of Shell Side                                                                                                                                                                    | CLOSED         |               |
| 570 | 33410 | TS0110-3  | 001468 | Internal Inspection of 4 Representative Check Valves                                                                                                                                              | CLOSED         |               |
| 571 | 33410 | TS0110-14 | 001468 | Contingency for Check Valves                                                                                                                                                                      | CLOSED         |               |
| 572 | 34100 | TS0070-2  | 000860 | Inspect Piping of End Shield Cooling System                                                                                                                                                       | CLOSED         |               |
| 573 | 34100 | TS0070-4  | 000860 | Contingency - Piping Associated with End Shield Cooling                                                                                                                                           | CLOSED         |               |
| 574 | 34200 | TS0210-5  | 000450 | Negative Pressure Containment: Inspection of NVs                                                                                                                                                  | CLOSED         |               |
| 575 | 34200 | TS0210-6  | 000462 | Negative Pressure Containment: Inspection of the Flow Indicator                                                                                                                                   | CLOSED         |               |
| 576 | 34200 | TS0210-7  | 000375 | Negative Pressure Containment: Replace All Type I and II Diaphragms                                                                                                                               | CLOSED         |               |
| 577 | 34200 | TS0210-10 | 003481 | Negative Pressure Containment: Performance Test on Pumps                                                                                                                                          | CLOSED         |               |
| 578 | 34200 | TS0210-11 | 000413 | Negative Pressure Containment: Replacement of O-Ring and Gasket in Vacuum Ducts (VD)                                                                                                              | CLOSED         |               |
| 579 | 34200 | TS0210-14 | 000364 | Negative Pressure Containment: Overhaul Other 2 Pumps (Contingency)                                                                                                                               | CLOSED         |               |
| 580 | 34200 | TS0210-16 | 000370 | Negative Pressure Containment: Overhaul All HXs                                                                                                                                                   | CLOSED         |               |
| 581 | 34200 | TS0210-18 | 003481 | Negative Pressure Containment: Overhaul Pumps Based on Performance Test (Contingency)                                                                                                             | CLOSED         |               |
| 582 | 34200 | TS0880-28 | 000383 | Bundled Commodity Group: Negative Pressure Containment - Replacement Current Alarm Units                                                                                                          | CLOSED         |               |
| 583 | 34200 | TS1390-1  | 000446 | Negative Pressure Containment - Part 2: Replace Handswitches in MCR/SCA                                                                                                                           | CLOSED         |               |
| 584 | 34300 | TS0150-7  | 003491 | Contingency - Check Valves < 3"                                                                                                                                                                   | CLOSED         |               |
| 585 | 34300 | TS0150-15 | 001456 | Contingency - Check Valves > 3"                                                                                                                                                                   | CLOSED         |               |
| 586 | 34320 | TS0150-4  | 001675 | Inspection for All the Junction Boxes of ECI                                                                                                                                                      | CLOSED         |               |
| 587 | 34320 | TS0770-1  | 001696 | ECI Pressure Breakdown Flow Elements                                                                                                                                                              | CLOSED         |               |
| 588 | 34710 | TS0260-1  | 002964 | Shutdown System 2 Process: Perform Video/Visual Inspection on 1-34710-TK4                                                                                                                         | CLOSED         |               |
| 589 | 34800 | TS0200-4  | 000187 | Liquid Zone Control System: Replace 34810-V152 in All Units w/Valve Qualified for Pressure Boundary Use                                                                                           | CLOSED         |               |
| 590 | 34800 | TS0200-5  | 000414 | Liquid Zone Control System: Replace Liquid Zone Units (Contingency)                                                                                                                               | CLOSED         |               |
| 591 | 35100 | TS0380-2  | 002023 | New Fuel Transfer: DC Motor Controllers                                                                                                                                                           | CLOSED         |               |
| 592 | 35100 | TS0380-3  | 002034 | New Fuel Transfer: Cable Carrier Power Cable                                                                                                                                                      | CLOSED         |               |
| 593 | 35100 | TS0380-4  | 002035 | New Fuel Transfer: Cable Carrier Signal Cable                                                                                                                                                     | CLOSED         |               |
| 594 | 35210 | TS0450-1  | 002403 | FM Head: Perform a Fatigue Analysis of the Suspension Assembly                                                                                                                                    | CLOSED         |               |
| 595 | 35210 | TS0450-4  | 002894 | FM Head: Perform an Analysis to Determine if the Operating Cycles are Exceeded                                                                                                                    | CLOSED         |               |
| 596 | 35210 | TS0450-5  | 002371 | FM Head: Cal Facility Electrical Components                                                                                                                                                       | CLOSED         |               |
| 597 | 35210 | TS0450-6  | 002894 | FM Head: Replacement of Pressure Boundary Components of All FM's (Contingency)                                                                                                                    | CLOSED         |               |
| 598 | 35210 | TS0450-7  | 002373 | FM Head: Replace Ancillary Ports Components                                                                                                                                                       | CLOSED         |               |
| 599 | 35210 | TS0450-13 | 002403 | FM Head: Replacement of Suspension Assembly (Contingency)                                                                                                                                         | CLOSED         |               |
| 600 | 35220 | TS0400-1  | 002613 | Reactor and Service Area Bridges and Carriages: Coarse Bridge Motors and Coarse Carriage Motors - Inspection of One Motor (Contingency)                                                           | CLOSED         |               |
| 601 | 35220 | TS0400-2  | 002903 | Reactor and Service Area Bridges and Carriages: Inspection of Ball Screws and Rebuild Jack Assembly                                                                                               | CLOSED         |               |
| 602 | 35220 | TS0400-3  | 002914 | Reactor and Service Area Bridges and Carriages: Obsolescence Investigation and Disassembly of One Speed Reducer                                                                                   | CLOSED         |               |
| 603 | 35220 | TS0400-4  | 002906 | Reactor and Service Area Bridges and Carriages: Fatigue Analysis on Steel Structures of RAB and SAB Columns                                                                                       | CLOSED         |               |
| 604 | 35220 | TS0400-5  | 002909 | Reactor and Service Area Bridges and Carriages: Inspection of RAB Interconnecting Shafts, RAB Column Encoder and X Drive Racks, SAB Column Encoder Racks and Carriage Drive Pinions (Contingency) | CLOSED         |               |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                     | Current Status | Current Owner |
|-----|-------|-----------|--------|--------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 605 | 35220 | TS0400-6  | 002920 | Reactor and Service Area Bridges and Carriages: Replacement of All Pillow Block Bearings in One Unit (Contingency) | CLOSED         |               |
| 606 | 35220 | TS0400-7  | 003026 | Reactor and Service Area Bridges and Carriages: Y Drive SAB Motors; Brakes not Included (Contingency)              | CLOSED         |               |
| 607 | 35220 | TS0400-15 | 002906 | Reactor and Service Area Bridges and Carriages: Steel Structures of RAB and SAB Columns (Contingency)              | CLOSED         |               |
| 608 | 35220 | TS0400-21 | 003026 | Reactor and Service Area Bridges and Carriages: Procure Replacement Motors (Contingency)                           | CLOSED         |               |
| 609 | 35250 | TS0390-1  | 003059 | FH Air Auxiliary: Aftercooler Unit in the Air Auxiliary System (Contingency)                                       | CLOSED         |               |
| 610 | 35250 | TS0390-2  | 003060 | FH Air Auxiliary: Reciever in the Air Auxiliary System (Contingency)                                               | CLOSED         |               |
| 611 | 35250 | TS0390-6  | 003060 | FH Air Auxiliary: Air Receivers (Contingency)                                                                      | CLOSED         |               |
| 612 | 35700 | TS0430-12 | 003082 | FH Trolley: Replace 4 Motors that Drive 4 Shielding Doors in the FFAA Areas                                        | CLOSED         |               |
| 613 | 35700 | TS0430-13 | 002938 | FH Trolley: Inspect all Trolley Drive Wheels, Coarse and Fine Drive Gear Box (Contingency)                         | CLOSED         |               |
| 614 | 35700 | TS0430-20 | 002905 | FH Trolley: Visually Inspect the Coupling Frame Bumper Bars for Wear (Contingency)                                 | CLOSED         |               |
| 615 | 36100 | TS0670-1  | 000595 | Main Steam: Internal Inspection on Non-Return Valve                                                                | CLOSED         |               |
| 616 | 36100 | TS0670-4  | 000595 | Main Steam: Overhaul/Repalce Non-Return Valve                                                                      | CLOSED         |               |
| 617 | 36400 | TS0670-2  | 000593 | Main Steam: Inspection of Steam Generator Containment Isolation PVs                                                | CLOSED         |               |
| 618 | 38300 | TS0290-1  | 001017 | Vapor Recovery: Inspect a Sample of Vapor Recovery Valves                                                          | CLOSED         |               |
| 619 | 38300 | TS1370-1  | 001011 | Vapour Recovery - Part 3: Replace all the Dryers                                                                   | CLOSED         |               |
| 620 | 38300 | TS1370-3  | 001016 | Vapour Recovery - Part 3: Inspect, Test, and Overhaul/Repalce AOVs                                                 | CLOSED         |               |
| 621 | 41800 | TS0680-2  | 003479 | Moisture Separator Reheater: Internal Inspection of Two Moisture Separator Drain NVs                               | CLOSED         |               |
| 622 | 41800 | TS0680-3  | 000574 | Moisture Separator Reheater: Internal Inspection of One Strainer per Unit                                          | CLOSED         |               |
| 623 | 41800 | TS0680-5  | 000584 | Moisture Separator Reheater: Replace Manual Valves (Contingency)                                                   | CLOSED         |               |
| 624 | 41800 | TS0680-7  | 003479 | Moisture Separator Reheater: Extend Scope of Inspection of NVs and Repair as Required                              | CLOSED         |               |
| 625 | 41800 | TS0680-8  | 000574 | Moisture Separator Reheater: Expand Scope of Strainers to Include Inspection of the Other Strainer                 | CLOSED         |               |
| 626 | 41800 | TS0680-9  | 000584 | Moisture Separator Reheater: Expand Scope of Valve Replacement                                                     | CLOSED         |               |
| 627 | 43000 | TS0590-4  | 000755 | Boiler Feedwater System: Internatl Inspection of MOVs (Contingency)                                                | CLOSED         |               |
| 628 | 43000 | TS0590-7  | 000871 | Boiler Feedwater System: Internal Inspection of Manual Bypass Valves (Contingency)                                 | CLOSED         |               |
| 629 | 43000 | TS0590-8  | 000893 | Boiler Feedwater System: Internal Inspection of Manual Gate Valves (Contingency)                                   | CLOSED         |               |
| 630 | 43000 | TS0590-14 | 003194 | Boiler Feedwater System: Internal Inspection of Internal NVs                                                       | CLOSED         |               |
| 631 | 43000 | TS0590-24 | 000893 | Boiler Feedwater System: Manual Gate Valves                                                                        | CLOSED         |               |
| 632 | 43000 | TS0590-26 | 003194 | Boiler Feedwater System: Refurbishment/Replacements of 43000-NVs (RS)                                              | CLOSED         |               |
| 633 | 43000 | TS0590-30 | 000755 | Boiler Feedwater System: Replace Obsolete Guelph Engineering Valve Bodies/Yokes                                    | CLOSED         |               |
| 634 | 43000 | TS0880-11 | 000678 | Bundled Commodity Group: Boiler Feedwater System                                                                   | CLOSED         |               |
| 635 | 43000 | TS0880-16 | 000677 | Bundled Commodity Group: Boiler Feedwater System (SGECS) - Replacement of MCR and SCA Hand Switches                | CLOSED         |               |
| 636 | 43000 | TS0880-45 | 000687 | Bundled Commodity Group: Boiler Feedwater System (SGECS) - Replacement of Analog Position Transmitter              | CLOSED         |               |
| 637 | 44000 | TS0610-15 | 002870 | Main Condensate System: Vacuum Breaker Valves                                                                      | CLOSED         |               |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                                    | Current Status | Current Owner |
|-----|-------|-----------|--------|-------------------------------------------------------------------------------------------------------------------|----------------|---------------|
| 638 | 44000 | TS0610-21 | 002444 | Main Condensate System: Repalcement of all Heater Gaskets (Contingency)                                           | CLOSED         |               |
| 639 | 44300 | TS0610-14 | 001498 | Main Condensate System: Replacement of Lube Oil Coolers for CEP Motors                                            | CLOSED         |               |
| 640 | 48100 | TS1080-1  | 000585 | Moisture Separator Reheater - Part 2: Inspection of Each Moisture Separator Reheater MOV Type                     | CLOSED         |               |
| 641 | 48100 | TS1080-4  | 000585 | Moisture Separator Reheater - Part 2: Overhaul/Replace Isolation Valves (Contingency)                             | CLOSED         |               |
| 642 | 50000 | TS0980-1  | 002050 | Low and Medium Voltage Cables Replacement: Assess Potential Locations                                             | CLOSED         |               |
| 643 | 50310 | TS0530-3  | 000144 | Darlington Class I Power: Replace DSBYS Based on Inspection Results (Contingency)                                 | CLOSED         |               |
| 644 | 50340 | TS0560-1  | 000201 | Class IV Power System: Replace Corroded Blocking Switches on All 4 Units                                          | CLOSED         |               |
| 645 | 50340 | TS0560-7  | 000201 | Class IV Power System: Replace All Blocking Switches                                                              | CLOSED         |               |
| 646 | 51000 | TS0880-7  | 001318 | Bundled Commodity Group: Main Power Output System - Replacement of all 600 Volt Fuses on the VTs                  | CLOSED         |               |
| 647 | 51500 | TS0570-2  | 001292 | Main Power Output System: Replace all De-Ionizing Grids on the Isolated Phase Bus                                 | CLOSED         |               |
| 648 | 51500 | TS0570-4  | 001301 | Main Power Output System: Replace Entire Cooling Control System on the MOT, UST and SST transformers              | CLOSED         |               |
| 649 | 51500 | TS0570-18 | 001292 | Main Power Output System: Replace Surge Arrestors                                                                 | CLOSED         |               |
| 650 | 53000 | TS0880-38 | 003044 | Bundled Commodity Group: Emergency Power System - Replacement of Hand Switches                                    | CLOSED         |               |
| 651 | 53500 | TS0540-3  | 000048 | Class II Power System: Obtain Loading Data for Item (4) Tranformers                                               | CLOSED         |               |
| 652 | 53500 | TS0540-4  | 000048 | Class II Power System: Replace Item (4) Transformers                                                              | CLOSED         |               |
| 653 | 55400 | TS0530-1  | 000144 | Darlington Class I Power: Physical Examination of DSBYS                                                           | CLOSED         |               |
| 654 | 63106 | TS0130-2  | 002854 | Replacement of All FINCH Venturi Flow Elements                                                                    | CLOSED         |               |
| 655 | 63500 | TS0420-16 | 003083 | FH Control: Replacement of the FH ACE System and Associated Components and Cables                                 | CLOSED         |               |
| 656 | 63700 | TS0220-1  | 000308 | Darlington Reactor Regulating: Inspection of the Spiroid Gear Set                                                 | CLOSED         |               |
| 657 | 63700 | TS0220-2  | 000402 | Darlington Reactor Regulating: Replace Gear Boxes Based on Results of D1111 (Contingency)                         | CLOSED         |               |
| 658 | 63700 | TS0220-13 | 000308 | Darlington Reactor Regulating: Replace Spiroid Gear Set (Contingency)                                             | CLOSED         |               |
| 659 | 63700 | TS0220-4  | 000308 | Darlington Reactor Regulating: Review the Phase I Outputs of COG Project on Clandria Vessels                      | CLOSED         |               |
| 660 | 63700 | TS0220-6  | 000308 | Darlington Reactor Regulating: Replace Adjuster Rods Sealant and Seals                                            | CLOSED         |               |
| 661 | 63700 | TS0220-8  | 000402 | Darlington Reactor Regulating: Replace All O-Ring                                                                 | CLOSED         |               |
| 662 | 63700 | TS0220-9  | 000402 | Darlington Reactor Regulating: Replace Control Absorber Rods Seals                                                | CLOSED         |               |
| 663 | 63700 | TS0220-12 | 000412 | Darlington Reactor Regulating: Replace All Electronic Amplifiers for Both In-Core Flux Detectors and Ion Chambers | CLOSED         |               |
| 664 | 63700 | TS0220-14 | 000308 | Darlington Reactor Regulating: Review the Phase I Outputs of COG Project                                          | CLOSED         |               |
| 665 | 66100 | TS0370-2  | 001212 | Legacy HFE Issues in the MCR                                                                                      | CLOSED         |               |
| 666 | 68000 | TS0350-9  | 003444 | Replacement of the SDS2 Trip Computer (Item #1)                                                                   | CLOSED         |               |
| 667 | 68000 | TS0350-10 | 003446 | Replacement of the SDS2 Trip Computer (Item #1)                                                                   | CLOSED         |               |
| 668 | 68000 | TS0350-11 | 003447 | Replacement of the SDS2 Trip Computer (Item #1)                                                                   | CLOSED         |               |
| 669 | 68000 | TS0350-12 | 003449 | Replacement of the SDS2 Trip Computer (Item #1)                                                                   | CLOSED         |               |
| 670 | 68000 | TS0350-13 | 003450 | Replacement of the SDS2 Trip Computer (Item #1)                                                                   | CLOSED         |               |
| 671 | 68000 | TS0350-14 | 003451 | Replacement of the SDS2 Trip Computer (Item #1)                                                                   | CLOSED         |               |
| 672 | 68000 | TS0350-15 | 003453 | Replacement of the SDS2 Trip Computer (Item #1)                                                                   | CLOSED         |               |
| 673 | 68000 | TS0350-16 | 003454 | Replacement of the SDS2 Trip Computer (Item #1)                                                                   | CLOSED         |               |
| 674 | 68000 | TS0350-17 | 003455 | Replacement of the SDS2 Trip Computer (Item #1)                                                                   | CLOSED         |               |
| 675 | 68000 | TS0350-18 | 003456 | Replacement of the SDS2 Trip Computer (Item #1)                                                                   | CLOSED         |               |

### CCA Field Activities

|     | SCI   | DSR       | CCA    | Field Activity                                                                                     | Current Status | Current Owner |
|-----|-------|-----------|--------|----------------------------------------------------------------------------------------------------|----------------|---------------|
| 676 | 68200 | TS0240-1  | 002037 | Replacement of Instrument Lines during Refurbishment                                               | CLOSED         |               |
| 677 | 68200 | TS0240-6  | 000776 | Shutdown System 1 Process: Replace all Rod Ready Switches                                          | CLOSED         |               |
| 678 | 68200 | TS0240-8  | 000766 | Shutdown System 1 Process: Replace Flux Detector Amplifiers                                        | CLOSED         |               |
| 679 | 68300 | TS0260-9  | 002964 | Shutdown System 2 Process: Repalce 34710-TK4 (Contingency)                                         | CLOSED         |               |
| 680 | 68300 | TS0260-2  | 000861 | Shutdown System 2 Process: Replace all SDS2 Orifice Flow Elements                                  | CLOSED         |               |
| 681 | 68300 | TS0260-5  | 003037 | Shutdown System 2 Process: Recommended Actions of SDS2 Intrument Tubing                            | CLOSED         |               |
| 682 | 68300 | TS0260-6  | 000886 | Shutdown System 2 Process: Replacement of All SDS2 Ion Chamber Detectors                           | CLOSED         |               |
| 683 | 69000 | TS0360-10 | 003463 | Misc Computor Equipment (Item #1)                                                                  | CLOSED         |               |
| 684 | 69000 | TS0360-11 | 003464 | Misc Computor Equipment (Item #1)                                                                  | CLOSED         |               |
| 685 | 69000 | TS0360-12 | 003465 | Misc Computor Equipment (Item #1)                                                                  | CLOSED         |               |
| 686 | 69000 | TS0360-13 | 003466 | Misc Computor Equipment (Item #1)                                                                  | CLOSED         |               |
| 687 | 69000 | TS0360-14 | 003467 | Misc Computor Equipment (Item #1)                                                                  | CLOSED         |               |
| 688 | 69000 | TS0360-15 | 003468 | Misc Computor Equipment (Item #1)                                                                  | CLOSED         |               |
| 689 | 69000 | TS0360-16 | 003469 | Misc Computor Equipment (Item #1)                                                                  | CLOSED         |               |
| 690 | 71000 | TS0600-6  | 000910 | Circulating Water System: Screen Wash Pumps (Contingency)                                          | CLOSED         |               |
| 691 | 71000 | TS0600-7  | 000972 | Circulating Water System: Vacuum Priming Tanks                                                     | CLOSED         |               |
| 692 | 71000 | TS0600-9  | 000999 | Circulating Water System: CD Waterbox Isolation MOVs                                               | CLOSED         |               |
| 693 | 71000 | TS0600-11 | 000916 | Circulating Water System: Replace Vacuum Priming Pumps (Contingency)                               | CLOSED         |               |
| 694 | 72000 | TS0880-13 | 000517 | Bundled Commodity Group: Recirculating Cooling Water System                                        | CLOSED         |               |
| 695 | 72100 | TS0630-10 | 000609 | Service Water System: Overhaul/Replacement of Screens (Contingency)                                | CLOSED         |               |
| 696 | 72800 | TS0180-3  | 002032 | Perform an Internal Inspection of ESW Piston Check Valves                                          | CLOSED         |               |
| 697 | 73720 | TS0280-5  | 002209 | Reactor Vault And Fuelling Duct Atmosphere Cooling: Rebuild all Dampers                            | CLOSED         |               |
| 698 | 73720 | TS0280-7  | 002192 | Reactor Vault And Fuelling Duct Atmosphere Cooling: Install Chillers for LPSW to the Vault Coolers | CLOSED         |               |
| 699 | 75100 | TS0650-1  | 001089 | Compressed Air System: Repalce Breathing Air System NVs                                            | CLOSED         |               |
| 700 | 75100 | TS0650-2  | 002429 | Compressed Air System: Repalce Dryers                                                              | CLOSED         |               |
| 701 | 79700 | TS0310-1  | 001778 | Internal Inspection of ALW Ion Exchange Columns                                                    | CLOSED         |               |
| 702 | 79700 | TS0310-2  | 001779 | Perform Internal Inspection of ALW Filtration                                                      | CLOSED         |               |
| 703 | 79700 | TS1040-3  | 001573 | Active Liquid Waste System - Part 2: Repalce the ALW PV Solenoid Valves                            | CLOSED         |               |
| 704 |       | TS1380-1  | 000446 | BUNDLED COMMODITY - PART 2                                                                         | CLOSED         |               |

## UNDERTAKING JT2.8

### Undertaking

To provide, on a confidential basis, the calculation that resulted in a 5 percent reduction in contingency in the response to Board Staff interrogatory 31(b).

### Response

Please refer to page 34, Table C1 and pages 36 - 38 of OPG's Confidential Filing of Ex. D-2-2-1, Attachment 5. Table C1 shows that the contingency amount in the 2009 BCS was [REDACTED] (2013\$) and in the 2013 BCS was [REDACTED] (2013\$). Subtracting the two numbers yields a difference of [REDACTED] which when divided by the original [REDACTED] yields a difference of [REDACTED]

More detail on the contributors to the contingency amounts in the 2013 BCS can be found on page 37, Table C3 of OPG's Confidential Filing of Ex. D-2-2-1, Attachment 5, and, for the 2009 BCS on page 27, Table 2 of OPG's Confidential filing of Ex. D-2-2-1, Attachment 4, filed in EB 2010-008. Comparing the 2009 contingency amounts (converted to 2013\$) and the 2013 contingency amounts allocated to each of the categories, the following is noted:

- Cost Estimate Uncertainty declined by [REDACTED] (2013\$) or almost [REDACTED] as would be expected, because of increasing certainty in the estimates as progress in issuing contracts and other estimate development progresses in the definition phase.
- Contingent Work, which in the 2009 BCS was labeled "Potential Scope Increase due to ISR, EA Gaps, and Other Regulatory", has remained virtually unchanged, i.e., a very slight decline of [REDACTED] or [REDACTED]. While significant certainty has been gained in ISR, EA and Other Regulatory scope, the detailed development of the scope during the definition phase has resulted in many additional items of contingent work being identified and probabilities being assigned to this work. Some of this contingent work is dependent on the completion of inspections in the pre-refurbishment period in order to confirm whether the scope will or will not need to be executed during refurbishment.
- Labour and Materials Uncertainty increased by [REDACTED] (2013\$) or [REDACTED]. While OPG has staffed up its Program Support and Program Management functions, experience to date with certain of the contractors has been that there is severe competition for qualified resources, most acutely felt currently in the engineering disciplines. The publication of the LTEP and the potential that Bruce Power may be refurbishing Bruce Units 4, 3 and 5 in parallel with the Darlington Refurbishment indicates a potential for this severe competition for qualified resources to continue.

- 1 • Discrete Risks Contingency has increased by [REDACTED] (2013\$) or [REDACTED] This is  
2 because of two primary factors:  
3
  - 4 ○ As the Definition Phase has progressed, there has been a significant increase in  
5 the level of detailed risk identification and assessment, in particular for the major  
6 contracts such as Re-tube and Feeder Replacement, Steam Generator, Turbine  
7 Generator, Fuel Handling and Defueling. This is a normal expectation during a  
8 project's development cycle. It would be expected that some portion of these  
9 Discrete Risks would be mitigated or eliminated as the definition phase progress.  
10
  - 11 ○ Between 2009 and 2013, OPG reclassified the risks associated with the costs of  
12 OPG work in support of the project scope from cost estimate uncertainty to  
13 Discrete Risks. This second change accounts for the majority of the increase in  
14 Discrete Risks.  
15
- 16 • Schedule Uncertainty has decreased by [REDACTED] (2013\$) or [REDACTED] This is because of  
17 increasing certainty about the duration, particularly higher certainty about the critical  
18 path work as a result of further project definition.

**UNDERTAKING JT2.9**

**Undertaking**

To confirm whether a breakout of contingencies, management reserve, interest and escalation from the total Darlington budget is shown in the business case, and if not, to make best efforts to provide it.

**Response**

OPG confirms that the \$10B (2013\$) high confidence estimate includes the Contingency and Risk Amounts Total of [REDACTED] (2013\$) at the 90% confidence level as shown in Table C3 on page 37 of the Confidential Filing of Ex. D-2-2-1, Attachment 5. As can also be seen on page 34 of the Confidential Filing of Ex. D-2-2-1, Attachment 5, the total (90% confidence) estimate, including contingency is [REDACTED] OPG considers the additional [REDACTED] (2013\$) difference between [REDACTED] and \$10B to be management reserve.

OPG confirms that the business case also includes interest and escalation. Please refer to the response to interrogatory L-47-6 ED-005. Information on interest and escalation included in the estimate is also provided in Ex. D-2-2-1, Attachment 5, page 34.

## UNDERTAKING JT2.10

### Undertaking

To provide a version of the table in response to CCC interrogatory 20 showing regulated operations only.

### Response

The correct reference is to the table in response to CCC 22 (Ex. L-6.8-4 CCC-022). Ex. L-6.8-4 CCC-022 shows the calculation of the estimated \$700M savings resulting from the headcount reduction target of 2,000 employees, for all of OPG, by the end of the test period.

A version of the Ex. L-6.8-4 CCC-022 table based on the target reduction of 1,300 employees by the end of the test period applicable to regulated operations only is shown below.

|                      | <b>Actual</b> |             | <b>BP 2013 - 2015</b> |             |             |              |
|----------------------|---------------|-------------|-----------------------|-------------|-------------|--------------|
|                      | <b>2011</b>   | <b>2012</b> | <b>2013</b>           | <b>2014</b> | <b>2015</b> | <b>Total</b> |
| Headcount reductions | 328           | 368         | 124                   | 249         | 223         | <b>1,292</b> |
| <b>(\$M)</b>         |               |             |                       |             |             |              |
| 2011 Savings         | 25            | 51          | 51                    | 51          | 51          | <b>229</b>   |
| 2012 Savings         |               | 26          | 52                    | 52          | 52          | <b>181</b>   |
| 2013 Savings         |               |             | 14                    | 29          | 29          | <b>72</b>    |
| 2014 Savings         |               |             |                       | 21          | 41          | <b>62</b>    |
| 2015 Savings         |               |             |                       |             | 19          | <b>19</b>    |
| <b>Total</b>         | <b>25</b>     | <b>77</b>   | <b>117</b>            | <b>152</b>  | <b>191</b>  | <b>562</b>   |

Under the BT initiative, OPG has a staff reduction target of approximately 1,300 employees for the regulated operations by the end of 2015 (excluding DRP and new nuclear). The estimated cost savings are approximately \$152M and \$191M in the test period and the corresponding headcount reductions are 249 and 223 respectively.

**UNDERTAKING JT2.11**

**Undertaking**

To identify the changes to survey methodology made as a result of stakeholder input between the first and last surveys.

**Response**

Ex. L-6.8-17 SEC 114 provided the following link to information regarding the Terms of Reference and stakeholder consultations:

<http://www.opg.com/about/regulatory-affairs/stakeholder-information/Pages/payment-amounts.aspx>

At that link, under the headings, “OPG Application for 2013 - 2014 Payment Amounts” and “Stakeholder Comments”, the document *Response to Stakeholder Comments* lists stakeholder comments on the Terms of Reference for the study and Aon’s response.

As can be seen from that document, there were only minor changes made to the terms of reference in response to stakeholder comments. These changes are identified in Section 2.6 on page 5 and in Section 3.6 on page 8 of that document.

**UNDERTAKING JT2.12**

**Undertaking**

To explain why the review of pension and benefits plans has no impact on amounts requested for the test period.

**Response**

The review referred to was originally requested in Ex L-6.8-17 SEC 118. It is provided as Attachment 1 to this undertaking response.

# Ontario Power Generation

## CHRC Briefing

**December 14, 2011**

This record (as that term is defined in the Freedom of Information and Protection of Privacy Act (Ontario)) is or was prepared, maintained or used by or on behalf of OPG in relation to: (a) meetings, consultations, discussions or communications about labour relations or employment-related matters in which OPG has an interest; and/or (b) negotiations or anticipated negotiations relating to labour relations or to the employment of a person by OPG between OPG and a person or a bargaining agent. In addition, this record contains: (a) positions, plans, procedures, criteria or instructions to be applied to any negotiations carried on or to be carried on by or on behalf of OPG; and/or (b) plans relating to the management of personnel or the administration of OPG that have not yet been put into operation or made public.

**TOWERS WATSON** 

## Executive Summary

- The analysis confirms the belief and quantifies the extent to which OPG's P&B plans are unsustainable
  - Under the status quo the threshold levels for all metrics chosen to assess sustainability are exceeded
- Initial set of six interventions analyzed have potential to provide significant financial benefit (growing to roughly 3% of Gross Revenue; \$1.3B cumulative over 15 years) but do not move P&B plans to a fully sustainable position
  - Three interventions are within management control and are being pursued for implementation through the BTS
  - Further three interventions requiring negotiation are being used to influence labour negotiation strategies
  - Beneficial effect of additional interventions identified by the work teams are being evaluated
- Consistent with prior CHRC discussions, significant changes to P&B design and program management will be required to improve sustainability
  - Long term strategy will require aggressive pursuit of significant design changes through a variety of channels, supported by critical cost reduction approaches through plan management

# Pension and Benefit Sustainability Project Update

## ● Overview

- 5 Work Teams: Program Design, Program Management, Business Model, Stakeholder Management and Sustainability
- Programs in scope: Registered Pension Plan, Supplemental Pension Plan, Active Benefits and Post-Retirement Benefits

## ● Work Completed

- Developed a stochastic financial model to assess current state
- Defined a set of measures and thresholds against which to evaluate and monitor sustainability
- Considered business impact of exceeding the thresholds
- Obtained feedback and positioning from work teams and project sponsors
- Assessed impact on sustainability of a set of potential program interventions
  - Integrating implementation of program management interventions into related Business Transformation Strategy (BTS) initiatives
  - Using program design interventions that require negotiated solutions to influence Labour strategies

## Defining “Sustainability” Measures and Thresholds

The following financial metrics were determined to be the most appropriate, most transparent and comparable to available benchmarks:

### 1 P&B Cash should not exceed 10% of Gross Revenue

\$1 of Gross Revenue (less Fuel)

- Cost of P&B trending well above upper threshold and further increases must be limited
- Significant P&B cash requirements is drawing funds away from core business needs

### 2 P&B Cash should not exceed 40% of Operating Cash Flow before CapEx <sup>(1)</sup>

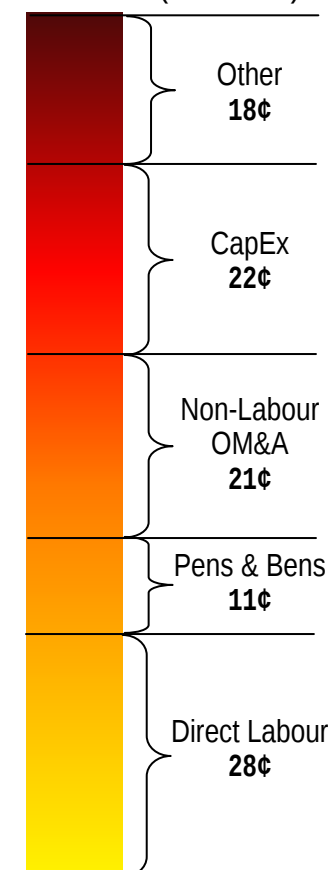
- Cannot allow P&B cash requirements to impair CapEx spend; tested on a three-year average to allow for ebbs and flows in business financials
- 40% is an upper end limit – external proxy analysis indicates majority of companies in lower range of 5% to 40% (OPG cash requirements currently above 50%)

### 3 P&B Expense should not exceed 35% of EBIT <sup>(1)</sup>

- P&B expense is currently well above 35%, but expected to decline to 30-35%
- 35% selected as upper end limit based on current business plan approach

### 4 P&B Expense should not exceed \$50K per active employee (constant 2011 \$)

- From stakeholder (OEB, public, union, employee) perspectives, an easy-to-follow metric
- Management of per capita P&B costs may be a critical means of demonstrating progress
- \$50,000 selected as a level in line with current costs and as a point where further increases in average costs would be viewed adversely by broader publics (OPG has crossed \$50,000)
- Additional metrics defined which may be used to better illustrate sustainability thresholds depending on stakeholder audience provided in Appendix A



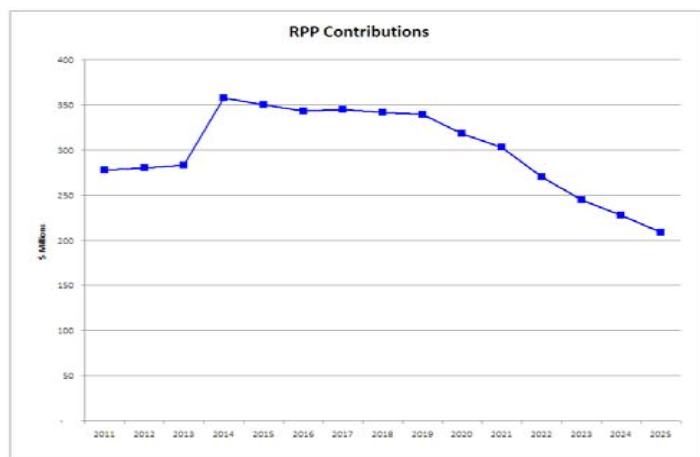
2010

#### Notes:

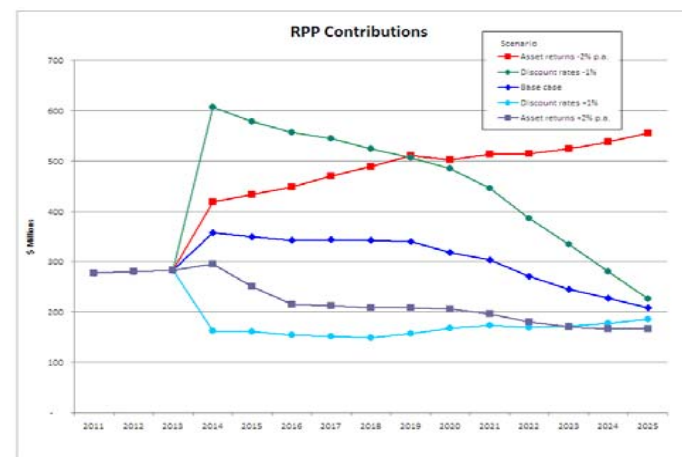
<sup>(1)</sup> For purposes of the P&B Review, the terms “Operating Cash Flow Before CapEx” and “EBIT” above are determined before the direct financial effect of the P&B program costs (that is, they represent the value in the absence of P&B plans) – in OPG financials, these values are determined after adjusting for P&B program costs.

# Approach to Building Stochastic Projection Model

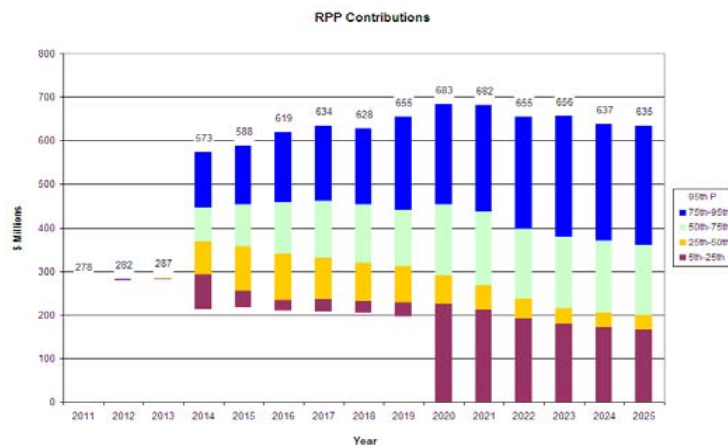
## Basic Deterministic Pension Model (Business Plan)



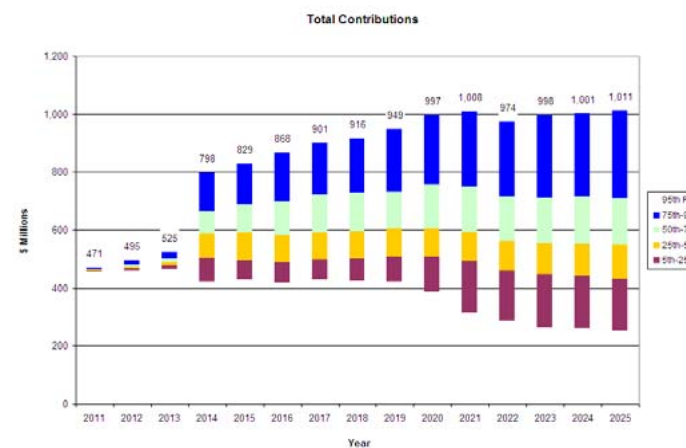
## Alternative Deterministic Pension Scenarios



## Stochastic Pension Forecast

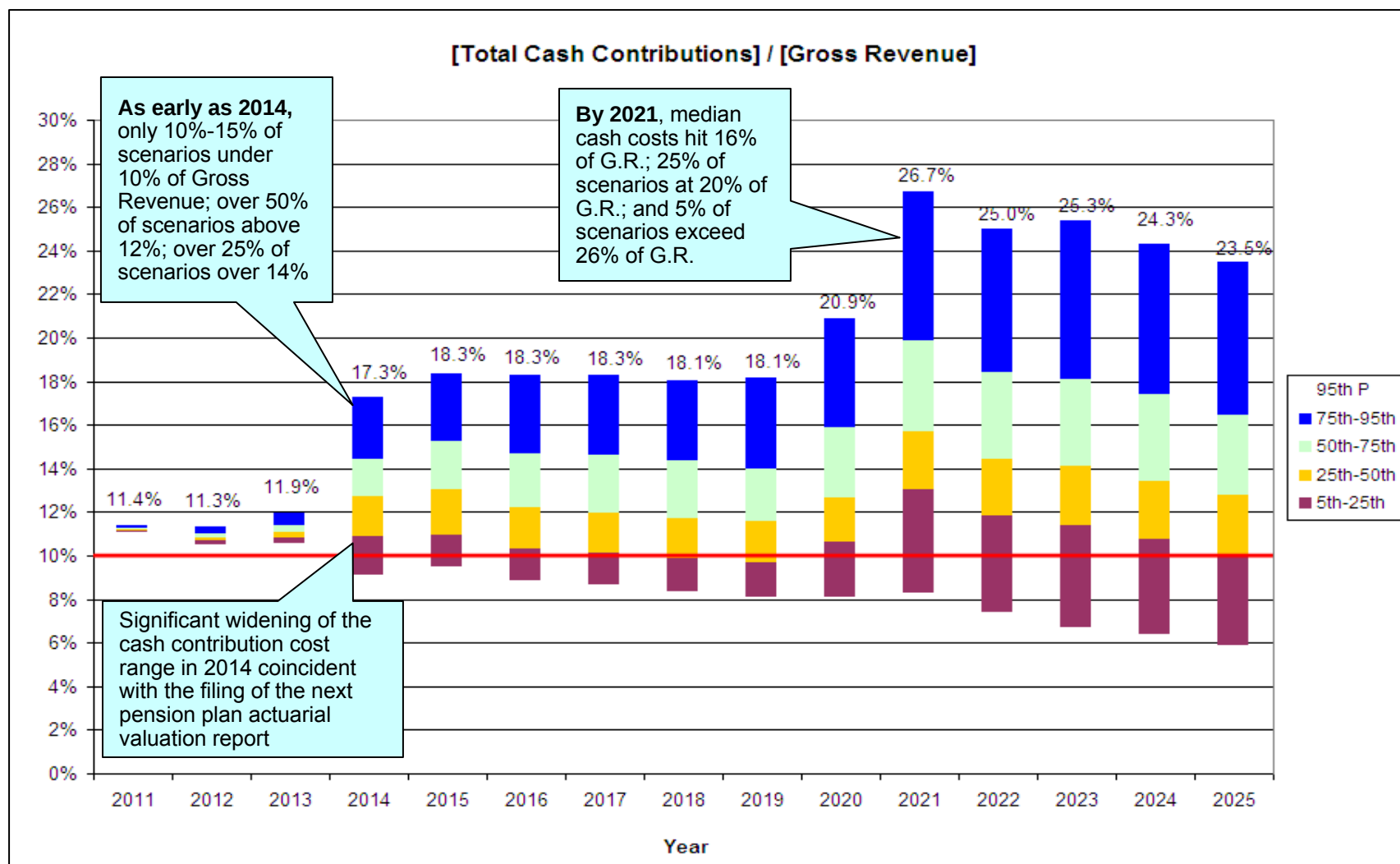


## Extend Stochastic Forecast to All P&B Programs



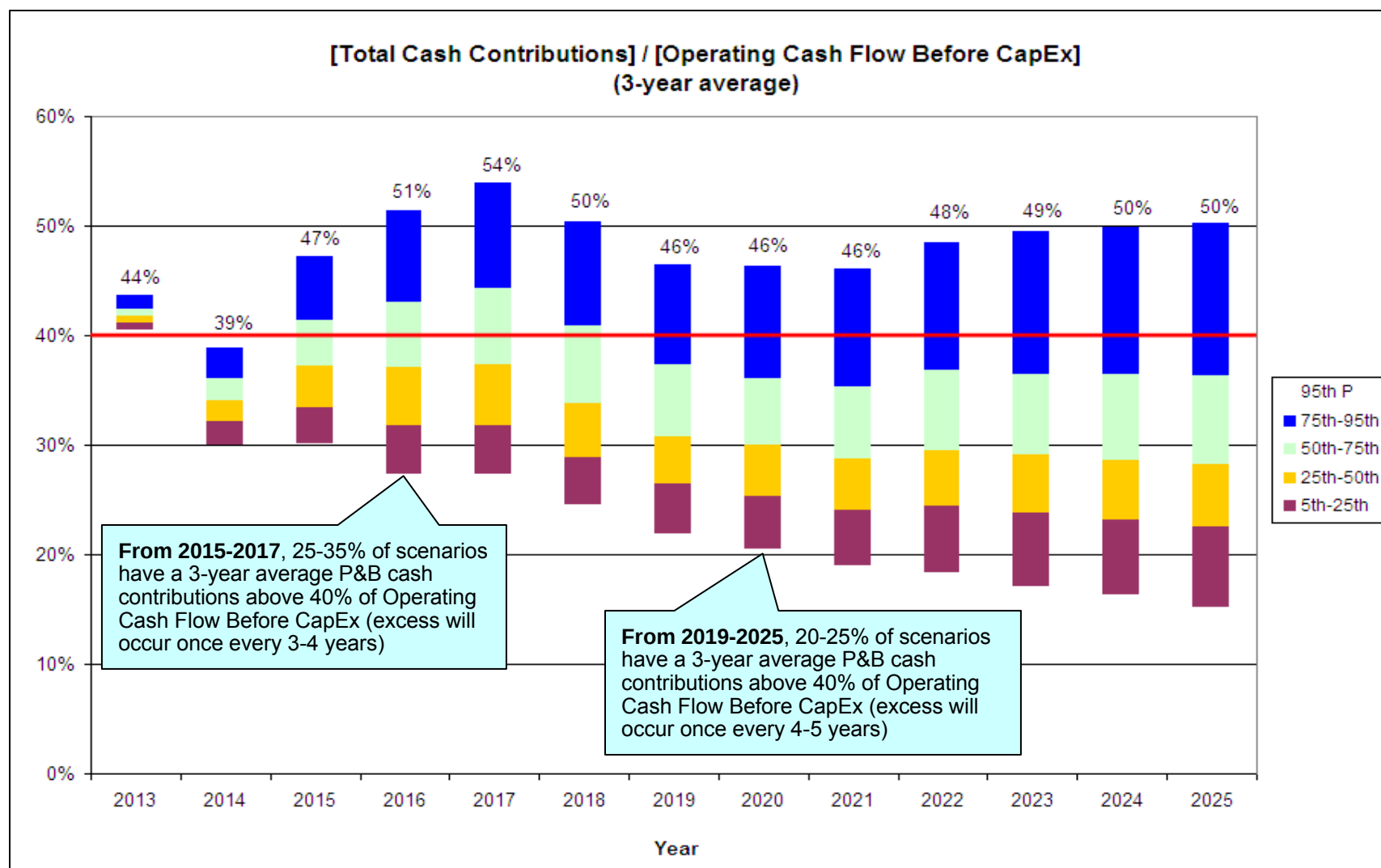
## Metric #1 – P&B Cash Should Not Exceed 10% of Gross Revenue

- Starting in 2014 (after next pension valuation), more than 75% of scenarios show cash contribution requirements above 10% of gross revenue each year



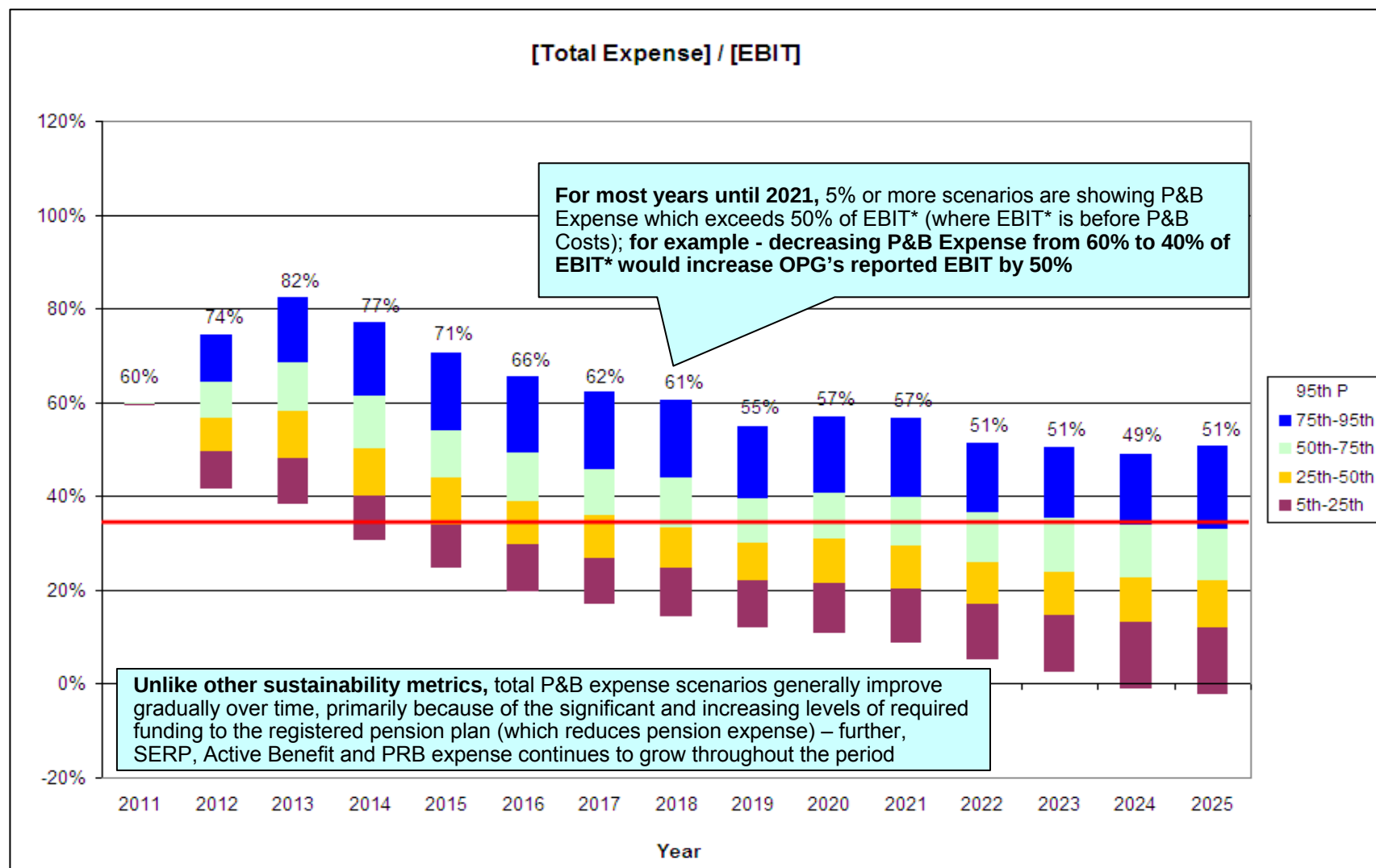
## Metric #2 – P&B Cash Should Not Exceed 40% of Operating Cash Flow Before CapEx

- Cash contributions represents over 40% of Operating Cash Flow before CapEx in 20-35% of scenarios for entire projection period



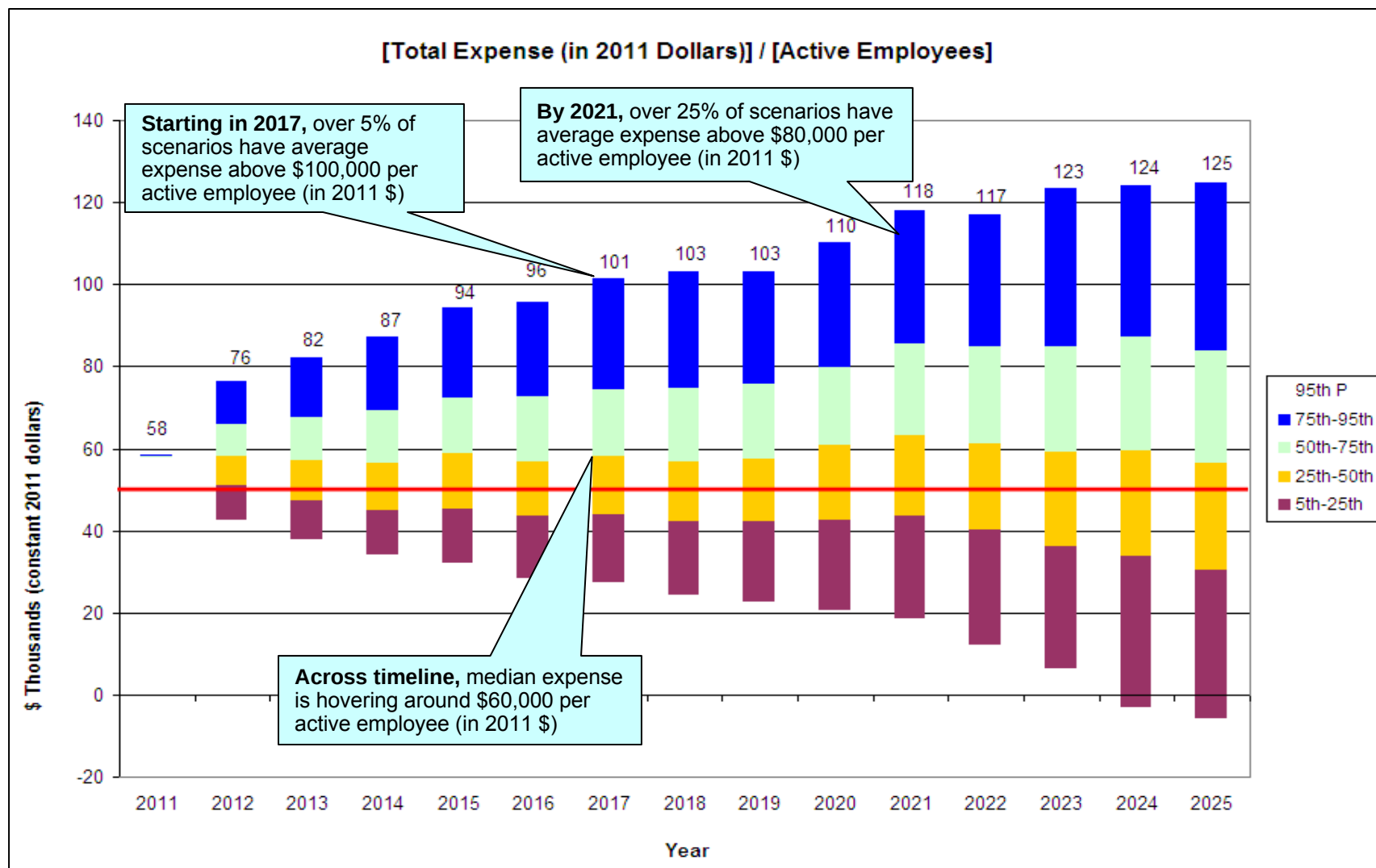
### Metric #3 – P&B Expense Should Not Exceed 35% of EBIT

- Projected ratio of P&B expense to EBIT is expected to gradually reduce over time, primarily due to significant contributions to pension plan



## Metric #4 – P&B Expense Should Not Exceed \$50K Per Active Employee (const. 2011 \$)

- Median per capita expense stays at \$60,000 for projection period, with 25% of scenarios having per capita expense above \$80,000 (constant 2011 dollars)



## Business Alternatives if Cost Thresholds Exceeded

- Non-P&B alternatives to address financial shortfalls were reviewed and found to be insufficient – certain options may provide short-term tactical relief

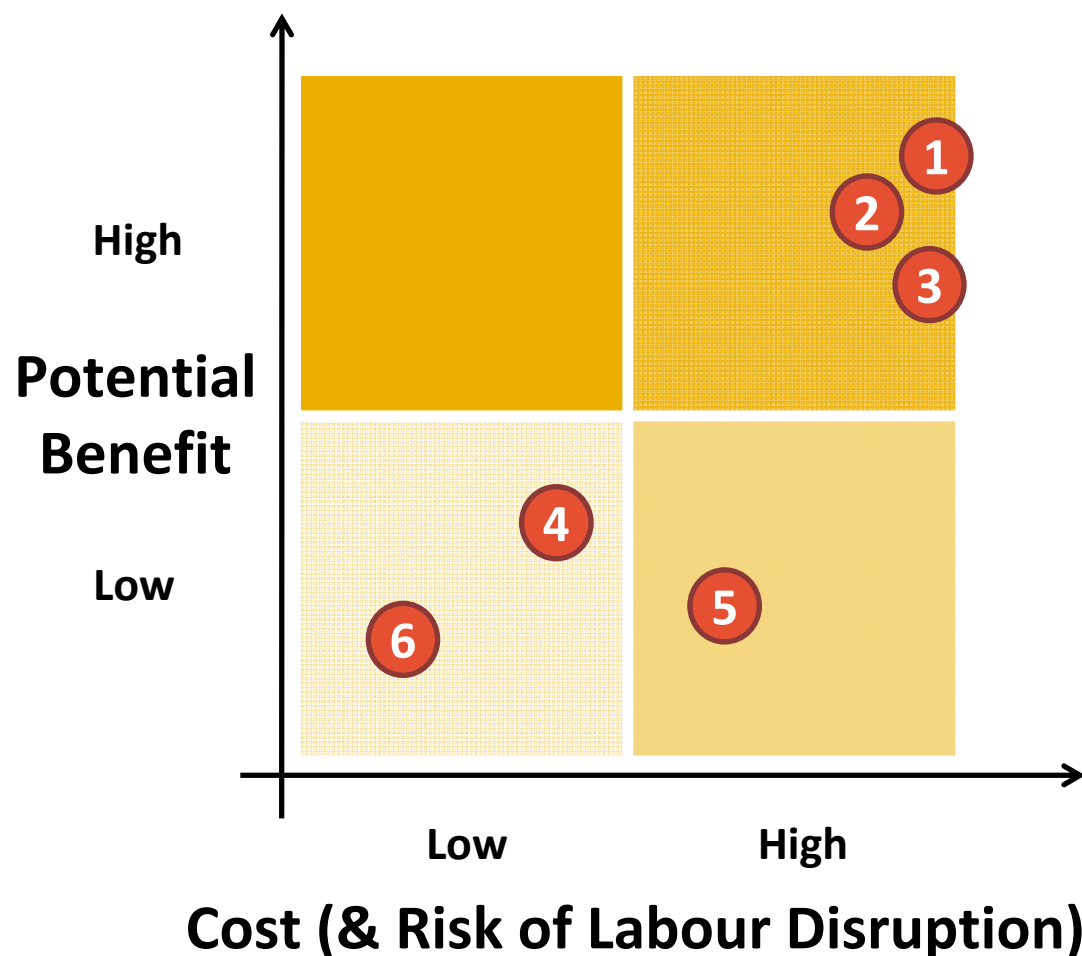
| Alternative                                         | Assessment/Impact on OPG's Business                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reduce Capital Expenditures                         | <ul style="list-style-type: none"> <li>• CapEx includes sustaining and developmental expenditures (other than significant builds/refurbishments) – reductions would impair future power generation and/or value of OPG assets; not viable to reduce CapEx and deliver on OPG business strategy</li> <li>• Supplemental CapEx funds would require OEB approval (cost borne by rate payers)</li> </ul>                                                                                     |
| Obtain Additional Capital via Shareholder           | <ul style="list-style-type: none"> <li>• Notwithstanding a common belief by many employees and other stakeholders that the government will backstop all financial shortfalls at OPG, Ontario government has provided no explicit commitment for any such funding</li> </ul>                                                                                                                                                                                                              |
| Increase Level Of External Financing                | <ul style="list-style-type: none"> <li>• Potential adverse implications on OPG's credit rating (and total cost of credit)</li> <li>• Credit rating agencies would expect increased levels of Free Cash Flow to maintain higher coverage ratios and support higher debt servicing costs (not in current OPG business plan)</li> </ul>                                                                                                                                                     |
| Earn Better Fund Returns / Revise Pension Asset Mix | <ul style="list-style-type: none"> <li>• Market movements and/or significant correction will not provide sustained financial support</li> <li>• Asset mix changes to generate higher expected returns would significantly increase risk/volatility</li> <li>• Incremental fund returns provides no relief for SERP, PRB and Active Benefits</li> </ul>                                                                                                                                   |
| Implement Workforce Reduction                       | <ul style="list-style-type: none"> <li>• Longer term cash costs and expense can be reduced with reduced headcount; however, implementation costs usually exceed savings in the first year or two years</li> <li>• Reduction programs constrained by collective bargaining agreements</li> <li>• Limitation to total cost savings which can be achieved by workforce reduction before business is impaired (reduction of headcount in regulated segments also affects revenue)</li> </ul> |
| Eliminate Certain Internal Non-Labour Programs      | <ul style="list-style-type: none"> <li>• Limitation to total cost savings which can be achieved by reducing/eliminating internal non-labour programs (significant amount of re-evaluation already implemented)</li> </ul>                                                                                                                                                                                                                                                                |
| OEB Rate Increase                                   | <ul style="list-style-type: none"> <li>• Roughly \$200M p.a. of additional revenue equates to roughly 70¢ increase in average monthly consumer hydro bill; OPG faces significant challenges in getting new OEB increases approved</li> </ul>                                                                                                                                                                                                                                             |
| Asset Sales / Service Spinoffs / Shutdown           | <ul style="list-style-type: none"> <li>• If counterparties exist, could sell/spin off certain services or power generation assets; significant asset sales/shutdowns will have workforce implications and will adversely affect future OPG revenue stream</li> </ul>                                                                                                                                                                                                                     |

## Recap of Current State

- A number of current cost levels exceed the thresholds which OPG views as necessary to maintain a sustainable business (across all key measures)
- The risk of costs escalating far beyond an affordable level is very plausible
- OPG is operating within a period of relative P&B cost stability until the next pension plan actuarial valuation report is filed in 2014
  - This provides a limited window to achieve selected changes in program management and plan design as the first phase of an overall strategy to reign in P&B costs
- Overall change strategy needs to recognize the reality of labour negotiation dynamics and related bargaining capital required for implementing changes
- Negotiation strategies and mandates must carefully evaluate impacts on P&B costs

## Pension and Benefit Interventions

- Set of initial interventions analyzed/evaluated to assess their impact on sustainability



### Legend (N → Negotiation Required)

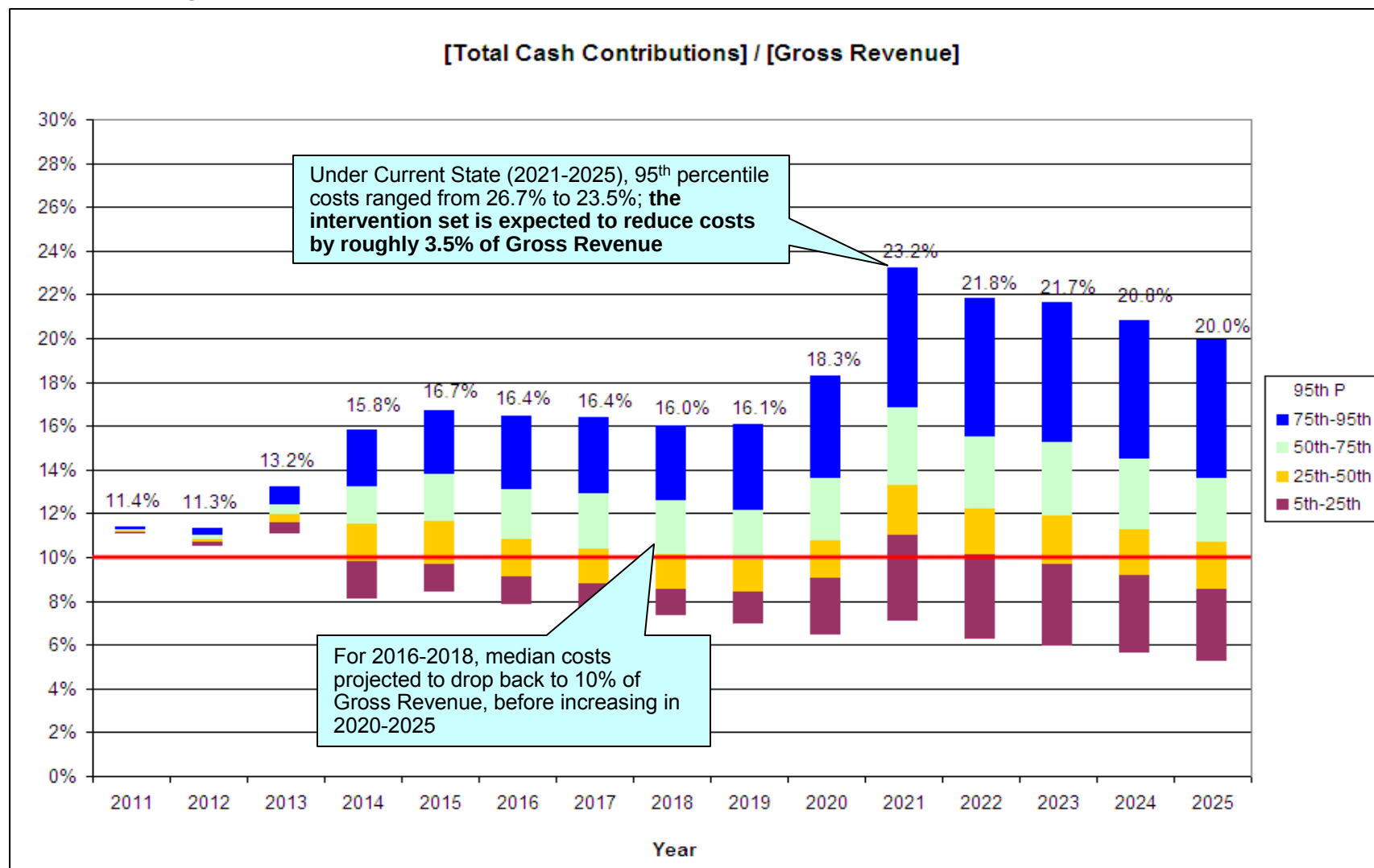
|   |                                                                                                                            |
|---|----------------------------------------------------------------------------------------------------------------------------|
| 1 | <b>Program Management:</b> Exclude portion of future wage increases from pensionable earnings <b>N</b>                     |
| 2 | <b>Benefits Design:</b> Implement changes to benefit program to generate savings in active/PRB cost structure <b>N</b>     |
| 3 | <b>Pension Design:</b> Change 82/84 Points Rule to instead require 55 with 90 Points to collect unreduced pension <b>N</b> |
| 4 | <b>Program Management:</b> Implement more efficient Rx delivery methods/networks                                           |
| 5 | <b>Program Management:</b> Voluntary settlements for post-retirement benefits                                              |
| 6 | <b>Program Management:</b> Reduce vendor costs and obtain more accurate/efficient claim adjudication                       |

#### Notes:

<sup>(1)</sup> For purposes of this phase of the P&B Review, all interventions were assumed to take effect January 1, 2013 in respect of past and future service for all members; in practice, certain provisions would need to be negotiated and/or may require notice to unions and members; grandfathering rules may also be required.

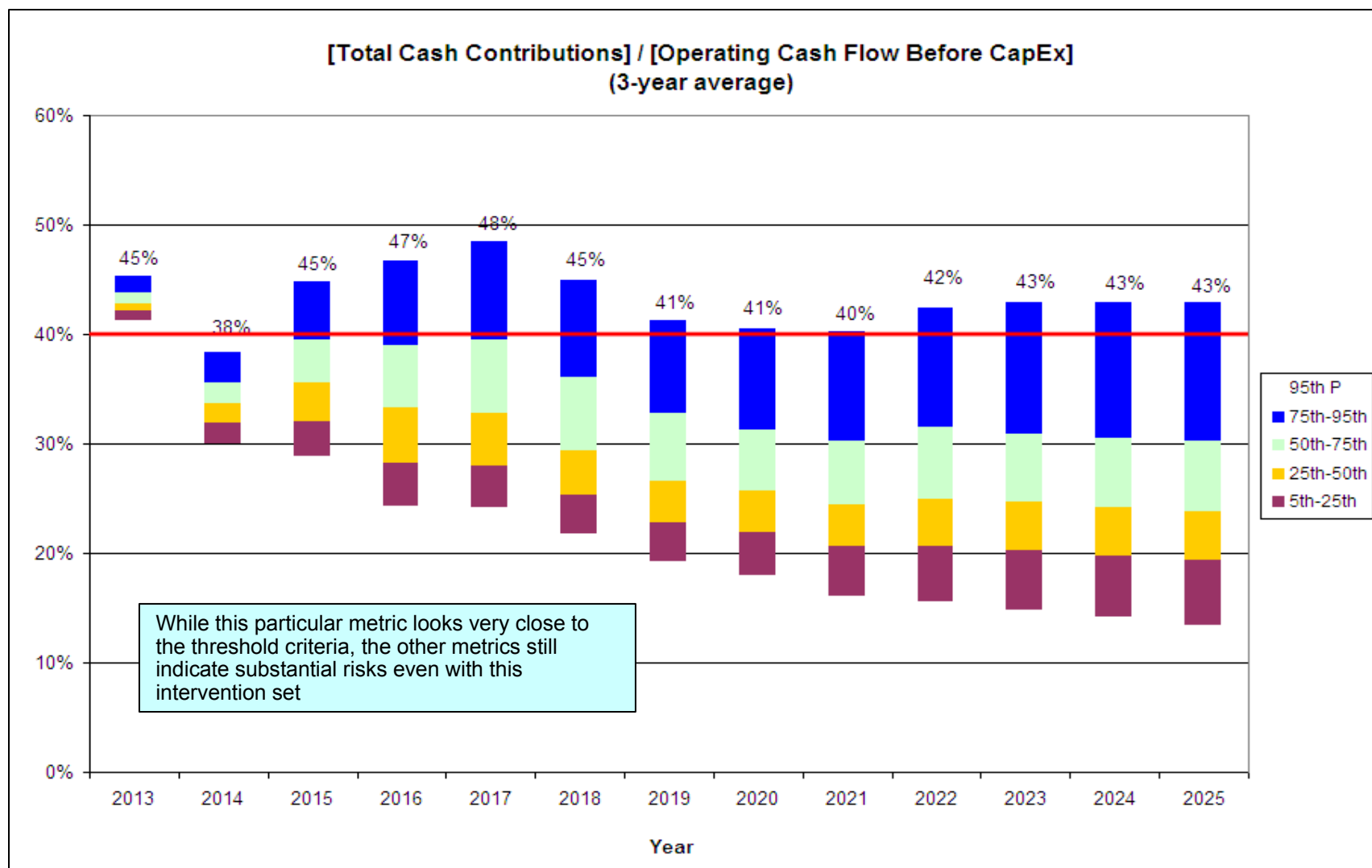
## Metric #1 – P&B Cash Should Not Exceed 10% of Gross Revenue (with Initial Interventions)

- While 95<sup>th</sup> percentile cost ratio is still above 20% over long term, median costs are approaching the 10% level



## Metric #2 – P&B Cash Should Not Exceed 40% of Operating Cash Flow Before CapEx (with Initial Interventions)

- 95<sup>th</sup> percentile ratios moved from 46-50% to 40-43% for most years



## Dashboard and Assessment of Initial Intervention Set

- At 95% confidence, initial intervention set expected to generate cost reduction of 2-3% of Gross Revenue (5-7% of Operating Cash Flow Before CapEx)
- Further analysis required to augment intervention set

| Pension & Benefits Dashboard                                                                            |               | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023              | 2024       | 2025 |
|---------------------------------------------------------------------------------------------------------|---------------|------|------|------|------|------|------|------|------|------|------|------|------|-------------------|------------|------|
| <b>1 -- Total P&amp;B Cash Contributions &lt; 10% Gross Revenue</b>                                     |               |      |      |      |      |      |      |      |      |      |      |      |      | <b>Threshold:</b> | <b>10%</b> |      |
| 95th P                                                                                                  | Current State | 11%  | 11%  | 12%  | 17%  | 18%  | 18%  | 18%  | 18%  | 18%  | 21%  | 27%  | 25%  | 25%               | 24%        | 23%  |
| 95th P                                                                                                  | Alternative   | 11%  | 11%  | 13%  | 16%  | 17%  | 16%  | 16%  | 16%  | 16%  | 18%  | 23%  | 22%  | 22%               | 21%        | 20%  |
| 75th P                                                                                                  | Current State | 11%  | 11%  | 11%  | 14%  | 15%  | 15%  | 15%  | 14%  | 14%  | 16%  | 20%  | 18%  | 18%               | 17%        | 16%  |
| 75th P                                                                                                  | Alternative   | 11%  | 11%  | 12%  | 13%  | 14%  | 13%  | 13%  | 13%  | 12%  | 14%  | 17%  | 16%  | 15%               | 15%        | 14%  |
| <b>2 -- Total P&amp;B Cash Contributions &lt; 40% Operating Cash Flow before CapEx (3-Year Average)</b> |               |      |      |      |      |      |      |      |      |      |      |      |      | <b>Threshold:</b> | <b>40%</b> |      |
| 95th P                                                                                                  | Current State |      |      |      | 39%  | 47%  | 51%  | 54%  | 50%  | 46%  | 46%  | 46%  | 48%  | 49%               | 50%        | 50%  |
| 95th P                                                                                                  | Alternative   |      |      |      | 38%  | 45%  | 47%  | 48%  | 45%  | 41%  | 41%  | 40%  | 42%  | 43%               | 43%        | 43%  |
| 75th P                                                                                                  | Current State |      |      |      | 36%  | 41%  | 43%  | 44%  | 41%  | 37%  | 36%  | 35%  | 37%  | 37%               | 36%        | 36%  |
| 75th P                                                                                                  | Alternative   |      |      |      | 36%  | 39%  | 39%  | 40%  | 36%  | 33%  | 31%  | 30%  | 31%  | 31%               | 30%        | 30%  |
| <b>3 -- Total P&amp;B Expense &lt; 35% of EBIT</b>                                                      |               |      |      |      |      |      |      |      |      |      |      |      |      | <b>Threshold:</b> | <b>35%</b> |      |
| 95th P                                                                                                  | Current State | 60%  | 74%  | 82%  | 77%  | 71%  | 66%  | 62%  | 61%  | 55%  | 57%  | 57%  | 51%  | 51%               | 49%        | 51%  |
| 95th P                                                                                                  | Alternative   | 60%  | 75%  | 70%  | 68%  | 61%  | 56%  | 52%  | 51%  | 45%  | 47%  | 45%  | 42%  | 43%               | 42%        | 42%  |
| 75th P                                                                                                  | Current State | 60%  | 64%  | 68%  | 61%  | 54%  | 49%  | 46%  | 44%  | 40%  | 41%  | 40%  | 37%  | 35%               | 34%        | 33%  |
| 75th P                                                                                                  | Alternative   | 60%  | 65%  | 56%  | 54%  | 47%  | 42%  | 38%  | 36%  | 32%  | 33%  | 32%  | 28%  | 28%               | 27%        | 26%  |
| <b>4 -- Total P&amp;B Expense &lt; \$50,000 Per Active Employee (in constant 2011 \$)</b>               |               |      |      |      |      |      |      |      |      |      |      |      |      | <b>Threshold:</b> | <b>50</b>  |      |
| 95th P                                                                                                  | Current State | 58   | 76   | 82   | 87   | 94   | 96   | 101  | 103  | 103  | 110  | 118  | 117  | 123               | 124        | 125  |
| 95th P                                                                                                  | Alternative   | 59   | 77   | 70   | 77   | 83   | 82   | 86   | 87   | 86   | 91   | 96   | 96   | 102               | 104        | 104  |
| 75th P                                                                                                  | Current State | 58   | 66   | 68   | 69   | 72   | 73   | 74   | 75   | 76   | 80   | 85   | 85   | 85                | 87         | 84   |
| 75th P                                                                                                  | Alternative   | 58   | 66   | 55   | 61   | 63   | 61   | 63   | 62   | 62   | 65   | 68   | 66   | 69                | 70         | 67   |

## Next Steps

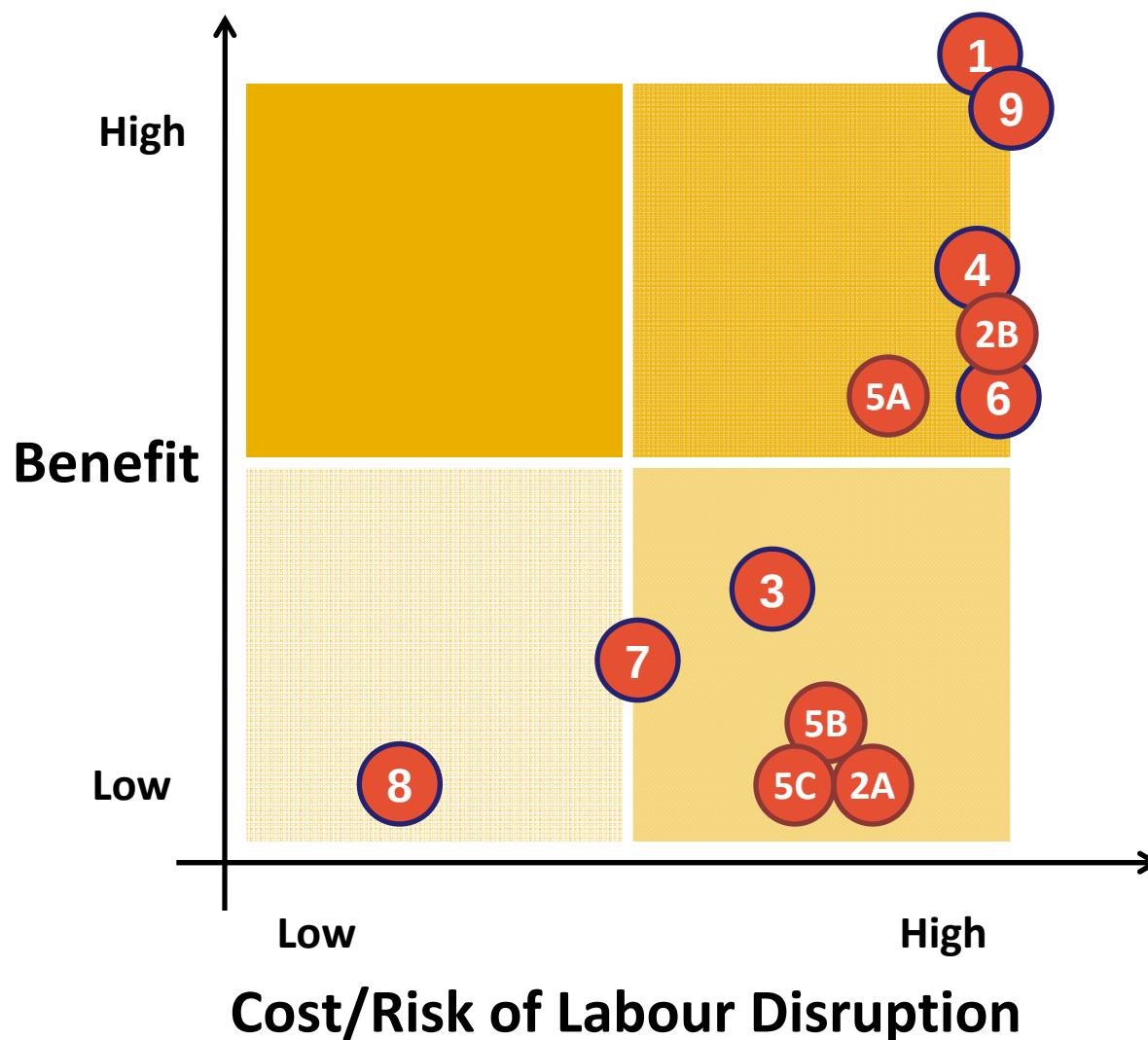
- Continue intervention evaluation through the sustainability model
  - Refine analysis of sustainability measures, thresholds, confidence levels and current state
  - Extend analysis to incorporate additional interventions with a view to identifying the most feasible set of interventions to maximize degree of sustainability
  - Estimate cost of execution for identified interventions
- Refine stakeholder management and education plan and integrate messaging with BTS
- Utilize the analysis and outcomes to influence longer term strategies
  - Coordinate sequencing, timing and impact of the three interventions within management control with other BTS initiatives
  - Inform BTS decisions around approaches to achieving staffing targets
  - Continue to manage Union attempts to improve programs over the long term
  - Use the three interventions which require negotiation to influence Labour negotiation strategy

## Appendix A – Other Sustainability Measures to Monitor

The following sustainability metrics will also be monitored and may be used in key stakeholder communications:

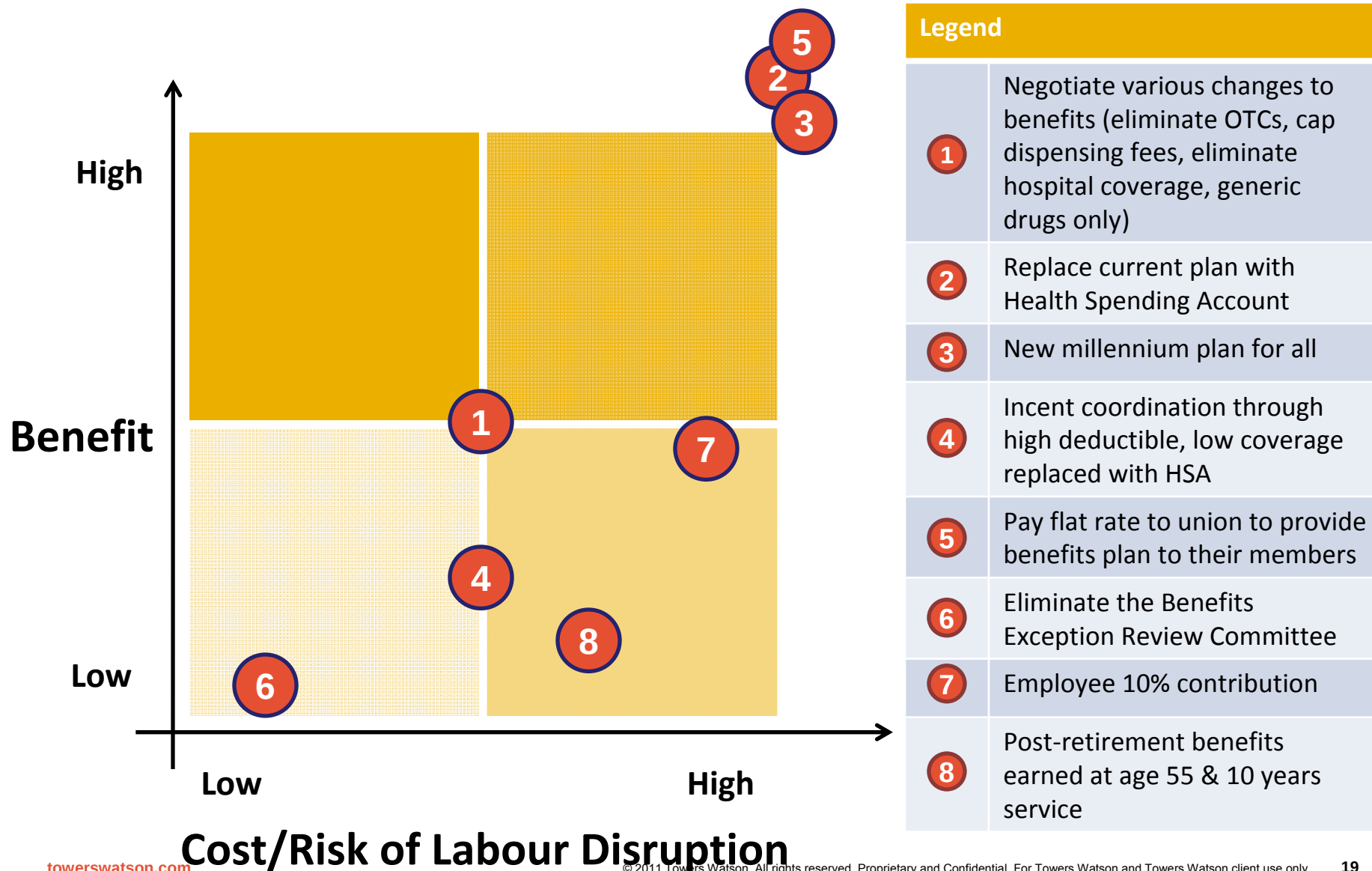
- **P&B Cash should not exceed 100% of Operating Cash Flow after CapEx**
  - Operating Cash Flow cannot be depleted after making for provision for CapEx and providing cash requirements for P&B
- **P&B Expense should not exceed 60% of Payroll**
  - P&B burden needs to be managed especially in conjunction with the management of overtime/etc.
- **P&B Cash should not exceed \$6M per TWh**
  - P&B program spending should remain in line with OPG's overall cost of power production
- **Pension Windup Deficit should not exceed \$5B**
  - Substantial portion of windup deficit is exempt from solvency funding under current pension law
  - Pension deficit represents a potential but crippling financial burden if the Ontario government removes current funding exemptions applicable to the OPG pension plan
- **Annual pension plan contributions should not exceed 5x employee contributions**
  - As OPG contributions exceed more than 5x employee contributions, significant concern that the basic cost-sharing relationship is impaired

## Appendix B - Priority Matrix for Pension Design Interventions



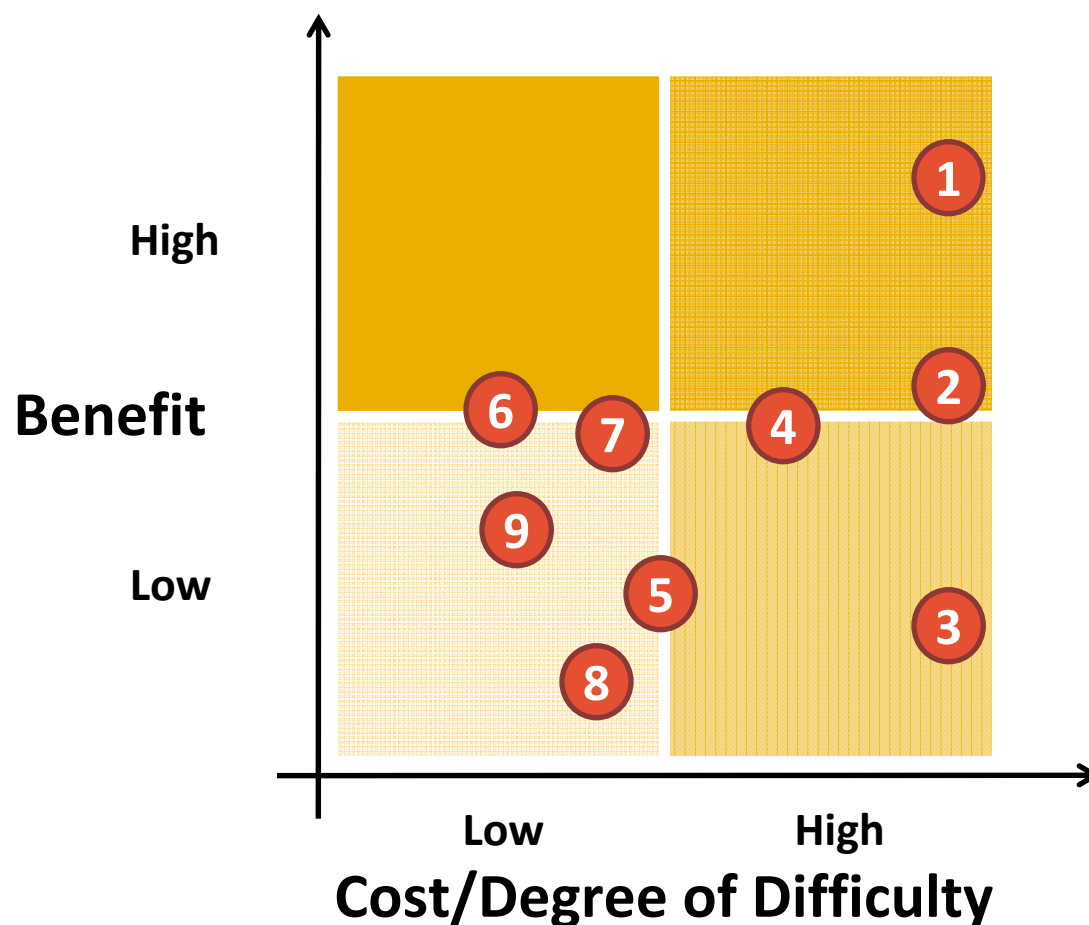
| Legend |                                                                      |
|--------|----------------------------------------------------------------------|
| 1      | New DB/DC combo plan                                                 |
| 2A     | Employee Contributions:<br>•Negotiate dynamic employee contributions |
| 2B     | •Negotiate 1:1 contribution                                          |
| 3      | High 5 vs. High 3                                                    |
| 4      | Rule of 90 and age 55                                                |
| 5A     | Reduce features<br>•Indexing                                         |
| 5B     | •Spousal plan                                                        |
| 5C     | •Bridge factor                                                       |
| 6      | Flexible pension plan                                                |
| 7      | Delay eligibility to join                                            |
| 8      | Remove commuted value option                                         |
| 9      | Jointly-sponsored plan                                               |

## Appendix B – Priority Matrix for Benefits Design Interventions



## Appendix B – Priority Matrix for Program Management Interventions

- This is an initial prioritization, to be refined
- The scale for this matrix is different than used for the design interventions



| Legend |                                                                           |
|--------|---------------------------------------------------------------------------|
| 1      | Exclude portions of future wage increases from pensionable earnings       |
| 2      | Increase prevalence of non-pensionable variable comp.                     |
| 3      | Increase cost/risk sharing (e.g., consider JSPP)                          |
| 4      | Voluntary settlements for post-retirement benefits                        |
| 5      | Voluntary settlements for disability income benefits                      |
| 6      | Reduce vendor costs and obtain more accurate/efficient claim adjudication |
| 7      | Implement more efficient Rx delivery methods/networks                     |
| 8      | Aggressively manage the disability program                                |
| 9      | Develop and implement a consumerism campaign                              |

## Appendix C – Confidence Levels

- When interpreting the results of a stochastic forecast (i.e., a large number of plausible scenarios), it is necessary to establish a confidence level
- **OPG selected a 95% confidence level as most appropriate measure for assessment**
  - Threshold conditions were established at the highest level viewed as affordable for OPG
  - Therefore, occurrences of actual experience beyond the threshold must be minimized
- For example, confidence levels of:
  - 50% - on average, one year in two would exceed the threshold
  - 75% - on average, one year in four would exceed the threshold
  - 90% - on average, one year in ten would exceed the threshold
  - 95% - on average, one year in twenty would exceed the threshold
- Sustainability Team spent considerable time deliberating on appropriate confidence level
  - Impossible to absolutely ensure that cash/expense will stay within specified thresholds, but concluded that should P&B costs occasionally exceed thresholds and/or exceed by small amounts, these occasional excesses can be managed by OPG
  - Viewed to be less prudent to establish a lower threshold criteria
    - With this approach, OPG would face more-frequent adverse experience above that threshold
    - With a lower threshold, the potential size of any excess amount would also be larger, bringing potentially severe consequences to OPG

## UNDERTAKING JT2.13

### Undertaking

To make best efforts to provide details on the company's costs for this application.

### Response

Please find below an estimate of OPG's cost for the current application.

| (\$k)                                                                                                                                   | 2010        | 2011            | 2012          | 2013 Bridge<br>Year | 2014 Test<br>Year |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------|---------------|---------------------|-------------------|
| Expert Witness costs                                                                                                                    | 0           | 1,216           | 316           | 474                 | 130               |
| Legal costs                                                                                                                             | 0           | 0               | 43            | 213                 | 750               |
| Consultants' costs                                                                                                                      | 0           | 130             | 125           | 512                 | 290               |
| Incremental operating expenses associated with<br>staff resources allocated to this application.                                        | 0           | 0               | 0             | 0                   | 0                 |
| Incremental operating expenses associated with<br>other resources allocated to this application.<br>Please identify resources involved. | 0           | 0               | 0             | 100                 | 200               |
| Intervenor costs                                                                                                                        | 0           | 0               | 0             | 200                 | 1,600             |
| <b>TOTAL</b>                                                                                                                            | <b>\$ -</b> | <b>\$ 1,346</b> | <b>\$ 484</b> | <b>\$ 1,498</b>     | <b>\$ 2,970</b>   |

#### Notes to the Table:

- (a) Costs presented in the table are associated with OPG's EB-2013-0321 rate application.
- (b) Data for Historical Years (2010, 2011 and 2012) is consistent with Ex. F3-1-3, Table 1. Actual costs are shown for 2013 and projections are shown for 2014.
- (c) External Witness costs incurred in 2011 and 2012 are associated with studies and reports that the OEB, in its EB-2010-0008 Decision with Reasons dated March 10, 2011, directed OPG to complete. These studies and reports were completed in 2011 and 2012 as OPG had originally planned to file a rate application in 2012. The 2011 costs shown in the above table are \$70.0k higher than the number shown in Ex. L-6.9-1 Staff-134 due to accruals reversal on contracts not related to the EB-2013-0321 rate application.
- (c) OPG has interpreted the phrase "incremental operating expenses associated with staff resources allocated to this application" to mean expenses incurred by Regulatory Affairs that are beyond the Regulatory Affairs Department's approved budget. As indicated in the table, no such incremental expenses were allocated to this application.
- (d) Incremental operating expenses associated with other resources allocated to this application consist of projected Section 30 expenses. Some of these expenses were accrued in 2013 as the application was filed on September 27, 2013.
- (e) Intervenor costs are projections and some of these costs were accrued in 2013 as the application was filed on September 27, 2013.

**UNDERTAKING JT2.14**

**Undertaking**

To provide a list of benchmarking studies, surveys, reports and analysis, or explain why it cannot be provided.

**Response**

The requested list is provided as Attachment 1.

## JT2.14

### Attachment 1 – List of Major Benchmarking (2010 – 2013)

|    | <b>Name of Study</b>                                                                                     | <b>Timing</b> | <b>Author</b>                            | <b>Purpose</b>                                                                                                                                                                                                                                                                                                                                                |
|----|----------------------------------------------------------------------------------------------------------|---------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | OPG Nuclear Benchmarking Reports                                                                         | 2009 - 2011   | OPG /Scott Madden Management Consultants | To compare OPG Nuclear's performance to that of nuclear industry peer groups both in Canada and worldwide.                                                                                                                                                                                                                                                    |
| 2. | Nuclear Staffing Benchmarking Analysis                                                                   | 2012          | Goodnight Consulting Inc                 | To benchmark OPG nuclear staff levels against other North American nuclear operators.                                                                                                                                                                                                                                                                         |
| 3. | Uranium Procurement Program Assessment                                                                   | 2011          | Longenecker & Associates                 | An external assessment of OPG's uranium procurement assessment.                                                                                                                                                                                                                                                                                               |
| 4. | Corporate Executive Board General Counsel Roundtable Legal Department Spending and Staffing Benchmarking | 2011          |                                          | Internal review of comparative organizations to identify any gaps.                                                                                                                                                                                                                                                                                            |
| 5. | Recharging Our Workforce                                                                                 | 2011          | Electricity Sector Council               | To mitigate against a reality of the electricity sector in Canada losing 30% of its workforce between 2007-2012.                                                                                                                                                                                                                                              |
| 6. | Review of Dam Safety Program                                                                             | 2007- 2011    | Dam Safety Advisory Panel                | To provide: <ul style="list-style-type: none"> <li>• External oversight of OPG's Dam and Public Safety Program;</li> <li>• An independent viewpoint into the strategic and operational risks and emerging issues regarding safety of OPG's dams;</li> <li>• Advice on priorities and opportunities of Dam Safety Program performance improvements.</li> </ul> |
| 7. | Hydroelectric Generation Benchmarking Program                                                            | on-going      | Navigant Consulting Inc.                 | To provide: <ul style="list-style-type: none"> <li>• Hydroelectric generation costs and performance reviews;</li> <li>• Opportunity to network, exchange experiences and discuss best practices.</li> </ul>                                                                                                                                                   |

|     | <b>Name of Study</b>                                                               | <b>Timing</b> | <b>Author</b>                      | <b>Purpose</b>                                                                                                                                                                                                                                                                                                                                |
|-----|------------------------------------------------------------------------------------|---------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8.  | Hydroelectric Productivity Committee (HPC)<br>Database Electric Utility Cost Group | on-going      | Electric Utility Cost Group (EUCG) | HPC Database is used to derive industry statistics such as operating and maintenance costs as well generating units' performance. OPG position can be established relative to that. Numerical analyses are presented during workshops and used as background for discussing methodologies, business practices, equipment repair methods, etc. |
| 9.  | OPG IT Cost Benchmarking Analysis Reports                                          | 2010          | Electric Utility Cost Group (EUCG) | To review compatible peer organizations to identify gaps in IT costs.                                                                                                                                                                                                                                                                         |
| 10. | Corporate Library Benchmarking Study                                               | 2010          | Primary Research Group (PRG)       | To review compatible peer organizations to identify gaps in documentation storage.                                                                                                                                                                                                                                                            |
| 11. | Market Total Compensation Review                                                   | 2010          | Mercer                             | To conduct a total compensation review for the non-union employee populations (Bands A to L) for 2010.                                                                                                                                                                                                                                        |
| 12. | National Utility Compensation Survey                                               | 2013          | Aon Hewit                          | Required by OEB. Submitted in 2013 OEB Evidence.                                                                                                                                                                                                                                                                                              |
| 13. | Benefit Index Report                                                               | 2012          | Aon Hewit                          | To assess the value of the OPG salaried employee pension and benefits for the PWU group as compared to a norm of values of the salaries employee benefits program of 16 companies.                                                                                                                                                            |

**UNDERTAKING JT2.15**

**Undertaking**

To confirm whether a report exists related to the IT benchmarking data, and provide it or explain why it will not be provided.

**Response**

EUCG (IT Chapter) is a voluntary group established to exchange data related to IT activities and costs. EUCG does not perform studies nor does it produce any reports for its member companies. It simply collects and disseminates the agreed raw data for its members.

OPG IT staff have analyzed and summarized IT Cost / Employee and IT Cost / GWh for the quartile information, which has been summarized in Ex F3-3-1, pp. 6 – 8 and Ex L-6.9-2 AMPCO-064 c), but has not completed a report related to the information contained at these references. OPG has completed an IT benchmarking report for 2010, which is provided as Attachment 1 to this response.

# **Final OPG IT Cost Benchmark Analysis - 2010**

**BS&IT – Programming & Performance Improvement**

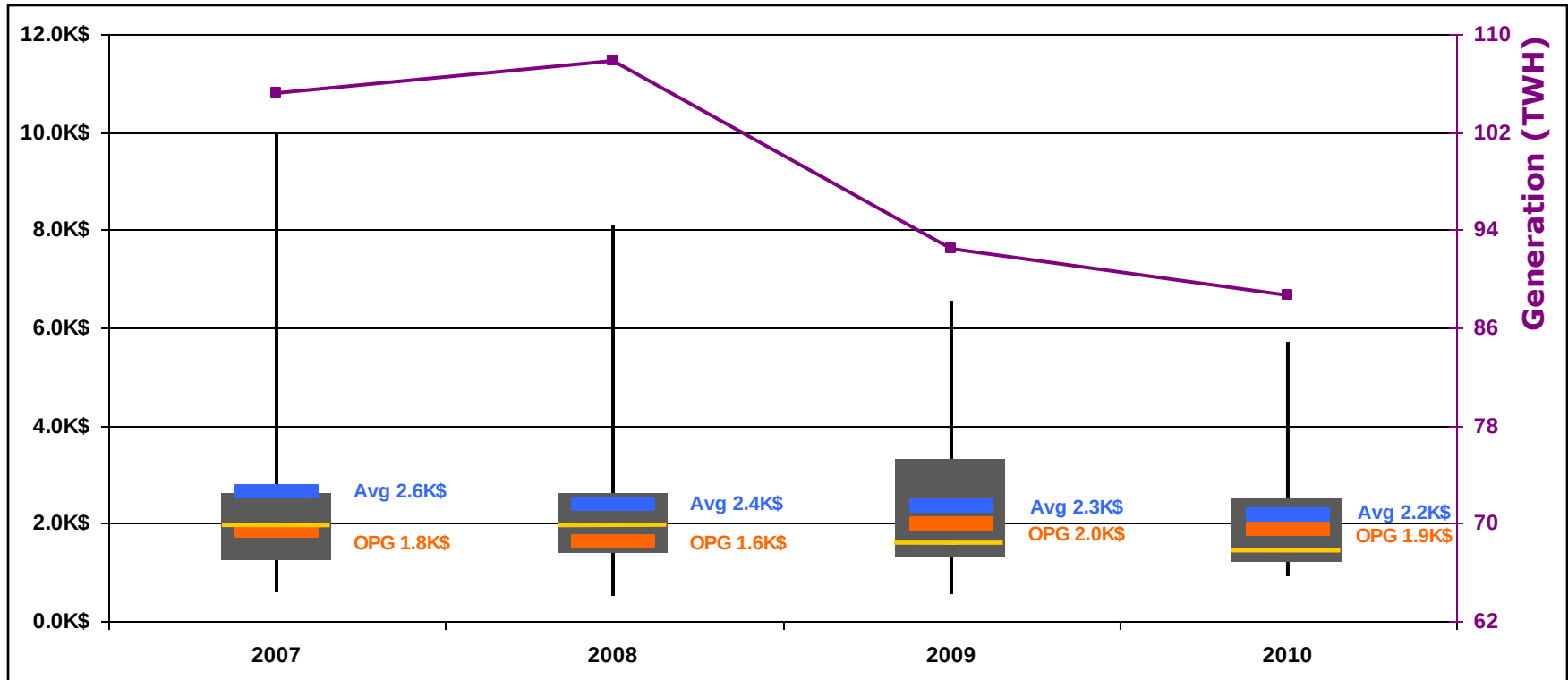
# Interpretation of Reported Trends

|                                  |           |                                                                                   |
|----------------------------------|-----------|-----------------------------------------------------------------------------------|
| 2010 OPG<br>Ranking / Position   | <b>Q1</b> | Indicates OPG is at or within first quartile ( $\leq 25$ percentile)              |
|                                  | <b>Q2</b> | Indicates OPG is at or within second quartile ( $\leq 50$ percentile)             |
|                                  | <b>Q3</b> | Indicates OPG is at or within third quartile ( $\leq 75$ percentile)              |
|                                  | <b>Q4</b> | Indicates OPG is within fourth quartile ( $> 75$ percentile)                      |
| 2009 vs. 2010<br>OPG Performance | <b>↑</b>  | Indicates an increase in OPG's cost/service performance compared to previous year |
|                                  | <b>↓</b>  | Indicates a decrease in OPG's cost/service performance compared to previous year  |

## IT Benchmark Methodology

- 2007-2010 year-over-year analysis compares key IT metrics (i.e. IT Spend Per GWH and IT Spend Per Employee) against EUCG peers
- Conversion rates are based on Bank of Canada's year average of exchange rates
- OPG data is excluded from the average and quartile calculations
- EUCG data is confidential and for EUCG member use only.

# YOY IT Spend Per GWH

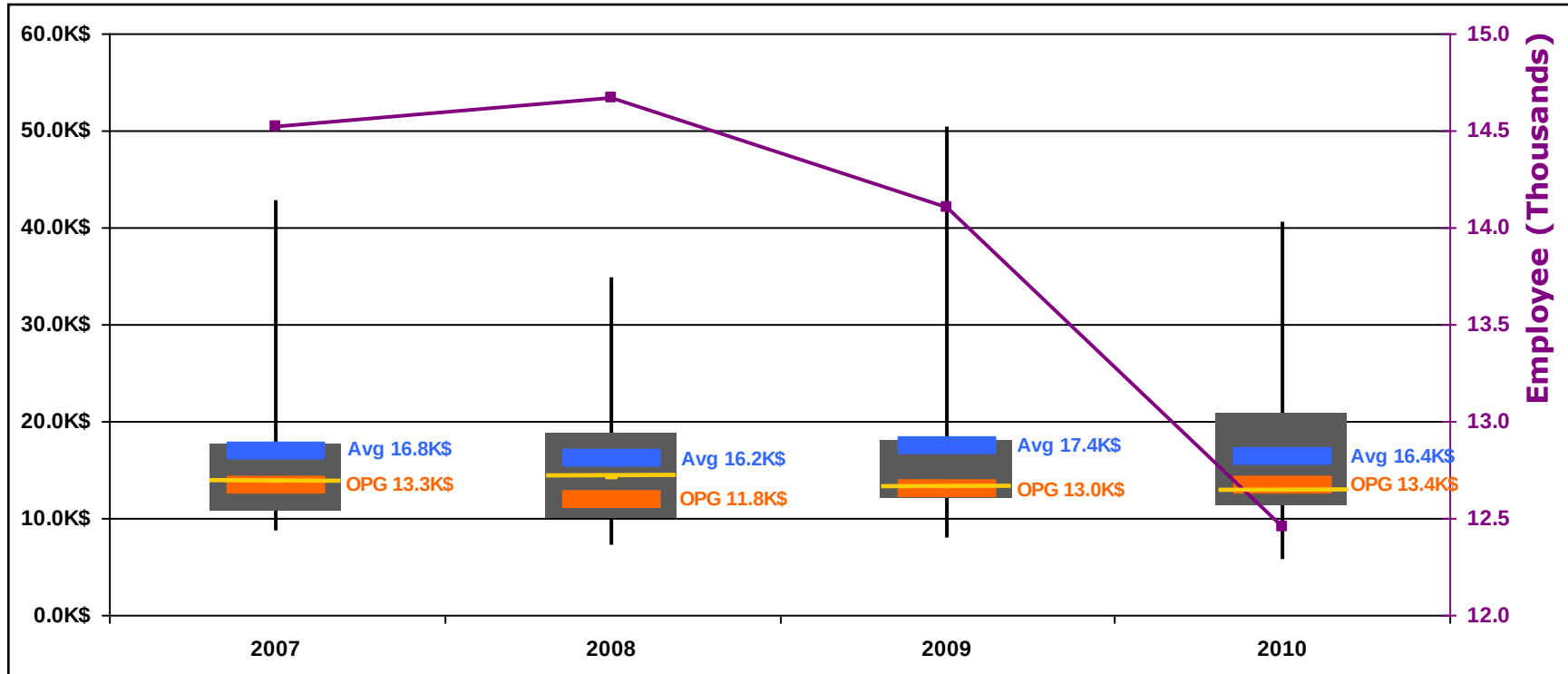


Cylinders denote the median 50% of responses

|                                      | 2007    | 2008    | 2009   | 2010   |
|--------------------------------------|---------|---------|--------|--------|
| OPG IT Spend (\$) Per GWH            | 1,833   | 1,611   | 1,982  | 1,883  |
| OPG Actual IT Spend (M\$)            | 192.7   | 173.7   | 183.3  | 166.8  |
| OPG Generation (GWH)                 | 105,100 | 107,800 | 92,500 | 88,600 |
| Total IT Spend (M\$) Reduction to Q1 | 64.83   | 26.07   | 64.81  | 62.18  |

= Middle Quartiles  
 = Median  
 = OPG  
 = Peer Average  
 = Generation

# YOY IT Spend Per Employee



Cylinders denote the median 50% of responses

|                                      | 2007   | 2008   | 2009   | 2010   |
|--------------------------------------|--------|--------|--------|--------|
| OPG IT Spend (\$) Per Employee       | 13,274 | 11,845 | 13,000 | 13,389 |
| OPG Actual IT Spend (M\$)            | 192.7  | 173.7  | 183.3  | 166.8  |
| OPG Total Employee                   | 14,517 | 14,664 | 14,100 | 12,458 |
| Total IT Spend (M\$) Reduction to Q1 | 48.06  | 30.08  | 16.54  | 28.33  |

- = Middle Quartiles
- = Median
- = OPG
- = Peer Average
- = Employee

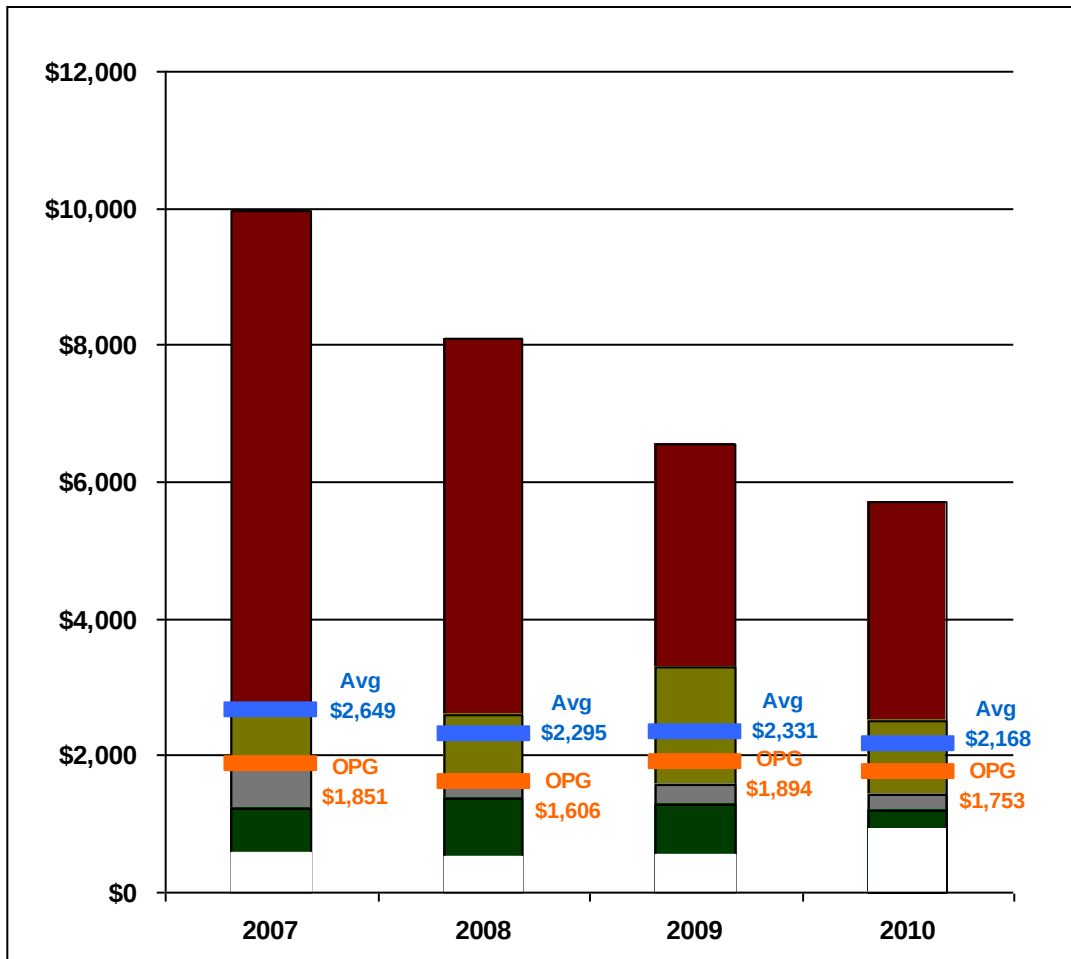
## 2010 Peer Group

- 2010 peer group is composed of the following North American utilities:
  - Center Point Energy
  - Energy North West
  - New Brunswick Power
  - Omaha Public Power District
  - Oncor
  - Pacific Gas & Electric
  - Pennsylvania Power & Light Corp
  - Progress Energy
  - Southern California Edison
  - Tennessee Valley Authority

## IT Spend

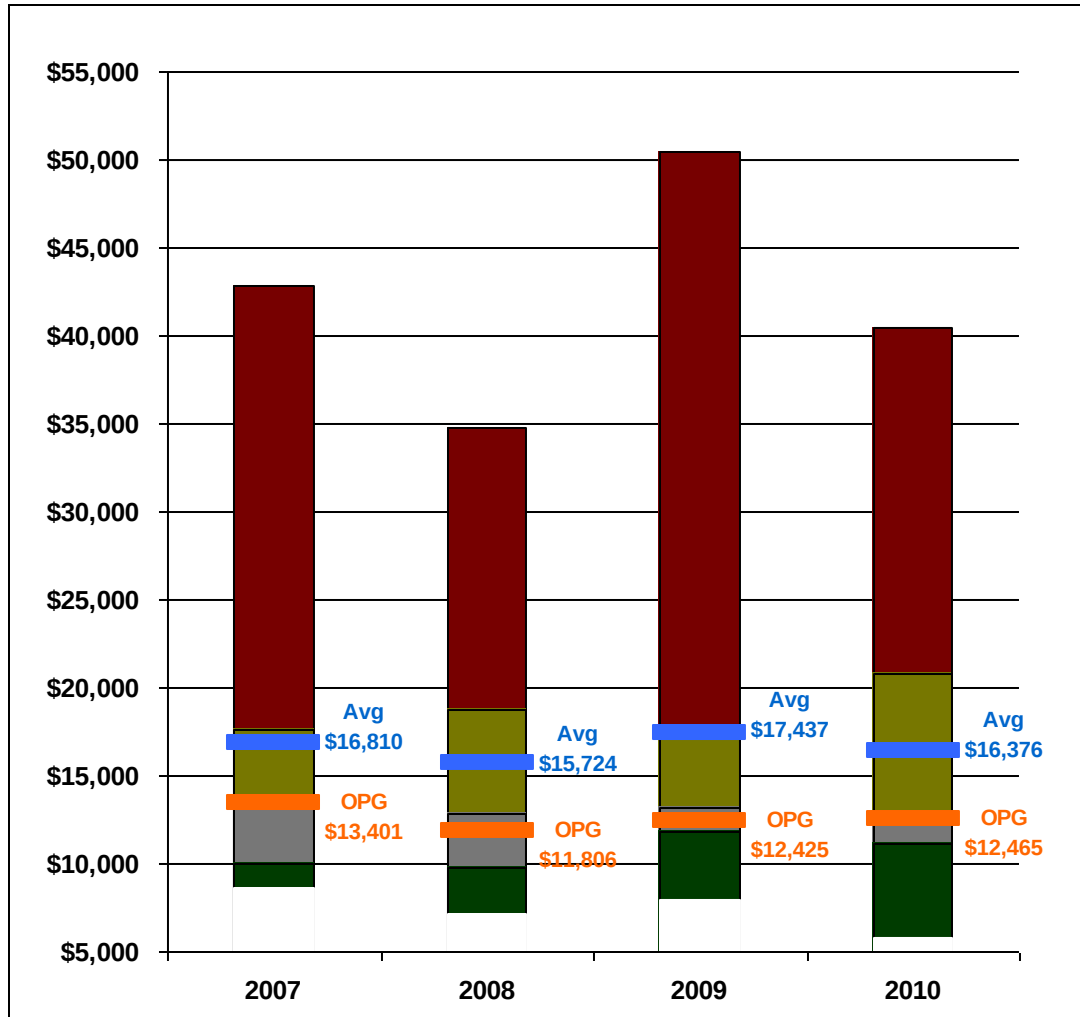
- Some IT costs were excluded to better achieve an apples-to-apples comparison. Below are some exclusions per EUCG IT Data Dictionary such as:
  - Floor space and furniture associated with the IT function
  - Process and simulator computing support
  - Remote access, SCADA network, cellular phones, radio and paging systems, whether or not part of IT organization
  - Document and records management operations (non-IT costs)
- Cost components of EUCG IT Spend include:
  - Labour Costs
  - Hardware & Software Maintenance Expenses and Depreciation
  - Circuit Costs
  - Outsourced Costs and
  - Decentralized Costs

# IT Spend Per GWH



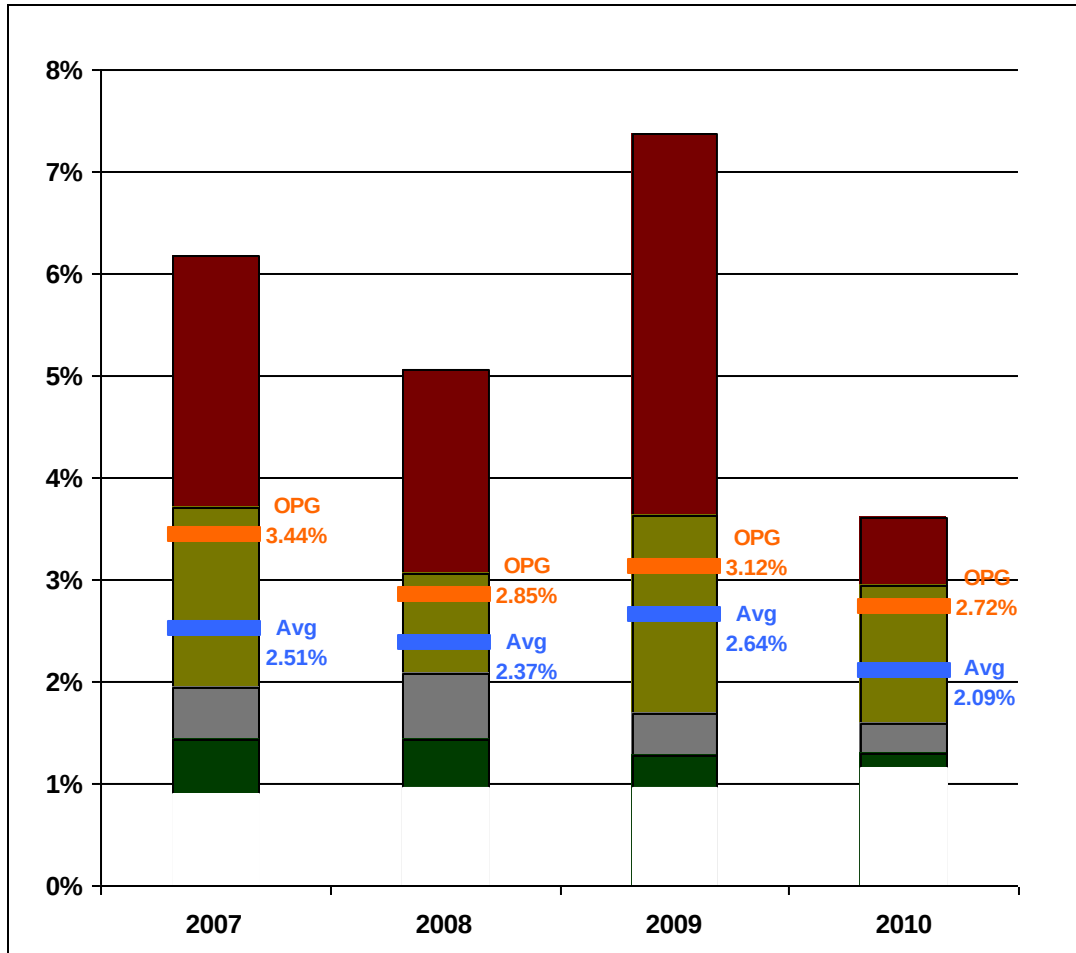
| Data Source                            | 2008         | 2009        | 2010        |
|----------------------------------------|--------------|-------------|-------------|
| OPG IT Spend (M\$)                     | 173.1        | 175.2       | 155.3       |
| OPG Generation (GWH)                   | 107,800      | 92,500      | 88,600      |
| Peer Size                              | 10           | 12          | 9           |
| Q1 Range (\$)                          | 523-1,369    | 546-1,281   | 924-1,181   |
| Q2 Range (\$)                          | 1,369-1,929  | 1,281-1,564 | 1,181-1,418 |
| Q3 Range (\$)                          | 1,929-2,591  | 1,564-3,294 | 1,418-2,492 |
| Q4 Range (\$)                          | 2,591-8,097  | 3,294-6,549 | 2,492-5,698 |
| Benchmark Results                      |              |             |             |
| OPG IT Spend (\$) Per GWH              | 1,606        | 1,894       | 1,753       |
| Peer Average (\$)                      | 2,369        | 2,331       | 2,168       |
| Benchmark Analysis                     |              |             |             |
| Reduction to Achieve Q1 (\$/GWH and %) | 237          | 613         | 572         |
|                                        | ↓15%         | ↓32%        | ↓33%        |
| Reduction to Achieve Q2 (\$/GWH and %) | Not Required | 330         | 335         |
|                                        |              | ↓17%        | ↓19%        |

# IT Spend Per Employee



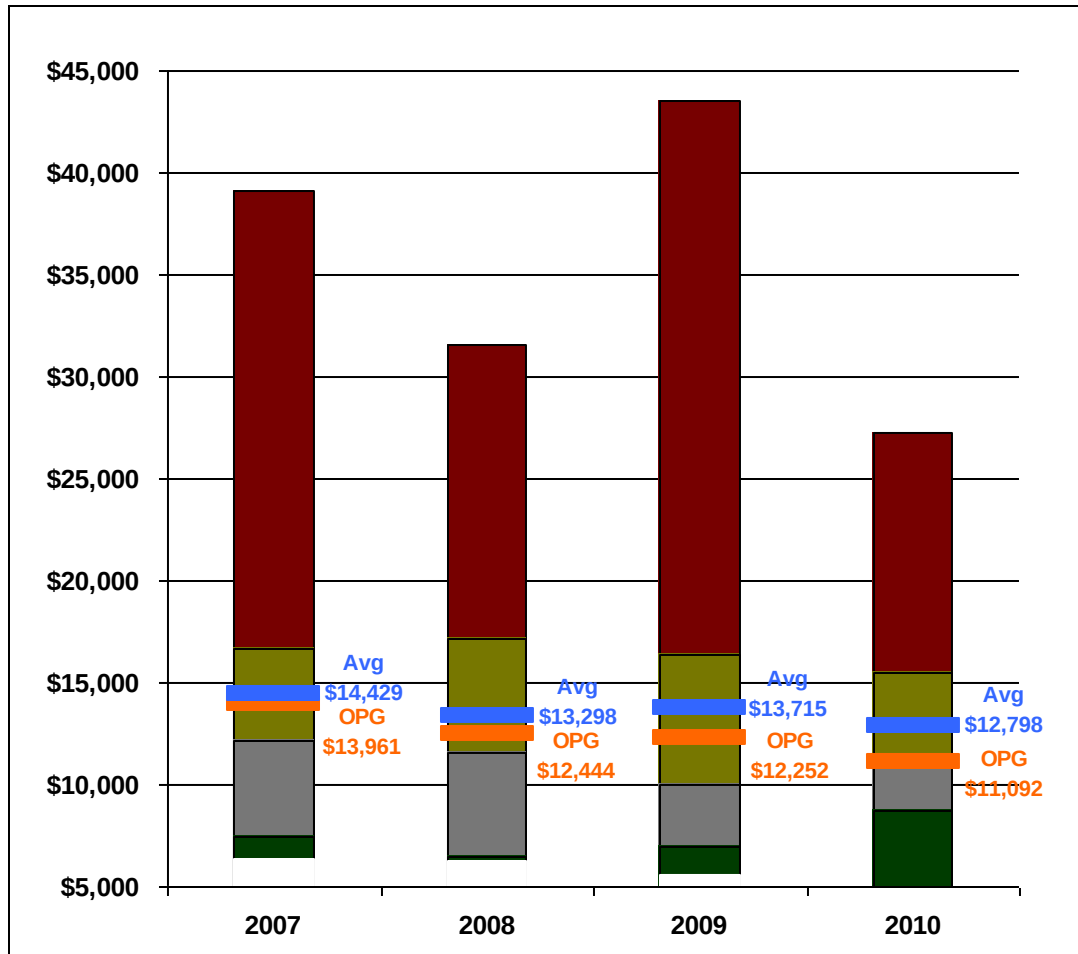
| Data Source                                 | 2008          | 2009          | 2010          |
|---------------------------------------------|---------------|---------------|---------------|
| OPG IT Spend (M\$)                          | 173.1         | 175.2         | 155.3         |
| OPG Total Employee                          | 14,664        | 14,100        | 12,458        |
| Peer Size                                   | 10            | 13            | 10            |
| Q1 Range (\$)                               | 7,214-9,794   | 7,915-11,827  | 5,795-11,115  |
| Q2 Range (\$)                               | 9,794-14,086  | 11,827-13,185 | 11,115-12,813 |
| Q3 Range (\$)                               | 14,086-18,774 | 13,185-17,879 | 12,813-20,756 |
| Q4 Range (\$)                               | 18,774-34,803 | 17,879-50,411 | 20,756-40,487 |
| Benchmark Results                           |               |               |               |
| OPG IT Spend (\$) Per Employee              | 11,806        | 12,425        | 12,465        |
| Peer Average (\$)                           | 16,157        | 17,437        | 16,376        |
| Benchmark Analysis                          |               |               |               |
| Reduction to Achieve Q1 (\$/Employee and %) | 2,012         | 599           | 1,350         |
|                                             | ↓17%          | ↓5%           | ↓11%          |
| Reduction to Achieve Q2 (\$/Employee and %) | Not Required  | Not Required  | Not Required  |

# IT Spend as % of Revenue



| Data Source                  | 2008      | 2009      | 2010      |
|------------------------------|-----------|-----------|-----------|
| OPG IT Spend (M\$)           | 173.1     | 175.2     | 155.3     |
| OPG Revenue (M\$)            | 6,082     | 5,613     | 5,701     |
| Peer Size                    | 10        | 12        | 10        |
| Q1 Range (%)                 | 0.97-1.44 | 0.96-1.28 | 1.16-1.29 |
| Q2 Range (%)                 | 1.44-2.29 | 1.28-1.69 | 1.29-1.59 |
| Q3 Range (%)                 | 2.29-3.05 | 1.69-3.63 | 1.59-2.95 |
| Q4 Range (%)                 | 3.05-5.06 | 3.63-7.37 | 2.95-3.61 |
| Benchmark Results            |           |           |           |
| OPG IT Spend Per Revenue (%) | 2.85      | 3.12      | 2.72      |
| Peer Average (%)             | 2.43      | 2.64      | 2.09      |
| Benchmark Analysis           |           |           |           |
| Reduction to Achieve Q1 (%)  | 1.41      | 1.84      | 1.43      |
|                              | ↓50%      | ↓59%      | ↓53%      |
| Reduction to Achieve Q2 (%)  | 0.55      | 1.43      | 1.14      |
|                              | ↓19%      | ↓46%      | ↓42%      |

# IT Spend Per End User



| Data Source                                 | 2008          | 2009          | 2010          |
|---------------------------------------------|---------------|---------------|---------------|
| OPG IT Spend (M\$)                          | 173.1         | 175.2         | 155.3         |
| OPG End Users                               | 13,913        | 14,300        | 14,000        |
| Peer Size                                   | 10            | 13            | 10            |
| Q1 Range (\$)                               | 6,385-6,613   | 5,610-6,920   | 4,915-8,742   |
| Q2 Range (\$)                               | 6,613-11,607  | 6,920-9,995   | 8,742-11,168  |
| Q3 Range (\$)                               | 11,607-17,114 | 9,995-16,338  | 11,168-15,500 |
| Q4 Range (\$)                               | 17,114-31,558 | 16,338-43,529 | 15,500-27,248 |
| Benchmark Results                           |               |               |               |
| OPG IT Spend (\$) Per End User              | 12,444        | 12,252        | 11,092        |
| Peer Average (\$)                           | 13,549        | 13,715        | 12,798        |
| Benchmark Analysis                          |               |               |               |
| Reduction to Achieve Q1 (\$/End User and %) | 5,831         | 5,331         | 2,350         |
|                                             | ↓47%          | ↓44%          | ↓21%          |
| Reduction to Achieve Q2 (\$/End User and %) | 836           | 2,257         | Not Required  |
|                                             | ↓7%           | ↓18%          |               |

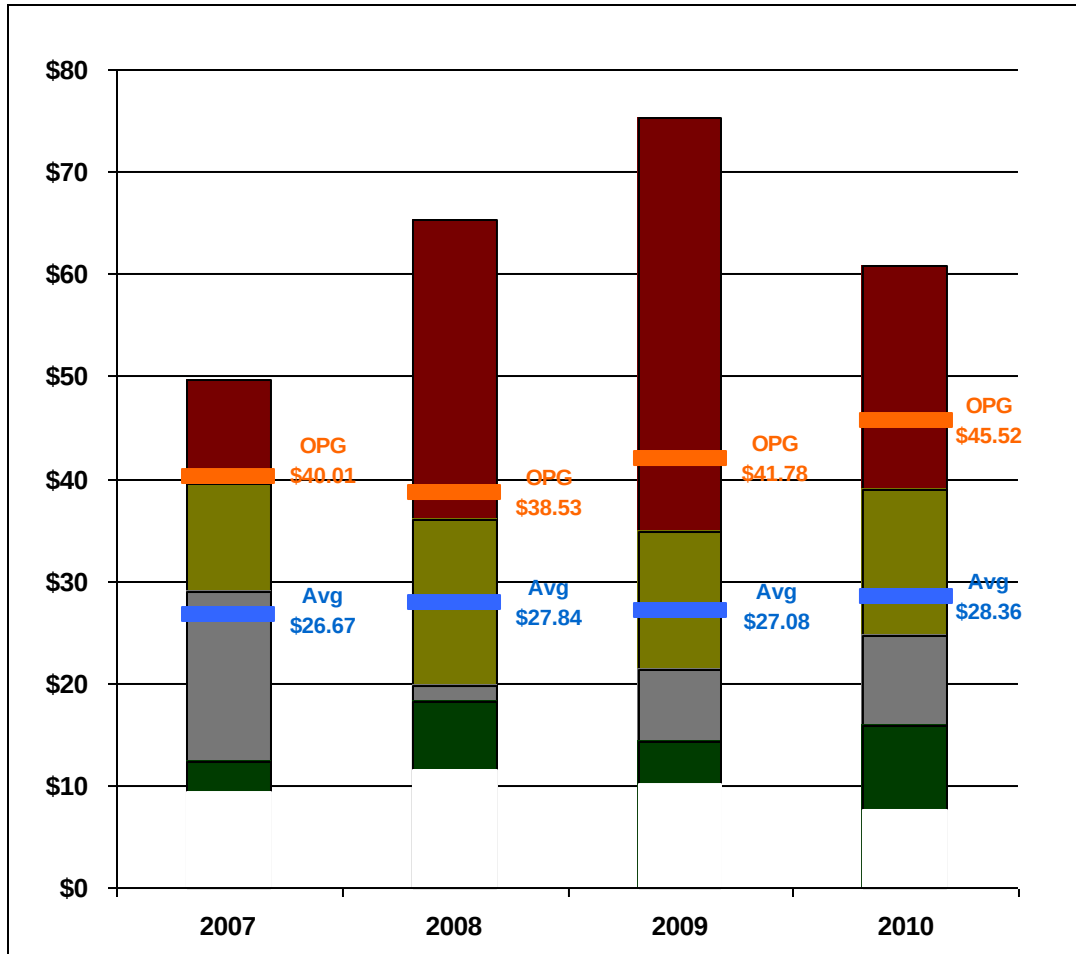
# IT Spend Summary

| IT Spend Metrics           | 2007<br>OPG<br>Quartile<br>Ranking | 2008<br>OPG<br>Quartile<br>Ranking | 2009<br>OPG<br>Quartile<br>Ranking | 2010<br>OPG<br>Quartile<br>Ranking | 2009-2010<br>Change |
|----------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|---------------------|
| IT Spend Per GWH           | Q2                                 | Q2                                 | Q3                                 | Q3                                 | ↓\$141              |
| IT Spend Per Employee      | Q2                                 | Q2                                 | Q2                                 | Q2                                 | ↑\$39               |
| IT Spend as a % of Revenue | Q3                                 | Q3                                 | Q3                                 | Q3                                 | ↓0.40%              |
| IT Spend Per End User      | Q3                                 | Q3                                 | Q3                                 | Q2                                 | ↓\$1,160            |

## IT Service Metrics

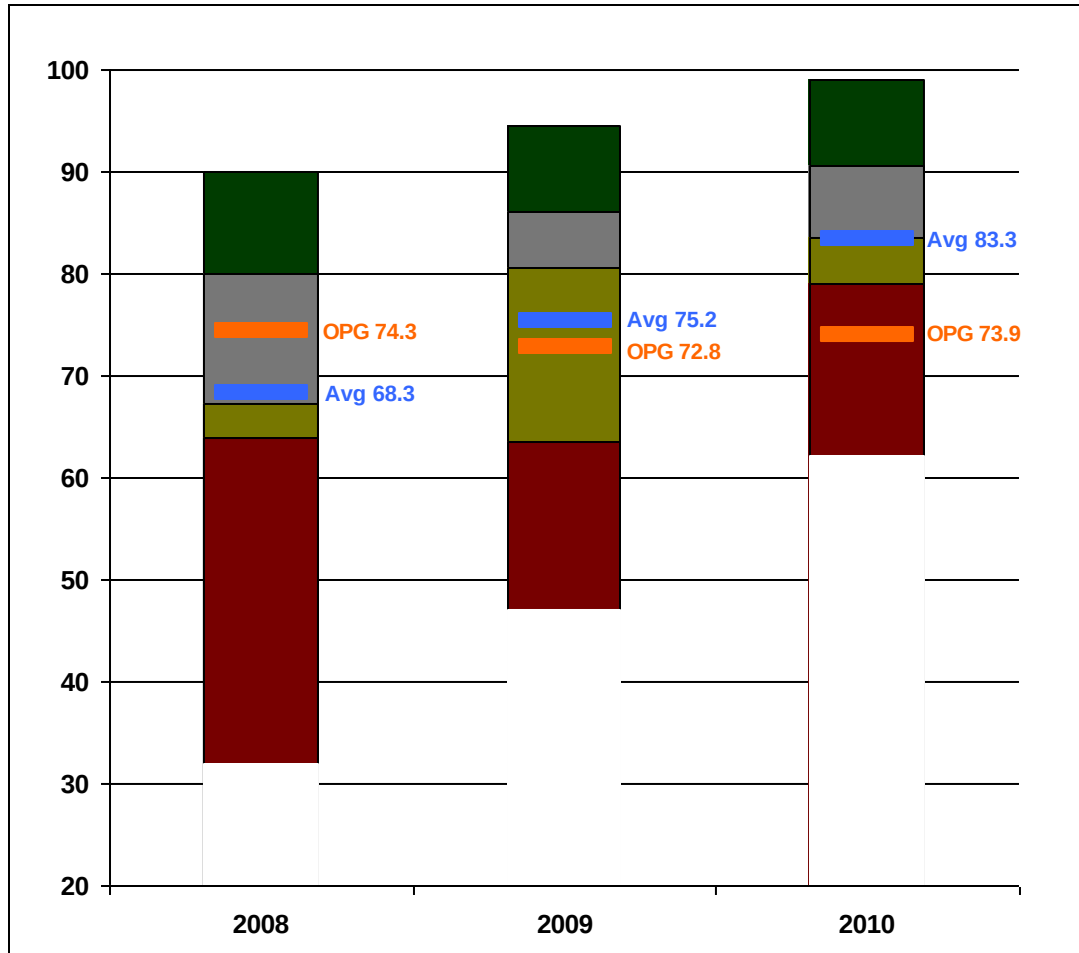
- EUCG IT Service Areas and towers are:
  - Desktop Support Services – include Desktop and Help Desk towers
  - Computing Services – include Mainframe, Unix Application Server, Wintel Application Server, and Storage towers
  - Telecommunication Services – include Voice and Network Towers
  - Application Services – include Application Development and Application Maintenance towers
  - Other – includes Admin/Back Office tower

# Help Desk Cost Per Transaction



| Data Source                                    | 2008        | 2009        | 2010        |
|------------------------------------------------|-------------|-------------|-------------|
| OPG Help Desk Cost (M\$)                       | 6.200       | 6.372       | 6.674       |
| OPG Annual Transactions                        | 160,926     | 152,500     | 146,629     |
| Peer Size                                      | 14          | 12          | 10          |
| Q1 Range (\$)                                  | 11.59-18.20 | 10.13-14.22 | 7.59-15.90  |
| Q2 Range (\$)                                  | 18.20-19.73 | 14.22-21.35 | 15.90-24.59 |
| Q3 Range (\$)                                  | 19.73-35.91 | 21.35-34.77 | 24.59-38.94 |
| Q4 Range (\$)                                  | 35.91-65.42 | 34.77-75.29 | 38.94-60.90 |
| Benchmark Results                              |             |             |             |
| OPG Help Desk Cost (\$) Per Transaction        | 38.53       | 41.78       | 45.52       |
| Peer Average (\$)                              | 27.84       | 27.08       | 28.36       |
| Benchmark Analysis                             |             |             |             |
| Reduction to Achieve Q1 (\$/Transaction and %) | 20.33       | 27.56       | 29.61       |
|                                                | ↓53%        | ↓66%        | ↓65%        |
| Reduction to Achieve Q2 (\$/Transaction and %) | 18.80       | 20.43       | 20.93       |
|                                                | ↓49%        | ↓49%        | ↓46%        |

# First Call Resolution

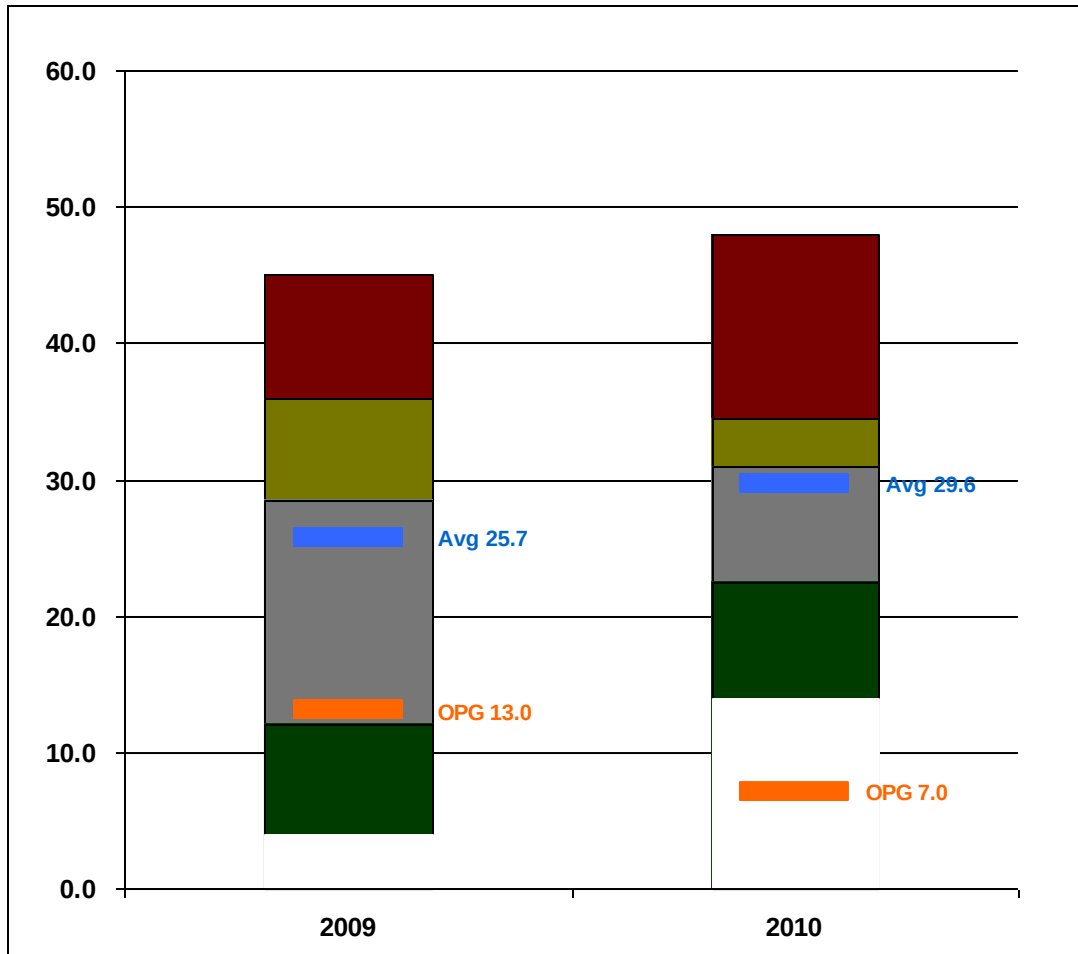


| Data Source                   | 2008         | 2009      | 2010      |
|-------------------------------|--------------|-----------|-----------|
| Peer Size                     | 13           | 12        | 10        |
| Q1 Range (%)                  | 80.0-90.0    | 86.0-94.5 | 90.5-99.0 |
| Q2 Range (%)                  | 67.2-80.0    | 80.5-86.0 | 83.5-90.5 |
| Q3 Range (%)                  | 64.0-67.2    | 63.6-80.5 | 79.0-83.5 |
| Q4 Range (%)                  | 32.0-64.0    | 47.0-63.6 | 62.2-79.0 |
| Benchmark Results             |              |           |           |
| OPG First Call Resolution (%) | 74.3         | 72.8      | 73.9      |
| Peer Average (%)              | 68.3         | 75.2      | 83.3      |
| Benchmark Analysis            |              |           |           |
| Increase to Achieve Q1 (%)    | 5.7          | 13.2      | 16.6      |
|                               | ↑8%          | ↑18%      | ↑22%      |
| Increase to Achieve Q2 (%)    | Not Required | 7.7       | 9.6       |
|                               | Not Required | ↑11%      | ↑13%      |

## Note:

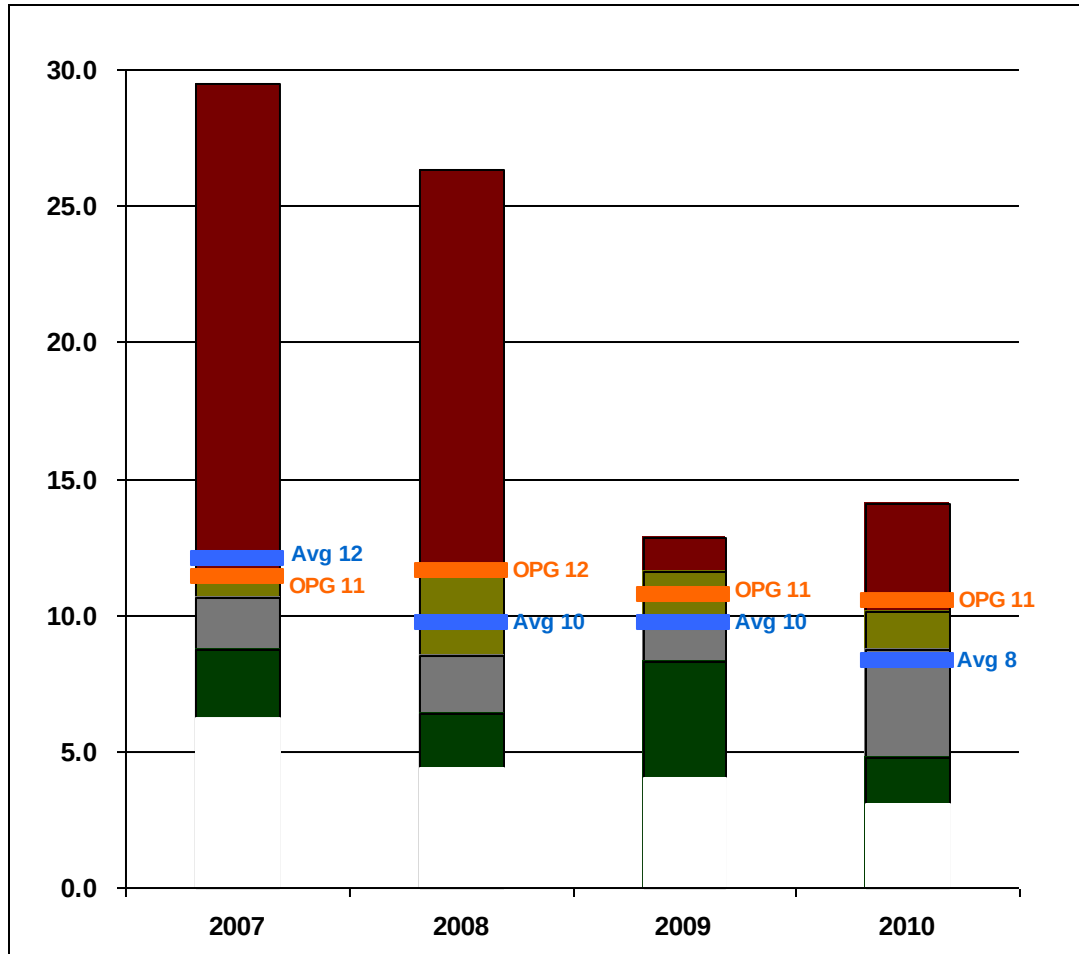
For this metric, the higher the result, the better.

# Average Speed to Answer



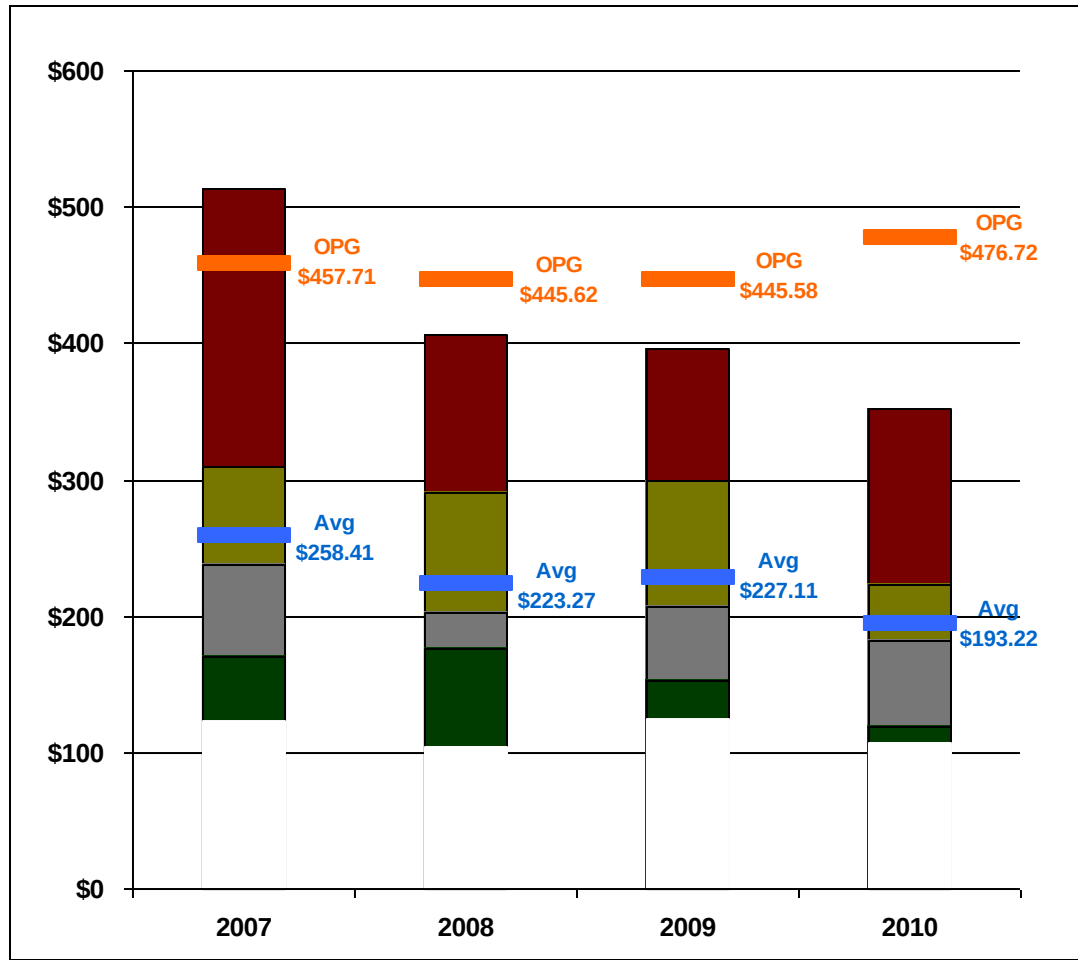
| Data Source                         | 2009         | 2010         |
|-------------------------------------|--------------|--------------|
| Peer Size                           | 6            | 7            |
| Q1 Range (Sec)                      | 4.0-12.0     | 14.0-22.5    |
| Q2 Range (Sec)                      | 12.0-28.5    | 22.5-31.0    |
| Q3 Range (Sec)                      | 28.5-36.0    | 31.0-34.5    |
| Q4 Range (Sec)                      | 36.0-45.0    | 34.5-48.0    |
| Benchmark Results                   |              |              |
| OPG Average Speed to Answer (Sec)   | 13.0         | 7.0          |
| Peer Average (Sec)                  | 25.7         | 29.6         |
| Benchmark Analysis                  |              |              |
| Reduction to Achieve Q1 (Sec and %) | 1.0          | Not Required |
|                                     | ↓8%          |              |
| Reduction To Achieve Q2 (Sec and %) | Not Required | Not Required |

# Help Desk Tickets Per End User



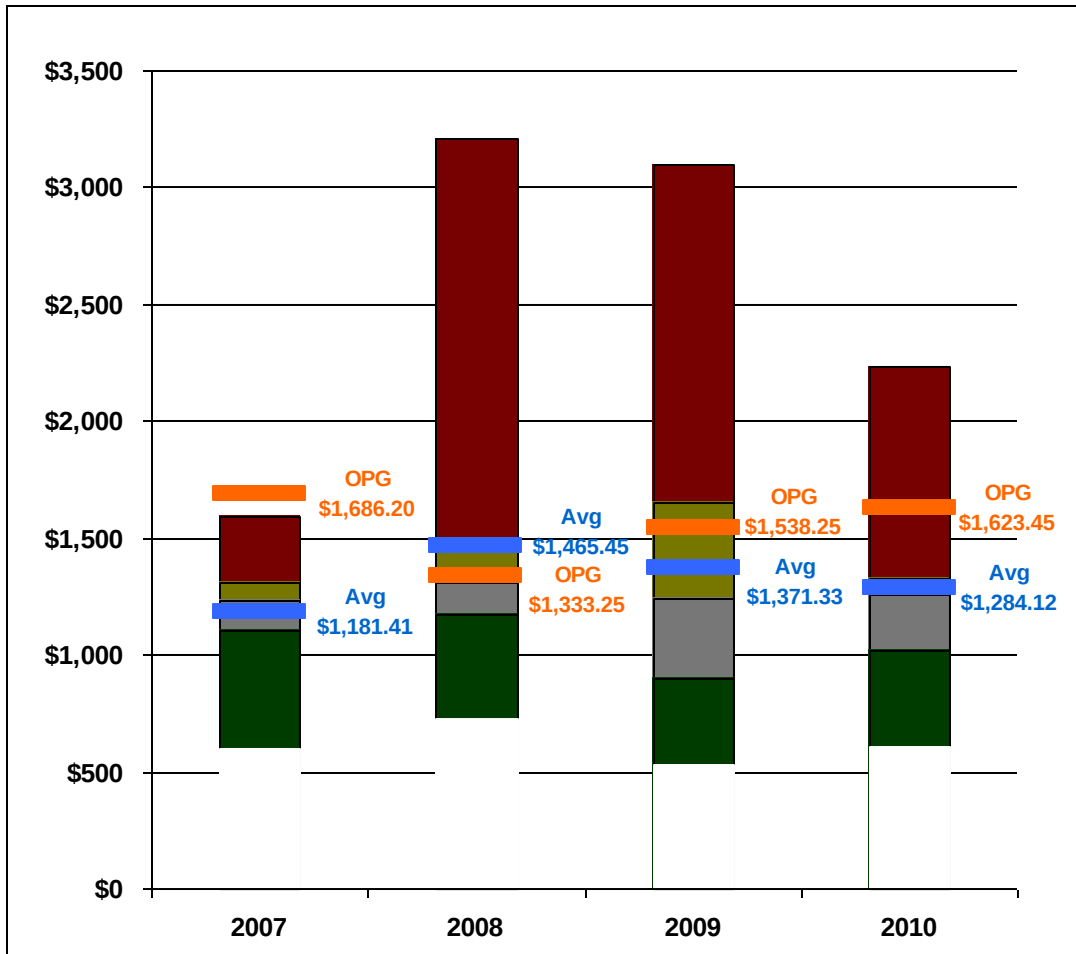
| Data Source                                          | 2008      | 2009      | 2010      |
|------------------------------------------------------|-----------|-----------|-----------|
| OPG Help Desk Annual Transactions                    | 160,926   | 152,500   | 146,629   |
| OPG End User                                         | 13,913    | 14,300    | 14,000    |
| Peer Size                                            | 14        | 12        | 10        |
| Q1 Range                                             | 4-6       | 4-8       | 3-5       |
| Q2 Range                                             | 6-8       | 8-10      | 5-9       |
| Q3 Range                                             | 8-12      | 10-12     | 9-10      |
| Q4 Range                                             | 12-26     | 12-13     | 10-14     |
| Benchmark Results                                    |           |           |           |
| OPG Help Desk Transactions Per End User              | 12        | 11        | 10        |
| Peer Average                                         | 10        | 10        | 8         |
| Benchmark Analysis                                   |           |           |           |
| Reduction to Achieve Q1 (Transaction/End User and %) | 5<br>↓45% | 2<br>↓22% | 6<br>↓54% |
| Reduction to Achieve Q2 (Transaction/End User and %) | 3<br>↓27% | 1<br>↓9%  | 2<br>↓17% |

# Help Desk Cost Per End User



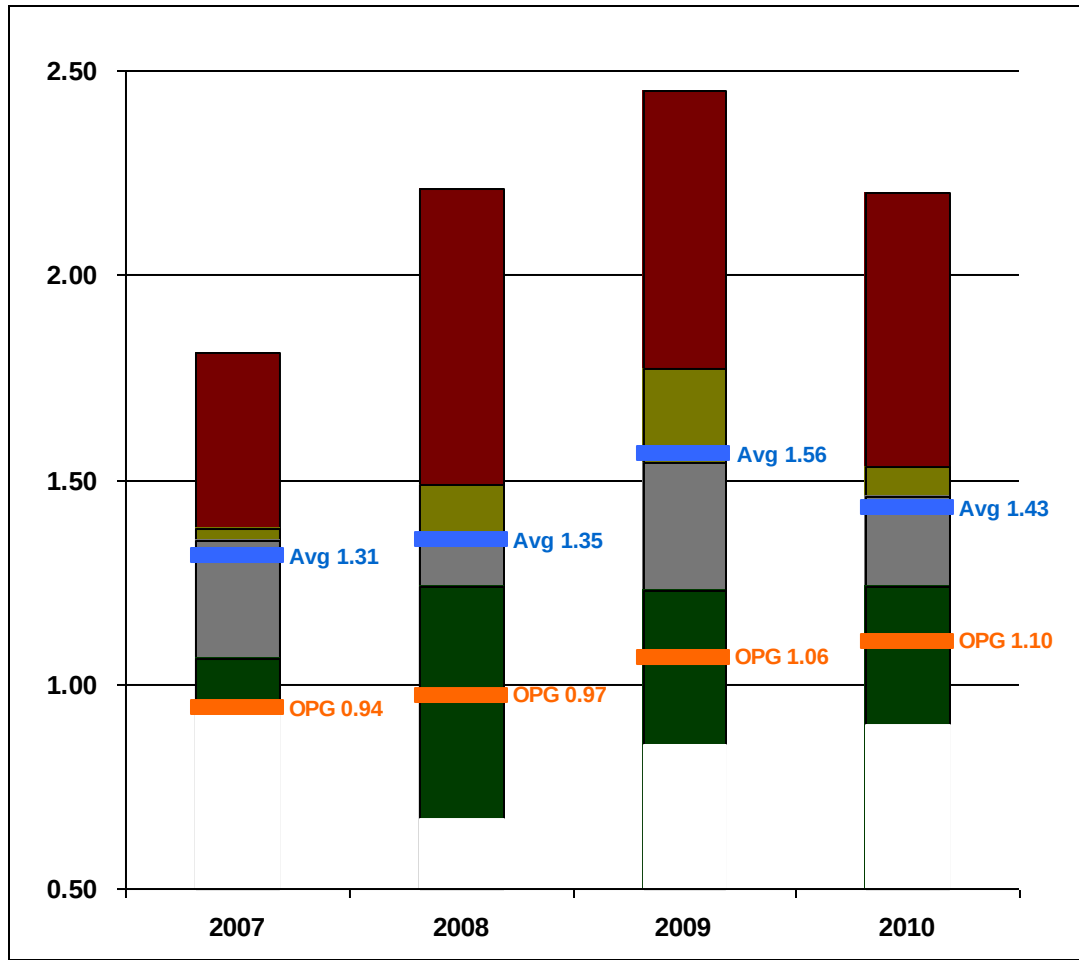
| Data Source                                 | 2008          | 2009          | 2010          |
|---------------------------------------------|---------------|---------------|---------------|
| OPG Help Desk Cost (M\$)                    | 6.200         | 6.372         | 6.674         |
| OPG End User                                | 13,913        | 14,300        | 14,000        |
| Peer Size                                   | 14            | 13            | 10            |
| Q1 Range (\$)                               | 103.48-176.10 | 124.82-151.95 | 106.78-119.16 |
| Q2 Range (\$)                               | 176.10-202.49 | 151.95-207.20 | 119.16-181.73 |
| Q3 Range (\$)                               | 202.49-291.07 | 207.20-299.71 | 181.73-223.11 |
| Q4 Range (\$)                               | 291.07-406.44 | 299.71-395.40 | 223.11-351.63 |
| Benchmark Results                           |               |               |               |
| OPG Help Desk Cost (\$) Per End User        | 445.62        | 445.58        | 476.72        |
| Peer Average (\$)                           | 223.27        | 227.11        | 193.22        |
| Benchmark Analysis                          |               |               |               |
| Reduction to Achieve Q1 (\$/End User and %) | 269.52        | 293.63        | 357.55        |
|                                             | ↓60%          | ↓66%          | ↓75%          |
| Reduction to Achieve Q2 (\$/End User and %) | 243.13        | 238.37        | 294.99        |
|                                             | ↓55%          | ↓53%          | ↓62%          |

# Desktop Cost Per PC



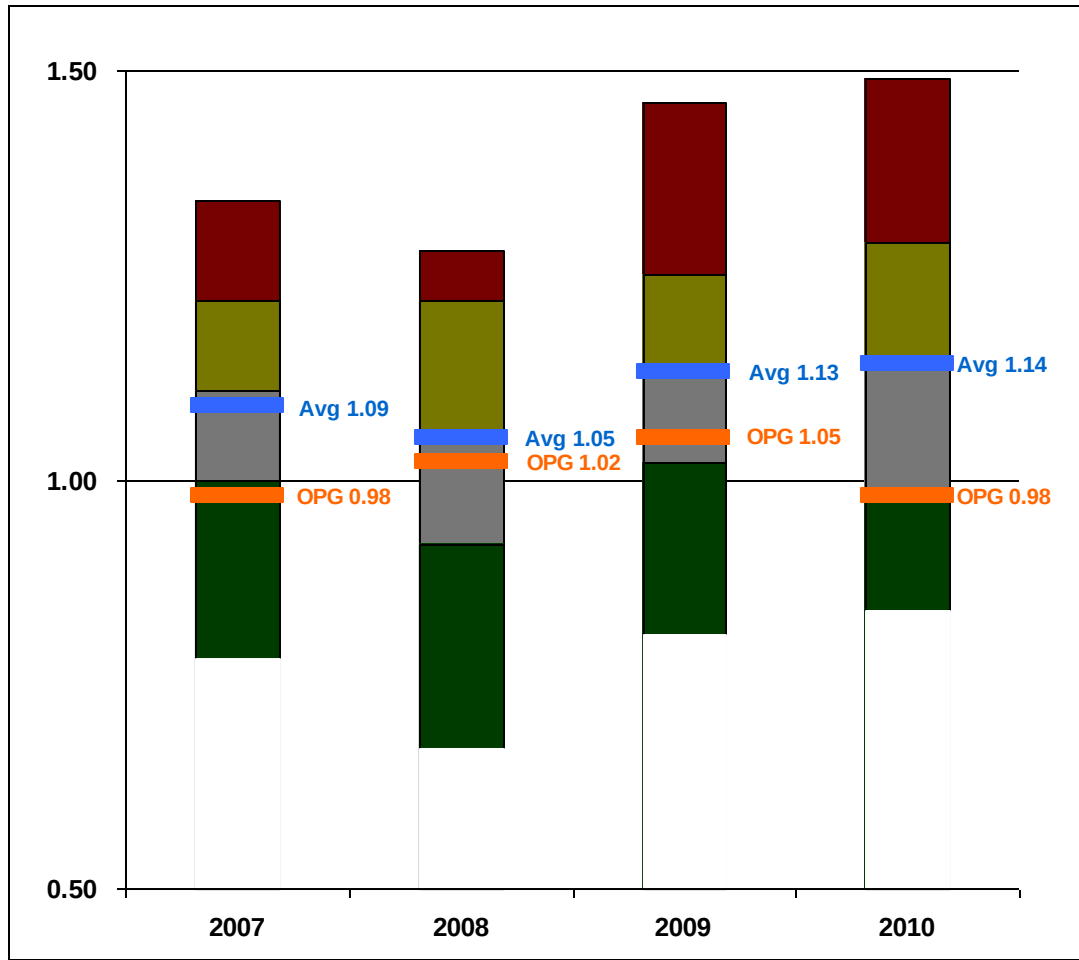
| Data Source                           | 2008              | 2009              | 2010              |
|---------------------------------------|-------------------|-------------------|-------------------|
| OPG Desk top Cost (M\$)               | 18.887            | 23.012            | 22.175            |
| OPG PC Count                          | 14,166            | 14,960            | 13,659            |
| Peer Size                             | 14                | 13                | 10                |
| Q1 Range (\$)                         | 730.99-1,171.78   | 534.41-899.89     | 611.12-1,016.97   |
| Q2 Range (\$)                         | 1,171.78-1,312.35 | 899.89-1,244.37   | 1,016.97-1,255.73 |
| Q3 Range (\$)                         | 1,312.35-1,500.56 | 1,244.37-1,654.14 | 1,255.73-1,324.93 |
| Q4 Range (\$)                         | 1,500.56-3,206.83 | 1,654.14-3,093.94 | 1,324.93-2,231.60 |
| Benchmark Results                     |                   |                   |                   |
| OPG Desktop Cost (\$) Per PC          | 1,333.25          | 1,538.25          | 1,623.45          |
| Peer Average (\$)                     | 1,465.45          | 1,371.33          | 1,284.12          |
| Benchmark Analysis                    |                   |                   |                   |
| Reduction to Achieve Q1 (\$/PC and %) | 161.47<br>↓12%    | 638.36<br>↓41%    | 606.48<br>↓37%    |
| Reduction to Achieve Q2 (\$/PC and %) | 20.90<br>↓2%      | 293.88<br>↓19%    | 367.72<br>↓23%    |

# PCs Per Employee



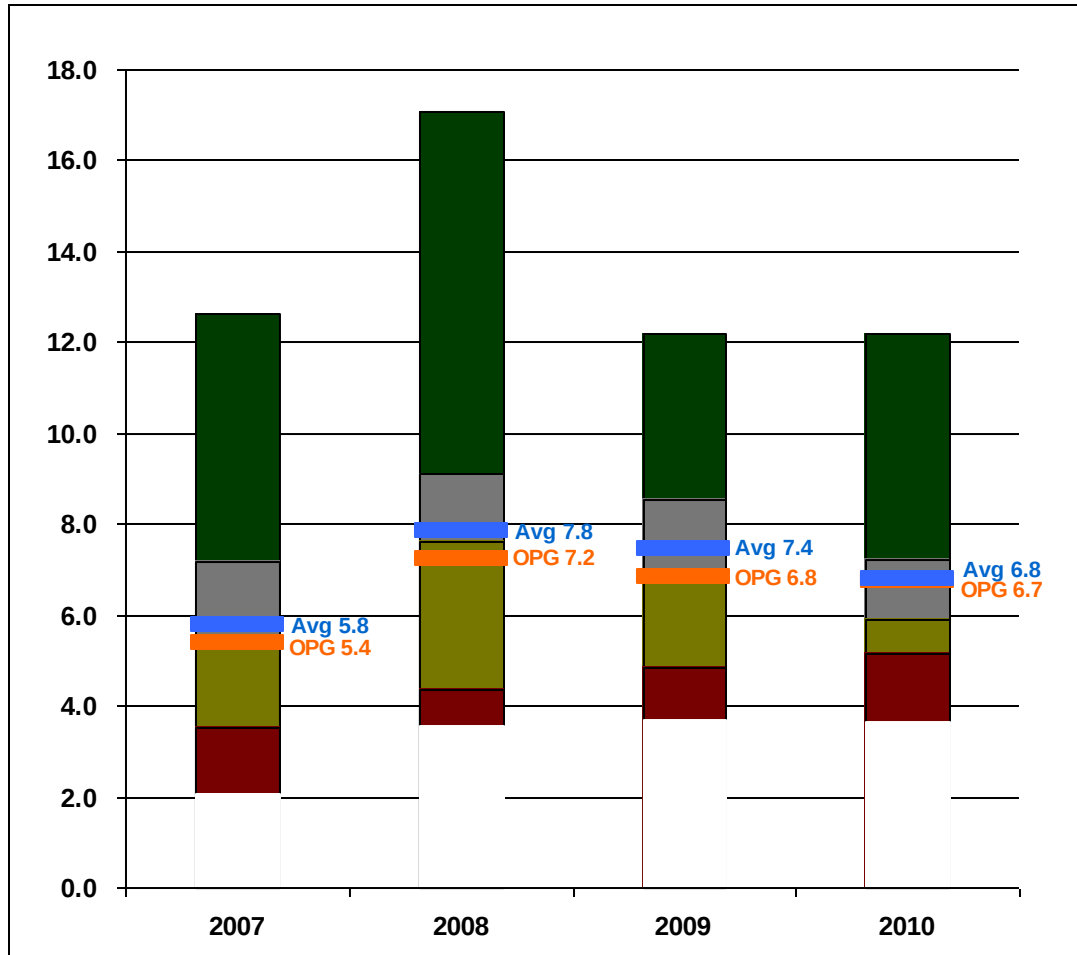
| Data Source                                 | 2008         | 2009         | 2010         |
|---------------------------------------------|--------------|--------------|--------------|
| OPG PC Count                                | 14,166       | 14,960       | 13,659       |
| OPG Employee                                | 14,664       | 14,100       | 12,458       |
| Peer Size                                   | 14           | 13           | 10           |
| Q1 Range                                    | 0.67-1.24    | 0.85-1.23    | 0.90-1.24    |
| Q2 Range                                    | 1.24-1.34    | 1.23-1.54    | 1.24-1.46    |
| Q3 Range                                    | 1.34-1.49    | 1.54-1.77    | 1.46-1.53    |
| Q4 Range                                    | 1.49-2.21    | 1.77-2.45    | 1.53-2.20    |
| Benchmark Results                           |              |              |              |
| OPG PC Per Employee                         | 0.97         | 1.06         | 1.10         |
| Peer Average                                | 1.35         | 1.56         | 1.43         |
| Benchmark Analysis                          |              |              |              |
| Reduction to Achieve Q1 (PC/Employee and %) | Not Required | Not Required | Not Required |
| Reduction to Achieve Q2 (PC/Employee and %) | Not Required | Not Required | Not Required |

# PCs Per End User



| Data Source                                    | 2008            | 2009            | 2010            |
|------------------------------------------------|-----------------|-----------------|-----------------|
| OPG PC Count                                   | 14,166          | 14,960          | 13,659          |
| OPG End User                                   | 13,913          | 14,300          | 14,100          |
| Peer Size                                      | 14              | 13              | 10              |
| Q1 Range                                       | 0.67-0.92       | 0.81-1.02       | 0.84-0.99       |
| Q2 Range                                       | 0.92-1.06       | 1.02-1.13       | 0.99-1.14       |
| Q3 Range                                       | 1.06-1.22       | 1.13-1.25       | 1.14-1.29       |
| Q4 Range                                       | 1.22-1.28       | 1.25-1.46       | 1.29-1.49       |
| Benchmark Results                              |                 |                 |                 |
| OPG PC Per End User                            | 1.02            | 1.05            | 0.98            |
| Peer Average                                   | 1.05            | 1.13            | 1.14            |
| Benchmark Analysis                             |                 |                 |                 |
| Reduction to Achieve Q1<br>(PC/End User and %) | 0.10            | 0.03            | Not<br>Required |
|                                                | ↓9%             | ↓3%             |                 |
| Reduction to Achieve Q2<br>(PC/End User and %) | Not<br>Required | Not<br>Required | Not<br>Required |

# Users Per Network Printer



| Data Source                                               | 2008        | 2009        | 2010         |
|-----------------------------------------------------------|-------------|-------------|--------------|
| OPG End User                                              | 13,913      | 14,300      | 14,000       |
| OPG Network Printer Count                                 | 1,931       | 2,100       | 2,080        |
| Peer Size                                                 | 14          | 13          | 10           |
| Q1 Range                                                  | 9.1-17.1    | 8.5-12.2    | 7.2-12.2     |
| Q2 Range                                                  | 7.6-9.1     | 6.9-8.5     | 5.9-7.2      |
| Q3 Range                                                  | 4.4-7.6     | 4.8-6.9     | 5.1-5.9      |
| Q4 Range                                                  | 3.6-4.4     | 3.7-4.8     | 3.7-5.1      |
| Benchmark Results                                         |             |             |              |
| OPG End User Per Network Printer                          | 7.2         | 6.8         | 6.7          |
| Peer Average                                              | 7.8         | 7.4         | 6.8          |
| Benchmark Analysis                                        |             |             |              |
| Reduction to Achieve Q1 (End Users/Network Printer and %) | 1.9<br>↓26% | 1.7<br>↓25% | 0.5<br>↓7%   |
| Reduction to Achieve Q2 (End Users/Network Printer and %) | 0.4<br>↓5%  | 0.1<br>↓2%  | Not Required |

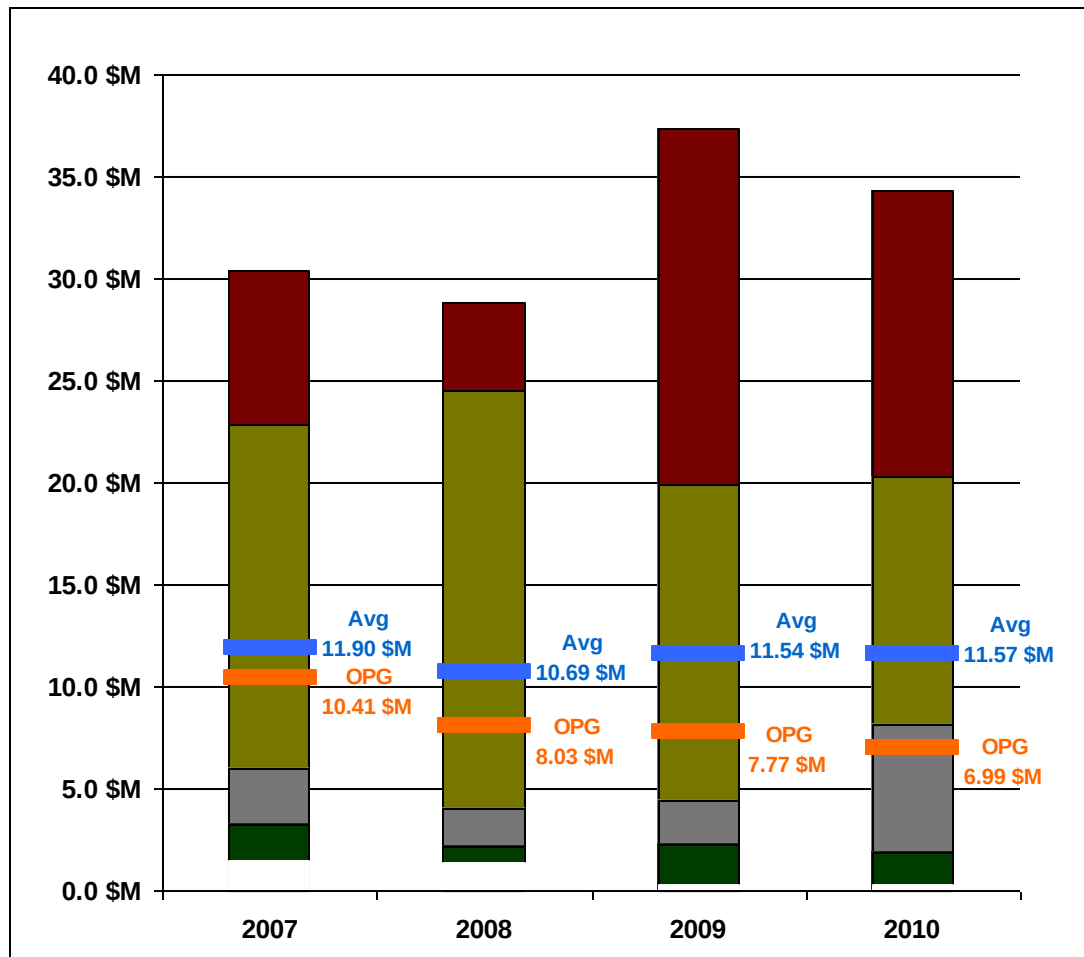
## Note:

For this metric, the higher the result, the better.

# OPG Desktop Support Service Metric Summary

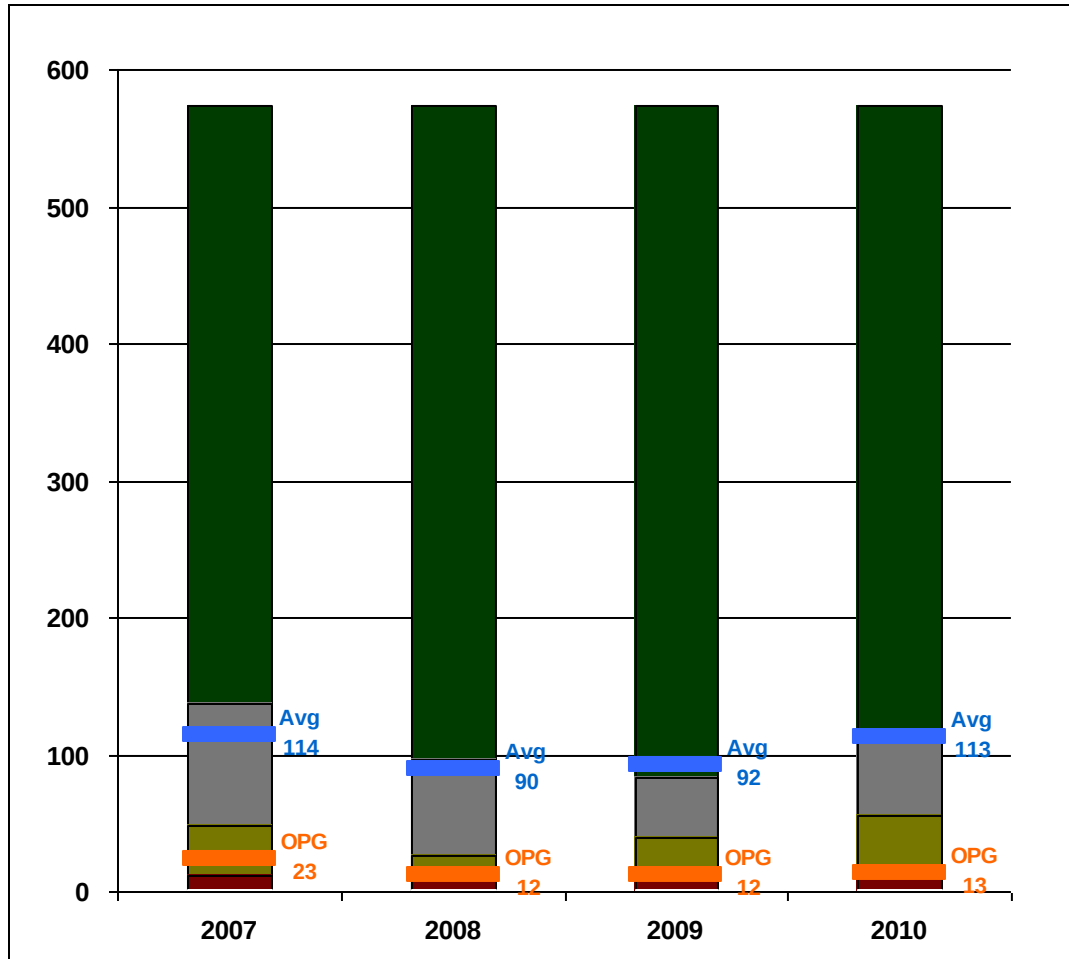
| IT Service Metrics             | 2007 OPG<br>Quartile<br>Ranking | 2008 OPG<br>Quartile<br>Ranking | 2009 OPG<br>Quartile<br>Ranking | 2010 OPG<br>Quartile<br>Ranking | 2009-2010<br>Change |
|--------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------|
| Help Desk Cost Per Transaction | <b>Q4</b>                       | <b>Q4</b>                       | <b>Q4</b>                       | <b>Q4</b>                       | ↑\$3.73             |
| First Call Resolution          | Not available                   | <b>Q2</b>                       | <b>Q3</b>                       | <b>Q4</b>                       | ↑1.1%               |
| Average Speed to Answer        | Not available                   | Not available                   | <b>Q2</b>                       | <b>Q1</b>                       | ↓6.0 sec            |
| Help Desk Tickets Per End User | <b>Q3</b>                       | <b>Q3</b>                       | <b>Q3</b>                       | <b>Q4</b>                       | ↓0.2                |
| Help Desk Cost Per End User    | <b>Q4</b>                       | Worse than Q4                   | Worse than Q4                   | Worse than Q4                   | ↑\$31.14            |
| Desktop Cost Per PC            | Worse than Q4                   | <b>Q3</b>                       | <b>Q3</b>                       | <b>Q4</b>                       | ↑\$85.20            |
| PCs Per Employee               | Better than Q1                  | <b>Q1</b>                       | <b>Q1</b>                       | <b>Q1</b>                       | ↑0.04               |
| PCs Per End User               | <b>Q1</b>                       | <b>Q2</b>                       | <b>Q2</b>                       | <b>Q1</b>                       | ↓0.07               |
| End Users Per Network Printer  | <b>Q2</b>                       | <b>Q3</b>                       | <b>Q3</b>                       | <b>Q2</b>                       | ↓0.08               |

# Computing Services Cost Per Data Centre



| Data Source                                       | 2008         | 2009         | 2010         |
|---------------------------------------------------|--------------|--------------|--------------|
| OPG Computing Services Cost (M\$)                 | 48.19        | 46.59        | 41.94        |
| OPG Data Centre                                   | 6            | 6            | 6            |
| Peer Size                                         | 13           | 13           | 10           |
| Q1 Range (M\$)                                    | 1.42-2.15    | 0.32-2.25    | 0.28-1.91    |
| Q2 Range (M\$)                                    | 2.15-4.02    | 2.25-4.42    | 1.91-8.12    |
| Q3 Range (M\$)                                    | 4.02-24.52   | 4.42-19.93   | 8.12-20.25   |
| Q4 Range (M\$)                                    | 24.52-28.86  | 19.93-37.35  | 20.25-34.36  |
| Benchmark Results                                 |              |              |              |
| OPG Computing Services Cost (M\$) Per Data Centre | 8.03         | 7.77         | 6.99         |
| Peer Average (M\$)                                | 10.69        | 11.54        | 11.57        |
| Benchmark Analysis                                |              |              |              |
| Reduction To Achieve Q1 (M\$/Data Centre and %)   | 5.89<br>↓73% | 5.51<br>↓71% | 5.08<br>↓73% |
| Reduction to Achieve Q2 (M\$/Data Centre and %)   | 4.01<br>↓50% | 3.35<br>↓43% | Not Required |

# IT Sites per Data Centre

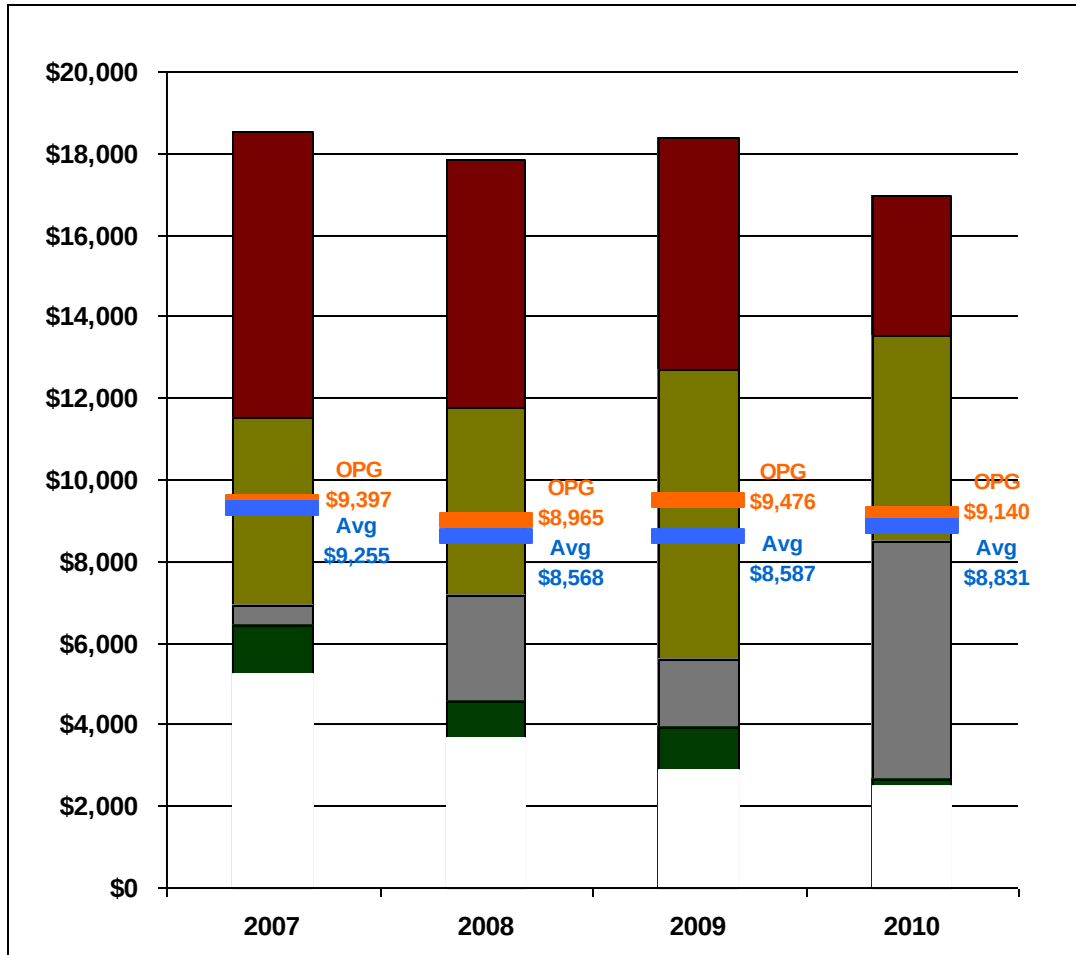


| Data Source                                         | 2008   | 2009   | 2010    |
|-----------------------------------------------------|--------|--------|---------|
| OPG IT Sites                                        | 73     | 73     | 77      |
| OPG Data Centre                                     | 6      | 6      | 6       |
| Peer Size                                           | 13     | 13     | 10      |
| Q1 Range                                            | 96-574 | 83-574 | 117-574 |
| Q2 Range                                            | 26-96  | 40-83  | 55-117  |
| Q3 Range                                            | 11-26  | 17-40  | 17-55   |
| Q4 Range                                            | 1-11   | 1-17   | 2-17    |
| Benchmark Results                                   |        |        |         |
| OPG IT Sites Per Data Centre                        | 12     | 12     | 13      |
| Peer Average                                        | 90     | 92     | 113     |
| Benchmark Analysis                                  |        |        |         |
| Increase to Achieve Q1 (IT Sites/Data Centre and %) | 84     | 70     | 104     |
|                                                     | ↑689%  | ↑578%  | ↑808%   |
| Increase to Achieve Q2 (IT Sites/Data Centre and %) | 14     | 27     | 42      |
|                                                     | ↑114%  | ↑225%  | ↑327%   |

**Note:**

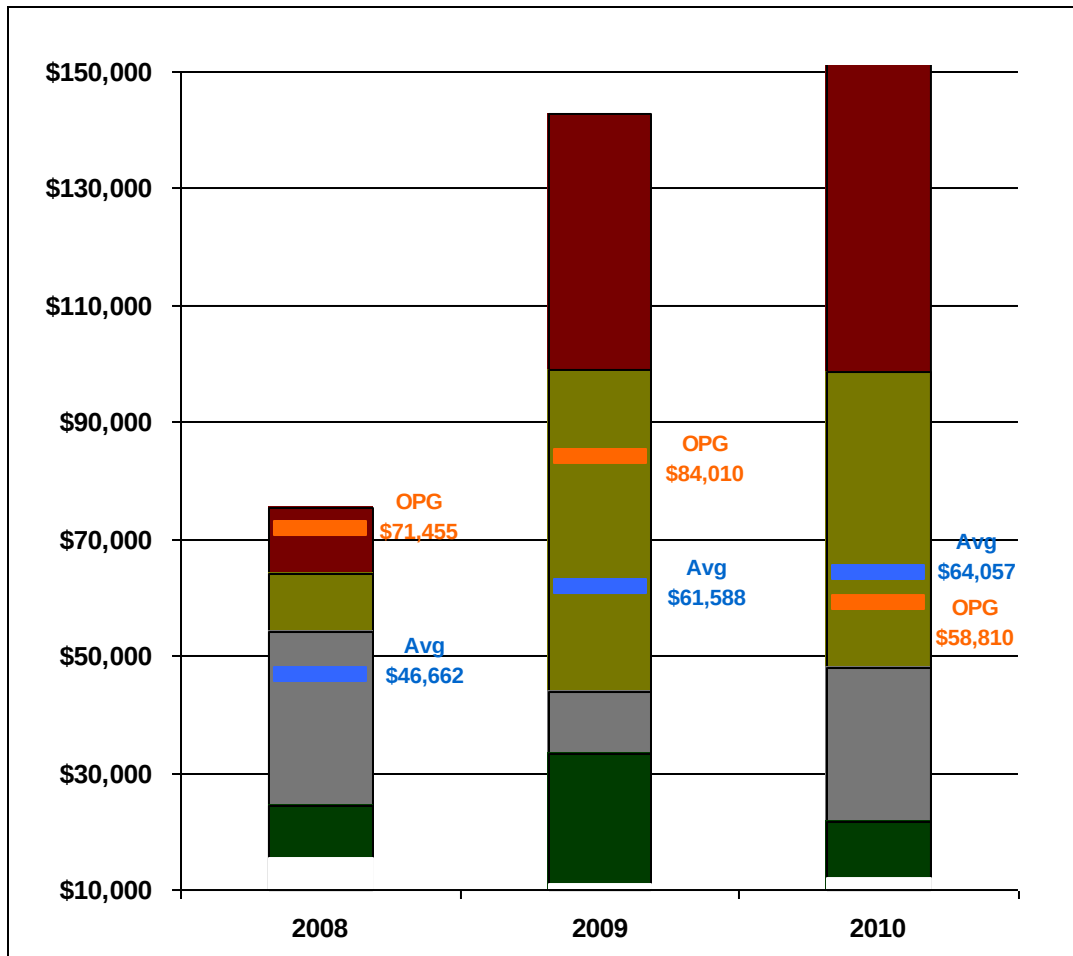
For this metric, the higher the result, the better.

# Mainframe Cost Per MIPS



| Data Source                             | 2008          | 2009          | 2010          |
|-----------------------------------------|---------------|---------------|---------------|
| OPG Mainframe Cost (M\$)                | 12.058        | 12.318        | 10.045        |
| OPG MIPS                                | 1,345         | 1,300         | 1,099         |
| Peer Size                               | 8             | 7             | 5             |
| Q1 Range (\$)                           | 3,698-4,579   | 2,878-3,938   | 2,524-2,656   |
| Q2 Range (\$)                           | 4,579-7,144   | 3,938-5,566   | 2,656-8,467   |
| Q3 Range (\$)                           | 7,144-11,789  | 5,566-12,702  | 8,467-13,527  |
| Q4 Range (\$)                           | 11,789-17,822 | 12,702-18,382 | 13,527-16,984 |
| Benchmark Results                       |               |               |               |
| OPG Mainframe Cost (\$) Per MIPS        | 8,965         | 9,476         | 9,140         |
| Peer Average (\$)                       | 8,568         | 8,587         | 8,831         |
| Benchmark Analysis                      |               |               |               |
| Reduction to Achieve Q1 (\$/MIPS and %) | 4,386<br>↓49% | 5,538<br>↓58% | 6,484<br>↓71% |
| Reduction to Achieve Q2 (\$/MIPS and %) | 1,820<br>↓20% | 3,909<br>↓41% | 673<br>↓7%    |

# Unix Cost Per Physical Unix Server

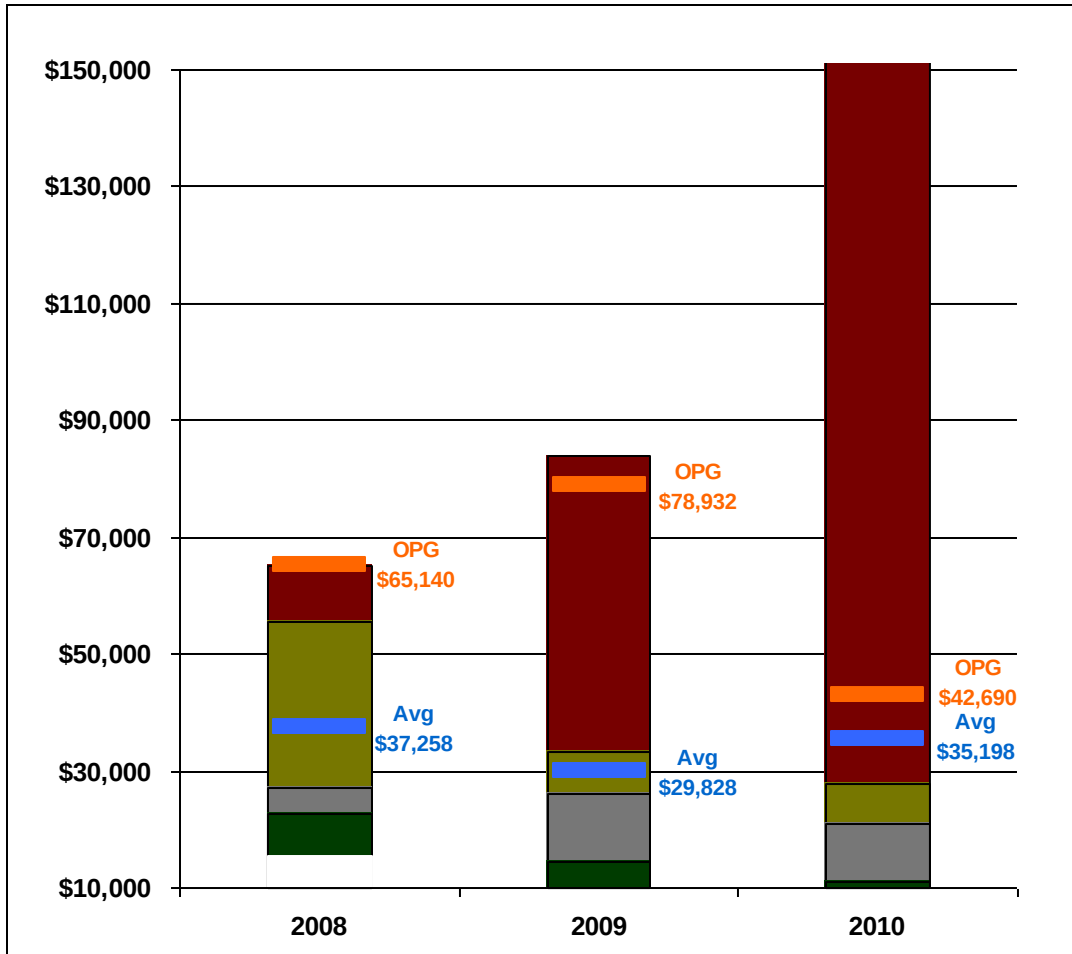


| Data Source                                    | 2008          | 2009           | 2010           |
|------------------------------------------------|---------------|----------------|----------------|
| OPG Unix Cost (M\$)                            | 14.005        | 14.366         | 8.410          |
| OPG Unix Server                                | 196           | 171            | 143            |
| Peer Size                                      | 12            | 10             | 8              |
| Q1 Range (\$)                                  | 15,439-24,233 | 11,119-33,392  | 12,153-21,699  |
| Q2 Range (\$)                                  | 24,233-54,219 | 33,392-43,824  | 21,699-47,899  |
| Q3 Range (\$)                                  | 54,219-64,133 | 43,824-98,863  | 47,899-98,609  |
| Q4 Range (\$)                                  | 64,133-75,364 | 98,863-142,845 | 98,609-163,889 |
| Benchmark Results                              |               |                |                |
| OPG Unix Cost (\$) Per Unix Server             | 71,455        | 84,010         | 58,810         |
| Peer Average (\$)                              | 46,662        | 61,588         | 64,057         |
| Benchmark Analysis                             |               |                |                |
| Reduction to Achieve Q1 (\$/Unix Server and %) | 47,222        | 50,618         | 37,111         |
|                                                | ↓66%          | ↓60%           | ↓63%           |
| Reduction to Achieve Q2 (\$/Unix Server and %) | 17,236        | 40,186         | 10,911         |
|                                                | ↓24%          | ↓48%           | ↓19%           |

## Note:

Unix Servers include physical installed non-host servers running Unix Operating Systems

# Unix Cost Per Unix OS

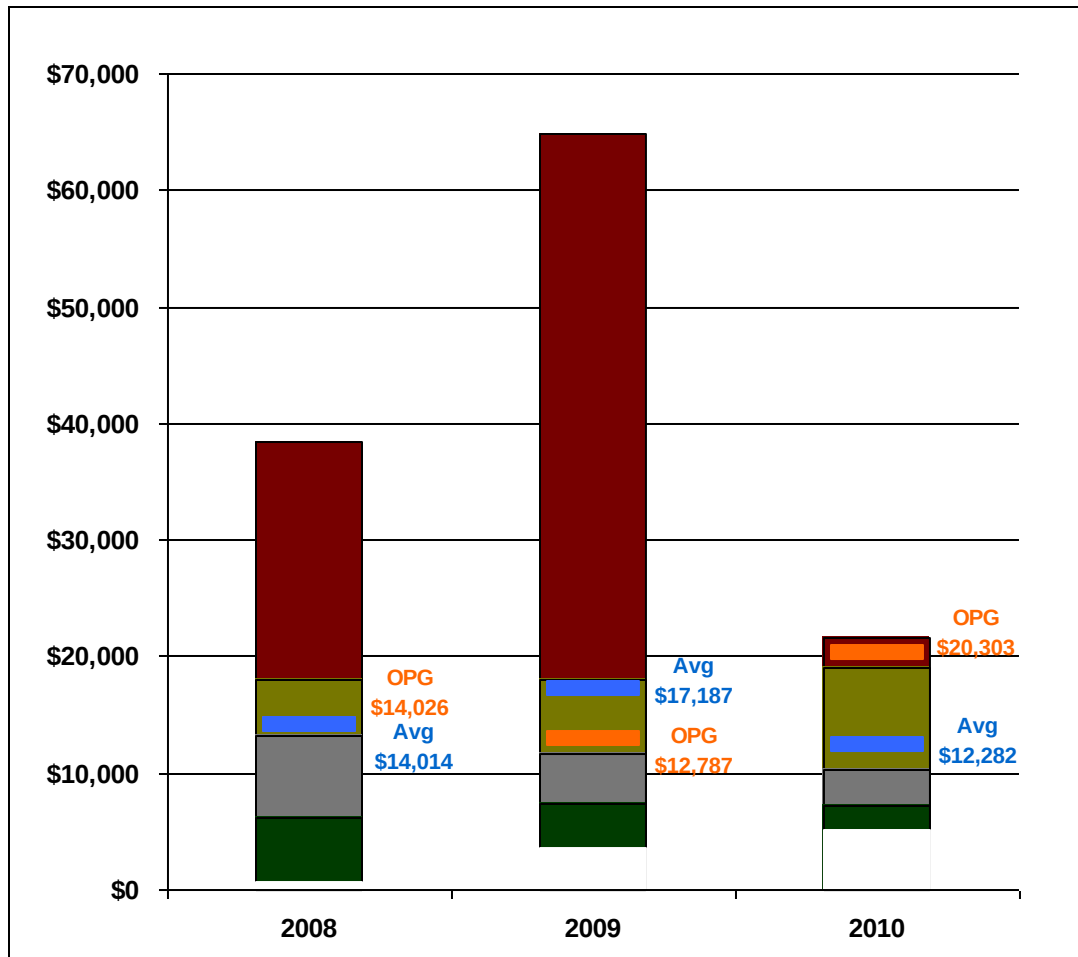


| Data Source                                | 2008          | 2009          | 2010           |
|--------------------------------------------|---------------|---------------|----------------|
| OPG Unix Cost (M\$)                        | 14.005        | 14.366        | 8.410          |
| OPG Unix OS                                | 215           | 182           | 197            |
| Peer Size                                  | 13            | 10            | 9              |
| Q1 Range (\$)                              | 15,439-22,720 | 8,972-14,429  | 7,603-11,032   |
| Q2 Range (\$)                              | 22,720-27,138 | 14,429-25,957 | 11,032-20,842  |
| Q3 Range (\$)                              | 27,138-55,545 | 25,957-33,392 | 20,842-27,779  |
| Q4 Range (\$)                              | 55,545-65,088 | 33,392-83,883 | 27,779-163,889 |
| Benchmark Results                          |               |               |                |
| OPG Unix Cost (\$) Per Unix OS             | 65,140        | 78,932        | 42,690         |
| Peer Average (\$)                          | 37,258        | 29,828        | 35,198         |
| Benchmark Analysis                         |               |               |                |
| Reduction to Achieve Q1 (\$/Unix OS and %) | 42,420        | 64,504        | 31,658         |
|                                            | ↓65%          | ↓82%          | ↓74%           |
| Reduction to Achieve Q2 (\$/Unix OS and %) | 38,002        | 52,976        | 21,848         |
|                                            | ↓58%          | ↓67%          | ↓51%           |

## Note:

Unix OS include both physical and virtual OS instances of Unix

# Wintel Cost Per Physical Wintel Server

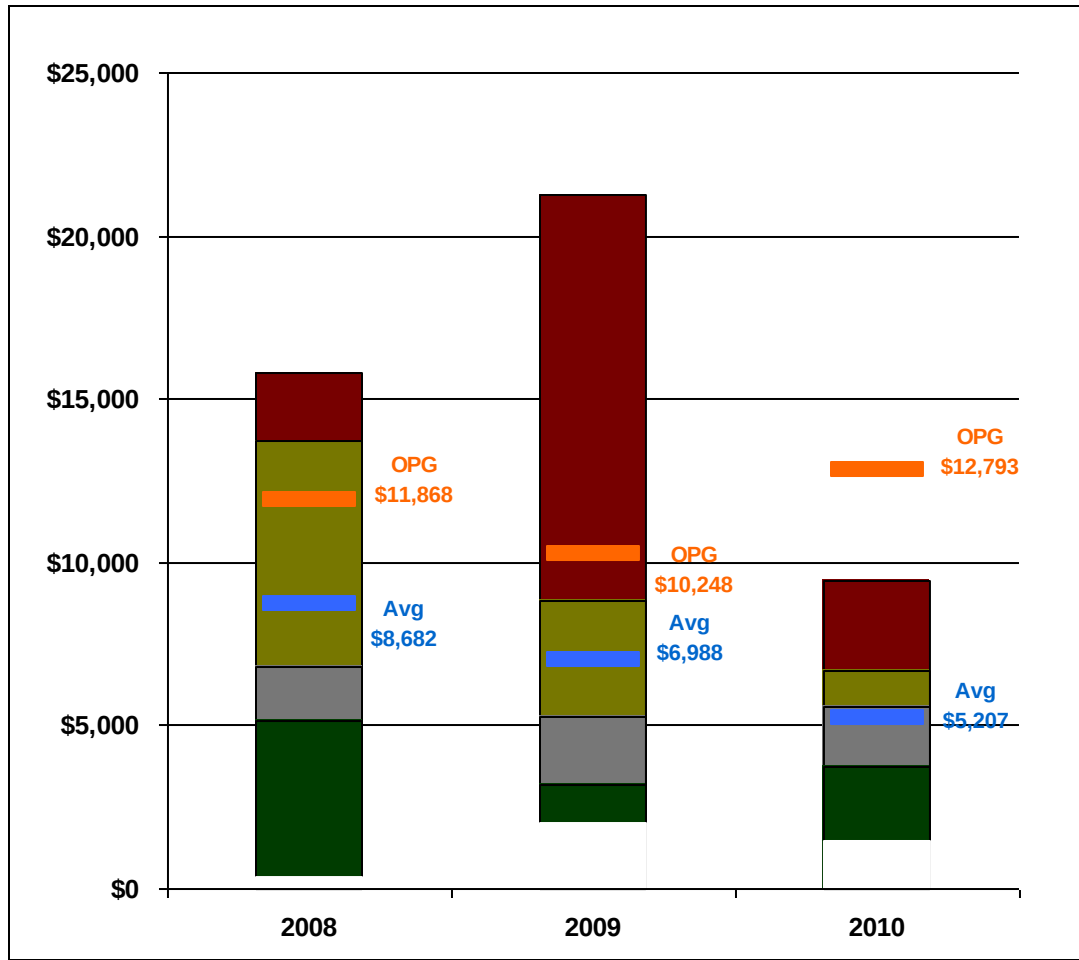


| Data Source                                            | 2008          | 2009          | 2010           |
|--------------------------------------------------------|---------------|---------------|----------------|
| OPG Wintel Cost (M\$)                                  | 15.428        | 16.099        | 15.044         |
| OPG Wintel Server                                      | 1,100         | 1,259         | 741            |
| Peer Size                                              | 13            | 12            | 10             |
| Q1 Range (\$)                                          | 680-6,215     | 3,532-7,418   | 5,168-7,194    |
| Q2 Range (\$)                                          | 6,215-13,193  | 7,418-11,584  | 7,194-10,330   |
| Q3 Range (\$)                                          | 13,193-18,075 | 11,584-18,029 | 10,330-19,093  |
| Q4 Range (\$)                                          | 18,075-38,371 | 18,029-64,874 | 19,093-21,690  |
| Benchmark Results                                      |               |               |                |
| OPG Wintel Cost (\$)<br>Per Wintel Server              | 14,026        | 12,787        | 20,303         |
| Peer Average (\$)                                      | 14,014        | 17,187        | 12,282         |
| Benchmark Analysis                                     |               |               |                |
| Reduction to Achieve<br>Q1 (\$/Wintel Server<br>and %) | 7,811<br>↓56% | 5,370<br>↓42% | 13,109<br>↓65% |
| Reduction to Achieve<br>Q2 (\$/Wintel Server<br>and %) | 833<br>↓6%    | 1,203<br>↓9%  | 9,973<br>↓49%  |

## Note:

Wintel Servers include physical installed non-host servers running Windows Operating Systems

# Wintel Cost Per Wintel OS

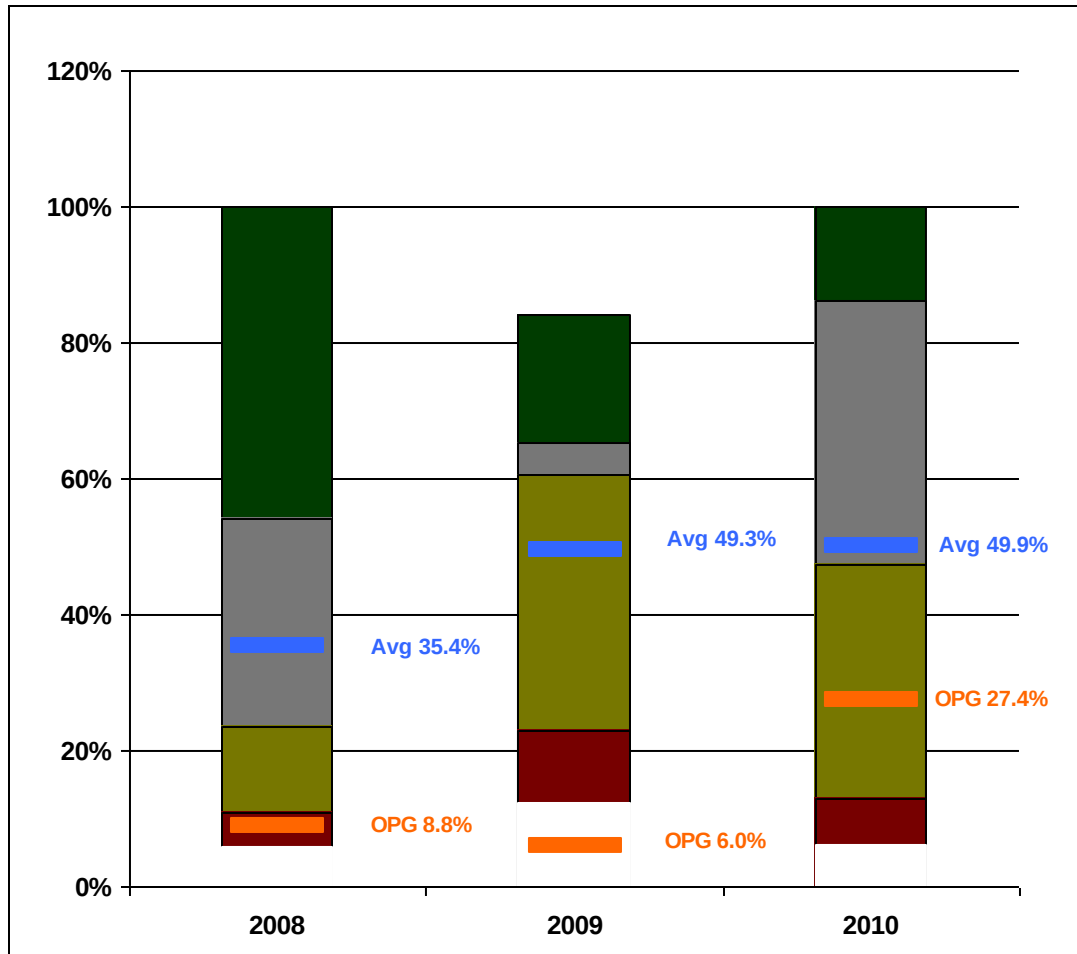


| Data Source                                  | 2008          | 2009          | 2010          |
|----------------------------------------------|---------------|---------------|---------------|
| OPG Wintel Cost (M\$)                        | 15.428        | 16.099        | 15.044        |
| OPG Wintel OS                                | 1,300         | 1,571         | 1,176         |
| Peer Size                                    | 13            | 12            | 10            |
| Q1 Range (\$)                                | 383-5,171     | 2,034-3,182   | 1,487-3,714   |
| Q2 Range (\$)                                | 5,171-6,789   | 3,182-5,274   | 3,714-5,551   |
| Q3 Range (\$)                                | 6,789-13,746  | 5,274-8,831   | 5,551-6,685   |
| Q4 Range (\$)                                | 13,746-15,780 | 8,831-21,272  | 6,685-9,465   |
| Benchmark Results                            |               |               |               |
| OPG Wintel Cost (\$) Per Wintel OS           | 11,868        | 10,248        | 12,793        |
| Peer Average (\$)                            | 8,682         | 6,988         | 5,207         |
| Benchmark Analysis                           |               |               |               |
| Reduction to Achieve Q1 (\$/Wintel OS and %) | 6,697<br>↓56% | 7,066<br>↓69% | 9,079<br>↓71% |
| Reduction to Achieve Q2 (\$/Wintel OS and %) | 5,079<br>↓43% | 4,974<br>↓49% | 7,242<br>↓57% |

## Note:

Wintel OS include both physical and virtual OS instances of Windows

# % of Unix Virtualization



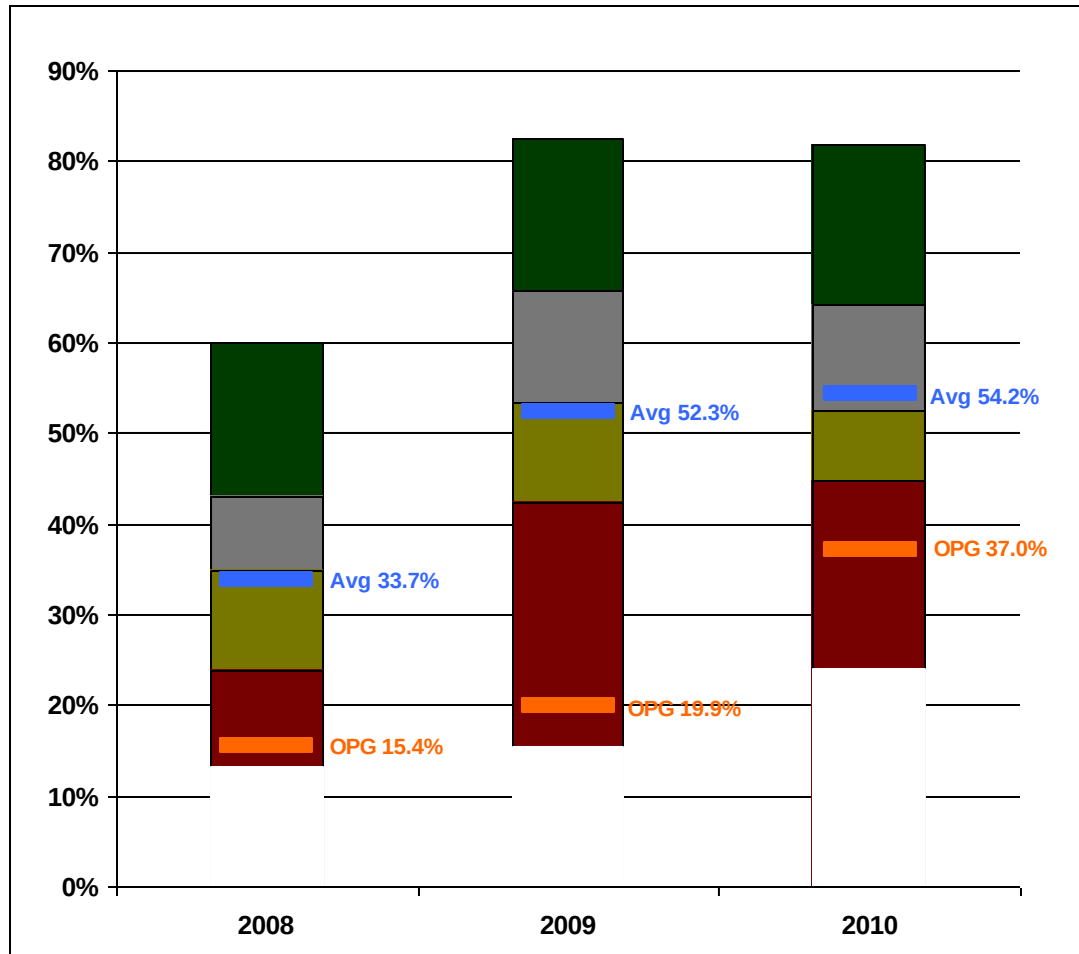
| Data Source                    | 2008       | 2009      | 2010       |
|--------------------------------|------------|-----------|------------|
| # of Virtual Unix OS Instances | 19         | 11        | 54         |
| Total Unix OS                  | 215        | 182       | 197        |
| Peer Size                      | 8          | 8         | 8          |
| Q1 Range (%)                   | 54.0-100.0 | 65.3-84.2 | 86.3-100.0 |
| Q2 Range (%)                   | 23.6-54.0  | 60.5-65.3 | 47.3-86.3  |
| Q3 Range (%)                   | 10.9-23.6  | 23.0-60.5 | 13.0-47.3  |
| Q4 Range (%)                   | 6.0-10.9   | 12.5-23.0 | 6.2-13.0   |
| Benchmark Results              |            |           |            |
| OPG Unix Virtualization (%)    | 8.8        | 6.0       | 27.4       |
| Peer Average (%)               | 35.4       | 49.3      | 49.9       |
| Benchmark Analysis             |            |           |            |
| Increase to Achieve Q1 (%)     | 45.2       | 59.2      | 58.9       |
|                                | ↑511%      | ↑980%     | ↑215%      |
| Increase to Achieve Q2 (%)     | 14.8       | 54.4      | 19.8       |
|                                | ↑167%      | ↑900%     | ↑72%       |

## Note:

For this metric, the higher the result, the better.

Total Unix OS is composed of virtual and physical Unix OS

# % of Wintel Virtualization



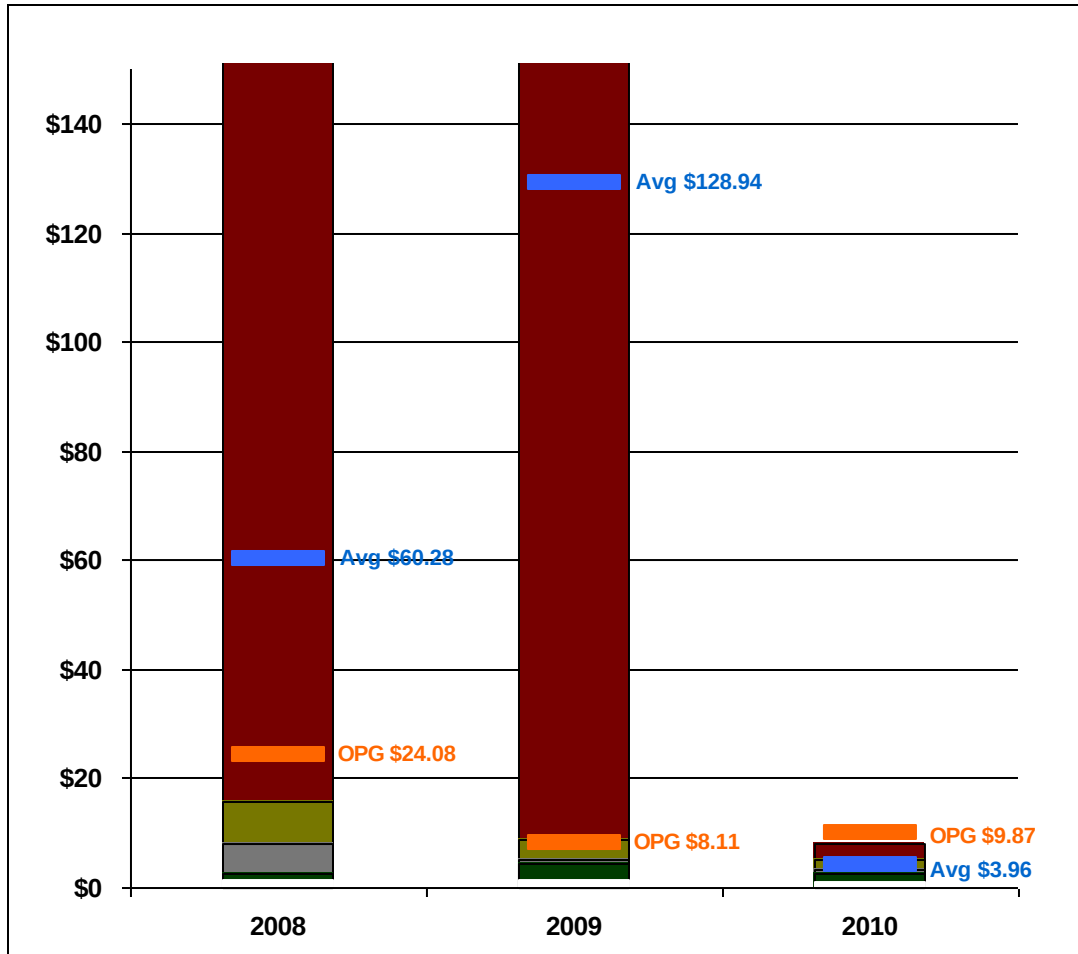
| Data Source                      | 2008      | 2009      | 2010      |
|----------------------------------|-----------|-----------|-----------|
| # of Virtual Wintel OS Instances | 200       | 312       | 435       |
| Total Wintel OS                  | 1,300     | 1,571     | 1,176     |
| Peer Size                        | 13        | 12        | 10        |
| Q1 Range (%)                     | 43.0-60.0 | 65.7-82.4 | 64.1-81.8 |
| Q2 Range (%)                     | 34.8-43.0 | 53.4-65.7 | 52.6-64.1 |
| Q3 Range (%)                     | 23.9-34.8 | 42.4-53.4 | 44.7-52.6 |
| Q4 Range (%)                     | 13.3-23.9 | 15.4-42.4 | 24.1-44.7 |
| Benchmark Results                |           |           |           |
| OPG Wintel Virtualization (%)    | 15.4      | 19.9      | 37.0      |
| Peer Average (%)                 | 33.7      | 52.3      | 54.2      |
| Benchmark Analysis               |           |           |           |
| Increase to Achieve Q1 (%)       | 27.6      | 45.8      | 27.1      |
|                                  | ↑180%     | ↑231%     | ↑73%      |
| Increase to Achieve Q2 (%)       | 19.4      | 33.5      | 15.7      |
|                                  | ↑126%     | ↑169%     | ↑42%      |

## Note:

For this metric, the higher the result, the better.

Total Wintel OS is composed of physical and virtual Wintel OS

# Storage Cost Per Gigabyte

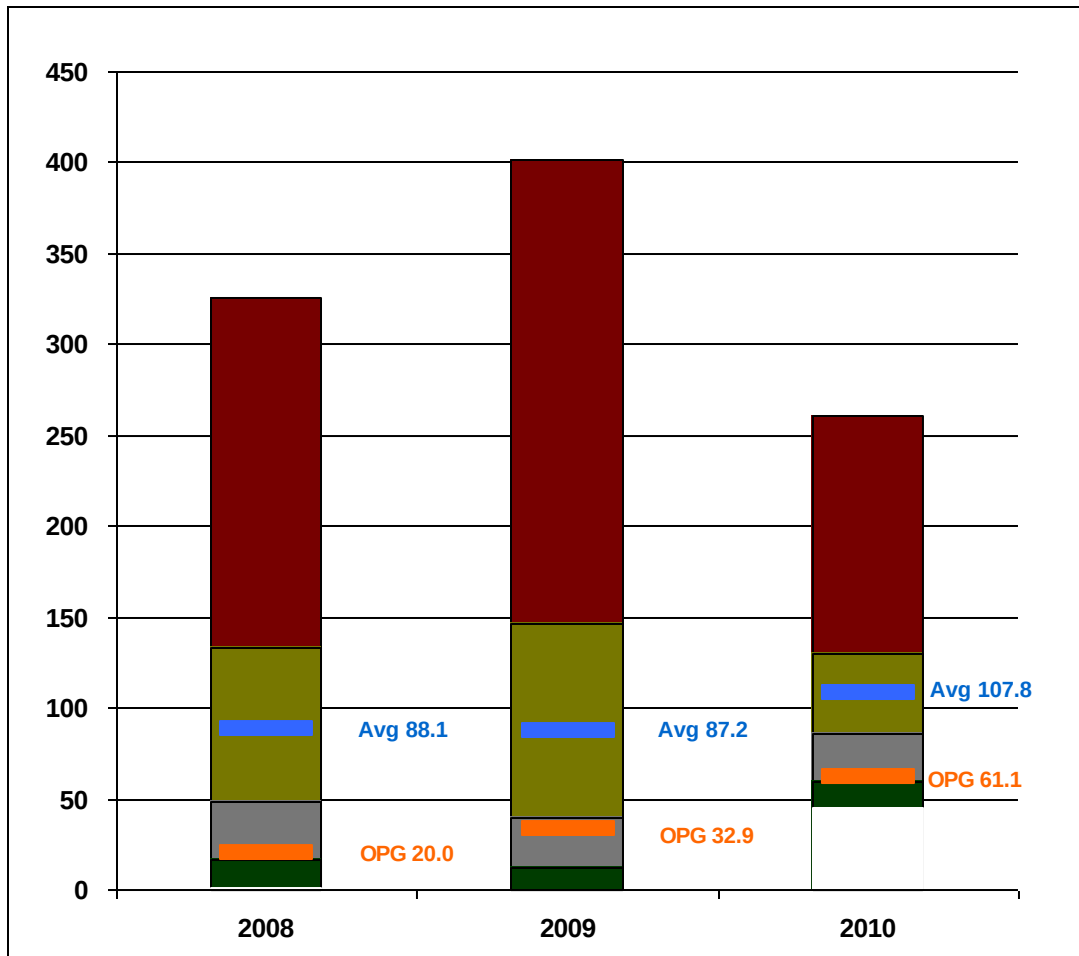


| Data Source                                   | 2008         | 2009        | 2010      |
|-----------------------------------------------|--------------|-------------|-----------|
| OPG Storage Cost (M\$)                        | 6.694        | 3.810       | 8.441     |
| OPG Storage Capacity (GB)                     | 278,000      | 470,000     | 855,000   |
| Peer Size                                     | 11           | 11          | 10        |
| Q1 Range (\$)                                 | 1.62-2.71    | 1.44-4.31   | 1.28-2.51 |
| Q2 Range (\$)                                 | 2.71-7.91    | 4.31-4.98   | 2.51-3.32 |
| Q3 Range (\$)                                 | 7.91-15.76   | 4.98-8.93   | 3.32-5.17 |
| Q4 Range (\$)                                 | 15.76-514.54 | 8.93-816.88 | 5.17-8.02 |
| Benchmark Results                             |              |             |           |
| OPG Storage Cost (\$/GB) Per Storage Capacity | 24.08        | 8.11        | 9.87      |
| Peer Average (\$)                             | 60.28        | 128.94      | 3.96      |
| Benchmark Analysis                            |              |             |           |
| Reduction to Achieve Q1 (\$/GB and %)         | 21.37        | 3.80        | 7.36      |
|                                               | ↓89%         | ↓47%        | ↓75%      |
| Reduction to Achieve Q2 (\$/GB and %)         | 16.17        | 3.13        | 6.56      |
|                                               | ↓67%         | ↓39%        | ↓66%      |

## Note:

2010 capacity includes Tapeless Backup

# Storage Capacity Per End User



| Data Source                                 | 2008         | 2009         | 2010         |
|---------------------------------------------|--------------|--------------|--------------|
| OPG Storage Capacity (GB)                   | 278,000      | 470,000      | 855,000      |
| OPG End User                                | 13,913       | 14,300       | 14,000       |
| Peer Size                                   | 12           | 13           | 10           |
| Q1 Range (GB)                               | 0.9-17.0     | 0.1-11.8     | 45.4-59.2    |
| Q2 Range (GB)                               | 17.0-48.6    | 11.8-40.1    | 59.2-85.4    |
| Q3 Range (GB)                               | 48.6-133.3   | 40.1-145.8   | 85.4-129.3   |
| Q4 Range (GB)                               | 133.3-325.5  | 145.8-401.7  | 129.3-260.4  |
| Benchmark Results                           |              |              |              |
| OPG Storage Capacity (GB) Per End User      | 20.0         | 32.9         | 61.1         |
| Peer Average (GB)                           | 88.1         | 87.2         | 107.8        |
| Benchmark Analysis                          |              |              |              |
| Reduction to Achieve Q1 (GB/End User and %) | 3.0          | 21.0         | 1.9          |
|                                             | ↓15%         | ↓64%         | ↓3%          |
| Reduction to Achieve Q2 (GB/End User and %) | Not Required | Not Required | Not Required |

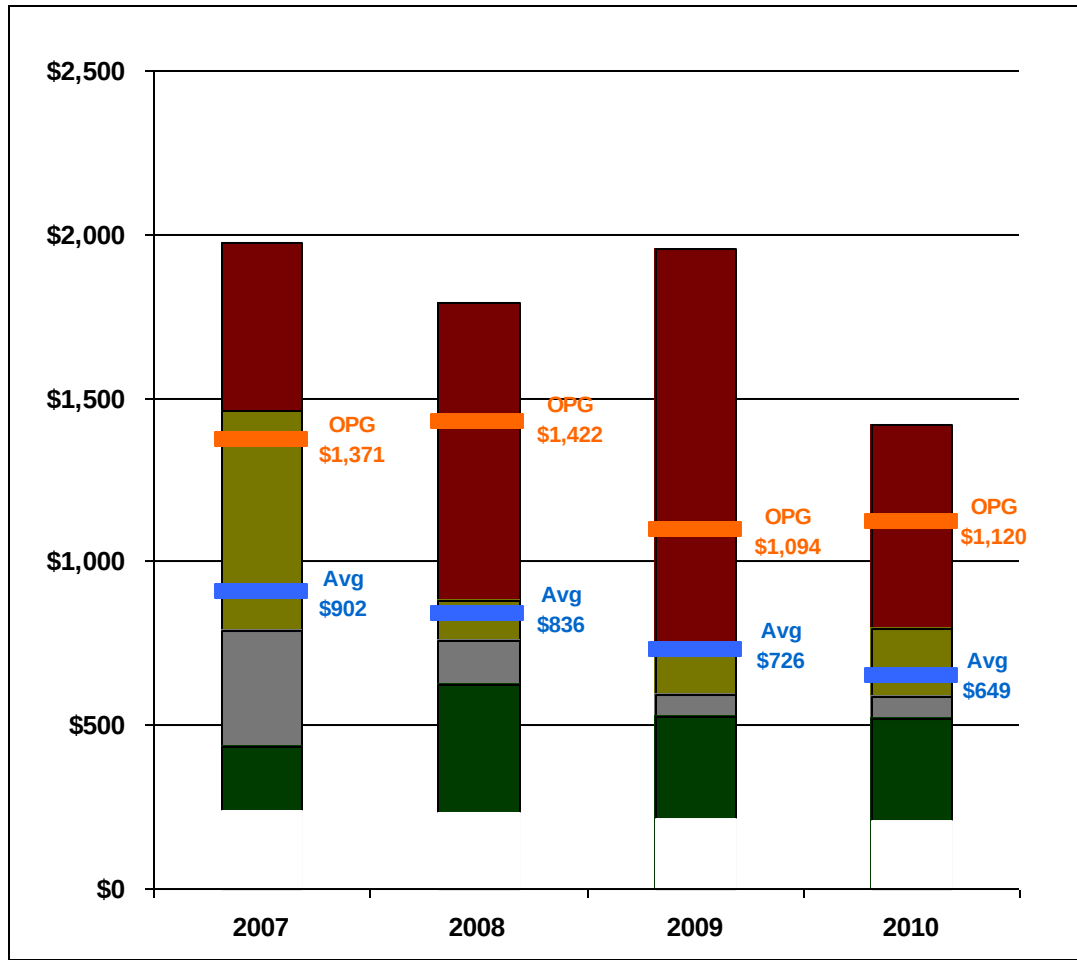
## Note:

Sample size includes outliers. 2010 capacity includes Tapeless Backup

# OPG Computing Service Metric Summary

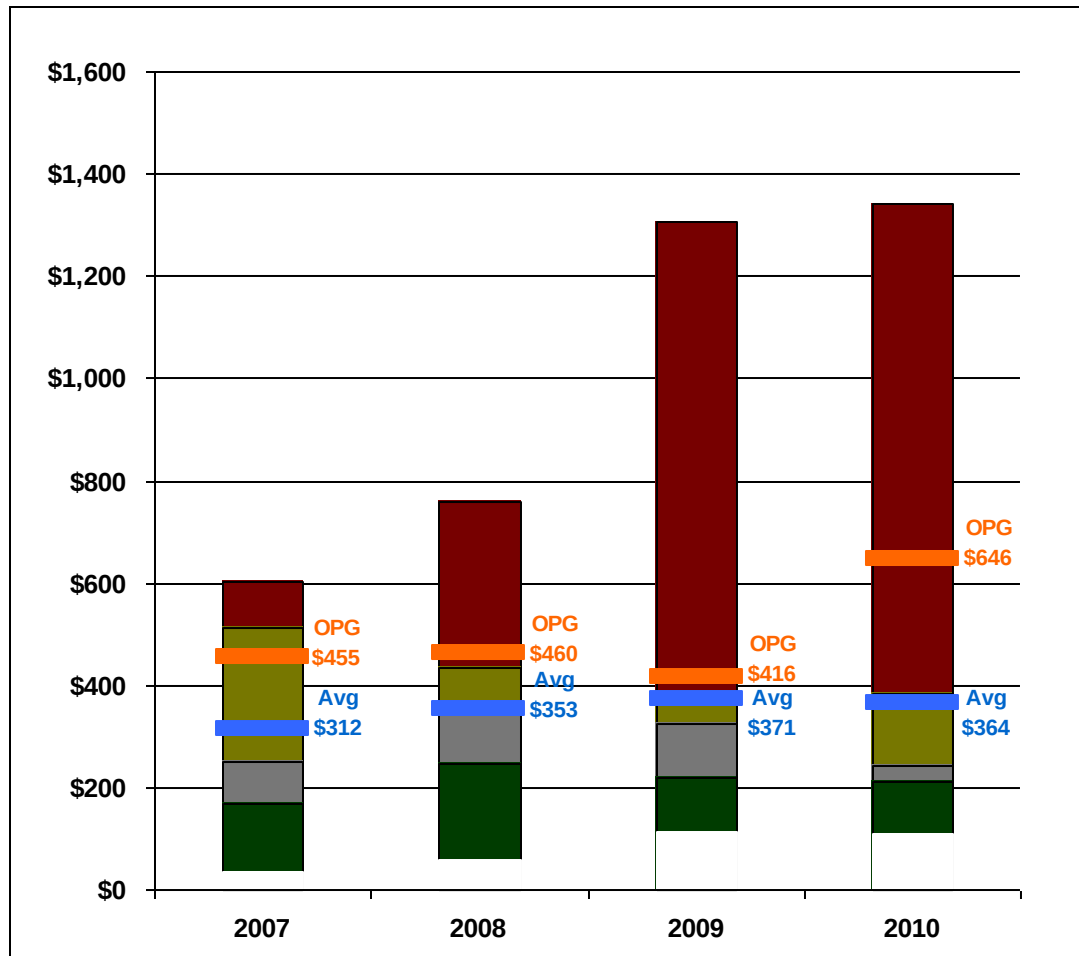
| IT Service Metrics                      | 2007 OPG<br>Quartile<br>Ranking | 2008 OPG<br>Quartile<br>Ranking | 2009 OPG<br>Quartile<br>Ranking | 2010 OPG<br>Quartile<br>Ranking | 2009-2010<br>Change |
|-----------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------|
| Computing Services Cost Per Data Centre | Q3                              | Q3                              | Q3                              | Q2                              | ↓\$0.78M            |
| IT Sites Per Data Centre                | Q3                              | Q3                              | Q4                              | Q4                              | ↑1                  |
| Mainframe Cost Per Installed MIPS       | Q3                              | Q3                              | Q3                              | Q3                              | ↓\$336              |
| Unix Cost Per Unix OS                   | Not available                   | Q4                              | Q4                              | Q4                              | ↓\$36,243           |
| Unix Cost Per Physical Unix Server      | Not available                   | Q4                              | Q3                              | Q3                              | ↓\$25,200           |
| Wintel Cost Per Wintel OS               | Not available                   | Q3                              | Q4                              | Q4                              | ↑\$2,545            |
| Wintel Cost Per Physical Wintel Server  | Not available                   | Q3                              | Q3                              | Q4                              | ↑\$7,516            |
| % Unix Virtualization                   | Not available                   | Q4                              | Worse<br>than Q4                | Q3                              | ↑21.4%              |
| % Wintel Virtualization                 | Not available                   | Q4                              | Q4                              | Q4                              | ↑17.1%              |
| Storage Cost Per Capacity               | Not available                   | Q4                              | Q3                              | Worse<br>than Q4                | ↑\$1.77             |
| Storage Capacity Per End User           | Not available                   | Q2                              | Q2                              | Q2                              | ↑28.2 GB            |

# Data Network Cost Per End User



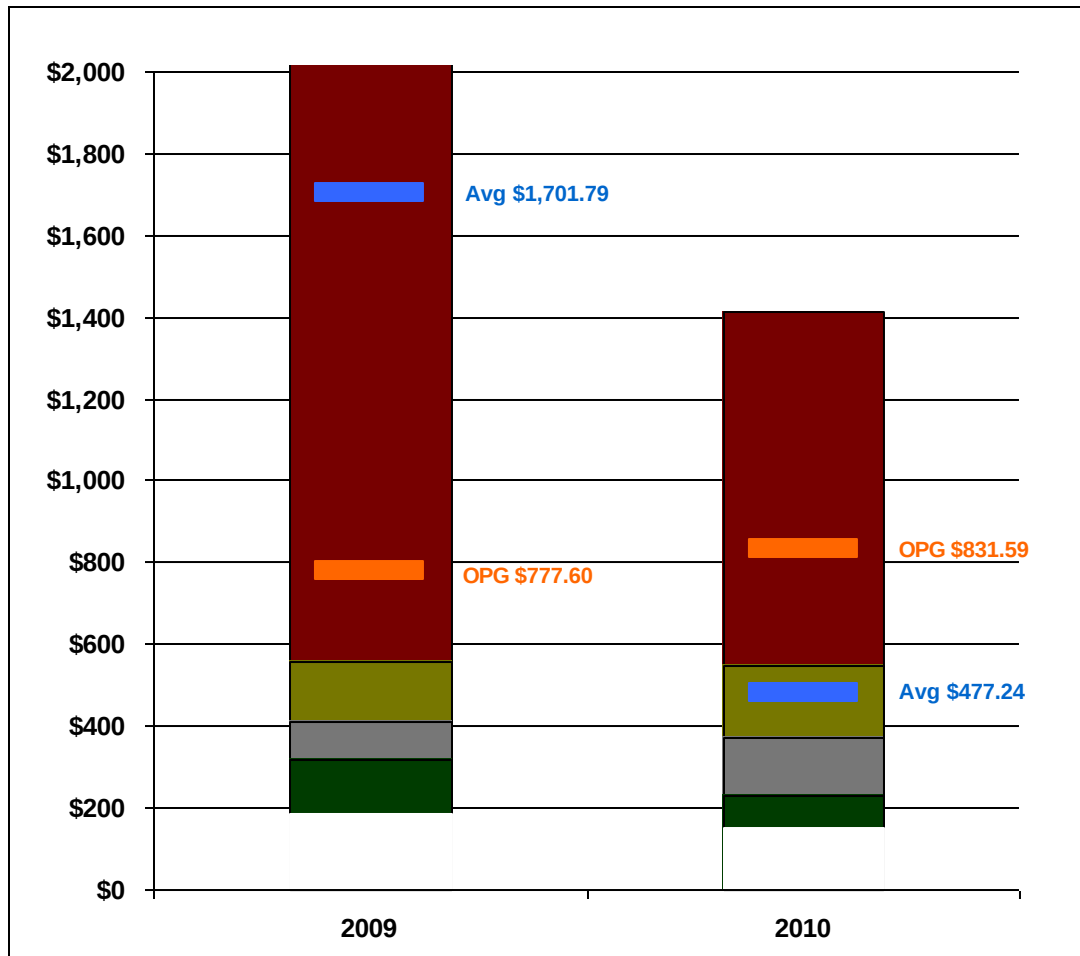
| Data Source                                 | 2008      | 2009      | 2010      |
|---------------------------------------------|-----------|-----------|-----------|
| OPG Data Network Cost (M\$)                 | 19.782    | 15.645    | 15.682    |
| OPG End User                                | 13,913    | 14,300    | 14,000    |
| Peer Size                                   | 14        | 13        | 10        |
| Q1 Range (\$)                               | 234-626   | 214-527   | 208-521   |
| Q2 Range (\$)                               | 626-758   | 527-595   | 521-588   |
| Q3 Range (\$)                               | 758-883   | 595-727   | 588-792   |
| Q4 Range (\$)                               | 883-1,793 | 727-1,954 | 792-1,418 |
| Benchmark Results                           |           |           |           |
| OPG Data Network Cost (\$) Per End User     | 1,422     | 1,094     | 1,120     |
| Peer Average (\$)                           | 836       | 726       | 649       |
| Benchmark Analysis                          |           |           |           |
| Reduction to Achieve Q1 (\$/End User and %) | 796       | 567       | 599       |
|                                             | ↓56%      | ↓52%      | ↓53%      |
| Reduction to Achieve Q2 (\$/End User and %) | 664       | 499       | 532       |
|                                             | ↓47%      | ↓46%      | ↓47%      |

# Data Network Cost Per LAN Port



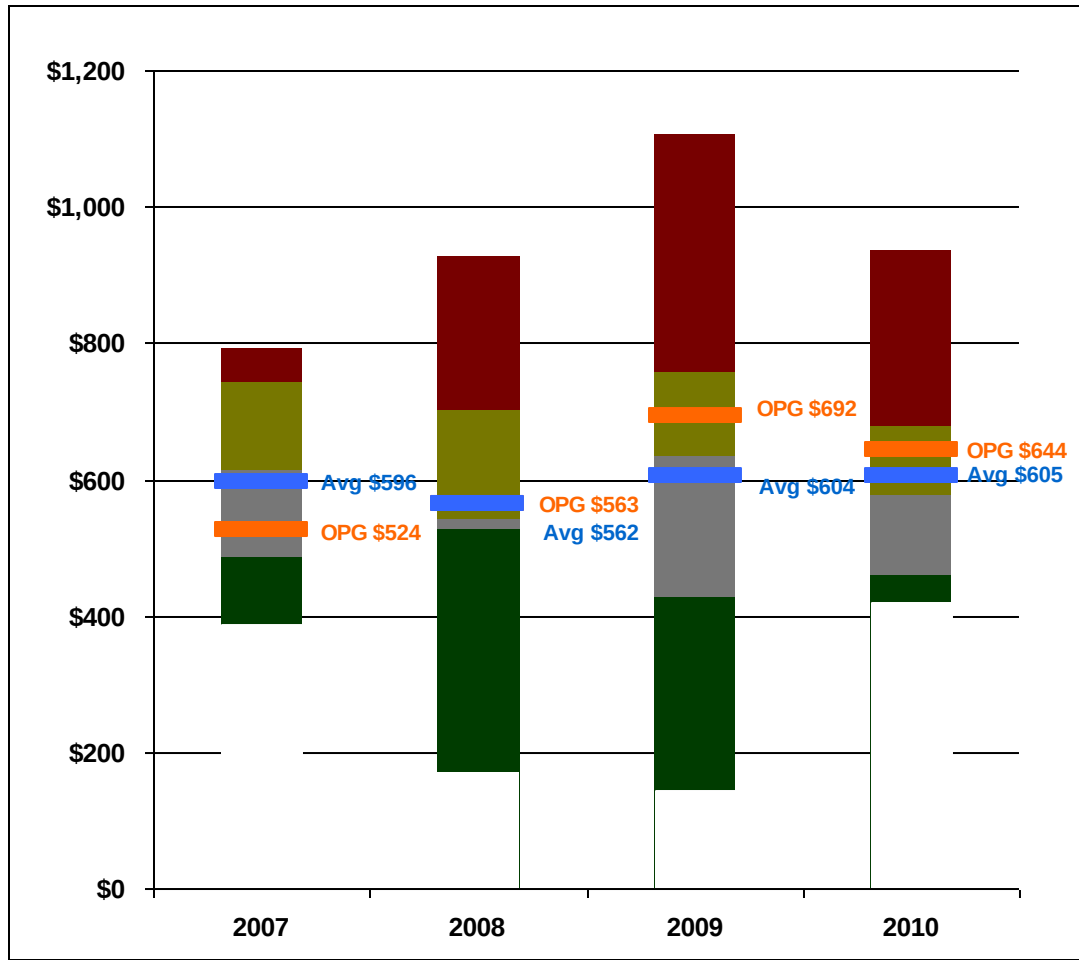
| Data Source                                 | 2008    | 2009      | 2010      |
|---------------------------------------------|---------|-----------|-----------|
| OPG Data Network Cost (M\$)                 | 19.782  | 15.645    | 15.682    |
| OPG LAN Port                                | 43,005  | 37,600    | 24,258    |
| Peer Size                                   | 14      | 13        | 10        |
| Q1 Range (\$)                               | 57-247  | 114-219   | 111-210   |
| Q2 Range (\$)                               | 247-345 | 219-325   | 210-242   |
| Q3 Range (\$)                               | 345-434 | 325-389   | 242-384   |
| Q4 Range (\$)                               | 434-758 | 389-1,306 | 384-1,342 |
| Benchmark Results                           |         |           |           |
| OPG Data Network Cost (\$ Per LAN Port)     | 460     | 416       | 646       |
| Peer Average (\$)                           | 353     | 371       | 364       |
| Benchmark Analysis                          |         |           |           |
| Reduction to Achieve Q1 (\$/LAN Port and %) | 213     | 197       | 436       |
|                                             | ↓46%    | ↓47%      | ↓67%      |
| Reduction to Achieve Q2 (\$/LAN Port and %) | 115     | 91        | 405       |
|                                             | ↓25%    | ↓22%      | ↓63%      |

# Data Network Cost Per Network Device



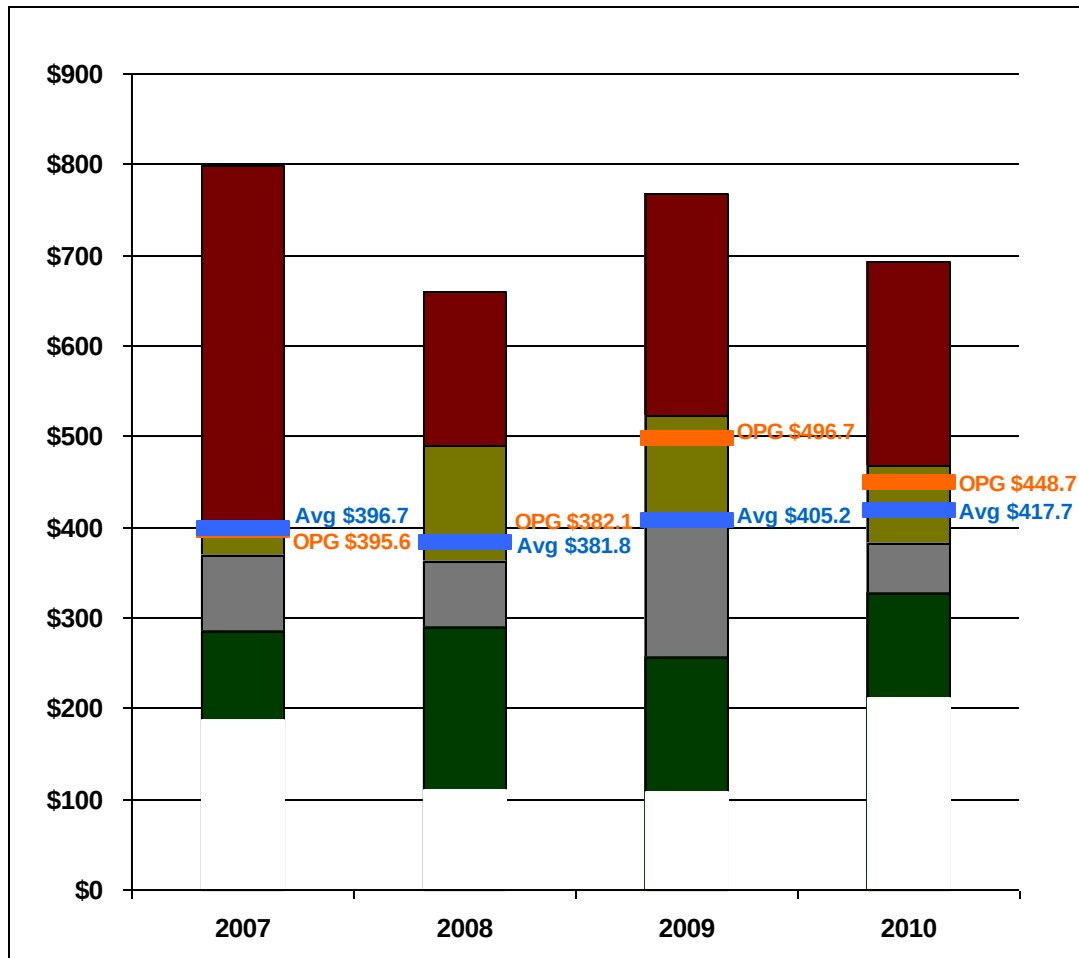
| Data Source                                       | 2009             | 2010            |
|---------------------------------------------------|------------------|-----------------|
| OPG Data Network Cost (M\$)                       | 15.645           | 15.682          |
| OPG Network Device                                | 20,120           | 18,858          |
| Peer Size                                         | 13               | 9               |
| Q1 Range (\$)                                     | 186.10-316.93    | 153.62-227.83   |
| Q2 Range (\$)                                     | 316.93-410.14    | 227.83-372.68   |
| Q3 Range (\$)                                     | 410.14-558.71    | 372.68-547.83   |
| Q4 Range (\$)                                     | 558.71-16,758.16 | 547.83-1,411.53 |
| Benchmark Results                                 |                  |                 |
| OPG Data Network Cost (\$) Per Network Device     | 777.60           | 831.59          |
| Peer Average (\$)                                 | 1,701.79         | 477.24          |
| Benchmark Analysis                                |                  |                 |
| Reduction to Achieve Q1 (\$/Network Device and %) | 460.67           | 603.76          |
|                                                   | ↓59%             | ↓73%            |
| Reduction to Achieve Q2 (\$/Network Device and %) | 367.46           | 458.91          |
|                                                   | ↓47%             | ↓55%            |

# Voice Cost Per End User



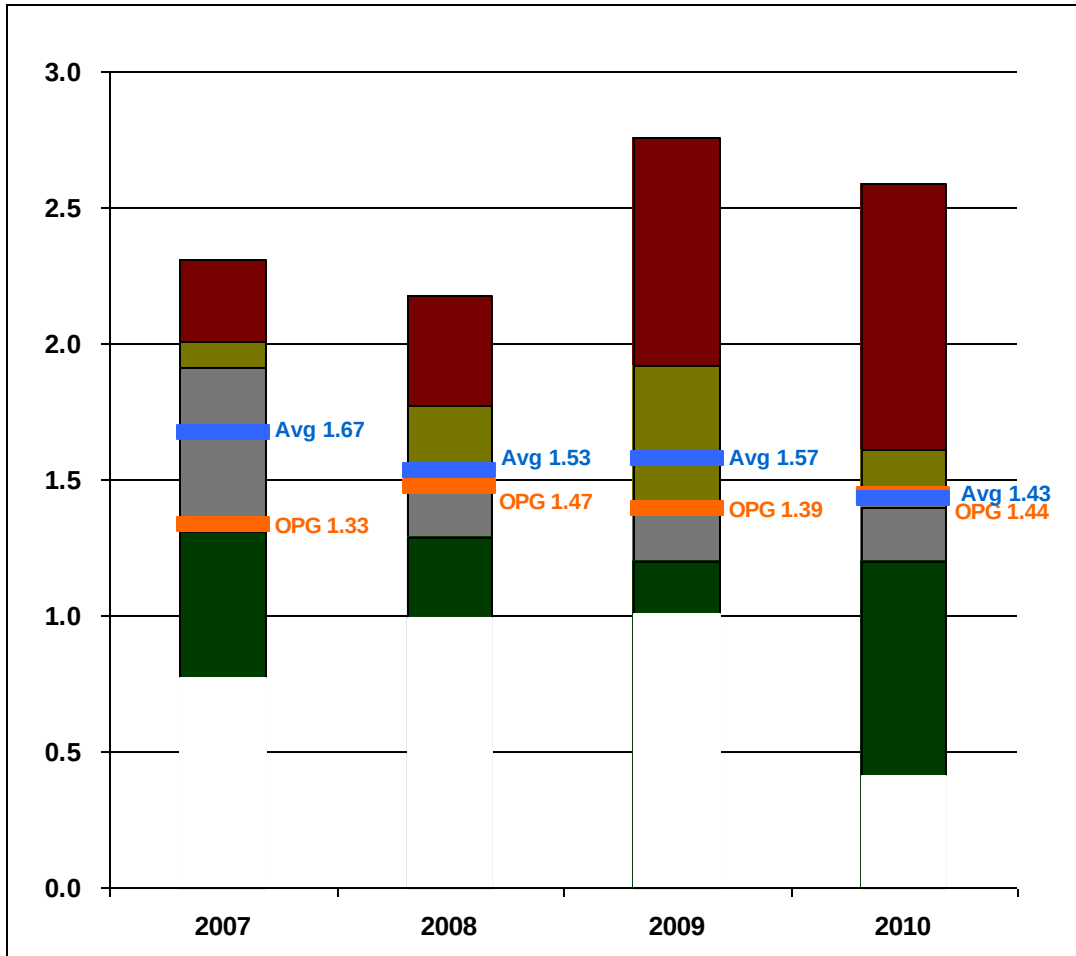
| Data Source                                 | 2008    | 2009      | 2010    |
|---------------------------------------------|---------|-----------|---------|
| OPG Voice Network Cost (M\$)                | 7.832   | 9.890     | 9.018   |
| OPG End User                                | 13,913  | 14,300    | 14,000  |
| Peer Size                                   | 13      | 12        | 9       |
| Q1 Range (\$)                               | 170-524 | 143-424   | 421-458 |
| Q2 Range (\$)                               | 524-539 | 424-635   | 458-575 |
| Q3 Range (\$)                               | 539-701 | 635-757   | 575-679 |
| Q4 Range (\$)                               | 701-927 | 757-1,105 | 679-935 |
| Benchmark Results                           |         |           |         |
| OPG Voice Network Cost (\$ Per End User)    | 563     | 692       | 644     |
| Peer Average (\$)                           | 562     | 604       | 605     |
| Benchmark Analysis                          |         |           |         |
| Reduction to Achieve Q1 (\$/End User and %) | 39      | 267       | 186     |
|                                             | ↓7%     | ↓39%      | ↓29%    |
| Reduction to Achieve Q2 (\$/End User and %) | 24      | 57        | 69      |
|                                             | ↓4%     | ↓8%       | ↓11%    |

# Voice Cost Per Phone Extension



| Data Source                                        | 2008        | 2009        | 2010        |
|----------------------------------------------------|-------------|-------------|-------------|
| OPG Voice Network Cost (M\$)                       | 7.832       | 9.890       | 9.018       |
| OPG Phone Extension                                | 20,497      | 19,910      | 20,100      |
| Peer Size                                          | 13          | 12          | 9           |
| Q1 Range (\$)                                      | 110.7-289.9 | 107.9-255.9 | 211.8-326.6 |
| Q2 Range (\$)                                      | 289.9-361.0 | 255.9-415.1 | 326.6-381.8 |
| Q3 Range (\$)                                      | 361.0-489.0 | 415.1-521.8 | 381.8-466.9 |
| Q4 Range (\$)                                      | 489.0-659.1 | 521.8-767.0 | 466.9-692.3 |
| Benchmark Results                                  |             |             |             |
| OPG Voice Network Cost (\$/Phone Extension)        | 382.1       | 496.7       | 448.7       |
| Peer Average (\$)                                  | 381.8       | 405.2       | 417.7       |
| Benchmark Analysis                                 |             |             |             |
| Reduction to Achieve Q1 (\$/Phone Extension and %) | 92.3        | 240.8       | 122.1       |
|                                                    | ↓24%        | ↓48%        | ↓27%        |
| Reduction to Achieve Q2 (\$/Phone Extension and %) | 21.1        | 81.6        | 66.9        |
|                                                    | ↓6%         | ↓16%        | ↓15%        |

# Phone Extensions Per End User



| Data Source                                                  | 2008         | 2009         | 2010      |
|--------------------------------------------------------------|--------------|--------------|-----------|
| OPG Phone Extension                                          | 20,497       | 19,910       | 20,100    |
| OPG End User                                                 | 13,913       | 14,300       | 14,000    |
| Peer Size                                                    | 14           | 13           | 10        |
| Q1 Range                                                     | 0.99-1.29    | 1.01-1.20    | 0.41-1.20 |
| Q2 Range                                                     | 1.29-1.52    | 1.20-1.42    | 1.20-1.40 |
| Q3 Range                                                     | 1.52-1.77    | 1.42-1.92    | 1.40-1.61 |
| Q4 Range                                                     | 1.77-2.18    | 1.92-2.76    | 1.61-2.59 |
| Benchmark Results                                            |              |              |           |
| OPG Phone Extensions Per End User                            | 1.47         | 1.39         | 1.44      |
| Peer Average                                                 | 1.53         | 1.57         | 1.43      |
| Benchmark Analysis                                           |              |              |           |
| Reduction to Achieve Q1<br>(Phone Extensions/End User and %) | 0.19         | 0.19         | 0.24      |
|                                                              | ↓13%         | ↓14%         | ↓17%      |
| Reduction to Achieve Q2<br>(Phone Extensions/End User and %) | Not Required | Not Required | 0.04      |
|                                                              |              |              | ↓3%       |

# OPG Telecommunication Service Metric Summary

| IT Service Metrics                   | 2007 OPG<br>Quartile<br>Ranking | 2008 OPG<br>Quartile<br>Ranking | 2009 OPG<br>Quartile<br>Ranking | 2010 OPG<br>Quartile<br>Ranking | 2009-2010<br>Change |
|--------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------|
| Data Network Cost Per End User       | Q3                              | Q4                              | Q4                              | Q4                              | ↑\$26               |
| Data Network Cost Per LAN Port       | Q3                              | Q4                              | Q4                              | Q4                              | ↑\$230              |
| Data Network Cost Per Network Device | Not available                   | Not available                   | Q4                              | Q4                              | ↑\$53.99            |
| Voice Cost Per End User              | Q2                              | Q3                              | Q3                              | Q3                              | ↓\$47               |
| Voice Cost Per Phone Extension       | Q4                              | Q3                              | Q3                              | Q3                              | ↓\$48.1             |
| Phone Extension Per End User         | Q2                              | Q2                              | Q2                              | Q3                              | ↑0.04               |

**UNDERTAKING JT2.16**

**Undertaking**

To confirm whether a report exists related to the electricity utility HR metrics data, and provide it or explain why it will not be provided.

**Response**

There is no "HR Metrics" study or report.

The Electric Utility HR Metrics Group referenced at Ex. F3-1-1, pp. 14 - 15 benchmarks HR Functions across utilities based on a standard definition of the function. OPG participates in this HR benchmarking annually and submits data electronically. The raw data from all of the submitting organizations is then summarized and provided to the participating organizations along with some high level analysis.

The summary allows participating organizations to review the data and report any errors in the data or analysis. Reported errors are then corrected in the raw blinded data and participating organizations are given access to the updated database. Participating organizations are then free to use the data in the system in any way they deem to be useful / appropriate.

**UNDERTAKING JT2.17**

**Undertaking**

To make best efforts to provide information on how BT savings integrate with drivers of the deficiency.

**Response**

OPG cannot readily break out BT savings, which are primarily headcount related, into the categories shown in the drivers of deficiency charts.

However, OPG estimates that the test period savings attributable to targeted headcount reduction of 1,300 by the end of 2015 for regulated operations, to be approximately \$343M (\$152M in 2014 and \$191M in 2015) as shown in Ex JT2.10. s most of OPG's staff support the nuclear business, OPG expects that most of these savings would be reflected in the nuclear deficiency.

**UNDERTAKING JT2.18**

**Undertaking**

To advise what percentage of the 10,375 headcount appears on the sunshine list.

**Response**

There were 7,958 OPG employees reported in the 2013 Public Sector Salary Disclosure list.

$$7,958 / 10,375 = 77\%$$

Note that 10,375 is OPG's headcount target at year end 2016 and relates only to regular employees from ongoing operations, while 7,958 is a historical number as of year-end 2013 and relates to all employees of OPG.

**UNDERTAKING JT2.19**

**Undertaking**

To provide a reconciliation of the OPG sunshine list with the people actively employed by the company at the time the list was produced.

**Response**

OPG has provided the requested reconciliation in the attached list which identifies employees who were reported under the 2013 Public Sector Salary Disclosure Act and are above \$200,000. The attached list indicates employees who are no longer with OPG with an asterisk.

As of April 24<sup>th</sup>, 2014, 471 employees who were reported under the 2013 Public Sector Salary Disclosure Act are no longer with OPG.

As of April 24<sup>th</sup>, 2014, 39 employees who were reported under the 2013 Public Sector Salary Disclosure Act **AND** above \$200,000 are no longer with OPG.

| <b>Salary Paid</b> | <b>Surname</b> | <b>Given Name</b> | <b>Position</b>                                                           |
|--------------------|----------------|-------------------|---------------------------------------------------------------------------|
| \$1,714,000.04     | MITCHELL       | THOMAS            | President & Chief Executive Officer                                       |
| \$915,850.96       | * ROBBINS      | WAYNE             | Chief Nuclear Officer                                                     |
| \$903,970.54       | * MURPHY       | JOHN              | Executive Vice President, Strategic Initiatives                           |
| \$664,974.28       | * HANBIDGE     | DONN W.           | Senior Vice President & Chief Financial Officer                           |
| \$605,838.56       | * CHIAROTTO    | FRANK             | Senior Advisor Joint Ventures                                             |
| \$593,399.66       | TREMBLAY       | PIERRE F.         | President Canadian Nuclear Partners                                       |
| \$531,669.69       | PASQUET        | PAUL              | Senior Vice President                                                     |
| \$520,591.56       | ELLIOTT        | WILLIAM           | Senior Vice President, Nuclear Engineering & Chief Nuclear Engineer       |
| \$514,030.50       | BOLAND         | BRUCE             | Senior Vice President Commercial Operations & Environment                 |
| \$510,174.98       | JAGER          | GLENN             | Chief Nuclear Officer                                                     |
| \$503,688.77       | GRIFFITHS      | MICHAEL           | Control Room Shift Supervisor                                             |
| \$497,344.62       | KOKUS          | TONY              | Senior Thermal Station Engineer/Officer                                   |
| \$468,892.21       | KEENAN         | BARBARA           | Senior Vice President People, Culture & Chief Ethics                      |
| \$449,400.40       | DUNCAN         | BRIAN             | Senior Vice President Darlington                                          |
| \$449,319.04       | GINTHER        | CHRISTOPHER       | Senior Vice President, Law & General Counsel                              |
| \$437,916.74       | REINER         | DIETMAR E.        | Senior Vice President Nuclear Refurbishment                               |
| \$426,994.00       | ALLEN          | MICHAEL           | Deputy Site Vice President                                                |
| \$411,841.25       | MARTIN         | SCOTT             | Senior Vice President Business & Administration Services                  |
| \$406,944.06       | GRANVILLE      | SEAN              | Senior Vice President                                                     |
| \$405,533.64       | HEARD          | ROBIN             | Vice President Finance, Chief Controller & Chief Accounting Officer       |
| \$393,824.92       | PHILLIPS       | BRYCE             | Senior Vice President, Pickering                                          |
| \$377,063.25       | * PECKHAM      | MICHAEL           | Vice President, Projects & Modifications                                  |
| \$375,107.98       | WOODS          | STEVE             | Vice President Fleet Operations & Maintenance                             |
| \$368,900.89       | * SWEETNAM     | ALBERT            | Executive Vice President, Nuclear Projects                                |
| \$358,008.15       | * DERMARKAR    | FRED              | Vice President Engineering Strategy                                       |
| \$351,126.00       | CLIVER         | STEPHUN           | Chief Supply Officer                                                      |
| \$349,801.85       | MARTELLI       | MIKE              | Senior Vice President Hydro Thermal Operations                            |
| \$344,698.10       | BHAGWANDIN     | DANNY             | Control Room Shift Supervisor                                             |
| \$342,358.90       | HYSON          | WILLIAM           | Control Room Shift Supervisor                                             |
| \$339,692.42       | MARCUZZI       | RENZO             | Vice President Electricity Sales & Trading                                |
| \$326,912.89       | GUGLIELMI      | FRANCESCO         | Director Operations & Maintenance                                         |
| \$326,489.70       | * POWER        | DONALD J.         | Vice President Investment Planning                                        |
| \$322,754.05       | CROZZOLI       | CARLO             | Senior Vice President Corporate Business Development & Chief Risk Officer |
| \$320,971.60       | SKREPNEK       | EDWARD            | Control Room Shift Supervisor                                             |
| \$320,636.67       | KIM            | JONG DEA          | Chief Information Officer                                                 |
| \$318,266.32       | EVANS          | HENRY             | Authorized Nuclear Operator                                               |
| \$316,743.61       | WARDROP        | CRAIG             | Director                                                                  |
| \$314,857.45       | WILKINS        | KEN               | Authorization Training Supervisor                                         |
| \$314,432.53       | THERRIEN       | PIERRE            | Authorized Nuclear Operator                                               |
| \$308,559.40       | SHIEVER        | ALAN              | Vice President Learning & Development                                     |
| \$306,886.97       | YOUNG          | CHRIS M.          | Vice President Hydro Thermal Project Execution                            |
| \$305,752.02       | KING           | CATRIONA          | Vice President Corporate Secretary & Executive Operations                 |
| \$304,471.82       | ARSENAULT      | IVAN              | Authorization Training Supervisor                                         |
| \$304,156.55       | RAMJIST        | STEPHEN           | Director Operations & Maintenance                                         |
| \$303,646.08       | BARRETT        | ANDREW P.         | Vice President Regulatory Affairs                                         |
| \$302,363.42       | SIMOE          | ALBERTO           | Contract - Senior Advisor                                                 |
| \$300,879.00       | RIVIERE        | COLVIN            | Control Room Shift Supervisor                                             |
| \$300,369.41       | SAVAGE         | MIKE              | Control Room Shift Supervisor                                             |
| \$298,951.32       | HOSEIN         | RON               | Shift Manager                                                             |
| \$298,587.54       | BURKE          | PAUL J.           | Vice President Integrated Revenue Planning                                |
| \$298,380.18       | KING           | PETER             | Manager, Operations Production                                            |
| \$297,882.60       | RUNKOWSKI      | CHRISTIAN         | Authorized Nuclear Operator                                               |
| \$297,459.97       | SPEKKENS       | PAUL              | Vice President, Science & Technology                                      |
| \$297,039.33       | GILBERT        | KEN               | Director Operations & Maintenance                                         |
| \$296,962.93       | LOUGHEED       | MARTIN            | Shift Manager                                                             |
| \$295,844.43       | MCCORD         | ROSS              | Manager, Operations Production                                            |
| \$295,100.00       | * POLLIERI     | LOU               | Vice President Assurance & Chief Audit Executive                          |
| \$292,797.13       | MCLACHLIN      | ANDY              | Authorized Nuclear Operator                                               |
| \$291,890.41       | FITZSIMMONS    | JASON             | Vice President Health, Safety, Employee & Labour Relations                |
| \$291,005.94       | GEOFROY        | RICHARD           | Control Room Shift Supervisor                                             |
| \$290,348.15       | SIRACUSA       | JOE               | Vice President Engineering & Technical Services                           |
| \$289,982.85       | HAWLEY         | CHRIS             | Authorization Training Supervisor                                         |
| \$288,496.05       | BOUCKLEY       | BARRY             | Shift Manager                                                             |
| \$287,778.05       | ARNONE         | MARK              | Vice President Refurbishment Execution                                    |
| \$287,637.52       | PARENT         | GÉRALD            | Shift Manager                                                             |
| \$286,905.12       | HENRY          | ROSS              | Control Room Shift Supervisor                                             |
| \$286,811.98       | TOMPSON        | KERRY             | Vice President Talent Management / Business Change                        |
| \$286,592.02       | SCOTT-DIXON    | CHRIS             | Shift Manager                                                             |
| \$286,371.70       | MACDIARMID     | DAVID             | Shift Manager                                                             |
| \$286,327.61       | WAYTOWICH      | RICHARD           | Shift Manager                                                             |
| \$284,878.00       | SPENCE         | CAMERON           | Assistant Operations Manager                                              |

|              |                  |                    |                                                              |
|--------------|------------------|--------------------|--------------------------------------------------------------|
| \$284,781.33 | <u>QUIRT</u>     | <u>CHRISTOPHER</u> | Shift Manager                                                |
| \$284,611.84 | <u>MOECK</u>     | <u>ANDY</u>        | Shift Manager                                                |
| \$283,949.93 | <u>ERZETIC</u>   | <u>JOSEPHINA</u>   | Vice President Corporate Business Development                |
| \$283,925.46 | <u>SHAVER</u>    | <u>THOMAS</u>      | Authorized Nuclear Operator                                  |
| \$283,896.35 | <u>SEGUIN</u>    | <u>PAUL</u>        | Assistant Operations Manager                                 |
| \$283,567.33 | <u>ROBINSON</u>  | <u>BILL</u>        | Senior Vice President, Nuclear Projects                      |
| \$283,395.46 | <u>KIES</u>      | <u>GORDON</u>      | Authorization Training Supervisor                            |
| \$282,781.20 | <u>RAMPHAL</u>   | <u>MARLENE</u>     | Manager, Operations Production                               |
| \$282,546.10 | <u>TEMPLE</u>    | <u>GLENN</u>       | Vice President Real Estate & Services                        |
| \$281,631.69 | <u>SPEER</u>     | <u>BRIAN</u>       | Shift Manager                                                |
| \$281,297.04 | <u>FLORIS</u>    | <u>WALTER</u>      | Authorized Nuclear Operator                                  |
| \$280,762.94 | <u>DESANTIS</u>  | <u>LOUIE</u>       | Authorization Training Supervisor                            |
| \$280,094.67 | <u>POWELL</u>    | <u>ROBERT</u>      | Director, Work Management                                    |
| \$280,075.85 | <u>JACKOWSKI</u> | <u>ROBERT</u>      | Assistant Operations Manager                                 |
| \$279,772.97 | <u>KHANSAHEB</u> | <u>ZARIR</u>       | Manager Operations Programs                                  |
| \$279,128.09 | <u>NOAKES</u>    | <u>JOHN</u>        | Shift Manager                                                |
| \$278,860.72 | <u>BEVACQUA</u>  | <u>VAL</u>         | Senior Manager Fuel Handling                                 |
| \$278,651.25 | <u>SCHRYER</u>   | <u>ROGER</u>       | Authorization Training Supervisor                            |
| \$277,720.68 | <u>MAUTI</u>     | <u>JOHN</u>        | Vice President Business Planning & Reporting                 |
| \$277,278.32 | <u>CLAIRMAN</u>  | <u>CARA L.</u>     | Vice President                                               |
| \$276,233.48 | <u>HEPBURN</u>   | <u>KENNETH</u>     | Control Room Shift Supervisor                                |
| \$276,026.99 | <u>EATOCK</u>    | <u>JEFFREY</u>     | Shift Manager                                                |
| \$275,549.87 | <u>LEACH</u>     | <u>SEAN</u>        | Authorization Training Supervisor                            |
| \$275,227.79 | <u>GREGORIS</u>  | <u>STEVE</u>       | Manager, Operations Production                               |
| \$275,097.03 | <u>SHANTZ</u>    | <u>LORNE</u>       | Control Room Shift Supervisor                                |
| \$274,953.41 | <u>MCDONALD</u>  | <u>JOHN</u>        | Shift Manager                                                |
| \$274,014.43 | <u>SMITH</u>     | <u>STEPHANIE</u>   | Assistant Operations Manager                                 |
| \$274,007.25 | <u>CARTER</u>    | <u>LES</u>         | Manager Performance Engineering                              |
| \$272,947.36 | <u>KNUTSON</u>   | <u>MARK</u>        | Director                                                     |
| \$271,931.70 | <u>PILIARIK</u>  | <u>MATT</u>        | Authorized Nuclear Operator                                  |
| \$271,675.58 | <u>KHAN</u>      | <u>ADNAN</u>       | Control Room Shift Supervisor                                |
| \$271,039.29 | <u>DINGLE</u>    | <u>JAMES</u>       | Control Room Shift Supervisor                                |
| \$270,598.57 | <u>BAIRD</u>     | <u>KEVIN</u>       | First Line Manager, Inspection & Maintenance                 |
| \$269,174.56 | <u>NAEEM</u>     | <u>OMAIR</u>       | Section Manager, Licensing                                   |
| \$268,720.42 | <u>SENIOR</u>    | <u>DONALD</u>      | Department Manager, Outage                                   |
| \$268,532.07 | <u>OWEN</u>      | <u>ANDREW</u>      | Control Room Shift Supervisor                                |
| \$267,177.61 | <u>SHAH</u>      | <u>MANISHKUMAR</u> | Electrical & Control Technician First Line Manager Assistant |
| \$266,537.38 | <u>COLLINS</u>   | <u>DAVID</u>       | Authorized Nuclear Operator                                  |
| \$265,926.93 | <u>POWERS</u>    | <u>STEPHANIE</u>   | Vice President, Inspection & Maintenance Services            |
| \$265,673.62 | <u>KUNTZ</u>     | <u>GARY</u>        | Authorization Training Supervisor                            |
| \$265,513.26 | <u>BROWN</u>     | <u>RON C.</u>      | Authorized Nuclear Operator                                  |
| \$264,781.66 | <u>SWAMI</u>     | <u>LAURIE</u>      | Vice President Nuclear Services                              |
| \$264,743.91 | <u>HALKET</u>    | <u>CRAIG</u>       | Vice President Total Rewards                                 |
| \$264,096.17 | <u>OWENS</u>     | <u>BILL</u>        | Director, Work Management                                    |
| \$263,576.79 | <u>SICOLI</u>    | <u>JOE</u>         | Production Supervisor - Shift Engineer                       |
| \$261,826.46 | <u>BAGSHAW</u>   | <u>STEVE</u>       | Authorized Nuclear Operator                                  |
| \$261,264.05 | <u>TIMBERG</u>   | <u>MARGARET</u>    | Assistant General Counsel                                    |
| \$260,806.14 | * <u>TULETT</u>  | <u>MARTIN V.</u>   | Deputy Site Vice President                                   |
| \$260,633.17 | <u>GRACE</u>     | <u>ALLAN</u>       | Control Room Shift Supervisor                                |
| \$259,993.77 | <u>GRANT</u>     | <u>FRASER</u>      | Senior Manager Fuel Handling                                 |
| \$259,967.10 | <u>MILLS</u>     | <u>STEPHEN</u>     | Vice President Business & Services                           |
| \$259,753.80 | <u>GOBIN</u>     | <u>RANDOLPH</u>    | First Line Manager, Control/Mechanical                       |
| \$258,996.55 | <u>DROST</u>     | <u>CHRISTOPHER</u> | Control Room Shift Supervisor                                |
| \$258,326.97 | <u>THOMPSON</u>  | <u>RUSSELL</u>     | Authorization Training Supervisor                            |
| \$258,278.99 | * <u>HOWARD</u>  | <u>KEITH</u>       | Director Design Engineering                                  |
| \$257,851.53 | <u>OWENS</u>     | <u>DAVE</u>        | First Line Manager, Control/Mechanical                       |
| \$257,850.16 | <u>KARIM</u>     | <u>MOHAMED</u>     | First Line Manager, Control/Mechanical                       |
| \$257,413.84 | * <u>SIDFORD</u> | <u>COLLEEN</u>     | Vice President Chief Investment Officer                      |
| \$257,377.05 | <u>JESSOP</u>    | <u>RICHARD</u>     | Director                                                     |
| \$256,836.09 | * <u>TARREN</u>  | <u>PETER</u>       | Manager Engineering Program Integration                      |
| \$256,445.32 | * <u>LAURICH</u> | <u>RALPH</u>       | Shift Manager                                                |
| \$256,348.13 | <u>EADIE</u>     | <u>BRADLEY</u>     | First Line Manager, Inspection & Maintenance                 |
| \$256,167.83 | <u>JAMES</u>     | <u>RICHEL</u>      | Unit 0 - Training Supervisor                                 |
| \$255,759.04 | <u>MCCARTHY</u>  | <u>ERIC</u>        | Vice President Commercial Contracts                          |
| \$254,708.54 | <u>MATTHEWS</u>  | <u>JOHN</u>        | First Line Manager, Control/Mechanical                       |
| \$254,189.35 | <u>MAZZA</u>     | <u>MARIO</u>       | Vice President Strategy & Business Support                   |
| \$253,999.61 | <u>ZADEH</u>     | <u>HOOSHANG</u>    | Director Market Operations                                   |
| \$253,898.63 | <u>BUTCHER</u>   | <u>NICOLLE</u>     | Vice President Corporate Strategy & Planning                 |
| \$253,444.99 | <u>GERRARD</u>   | <u>ROBERT</u>      | Director Corporate Strategy & Planning                       |
| \$252,859.02 | <u>LACIVITA</u>  | <u>KEN</u>         | Director Trading & Origination                               |
| \$252,785.97 | <u>DORAN</u>     | <u>TERRY C.</u>    | Vice President, Nuclear Waste Management                     |
| \$252,196.09 | <u>POULIN</u>    | <u>MIKE</u>        | First Line Manager, Control/Mechanical                       |

|              |                |              |                                                                  |
|--------------|----------------|--------------|------------------------------------------------------------------|
| \$252,147.13 | KEELING        | JIM          | Control Room Shift Supervisor                                    |
| \$251,809.03 | SINGH          | CHARANJIT    | Director Accounting                                              |
| \$251,718.85 | STEWART        | JEFFREY      | Authorized Nuclear Operator                                      |
| \$251,693.54 | REID           | ALLAN        | Plant Manager, Hydro                                             |
| \$251,581.48 | POPPE          | KURT         | Authorized Nuclear Operator                                      |
| \$251,219.35 | BULL           | SCOTT        | Authorization Training Supervisor                                |
| \$250,403.17 | WONG           | RICHARD L.   | Assistant Treasurer                                              |
| \$250,223.04 | BANNON         | GLEN         | First Line Manager, Control/Mechanical                           |
| \$250,147.77 | BAMBRICK       | RON          | Authorization Training Supervisor                                |
| \$249,761.04 | PETTIFER       | RUSSELL      | First Line Manager, Control/Mechanical                           |
| \$249,697.54 | * DOUGLAS      | NEIL         | Authorization Training Supervisor                                |
| \$248,789.10 | SCRUTON        | CHRIS        | First Line Manager, Control/Mechanical                           |
| \$248,525.22 | DOBRESCU       | MARTIN       | Authorization Training Supervisor                                |
| \$248,167.05 | * RYDER        | SHANE        | Director Operations & Maintenance                                |
| \$247,258.82 | STOCK          | SANDY        | Director Station Engineering                                     |
| \$247,201.48 | STEWART        | MIKE         | Authorized Nuclear Operator                                      |
| \$247,164.76 | AITKEN         | ROBERT       | First Line Manager, Control/Mechanical                           |
| \$246,807.38 | FRAWLEY        | ROBERT       | Authorized Nuclear Operator                                      |
| \$246,718.29 | DOBRICH        | NORM         | Shift Manager                                                    |
| \$246,223.39 | MCFARLANE      | MICHAEL      | Director Refurbishment Interface & Vacuum Building Outage        |
| \$244,983.92 | WONG           | TOM W.       | Section Manager, As Low As Reasonably Achievable                 |
| \$244,940.57 | REUBER         | BARBARA      | Vice President Environment                                       |
| \$244,930.53 | QUALTROUGH     | WILLIAM      | Section Manager Operations Training                              |
| \$244,825.90 | VAN DEN BREKEL | NICK         | Manager Strategic Planning                                       |
| \$244,783.10 | EVERDELL       | RICK A.      | Director, Project Management                                     |
| \$244,480.16 | KUCIKS         | JOHN         | Field Shift Operating Supervisor                                 |
| \$244,441.65 | COOPER         | KEN          | First Line Manager, Control/Mechanical                           |
| \$243,751.62 | DEVLIN         | EDMUND       | Control Room Shift Supervisor                                    |
| \$243,620.25 | GABEL          | BRIAN        | Work Coordinator                                                 |
| \$243,609.24 | HAIRE          | KEN          | Authorized Nuclear Operator                                      |
| \$242,943.95 | GIORGI         | SEBASTIAN    | Authorization Training Supervisor                                |
| \$242,326.55 | NORRAD         | DAN          | Senior Manager Centre-Led Functional Area Manager – Outage       |
| \$241,887.03 | ALLEN          | JOHN DOUGLAS | First Line Manager, Control/Mechanical                           |
| \$241,307.31 | MACKIN         | ROSS         | Authorized Nuclear Operator                                      |
| \$241,302.79 | GALUSZKA       | ANDREW       | Control Room Shift Supervisor                                    |
| \$241,257.32 | HAUSER         | GARY         | First Line Manager, Control/Mechanical                           |
| \$240,900.97 | WYMAN          | DAVID        | Department Manager, Outage                                       |
| \$240,877.32 | ROGERS         | DAVID        | Shift Manager                                                    |
| \$240,740.04 | PABANI         | SHAMIM       | Director, Taxation                                               |
| \$240,662.88 | GIGLIOTTI      | TIMOTHY J.   | Director                                                         |
| \$240,551.08 | BOSS           | RON          | Authorization Training Supervisor                                |
| \$239,875.29 | MIRSCH         | MICHAEL      | First Line Manager, Inspection & Maintenance                     |
| \$239,831.72 | * MANN         | LARRY        | First Line Manager, Control/Mechanical                           |
| \$239,795.30 | * MCHALE       | JOHN         | Authorization Training Supervisor                                |
| \$239,481.49 | BRIXHE BERCIK  | STEVE        | First Line Manager, Control/Mechanical                           |
| \$239,192.82 | KHAN           | MOHAMMED H.  | First Line Manager, Control/Mechanical                           |
| \$238,995.60 | BONNIER        | LYLE         | Authorized Nuclear Operator                                      |
| \$238,510.56 | * STEVENS      | PHILIP       | Plant Manager, Lambton Generating Station                        |
| \$238,399.69 | TEICHMAN       | ANDREW       | Vice President Corporate Strategy & Planning                     |
| \$238,361.20 | LEE            | JOHN S.      | Vice President - Treasurer                                       |
| \$238,359.29 | HANRAHAN       | SHAWN        | First Line Manager, Inspection & Maintenance                     |
| \$238,008.67 | * MCDONNELL    | PAUL         | Control Room Shift Supervisor                                    |
| \$237,962.74 | WHYTE          | JAMES        | Director Maintenance                                             |
| \$237,752.59 | BHALOO         | ALNOOR       | Director Station Engineering                                     |
| \$237,036.42 | JOHNSTON       | ANTHONY      | Authorized Nuclear Operator                                      |
| \$236,591.42 | MITCHELL       | NEIL A.      | Vice President                                                   |
| \$236,578.67 | COPE           | ANDY         | First Line Manager, Control/Mechanical                           |
| \$236,417.00 | BRENNAN        | JASON        | Authorization Training Supervisor                                |
| \$236,250.07 | BALLAGH        | SHAYN        | Control Room Shift Supervisor                                    |
| \$236,179.13 | GILLARD        | BRIAN        | First Line Manager, Control/Mechanical                           |
| \$236,056.20 | NEGENMAN       | ANDREW       | Section Manager, Outage                                          |
| \$235,792.83 | HEFFORD        | JOHN         | Plant Manager, Thermal                                           |
| \$235,721.96 | DANIEL         | CARL         | Director Station Engineering                                     |
| \$235,663.73 | JOHNSTONE      | GORD         | Authorized Nuclear Operator                                      |
| \$235,645.04 | MATHIAS        | CARLTON      | Assistant General Counsel                                        |
| \$234,511.15 | ROSS           | GARY         | Authorization Training Supervisor                                |
| \$234,492.21 | CHOW           | RICHARD      | Inspection & Maintenance Technician First Line Manager Assistant |
| \$234,187.10 | GRAMMELHOFER   | PETER        | Authorization Training Supervisor                                |
| \$234,056.63 | MORELAND       | JIM          | Plant Manager, Hydro                                             |
| \$234,050.99 | * MUNSHI       | VINOD        | System Window Coordinator                                        |
| \$233,837.38 | CONNERS        | BILL         | First Line Manager, Control/Mechanical                           |
| \$233,645.54 | MCDONALD       | JORDON       | First Line Manager, Inspection & Maintenance                     |

|              |              |               |                                                           |
|--------------|--------------|---------------|-----------------------------------------------------------|
| \$233,225.86 | MURRAY       | PETER J.      | Plant Manager, Hydro                                      |
| \$233,057.49 | GHINET       | JOE           | Control Room Shift Supervisor                             |
| \$232,995.77 | HARPER       | BRIAN         | Authorization Training Supervisor                         |
| \$232,726.99 | CARMICHAEL   | CARLA         | Vice President, Nuclear Finance                           |
| \$232,149.61 | KUSIK        | LAWRENCE      | Authorized Nuclear Operator                               |
| \$232,062.97 | BRAATEN      | MELANIE       | Vice President Business Partners                          |
| \$231,928.95 | POLLETT      | SHAWN         | First Line Manager, Construction                          |
| \$231,824.13 | GAMBLE       | BRENT         | Shift Emergency Response Manager                          |
| \$231,293.29 | ELLISON      | SCOTT         | Authorized Nuclear Operator                               |
| \$231,290.09 | CAREW        | KATHLEEN      | Control Room Shift Supervisor                             |
| \$230,797.97 | DOHERTY      | GERARD        | First Line Manager, Control/Mechanical                    |
| \$230,561.25 | MITCHELL     | LAURENCE      | First Line Manager, Control/Mechanical                    |
| \$230,451.09 | BERNDT       | BRIAN         | Authorization Training Supervisor                         |
| \$230,390.23 | STEEVES      | TONY          | First Line Manager, Control/Mechanical                    |
| \$230,139.45 | BROWN        | ROY           | Project Director                                          |
| \$230,061.87 | PROCTOR      | STEVEN K.     | Contract - Technical Specialist                           |
| \$229,941.73 | HANSEN       | JEFFREY L.    | Plant Manager, Nanticoke Generating Station               |
| \$229,683.54 | MC GEE       | BRIAN         | Deputy Site Vice President                                |
| \$229,668.67 | LAM          | WEI-HING      | Project Manager, Field Campaigns                          |
| \$229,315.46 | VIEGAS       | KENNETH       | Authorized Nuclear Operator                               |
| \$229,267.33 | DUTTON       | JEFFREY       | Authorized Nuclear Operator                               |
| \$228,878.03 | HEY          | BRAD          | Supervising Nuclear Operator First Line Manager Assistant |
| \$228,385.00 | HOORNWEG     | JACQUELINE    | Vice President, Corporate Relations & Communications      |
| \$228,248.51 | NUTTALL      | PATRICK       | Authorization Training Supervisor                         |
| \$227,841.49 | JONES        | GRAHAM        | Authorized Nuclear Operator                               |
| \$227,786.07 | SUGIYAMA     | SHIG          | Supervising Nuclear Operator First Line Manager Assistant |
| \$227,668.56 | HOLT         | JAMES         | Control Room Shift Supervisor                             |
| \$227,601.96 | NADEAU       | PAUL          | Vice President Security & Emergency Services              |
| \$227,181.24 | D'SOUZA      | NEELA         | Control Room Shift Supervisor                             |
| \$227,137.49 | KISHOR       | PAHALAD       | Mechanical Technician First Line Manager Assistant        |
| \$226,975.79 | MORRIS       | CHRIS         | Authorized Nuclear Operator                               |
| \$226,784.37 | MASURKEVITCH | DAVID         | Field Shift Operating Supervisor                          |
| \$226,325.24 | ROB          | ART           | Plant Manager, Hydro                                      |
| \$226,286.21 | HOOD         | ROB           | First Line Manager, Control/Mechanical                    |
| \$226,232.96 | NICHOLSON    | AARON         | First Line Manager, Inspection & Maintenance              |
| \$226,163.58 | HUSAIN       | JAFFAR        | Director                                                  |
| \$226,027.11 | DAVIS        | THOMAS        | Authorization Training Supervisor                         |
| \$225,957.62 | TREACY       | CATHERINE     | Vice President Business Partners                          |
| \$225,707.98 | RANDALL      | KENNETH SCOTT | Authorized Nuclear Operator                               |
| \$225,680.96 | EADE         | BRIAN         | Authorized Nuclear Operator                               |
| \$225,633.42 | * KITOWSKI   | RAY           | Production Supervisor - Shift Engineer                    |
| \$225,445.30 | FONG         | JACK          | Director, Planning & Evaluations                          |
| \$225,365.82 | HAY          | DON           | First Line Manager, Control/Mechanical                    |
| \$225,303.34 | BERKERS      | DAVID         | Authorized Nuclear Operator                               |
| \$225,037.73 | SVAROVSKY    | GENE          | Section Manager, Outage                                   |
| \$224,986.13 | NIXON        | GARRY         | First Line Manager, Inspection & Maintenance              |
| \$224,723.28 | BALAN        | MARCEL        | Unit 0 - Training Supervisor                              |
| \$224,628.75 | MULLINS      | KEITH         | First Line Manager, Inspection & Maintenance              |
| \$224,584.82 | ST. DENIS    | THOMAS A.     | Authorized Nuclear Operator                               |
| \$224,551.02 | BRAZIER      | DONALD        | Director                                                  |
| \$224,517.94 | WOODS        | PETER         | Authorized Nuclear Operator                               |
| \$224,377.24 | MACIEJKO     | JASON         | Authorized Nuclear Operator                               |
| \$224,345.76 | POOLE        | FRANK         | Work Coordinator                                          |
| \$224,341.04 | DILLON       | PATRICK       | Contracts Coordinator                                     |
| \$224,300.10 | WOLFE        | SHAUN         | Authorized Nuclear Operator                               |
| \$224,162.49 | HOFFMAN      | EDWARD        | Work Coordinator                                          |
| \$224,143.96 | DODO         | MUTIZWA       | Vice President Shared Financial Services                  |
| \$223,692.27 | BHARDWAJ     | NEERAJ        | Authorized Nuclear Operator                               |
| \$223,524.22 | * BAGATTO    | LUIGI         | First Line Manager, Control/Mechanical                    |
| \$223,509.34 | * CHEVRIER   | BRIAN         | Trades Supervisor - Maintenance                           |
| \$223,358.31 | MUTHUSWAMY   | SUKUMAR       | Control Room Shift Supervisor                             |
| \$223,092.57 | BARNES       | DOUGLAS       | Authorized Nuclear Operator                               |
| \$222,933.97 | SCOTT        | DAVID         | Authorization Training Supervisor                         |
| \$222,720.90 | CAMERON      | JOSEPH        | Section Manager Operations Training                       |
| \$222,592.79 | GRAY         | SHERRI        | Control Room Shift Supervisor                             |
| \$222,556.33 | CORAZZA      | STEPHEN       | Authorized Nuclear Operator                               |
| \$222,523.62 | PEARSON      | DALE T.       | First Line Manager, Training Programs                     |
| \$222,509.59 | JARRETT      | STEPHEN       | Field Shift Operating Supervisor                          |
| \$222,447.34 | SCRINKO      | JEFFREY       | Vice President Hydro Thermal Operations Finance           |
| \$222,390.00 | FRALICK      | CHRISTOPHER   | Plant Manager, Thermal                                    |
| \$222,054.06 | MARTINA      | PAUL          | First Line Manager, Control/Mechanical                    |
| \$221,754.81 | CARON        | REBECCA       | First Line Manager, Inspection & Maintenance              |

|              |             |              |                                                                  |
|--------------|-------------|--------------|------------------------------------------------------------------|
| \$221,649.35 | MOSCHELLA   | MIKE         | First Line Manager, Construction                                 |
| \$221,408.44 | ST. MARTIN  | AL           | Authorized Nuclear Operator                                      |
| \$221,397.87 | BARRY       | FRANCIS      | Inspection & Maintenance Technician First Line Manager Assistant |
| \$221,263.70 | LEKSINSKI   | PAUL         | Control Room Shift Supervisor                                    |
| \$220,885.78 | LALONDE     | DARWIN       | Field Shift Operating Supervisor                                 |
| \$220,844.10 | ROOPCHAN    | ROBIN        | Director Financial Communications & Strategy                     |
| \$220,757.83 | DEHAAS      | IAN          | Authorized Nuclear Operator                                      |
| \$220,618.97 | GAULTON     | RAYMOND      | First Line Manager, Control/Mechanical                           |
| \$220,497.50 | VALCOFF     | VICTOR       | Authorized Nuclear Operator                                      |
| \$220,405.82 | * MCRAE     | ERIC         | Production Supervisor - Shift Engineer                           |
| \$220,095.72 | * MACMILLAN | PETER        | Senior Counsel                                                   |
| \$220,040.19 | SLOOS       | KELVIN       | Control Room Shift Supervisor                                    |
| \$219,592.28 | MCVEITY     | DARLENE      | Vice President Business Partners                                 |
| \$219,068.16 | RUSSELL     | GORDON       | First Line Manager, Control/Mechanical                           |
| \$218,862.02 | WILLIAMS    | STEPHEN K.   | Authorized Nuclear Operator                                      |
| \$218,689.40 | MACEACHERON | RICHARD      | Director Nuclear Regulatory Affairs                              |
| \$218,605.60 | BHARDWAI    | ALOK         | Authorized Nuclear Operator                                      |
| \$218,584.38 | HOLMES      | KEVIN        | Supervising Nuclear Operator First Line Manager Assistant        |
| \$218,442.82 | EDWARDS     | BRIAN        | Authorization Training Supervisor                                |
| \$218,275.55 | MCPHERSON   | SAMUEL       | Authorized Nuclear Operator                                      |
| \$218,252.73 | DEPAULO     | RANDY        | Section Manager, Outage                                          |
| \$217,991.67 | BELFRY      | STEVE        | Authorized Nuclear Operator                                      |
| \$217,960.98 | * SASAKI    | LAUREN       | Assistant General Counsel                                        |
| \$217,935.56 | GALLANT     | JAMIE        | First Line Manager, Control/Mechanical                           |
| \$217,887.87 | ROBERTS     | JEFF         | First Line Manager, Control/Mechanical                           |
| \$217,814.30 | WINNITTOY   | BRETT        | Authorized Nuclear Operator                                      |
| \$217,667.55 | MATEU       | JAUME        | First Line Manager, Control/Mechanical                           |
| \$217,497.18 | JOHNSON     | PETER        | Authorized Nuclear Operator                                      |
| \$217,305.74 | LADAK       | LUBNA        | Director Controllershship                                        |
| \$217,152.04 | COULIS      | STACY LYNN   | Certified Unit "O" Control Room Operator                         |
| \$216,741.01 | GOETZ       | MICHAEL      | Authorized Nuclear Operator                                      |
| \$216,564.83 | BROWN       | CATHERINE    | Field Shift Operating Supervisor                                 |
| \$216,379.82 | DUDECK      | GARRY        | Section Manager, Outage                                          |
| \$216,352.83 | GAGNON      | JARRETT      | First Line Manager, Control/Mechanical                           |
| \$216,284.91 | OSUTEI      | NARH         | First Line Manager, Control/Mechanical                           |
| \$216,249.47 | VIKNANEK    | DAVID        | Field Shift Operating Supervisor                                 |
| \$216,152.61 | * SMITH     | RAYMOND      | Authorized Nuclear Operator                                      |
| \$216,104.80 | LIU         | QINGHUA      | Electrical & Control Technician                                  |
| \$216,058.02 | HARRIS      | KENT DOUGLAS | Vault Supervisor                                                 |
| \$216,040.27 | CREARY      | JEFF         | Authorization Training Supervisor                                |
| \$215,807.92 | BENNETT     | RICHARD F.   | Authorized Nuclear Operator                                      |
| \$215,678.16 | BALAZ       | JOE          | Field Shift Operating Supervisor                                 |
| \$215,671.23 | COSBURN     | DOUGLAS      | First Line Manager, Civil Maintenance                            |
| \$215,663.80 | KEAN        | SHELDON      | First Line Manager, Control/Mechanical                           |
| \$215,383.06 | OSBORNE     | DEAN         | Authorization Training Supervisor                                |
| \$215,236.52 | CRICHTON    | JAMES D.     | System Window Coordinator                                        |
| \$214,985.64 | SINCLAIR    | STEPHEN      | Authorized Nuclear Operator                                      |
| \$214,913.02 | BASSAN      | LOVLEEN      | Director Talent & Business Change                                |
| \$214,880.61 | VLCKO       | ROBERT       | Mechanical Technician                                            |
| \$214,711.90 | HORNE       | CHRISTOPHER  | First Line Manager, Inspection & Maintenance                     |
| \$214,667.55 | DEWAR       | MICHAEL      | Authorized Nuclear Operator                                      |
| \$214,607.93 | BRANDER     | WAYNE        | First Line Manager, Control/Mechanical                           |
| \$214,554.80 | WILLSON     | JAMIE        | Mechanical Technician First Line Manager Assistant               |
| \$214,332.55 | SCOTT       | STEPHEN      | Authorized Nuclear Operator                                      |
| \$214,246.43 | * KINTZI    | ANDY         | Senior Technical Engineer/Officer                                |
| \$214,235.49 | JONES       | DAN G.       | First Line Manager, Control/Mechanical                           |
| \$214,150.59 | GUTHRIE     | SCOTT        | Director                                                         |
| \$214,131.36 | REID        | STEPHEN C.   | Authorized Nuclear Operator                                      |
| \$214,095.62 | SMITH       | PAUL         | First Line Manager, Control/Mechanical                           |
| \$214,028.78 | CLARK       | PAUL         | Authorized Nuclear Operator                                      |
| \$213,772.70 | JARMAIN     | DOUGLAS      | Mechanical Technician First Line Manager Assistant               |
| \$213,708.86 | GAYMAN      | WARREN       | Electrical & Control Technician                                  |
| \$213,689.65 | AKEY        | ANDRE        | System Window Coordinator                                        |
| \$213,604.77 | MUNRO       | ROBERT       | Section Manager, Radiation Protection Programming                |
| \$213,586.94 | LAWRIE      | JAMIE        | Project Director                                                 |
| \$213,548.79 | BENNETT     | TONY         | Director Dam & Public Safety                                     |
| \$213,537.90 | JUNOP       | BLAINE       | Authorized Nuclear Operator                                      |
| \$213,461.50 | TOOHEY      | SEAN         | Director, Work Management                                        |
| \$213,455.98 | YEUNG       | WAI-MAN      | Electrical & Control Technician                                  |
| \$213,115.40 | MATTHEWS    | GLEN         | Authorized Nuclear Operator                                      |
| \$213,047.26 | STRACEY     | IAN          | Shift Advisor Technical Support                                  |
| \$213,026.11 | WINTER      | MIKE         | Authorized Nuclear Operator                                      |

|              |            |              |                                                                           |
|--------------|------------|--------------|---------------------------------------------------------------------------|
| \$212,852.27 | ARCHER     | KEVIN        | First Line Manager, Control/Mechanical                                    |
| \$212,806.71 | MCKAY      | ROB          | First Line Manager, Control/Mechanical                                    |
| \$212,720.78 | MCKENZIE   | SCOTT        | Work Coordinator                                                          |
| \$212,710.61 | TETI       | ROSARIO      | System Window Coordinator                                                 |
| \$212,630.72 | MCCABE     | BOB          | Field Shift Operating Supervisor                                          |
| \$212,488.24 | VAN GOG    | BILL         | Electrical & Control Technician                                           |
| \$212,370.45 | * FINDLAY  | DAVE         | Field Shift Operating Supervisor                                          |
| \$212,361.82 | BAKER      | ALAN         | Authorization Training Supervisor                                         |
| \$212,305.60 | HENDERSON  | COLIN        | Authorized Nuclear Operator                                               |
| \$212,236.33 | HAMADE     | DAVID        | Vice President Enterprise Risk Management                                 |
| \$212,163.32 | D'ALIMONTE | ENZO         | Director, Fuels                                                           |
| \$212,066.15 | WELLS      | WAYNE        | First Line Manager, Contract Administrator                                |
| \$211,978.32 | HOHENDORF  | RICHARD J.   | Senior Manager Computers & Control Design                                 |
| \$211,966.98 | BARRADAS   | JOANNE       | Director Transaction Processing - Corporate Financial Processing Services |
| \$211,923.91 | WILSON     | DON          | Director Inspection Maintenance Services Engineering                      |
| \$211,655.15 | JAMIESON   | IAN          | Authorized Nuclear Operator                                               |
| \$211,493.59 | RIOUX      | YVES         | Authorized Nuclear Operator                                               |
| \$211,490.36 | BARBER     | CHRIS        | Certified Unit "O" Control Room Operator                                  |
| \$211,375.39 | HARRIS     | JAMES        | Authorized Nuclear Operator                                               |
| \$211,363.89 | * RADFORD  | DOUGLAS      | Director Centre-Led Functional Area Manager Maintenance                   |
| \$211,081.43 | HOYLE      | BOB          | Certified Unit "O" Control Room Operator                                  |
| \$210,967.49 | HARRIGAN   | BERNARD      | Authorized Nuclear Operator                                               |
| \$210,953.45 | BLAKE      | GREG         | Authorized Nuclear Operator                                               |
| \$210,749.24 | JOSEPH     | CARLYLE      | First Line Manager, Control/Mechanical                                    |
| \$210,722.32 | MAHARAJ    | KESHWAR      | Electrical & Control Technician First Line Manager Assistant              |
| \$210,688.25 | MALONEY    | RONALD       | First Line Manager, Construction                                          |
| \$210,547.10 | SERVOS     | LAWRENCE     | First Line Manager, Radiation Control                                     |
| \$210,382.01 | TRELINSKI  | MIKE         | Senior Technical Expert                                                   |
| \$210,253.19 | MORRILL    | BRENT        | Director, Nuclear Oversight                                               |
| \$210,244.89 | MAK        | WILLIAM      | First Line Manager, Contract Administrator                                |
| \$210,223.98 | BURGER     | MARTIN       | System Window Coordinator                                                 |
| \$210,160.91 | DOAN       | GORD         | Thermal Operating Supervisor                                              |
| \$210,052.25 | * MOORE    | WILLIAM      | Production Supervisor - Shift Engineer                                    |
| \$209,978.50 | TOLTON     | PAUL         | Director                                                                  |
| \$209,973.45 | WOOD       | FLOYD        | Mechanical Technician First Line Manager Assistant                        |
| \$209,958.81 | KOWALSKI   | ANDREW       | Authorized Nuclear Operator                                               |
| \$209,908.59 | KRUEGER    | JOHN         | Authorized Nuclear Operator                                               |
| \$209,821.07 | RAE        | CRAIG        | Authorized Nuclear Operator                                               |
| \$209,700.78 | * ZIEMAN   | JAMES        | Operations Specialist                                                     |
| \$209,662.82 | RAULJI     | NARENDRASINH | Mechanical Technician First Line Manager Assistant                        |
| \$209,518.24 | PETRAS     | DANIEL       | Unit 0 - Training Supervisor                                              |
| \$209,507.62 | STEVENS    | ROSS         | First Line Manager, Control/Mechanical                                    |
| \$209,503.83 | DE LACOUR  | JEFFERSON    | Supervising Nuclear Operator First Line Manager Assistant                 |
| \$209,333.82 | PASIEKA    | PAULENE      | Assistant General Counsel                                                 |
| \$209,307.34 | SWAREK     | TIM          | Nuclear Operator                                                          |
| \$209,295.95 | ARTHURS    | PAUL J.      | Authorized Nuclear Operator                                               |
| \$209,273.76 | CLEMITS    | JONATHAN     | Certified Unit "O" Control Room Operator                                  |
| \$209,150.79 | STEELE     | ANDREW       | Authorized Nuclear Operator                                               |
| \$208,958.73 | LIDDLE     | CLIFFORD     | Authorized Nuclear Operator                                               |
| \$208,721.73 | ZALUSKI    | CRAIG        | Senior Engineer/Scientist/Technical Officer                               |
| \$208,670.77 | MATTINA    | NICOLO       | Inspection & Maintenance Technician                                       |
| \$208,647.60 | LONG       | MIKE         | First Line Manager, Control/Mechanical                                    |
| \$208,555.16 | HENDERSON  | PETE         | Authorized Nuclear Operator                                               |
| \$208,521.78 | VAUTOUR    | ERIC         | Electrical & Control Technician First Line Manager Assistant              |
| \$208,495.20 | SUKHU      | PARMANAND    | First Line Manager, Control/Mechanical                                    |
| \$208,489.04 | BELANGER   | ANDRE        | Electrical & Control Supervisor                                           |
| \$208,485.84 | POPE       | JONATHON     | Authorized Nuclear Operator                                               |
| \$208,482.39 | HABIB      | RIYAZ        | Project Director                                                          |
| \$208,448.45 | FITZGERALD | KENNETH      | First Line Manager, Control/Mechanical                                    |
| \$208,048.27 | RANDS      | ANDREW       | First Line Manager, Control/Mechanical                                    |
| \$207,987.49 | BLAIR      | PAULINE      | Authorized Nuclear Operator                                               |
| \$207,977.33 | MUELLER    | DAVID        | Health Physicist                                                          |
| \$207,962.55 | CHRISTIDIS | NICK         | Mechanical Technician                                                     |
| \$207,870.73 | MOIR       | JEREMY       | Authorized Nuclear Operator                                               |
| \$207,864.82 | WILSON     | DAVID        | Nuclear Operator                                                          |
| \$207,755.03 | PRIEST     | MARK         | Authorized Nuclear Operator                                               |
| \$207,736.34 | JOHNSON    | ADAM         | Authorized Nuclear Operator                                               |
| \$207,652.73 | SCHIAFONE  | DANIELE      | Electrical & Control Technician                                           |
| \$207,625.51 | DUNBAR     | GLENN C.     | Authorized Nuclear Operator                                               |
| \$207,523.90 | MCGEACHY   | KEVIN        | Electrical & Control Technician First Line Manager Assistant              |
| \$207,467.72 | TALUKDAR   | JIBESWAR     | Project Leader                                                            |
| \$207,397.53 | JOHNSTON   | CHRIS        | Manager, Plant Maintenance                                                |

|              |              |                 |                                                                  |
|--------------|--------------|-----------------|------------------------------------------------------------------|
| \$207,381.03 | BUDHLALL     | DAVE            | Field Shift Operating Supervisor                                 |
| \$207,243.62 | KENNEDY      | DANA            | Authorized Nuclear Operator                                      |
| \$207,221.74 | TRAN         | THONG           | Senior Design Engineer                                           |
| \$207,014.96 | RAMLOCHAN    | FRANK           | Mechanical Technician                                            |
| \$206,933.01 | CHOU         | JACK            | Real Time Markets Supervisor                                     |
| \$206,909.68 | MCLEOD       | MARK            | Authorized Nuclear Operator                                      |
| \$206,699.49 | ELLIOTT      | PAUL            | First Line Manager, Control/Mechanical                           |
| \$206,689.99 | MACKIE       | RICHARD         | Director                                                         |
| \$206,405.19 | HEATH        | LISA            | Authorization Training Supervisor                                |
| \$206,375.02 | STEPHENS     | TODD            | First Line Manager, Control/Mechanical                           |
| \$206,244.78 | * ARAUJO     | ADELINO CORRIEA | Mechanical Technician                                            |
| \$206,164.97 | HUNSBURGER   | ROB             | Authorization Training Supervisor                                |
| \$206,057.57 | SANASI       | JAI             | Project Leader                                                   |
| \$206,002.91 | * THUOT      | DENNIS          | Authorized Nuclear Operator                                      |
| \$205,935.45 | LIVSEY       | DANIEL          | First Line Manager, Inspection & Maintenance                     |
| \$205,903.08 | RAMSARRAN    | SUNIL           | Electrical & Control Technician                                  |
| \$205,892.38 | MONTGOMERY   | ROBERT          | Work Coordinator                                                 |
| \$205,838.90 | CZAJKOWSKI   | DARRYL          | Inspection & Maintenance Technician First Line Manager Assistant |
| \$205,830.28 | O'HAGAN      | MICHAEL         | First Line Manager, Inspection & Maintenance                     |
| \$205,681.81 | STEWART      | KEN             | First Line Manager, Facility Services (Pickering/Darlington)     |
| \$205,675.85 | * COULAS     | BRIAN           | Director Refurbishment Engineering                               |
| \$205,604.62 | CHETCUTI     | VICTOR          | First Line Manager, Radiation Control                            |
| \$205,582.14 | * MORRISON   | JACK            | System Window Coordinator                                        |
| \$205,569.33 | GREGORY      | HANK            | Authorization Training Supervisor                                |
| \$205,538.01 | WHELAN       | JAMES           | Authorized Nuclear Operator                                      |
| \$205,431.27 | PARK         | JEREMY          | Authorized Nuclear Operator                                      |
| \$205,366.39 | WILLIAMS     | JOEL            | Authorized Nuclear Operator                                      |
| \$205,227.06 | WOODWARD     | SEAN            | First Line Manager, Control/Mechanical                           |
| \$205,004.56 | ALI          | SHAZAM          | Electrical & Control Technician                                  |
| \$204,841.80 | LEMKAY       | KEVIN           | Section Manager Operations Training                              |
| \$204,699.86 | DE ROOSE     | ADAM            | Control Room Shift Supervisor                                    |
| \$204,641.90 | TIRABORRELLI | FRANK           | Work Coordinator                                                 |
| \$204,611.89 | FRANCE       | ROB             | First Line Manager, Control/Mechanical                           |
| \$204,501.90 | LUI          | KIN FAI         | First Line Manager, Control/Mechanical                           |
| \$204,440.03 | LOUGHREY     | SHAWN           | First Line Manager, Control/Mechanical                           |
| \$204,383.65 | SHAH         | SUSHIL          | Director Asset & Transmission Management                         |
| \$204,266.14 | CHILDERHOSE  | TODD            | Authorized Nuclear Operator                                      |
| \$204,238.96 | HENDERSON    | COLE            | Shift Emergency Response Manager                                 |
| \$204,180.31 | VAUGHAN      | GEORGE          | First Line Manager, Control/Mechanical                           |
| \$204,023.31 | BARNES       | STEPHEN         | Certified Unit "O" Control Room Operator                         |
| \$204,009.75 | GIANNANTONIO | FABIO           | Field Shift Operating Supervisor                                 |
| \$203,939.59 | SEGU         | JASVINDER       | Field Shift Operating Supervisor                                 |
| \$203,898.45 | THOTTUMKAL   | VINODU          | First Line Manager, Control/Mechanical                           |
| \$203,813.62 | WOPEREIS     | IIM             | First Line Manager, Control/Mechanical                           |
| \$203,747.72 | WAINMAN      | MARK            | Inspection & Maintenance Technician First Line Manager Assistant |
| \$203,625.07 | CLINTON      | STEPHEN         | Supervising Nuclear Operator First Line Manager Assistant        |
| \$203,614.11 | PARKS        | SABINE          | Director Controllershship                                        |
| \$203,595.85 | PIERCE       | DOUG            | Certified Unit "O" Control Room Operator                         |
| \$203,315.51 | ANDERSON     | DAVID T.        | First Line Manager, Control/Mechanical                           |
| \$203,200.80 | TERRO        | MAHMOD          | Project Engineer/Officer                                         |
| \$203,176.20 | LANGEVINE    | MAURICE         | Electrical & Control Technician                                  |
| \$203,110.98 | THOMAS       | STEPHEN         | Field Shift Operating Supervisor                                 |
| \$202,955.94 | HARRISON     | KENNETH         | Real Time Markets Supervisor                                     |
| \$202,947.31 | DEWAR        | STEVE           | Supervising Nuclear Operator First Line Manager Assistant        |
| \$202,923.59 | * LE BLANC   | BERNIE          | First Line Manager, Control/Mechanical                           |
| \$202,880.06 | D'SILVA      | MILBURN         | Mechanical Technician                                            |
| \$202,638.86 | GRECO        | FERNANDO        | First Line Manager, Control/Mechanical                           |
| \$202,625.70 | LORENCEZ     | CARLOS          | Director                                                         |
| \$202,590.20 | SHIEL        | BRENDAN         | Electrical & Control Technician First Line Manager Assistant     |
| \$202,569.59 | FAWNS        | REGINALD        | First Line Manager, Control/Mechanical                           |
| \$202,544.32 | SCARFO       | MIKE            | Work Coordinator                                                 |
| \$202,516.99 | EVANS        | DOUG            | First Line Manager, Inspection & Maintenance                     |
| \$202,511.32 | WROBEL       | MARTIN          | First Line Manager, Radiation Control                            |
| \$202,454.00 | MALEK        | IMTIAZ          | Director                                                         |
| \$202,444.10 | REINERT      | PHIL            | Vice President Supply Services Ontario Power Generation Projects |
| \$202,399.69 | POLLARD      | ALAN            | First Line Manager, Control/Mechanical                           |
| \$202,372.70 | WALSH        | DAVID P.        | Authorization Training Supervisor                                |
| \$202,299.86 | STONE        | GARETH          | Certified Unit "O" Control Room Operator                         |
| \$202,280.89 | FILLIER      | TIMOTHY         | Authorized Nuclear Operator                                      |
| \$202,139.34 | LEDWARD      | MICHAEL         | Supervising Nuclear Operator First Line Manager Assistant        |
| \$202,024.68 | TALEVI       | MICHAEL         | Mechanical Technician/Technologist                               |
| \$201,894.63 | RANKINE      | DAVE            | Training Technician - Conventional Safety                        |

|              |             |             |                                                                |
|--------------|-------------|-------------|----------------------------------------------------------------|
| \$201,852.64 | LOVERIDGE   | CHARLES     | Certified Unit "O" Control Room Operator                       |
| \$201,839.85 | SCHREIBER   | PAUL        | Authorized Nuclear Operator                                    |
| \$201,811.78 | SMITH       | ROBIN       | Authorized Nuclear Operator                                    |
| \$201,786.32 | SANKER      | LATCHMAN    | First Line Manager, Control/Mechanical                         |
| \$201,727.57 | DESPRES     | ARTHUR      | Manager Refurbishment Operations & Maintenance Programs        |
| \$201,707.46 | MAINGOT     | JAMES       | Authorized Nuclear Operator                                    |
| \$201,467.54 | KUBICKI     | TODD THOMAS | Field Shift Operating Supervisor                               |
| \$201,390.10 | SMITH       | CLIFFORD    | First Line Manager, Control/Mechanical                         |
| \$201,311.63 | D'SOUZA     | BERTIE      | First Line Manager, Control/Mechanical                         |
| \$201,254.99 | PARKER      | PAUL        | Mechanical Technician                                          |
| \$201,225.90 | ARAUJO      | JAMES       | First Line Manager, Radiation Control                          |
| \$201,189.40 | ROBERTS     | CHARLES     | Director Information Technology Projects & Outsourced Services |
| \$201,088.53 | LOVELAND    | GLENN       | First Line Manager, Control/Mechanical                         |
| \$201,046.27 | HAMMERSTROM | WILLIAM     | Authorized Nuclear Operator                                    |
| \$200,943.01 | KETO        | GERALD      | Director                                                       |
| \$200,937.08 | MARTIN      | ROY         | Director - Nuclear Safety                                      |
| \$200,811.05 | WELLER      | BRADLEY     | First Line Manager, Control/Mechanical                         |
| \$200,740.25 | BELL        | BRIAN       | Director Market Affairs                                        |
| \$200,635.90 | BIRD        | DAVID       | Shift Emergency Response Manager                               |
| \$200,390.43 | * DETSIKAS  | MARY        | Authorized Nuclear Operator                                    |
| \$200,180.20 | MITCHELL    | GERRY       | System Window Coordinator                                      |
| \$200,081.65 | COBER       | JOHN        | Authorized Nuclear Operator                                    |
| \$200,041.09 | DAWSON      | JAMES       | Vault Supervisor                                               |

**UNDERTAKING JT2.20**

**Undertaking**

To provide the communication plan for roll-out of BT program.

**Response**

See Attachment 1.



## BT Engagement & Communications Overview

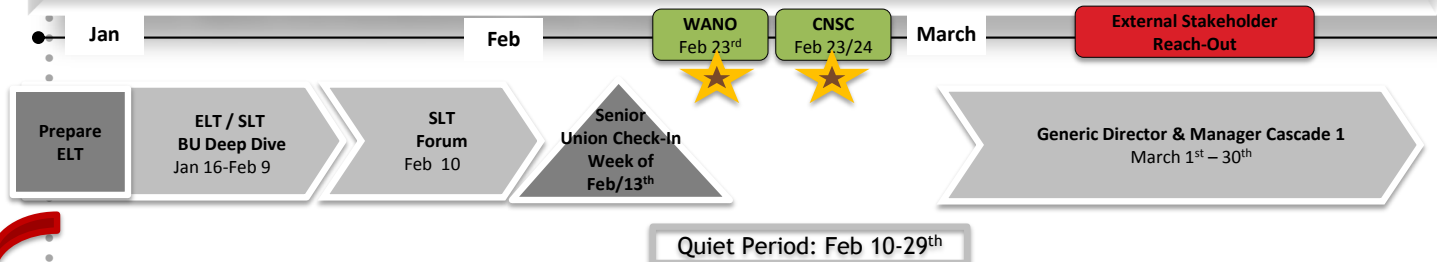
*March 27, 2012*



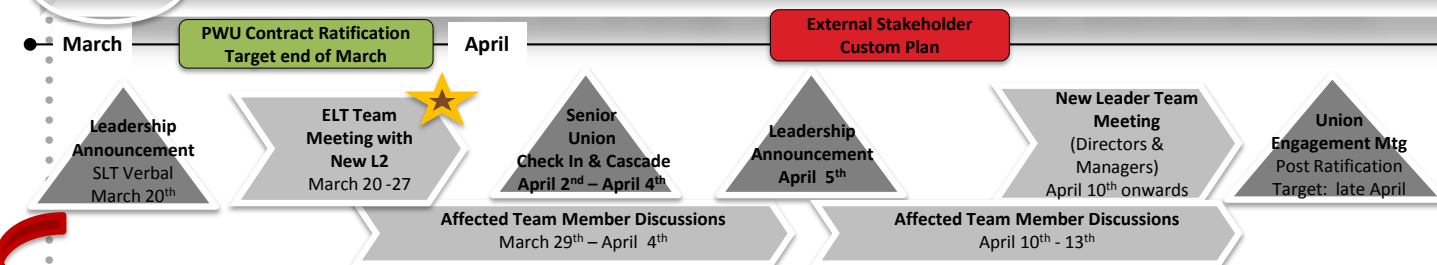
## Rollout Approach: Q1 and Q2

UPDATED  
 March 13<sup>th</sup>

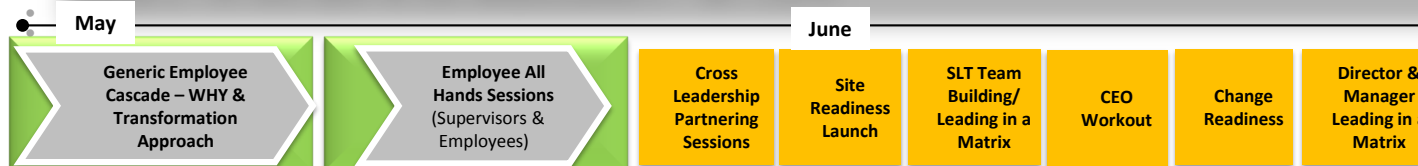
### PHASE 1: BUILD THE FOUNDATION : Why change and change journey



### PHASE 2: INITIATE CENTRE-LED: What is the change, and why will this help us? (New & Current Leader)



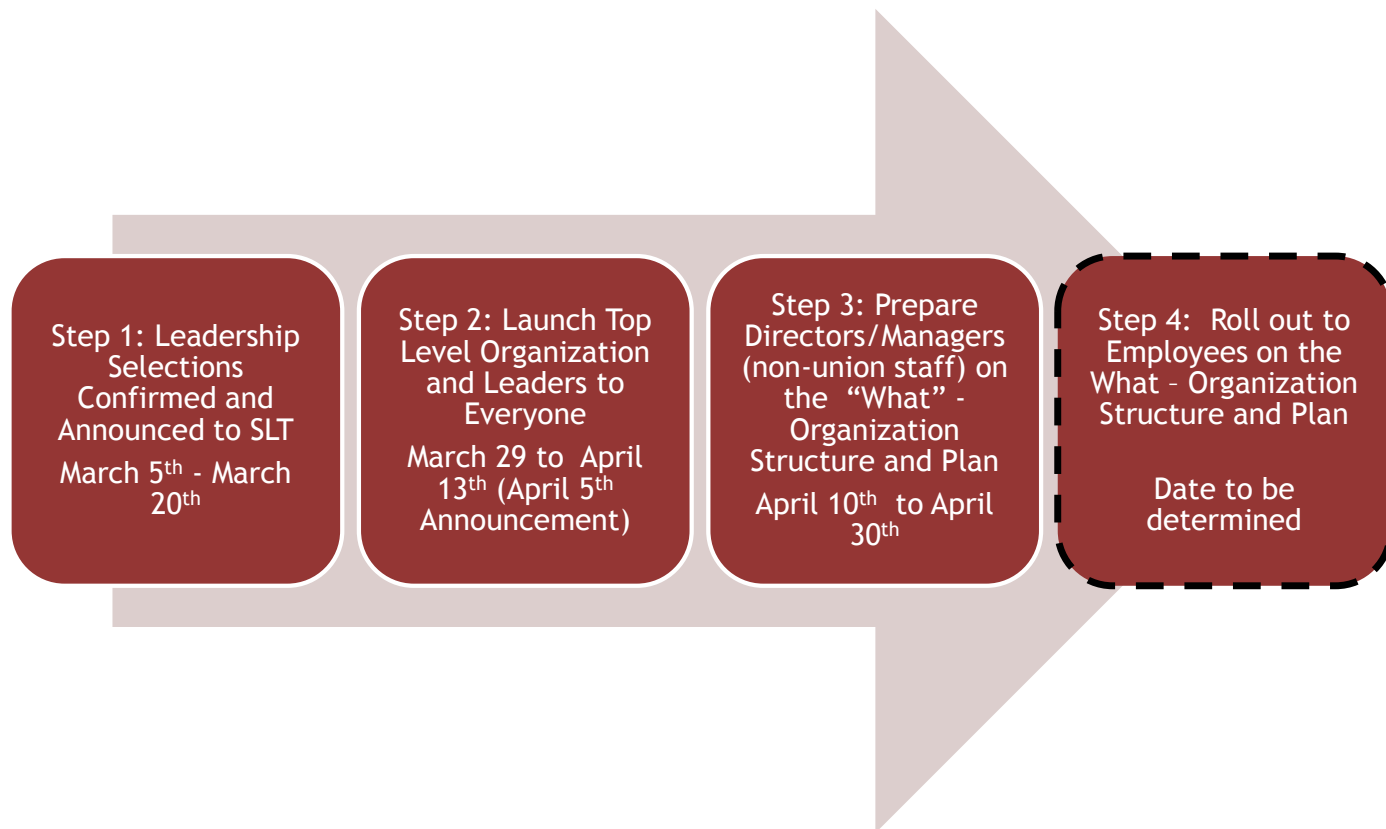
### PHASE 2: INITIATE CENTRE-LED ORGANIZATION – New Leader



Building Change Capability : Transitions Workshops for Leaders (Optional)



## Four Steps to Initiating Centre-Led Org



## Step 2: Launch Top Level Organization and Leaders to Everyone

Timeframe: March 29<sup>th</sup> – April 13<sup>th</sup>

| Objective                                                                                                                                                                                                                                                                                                                                                                                                                              | Tactic                                             | Owner                                                                            | Timing                                                    | Topic Areas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Finalize BU Communication Plan: Affected Team Member Discussions</b>                                                                                                                                                                                                                                                                                                                                                                |                                                    | HR Partner to support ELT and Builder (Support from Change & Comms)              | March 27 <sup>th</sup>                                    | <ul style="list-style-type: none"> <li>Detailed BU communication plan for affected team member discussions (see slide 5)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Custom BU Plan for Affected Team Members:</b><br>Communication to directly affected team members<br><br><b>Principles:</b> <ul style="list-style-type: none"> <li>Communicate to directly affected team members before the announcement (Mon/Tues)</li> <li>Current leader owns the communication to their team, followed by the new leader</li> <li>If no individual is impact, say that and tailor cascade accordingly</li> </ul> | 1x1's<br><br><b>Refer to Key Messages Document</b> | Current SLT member to impacted team leads and teams<br><br>New Leader Follows up | Thurs- Wed March 29 <sup>th</sup> – April 4 <sup>th</sup> | <ul style="list-style-type: none"> <li>Concept of a Centre-Led Organization</li> <li>New leaders that have been appointed to the new centre-led structure</li> <li>Starting to align teams under new centre-led function</li> <li>Organization will transition to the centre-led organization in May</li> <li>What is changing for them</li> <li>What is not changing               <ul style="list-style-type: none"> <li>The resources and teams supporting operations or plants;</li> <li>Accountabilities of teams at this point in time are <u>not changing</u>. Employees will continue to perform the same job duties they were performing before this change.</li> <li>For employees who are part of a team transitioning to centre-led, there will be no change to their accountabilities, their direct manager, or their work location.</li> </ul> </li> <li>As we continue to define and refine the change initiatives to help OPG become more efficient and effective, we will work with employees and their representatives.</li> <li>Announcement will be sent from Tom Mitchell on April 5<sup>th</sup></li> <li>New Leader will follow-up with you</li> <li>What you can say to your teams right now</li> <li>Ask to keep this information confidential</li> </ul> |



## Customer BU Plan: Affected Team Leader Discussions

Developed by HR Partner to support ELT and Builder (support from change/comms)

### Communicate to people *directly impacted*: Mar 29<sup>th</sup> – Apr 4<sup>th</sup>

- Current leader talks to direct reports/leaders who are transferring out
- New Leader talks with new direct reports/leaders who are transferring in
- Current L2's talk to current direct report team about changes to the team: leadership changes if any, team changes
- Transferring leaders talk to their immediate teams (not extended teams yet, unless they are small and will feel the impact. Keep discussions with broader teams/union staff to closer to announcement)

### **Announcement - Apr/5<sup>th</sup>**

### Follow-up with organizations post announcement: Apr 10<sup>th</sup>-13<sup>th</sup>

- New L2 Leader communicates with direct report team
- New L2 communicates with extended team (email/group meeting)
- L3/L4's to their teams on what it means where appropriate

**Note:** Communication prior to announcement should focus on those directly impacted, not extended organizations until post announcement. Communications with represented staff prior to announcement should be limited to staff who will be directly impacted as a result of the change.

## Step 2: Launch Top Level Organization and Leaders to Everyone

Timeframe: March 29<sup>th</sup> – April 13<sup>th</sup>

| Objective                                                 | Tactic                                                          | Owner                                                   | Timing                                     | Topic Areas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Discussion with Senior Union Leaders                      | Meeting                                                         | Jason                                                   | April 2 <sup>nd</sup>                      | <ul style="list-style-type: none"> <li>Overview of communication materials and April 5<sup>th</sup> announcement</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Follow-up with Chief Stewards/UD's                        | 1x1                                                             | Comms Owners (TBD)                                      | April 3 <sup>rd</sup> and 4 <sup>th</sup>  | <ul style="list-style-type: none"> <li>Key messages from the April 5<sup>th</sup> announcement</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Announcement of new organization                          | Email<br>Website<br>Org Charts<br>EE Q&A<br>Submit questions    | Tom                                                     | Thurs Apr 5 <sup>th</sup>                  | <ul style="list-style-type: none"> <li>Concept of Centre-Led Organization Structure and the significant functional organization changes</li> <li>What is changing and what is not changing</li> <li>Brief overview of quick wins/early implementation initiatives</li> <li>Next steps</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| BU/Function Announcement                                  | Email<br><br><b>Template will be provided</b>                   | ELT Member<br><br>(Support from Builder, Comms, Change) | Post April 5 <sup>th</sup> Announcement    | <ul style="list-style-type: none"> <li>Reinforce Corporate key messages (provided in template)</li> <li>Thank teams that will be transferring out of the BU and highlight benefits now they are apart of centre-led and the continued support</li> <li>Welcome teams that will be transferring in to the BU/function and highlight benefits now they are apart of centre-led and the continued support</li> <li>Announce changes within the BU/function</li> <li>Announce any new L3 roles</li> <li>Thank leadership team who will be driving this transition forward</li> <li>Provide an overview of BU specific quick wins/early implementation initiatives</li> <li>Remind people again of the importance of delivering a strong 2012 business plan, deliver the commitments and continue to ensure safe, reliable operations and strong project execution</li> </ul>                                                                                                                                                 |
| Custom BU Plan: Leaders communicate more broadly to teams | Email/<br>Meetings<br><br><b>Refer to Key Messages Document</b> | Current SLT Member<br>New SLT Member                    | W/O Apr 10 <sup>th</sup> -13 <sup>th</sup> | <ul style="list-style-type: none"> <li>Reiterate what is changing</li> <li>Emphasize what is not changing <ul style="list-style-type: none"> <li>The resources and teams supporting operations or plants;</li> <li>Accountabilities of teams at this point in time are <u>not changing</u>. Employees will continue to perform the same job duties they were performing before this change.</li> <li>For employees who are part of a team transitioning to centre-led, there will be no change to their accountabilities, their direct manager, or their work location.</li> </ul> </li> <li>As we continue to define and refine the change initiatives to help OPG become more efficient and effective, we will work with employees and their representatives.</li> <li>Organization will transition to the centre-led organization in May.</li> <li>Deliver a strong 2012 business plan, continue to deliver the commitments, and continue to ensure safe, reliable operations and strong project execution</li> </ul> |

## Step 3: Prepare Directors/Managers on the “What” Organization Structure and Plan (New L2 Leaders Team Meetings with Dir/Mgrs)

**Timeframe:** April 10<sup>th</sup> – April 30<sup>th</sup>

### Objectives:

- Provide an overview of the OPG top level organization design and the benefits of moving to centre-led model.
- Overview of ALL L2 organizations by function/business unit , with a focus of key BU dependencies.
- Overview the May transition organization for the specific function, and early initiatives the function/BU will be working on
- Provide an opportunity to dialogue about what is changing, the implications, next steps and their role.

**Format:** Presentation/Custom design based on Business Unit/Function requirements

### Employee Cascade Implications:

- Cascade may happen for employees after PWU ratification or once ELT/L2’s are notified this can happen
- In the meantime, generic Q&A for all employees and key messaging will be provided online at the time of announcement

**Support:** Change Support will partner with Builders and Communications to support the rollout

### Common Content Areas:

- Integrated Model, Centre-led
- Top level organization structure
- L2 structure by Function/BU
- Benefits of the change
- Phases and status of the change

+

### Custom Content Areas: by Business Unit / Function

- Overview to April transition org for specific function
- Address key BU dependencies
- Discuss early initiatives
- What is changing/Not & next steps
- Benefits of the change

+

### L2 Specific Details: (customized by L2 leader)

- L2 initiatives
- What it means for a specific team
- Key next steps and actions



**UNDERTAKING JT2.21**

**Undertaking**

To provide or give the reference to the BT corporate scorecard.

**Response**

The following response was provided at the conference (see Day 2 Transcript pp. 119-120):

I am just wondering, before we break, we were asked earlier about the BT corporate scorecard, or the BT scorecard, and when we were dealing with the subsequent question we turned it up. So that is Exhibit L, tab 1.2, schedule 17, page 3 of 6. So that page within the corporate balance scorecard is the BT scorecard.

**UNDERTAKING JT2.22**

**Undertaking**

To file the document Entitled "A Leader's Guide to Culture."

**Response**

The subject document is provided as Attachment 1.

# **Power Forward: The Way We Do Things at OPG**

## Leader's Guide to Culture

Rev: Jul 2013

Use this resource with your team to build understanding of what it means to live our Values and Behaviours and how each of us as leaders can make a difference.

**Welcome 2**

**3 OPG Mission, Values and Behaviours**

**Behaviours Descriptions 4**

**6-10 Your Role Expectations & Tools to Use**

**Ways to Power Forward 11**

**12 Appendices (Tools)**

# Welcome



As one of our leaders, you play a critical role in transforming our business. With your continued support, we can involve employees in making sustainable change that will build a strong future for OPG.

Our Values and Behaviours define the culture we need to be a high performing organization and achieve our Mission to be Ontario's low cost electricity generator of choice. I have said that our transformation is 90% cultural, and it will take each one of us to make a difference. Shifting our culture means everyone shifting his or her behaviours. It starts with ourselves, first and foremost. Many of you have started to take action. You may be wondering what is expected of you in a leader role to impact culture change? I have three calls to action:

- **First - Be a role model. Demonstrate our Values and Behaviours in your day-to-day work.** Understand that the expectations that people have of us as leaders is to walk our talk. Be humble, we will not always get it right but we need to be transparent on what we are learning and clear a path for others to do the same.
- **Second - Build understanding with your team.** Help your employees understand what our Values and Behaviours mean in their daily work. Have conversations with them. Point out examples and share stories of your team putting them into action.
- **Lastly - Tell me what you need from me to make this culture change.** What barriers or roadblocks are you facing in making this change and where do you need my help to make the Behaviours stick? Please share your ideas by sending me an e-mail.

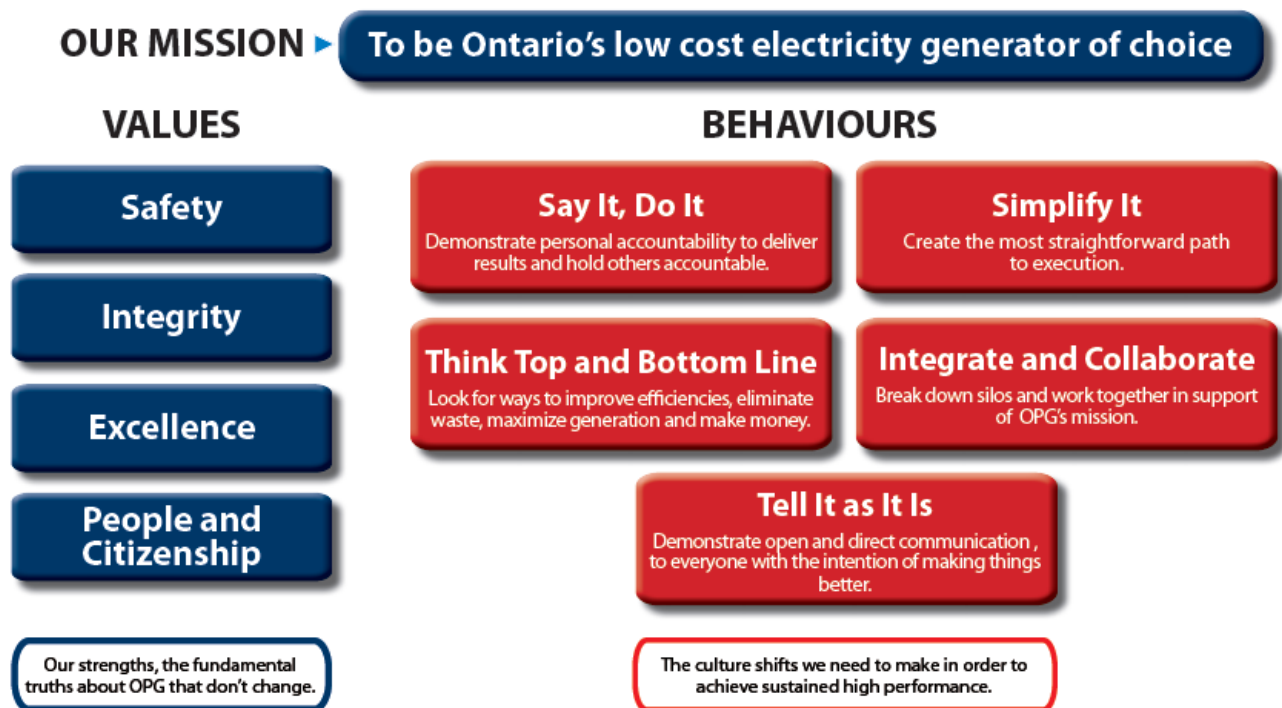
Use this leader's guide to support you in my call to action. Let's transform our culture and collectively make our Values and Behaviours the way we do things at OPG.

[3]

# Mission, Values and Behaviours

Our Mission is to be Ontario's low cost electricity generator of choice. Safety, Integrity, Excellence, People & Citizenship are our OPG Values. They are the fundamental truths about OPG that don't change. They are our strengths that guide our behaviour and decision making, and point the way to business conduct that results in successful individuals and a successful company.

Our Behaviours are the cultural shifts we need to make to be a high performing company and continue to deliver on our Mission. These Behaviours – Say It, Do It, Simplify It, Think Top and Bottom Line, Integrate and Collaborate and Tell it As It Is – strengthen and support OPG's Values and are essential to making sustainable change at OPG.



As we transform our business, demonstrating the OPG Behaviours is critical to achieving sustained change. This guide emphasises our Behaviours, and provides ways each of us can make them real and everyday.

# Behaviours Descriptions

OPG Behaviours for All Employees at OPG clarifies the expectations regardless of our role, job or group.

## OPG Behaviours

the way **all employees** do things around here

*Below are the behaviours expected from all employees regardless of role, job, or group – they guide all of us at OPG.*

### Say It, Do It

**Demonstrate personal accountability to deliver results and hold others accountable.**

#### ✓ IT IS

- Deliver on commitments with a consistent focus on safety and quality.
- Expect others to deliver on their commitments and results.
- Surface issues and identify problems in a timely manner and recommend solutions where required.
- Own mistakes and failures, and learn from them to improve the next time.
- Understand the risks and implications of decisions and actions; ask if you don't know.

#### ✗ IT ISN'T

- Compromise safety requirements, or eliminate the safety verification process.
- Blame others instead of owning mistakes.
- Work around people who aren't delivering on their commitments.
- Use governance as a reason for not delivering on a commitment.

### Simplify It

**Create the most straight forward path to execution.**

#### ✓ IT IS

- Simplify work practices and procedures within your control; input to simplify ones that aren't.
- Identify issues, barriers or perceived low value work within processes or procedures and where possible suggest solutions.
- Influence and challenge the status quo when something doesn't make sense, or is overly complex.

#### ✗ IT ISN'T

- Compromise or sacrifice quality or safety.

### Think Top and Bottom Line

**Look for ways to improve efficiencies, eliminate waste, maximize generation and make money.**

#### ✓ IT IS

- Identify ways to do things better and more efficiently.
- Understand there is a limited amount of money, and act accordingly.
- Recognize that all the small costs add up to a larger overall cost.
- Understand how your actions and decisions impact operations.
- Understand the challenges of our industry and what it means for OPG.

#### ✗ IT ISN'T

- Behave as if there is an endless pot of money and time.
- Spend money and time on "Nice to haves" vs. "Need to haves".

### Integrate and Collaborate

**Break down silos and work together in support of OPG's mission.**

#### ✓ IT IS

- Work collaboratively to problem solve issues, work through conflict and learn together.
- Keep others informed and ensure quality handoffs and knowledge transfer.
- Consider the impact of actions and decisions on others within and beyond the team.
- Proactively build strong working relationships across teams and geographies.

#### ✗ IT ISN'T

- Operate in silos.
- Behave with an "Us" vs. "Them" mentality.
- Perform tasks in isolation of the bigger picture and team.
- Build your own solution without considering others' needs and impact to others.
- Solely rely on email as a key means to build working relationships.

### Tell It as It Is

**Demonstrate open and direct communication to everyone with the intention of making things better.**

#### ✓ IT IS

- Speak the truth in a constructive, factual and respectful manner, without blame or judgement.
- Receive feedback openly from peers, direct reports and bosses.
- Deliver both good news and bad news.
- Respectfully call out others on inconsistent behaviours.

#### ✗ IT ISN'T

- Avoid difficult discussions.
- Use a process or procedure in place of a difficult discussion.
- Use silence as a way to disagree.
- Be defensive.
- Talk behind others' backs.

## VALUES

Safety • Integrity • Excellence • People & Citizenship

April 2013

**ONTARIO POWER**  
GENERATION

# Behaviours Descriptions (cont.)

Building on the Behaviours for All Employees, there are leader expectations for those in the role of FLM/Supervisor.

## OPG Behaviours

**the way flm/supervisors do things around here**

Building on the **all employees** behaviours, below are the added expectations for those in the critical role of **flm/supervisor** at OPG.

### Say It, Do It

**Demonstrate personal accountability to deliver results and hold others accountable.**

#### ✓ IT IS

- Set clear expectations, observe work execution, provide feedback on performance.
- Hold others to their commitments and results, recognize when they deliver, and challenge when they don't.
- Ensure staff have the appropriate decision authority aligned to their role.
- Provide input to decisions, and once a decision is made, own and support the decision, and execute the plan of action.
- Plan and organize work to ensure that work is completed efficiently, and monitor for timely and accurate completion.

#### ✗ IT ISN'T

- Make commitments that you cannot keep.
- Do others' work rather than hold them accountable.
- Create governance for everyone to follow because a few people aren't delivering.

### Simplify It

**Create the most straight forward path to execution.**

#### ✓ IT IS

- Work to change procedures that are perceived as barriers or low value work for staff.
- Ask your staff only for the work necessary to get the job done; eliminate work that isn't.
- Acknowledge and empower skill of the craft/discipline where it makes sense rather than set procedures.

#### ✗ IT ISN'T

- Be more prescriptive than required.
- Create governance or procedures to address an exception, where there is low risk, or in response to an individual mistake.

### Think Top and Bottom Line

**Look for ways to improve efficiencies, eliminate waste, maximize generation and make money.**

#### ✓ IT IS

- Operate within your means, including budget and resources.
- Be conscious of your team's productivity and take action to make it better.
- Understand and demonstrate the importance of valuing and developing people.
- Understand what it takes to maintain OPG's license to operate within each of our communities, and take actions accordingly.

#### ✗ IT ISN'T

- Cut corners that may lead to safety or other unacceptable risks.
- Spend too much time and effort on things that have very little benefit.

### Integrate and Collaborate

**Break down silos and work together in support of OPG's mission.**

#### ✓ IT IS

- Actively work with and involve the right people in decisions and solutions affecting them, sharing early and often.
- Break down silos to promote cross-team cooperation.
- Define success in terms of the whole team.
- Be visible and demonstrate that you are approachable in day-to-day interactions with others.

#### ✗ IT ISN'T

- Place your responsibility for making difficult decisions on others.
- Refuse to make a decision until consensus is achieved.

### Tell It as It Is

**Demonstrate open and direct communication to everyone with the intention of making things better.**

#### ✓ IT IS

- Take responsibility to speak up.
- Confront the brutal facts and sensitive issues early on.
- Be open and honest about what you can and can't say.
- Promote two-way discussion and test for buy-in and understanding.

#### ✗ IT ISN'T

- Sit on bad news, sugar coat the message.
- Use feedback as an excuse to be rude or disrespectful to others.
- Manage conflict or difficult situations by email.

## VALUES

**Safety • Integrity • Excellence • People & Citizenship**

**ONTARIOPOWER**  
GENERATION

### Ways to Get Started

- Provide your team with copies of the All Employee What It Is and What It Isn't.
- Discuss what it means to demonstrate them in your work group.
- Build them into your meetings (formal and informal), and share examples of the Behaviours you see. Repeat often.
- Ask your team to share their ideas on practical ways to stay focused on the Behaviours in their daily work.

## Your Role Expectations— Lead the Way

The things you do every day with everyone you deal with are opportunities to demonstrate our Values and Behaviours. Our Values are a source of pride from OPG, and as a leader, demonstrating this pride and continuing to live the Values are important to lead the way. Our Behaviours require us to change – employees, peers and others will watch if you are demonstrating the Behaviours and reinforcing them with others. If we all do our part, collectively we will role model what is important for how we do things at OPG.

### How Can You Lead the Way?

|                                                     |                                                                                                                                                 |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) By how you break it down                         | Have you broken down what the Behaviours mean in your team's day-to-day work, and what they can do to demonstrate the Behaviours?               |
| 2) By how you make decisions                        | Do your decisions align with our Values and Behaviours?                                                                                         |
| 3) By what you talk about and the questions you ask | Do you ask questions that invite open discussion of issues and opportunities and do you reinforce the Values and Behaviours in your discussion? |
| 4) By your reactions to critical incidents          | Do you stick to our Values and Behaviours when under stress and dealing with issues?                                                            |
| 5) By what you recognize                            | Do you recognize people who are demonstrating our Values and Behaviours?                                                                        |
| 6) By your pride                                    | Do you demonstrate your pride in the job well done and in working for OPG?                                                                      |

## Tools You Can Use

The tools in this guide are designed to be used in two ways:

- On your own, to reflect on the leadership impact you are making in modeling our Behaviours.
- With your team/crew to build their understanding of what our Behaviours mean and involve them on how to implement the Behaviours in their daily work.

It is recommended you begin with using the tools to reflect personally on how you are demonstrating the OPG Behaviours and then use the tools with your team/crew.

The OPG Behaviours tools are:

1. **Progress Check** – check in on progress for making the Behaviours the way we do things at OPG.
2. **What it Looks Like** – recognize and call out our Behaviours in action.
3. **Conversation Generator** – have positive and meaningful team conversations about what the Behaviours mean.
4. **Embed in Your Work Programs** – link the Behaviours and actions required for work program success

[7]

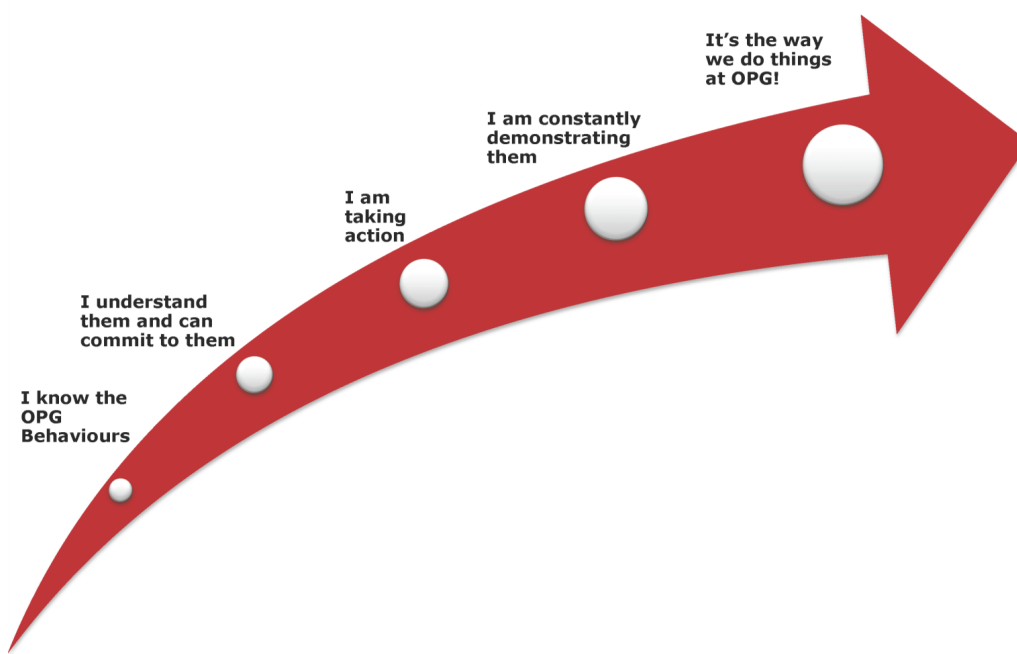
## Tools You Can Use (cont.)

### OPG Behaviours: Progress Check

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>     | <ul style="list-style-type: none"> <li>To reflect on your personal progress of modeling how we do things at OPG.</li> <li>To do a progress check with your team/crew on where we are on our change journey of living our Behaviours.</li> <li>To identify as a team/crew what we can do to place our Behaviours at the centre of the way we do things at OPG.</li> </ul>                                                                                                                                                                                                                                   |
| <b>Materials</b>   | <ul style="list-style-type: none"> <li>A copy of the OPG Behaviours, What it Is and What it Isn't</li> <li>A copy of the Culture Change Progress Check Tool</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Time Needed</b> | <ul style="list-style-type: none"> <li>15 minutes</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Steps</b>       | <ol style="list-style-type: none"> <li>Indicate what stage you are currently at on the culture change curve below.</li> <li>Reflect / discuss:               <ol style="list-style-type: none"> <li>Why you think you are at this stage. What are your reasons / examples that lead you to believe this is where you are at?</li> <li>What strengths can be leveraged more? What are the gaps?</li> <li>What actions can you take to move to the next stage? What support is needed?</li> </ol> </li> <li>Summarize the 1-2 actions you are committed to taking to move towards the next stage.</li> </ol> |

**Culture Progress Check – see the Appendix for a full-page version:**

**CTRL + Click  
 Jump to  
 Appendix**



## Tools You Can Use (cont.)

### OPG Behaviours: What it Looks Like

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>     | <ul style="list-style-type: none"> <li>To identify and call out when our Behaviours are being modelled in our daily work.</li> <li>To point out examples and stories of our Behaviours as we recognize them in both our actions and business practices.</li> <li>To broaden participation and generate momentum on taking action.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Materials</b>   | <ul style="list-style-type: none"> <li>A copy of the What it Looks Like Tool</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Time Needed</b> | <ul style="list-style-type: none"> <li>15 minutes</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Steps</b>       | <ol style="list-style-type: none"> <li>Choose an OPG Behaviour(s) to focus on with your team/crew.</li> <li>Have people individually write down who comes to mind as an example of demonstrating this Behaviour and what they specifically did. Also have them jot down any stories they have about our Behaviours being depicted both in our daily actions and in our business practices.</li> <li>Lead a roundtable discussion: <ol style="list-style-type: none"> <li>Ask people to talk about who it is they would like to recognize and what they did. Encourage them to be specific on what was modelled, the situation, and the impact it had. If it is someone or a team in another department, discuss how they can recognize them outside of the meeting.</li> <li>Solicit stories of our Behaviours being depicted both in our daily actions and in our business practices.</li> </ol> </li> </ol> |

What It Looks Like Tool – see the Appendix for a full-page version:

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Appendix

**OPG Behaviours: What it Looks Like**

Consider each of the OPG Behaviours and how they are being demonstrated by you and /or your team. Who can you recognize that is modelling the behaviour and what did they do? What are some examples you can point to or stories you can tell of our behaviours being demonstrated, both in actions and business practices.

**Say It, Do It** Demonstrate personal accountability to deliver results and hold others accountable.

**Simplify It** Create the most straight forward path to execution.

**Think Top and Bottom Line** Look for ways to improve efficiencies, eliminate waste, maximize generation and make money.

**Integrate & Collaborate** Break down silos and work together in support of OPG's mission.

**Tell It As It Is** Demonstrate open and direct communication to everyone with the intention of making things better.

ONTARIO POWER GENERATION

[9]

## Tools You Can Use (cont.)

### OPG Behaviours: Conversation Generators

|                    |                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>     | <ul style="list-style-type: none"> <li>To generate positive and meaningful conversations with your team/crew on demonstrating our Behaviours with each other.</li> <li>To deepen understanding of our Behaviours and share learning's that further integrate in to day-to-day actions.</li> <li>To coach others on making our Behaviours real every day.</li> </ul> |
| <b>Materials</b>   | <ul style="list-style-type: none"> <li>A copy of the Conversation Generator Tool</li> </ul>                                                                                                                                                                                                                                                                         |
| <b>Time Needed</b> | <ul style="list-style-type: none"> <li>15 minutes</li> </ul>                                                                                                                                                                                                                                                                                                        |
| <b>Steps</b>       | <ol style="list-style-type: none"> <li>Pick an OPG Behaviour as a focus for conversation.</li> <li>Discuss the questions provided on the Conversation Generator tool or develop your own in the space provided.</li> <li>Summarize the 1-2 actions or insights that are important from the conversation to focus on going forward.</li> </ol>                       |

Conversation Generator Tool – see the Appendix for a full-page version:

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Appendix

[2]

#### OPG Behaviours: Conversation Generator

This tool provides key questions to use to generate conversation with your team/crew. They are linked to each OPG behaviour and there is additional space provided to develop your own.

|                                  |                                                                                                                                                                                                                                                                                          |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Say it, Do it</b>             | <b>Demonstrate personal accountability to deliver results and hold others accountable.</b>                                                                                                                                                                                               |
| <b>Key Questions</b>             | <ul style="list-style-type: none"> <li>What are you accountable for in your role that you are proud of?</li> <li>What do you do to support others to deliver on their commitments?</li> <li>What's a significant learning have you had recently that had a positive impact?</li> </ul>   |
| <b>Answer Your Own</b>           |                                                                                                                                                                                                                                                                                          |
| <b>Simplify it</b>               | <b>Create the most straight forward path to execution.</b>                                                                                                                                                                                                                               |
| <b>Key Questions</b>             | <ul style="list-style-type: none"> <li>What opportunities do you see to simplify our approach?</li> <li>What low value work are we doing that we can eliminate?</li> <li>What are the issues and barriers in our path to execution?</li> </ul>                                           |
| <b>Answer Your Own</b>           |                                                                                                                                                                                                                                                                                          |
| <b>Think Top and Bottom Line</b> | <b>Look for ways to improve efficiencies, eliminate waste, maximize generation and make money.</b>                                                                                                                                                                                       |
| <b>Key Questions</b>             | <ul style="list-style-type: none"> <li>Where are our opportunities to do things better and more efficiently?</li> <li>What smaller costs can be reduced or eliminated for an incremental gain?</li> <li>What are the "Need to haves" vs "Nice to haves"?</li> </ul>                      |
| <b>Answer Your Own</b>           |                                                                                                                                                                                                                                                                                          |
| <b>Integrate and Collaborate</b> | <b>Break down silos and work together in support of OPG's mission.</b>                                                                                                                                                                                                                   |
| <b>Key Questions</b>             | <ul style="list-style-type: none"> <li>How can we better collaborate to problem solve with other teams/departments we count on to get things done?</li> <li>What working relationships do you think you/we need to strengthen?</li> </ul>                                                |
| <b>Answer Your Own</b>           |                                                                                                                                                                                                                                                                                          |
| <b>Tell it as it is</b>          | <b>Demonstrate open and direct communication to everyone with the intention of making things better.</b>                                                                                                                                                                                 |
| <b>Key Questions</b>             | <ul style="list-style-type: none"> <li>What is your best advice to approach having difficult discussions?</li> <li>What ways can we respectfully call out others on inconsistent behaviour?</li> <li>How do you create opportunities to receive quality feedback from others?</li> </ul> |
| <b>Answer Your Own</b>           |                                                                                                                                                                                                                                                                                          |

OPG INTERNAL USE ONLY

**ONTARIO POWER**  
GENERATION

OPG INTERNAL USE ONLY

**ONTARIO POWER**  
GENERATION

# Tools You Can Use (cont.)

## OPG Behaviours: Embed in Your Work Programs

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>     | <ul style="list-style-type: none"> <li>To identify which Behaviours are critically important to impact the success of a work program</li> <li>To identify what Behaviours to focus on and demonstrate as the leader</li> <li>To identify what Behaviours others need to focus on and demonstrate to impact success.</li> </ul>                                                                                                                                                                                                                                                                                                                                  |
| <b>Materials</b>   | <ul style="list-style-type: none"> <li>A copy of the OPG Behaviours, What it Is and What it Isn't</li> <li>A copy of the Embed in Your Work Programs Tool</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Time Needed</b> | 15 minutes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Steps</b>       | <ol style="list-style-type: none"> <li>Review the OPG Behaviours, What it Is and What it Isn't and your objectives for your work program.</li> <li>Identify what Behaviours are critically important to impact success of your work program using the rating scale provided in the tool               <ol style="list-style-type: none"> <li>Select the top 2 Behaviours that have a high impact and are most critically needed</li> <li>Reflect / discuss what you will do differently individually and as a team to align your Behaviours to your work program success.</li> </ol> </li> <li>Identify what needs to be in place to ensure success.</li> </ol> |

Embed in Your Work Programs Tool – see the Appendix for a full-page version:

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Appendix

### OPG Behaviours: Embed in Your Work Programs

Your work programs are a practical way to ensure our Behaviours are incorporated into our day-to-day work. Use this tool when you are leading a project, change, business initiative, or process improvement. This simple assessment will help you to determine what OPG Behaviours are critically important for success in your work program and what you need to do to ensure they are demonstrated.

Name of Work Program  
(i.e. project, change, business initiative, process improvement)

Using the rating scale and gauges below, assess what impact you think each OPG Behaviour has on the success of your work program.

- From your assessment above, prioritize what 1-2 OPG Behaviours are most critically needed for the success of your work program.  
Behaviour 1: Behaviour 2:
- Where are there gaps in demonstrating these Behaviours? (refer to OPG Behaviours, What it Is and What it Isn't)
- As the leader, what do you need to do differently on the Behaviour(s) to address the gap ?
- For others important to the success of this work program, what do they need to do differently to address the gap?
- How will you know you have achieved the Behaviours needed for this work program?
- What needs to be in place to ensure you achieve the Behaviours? (i.e. agreed upon measures, feedback process, monitoring, reinforcing communication, training, etc)

ONTARIO POWER GENERATION

# Ways to Power Forward

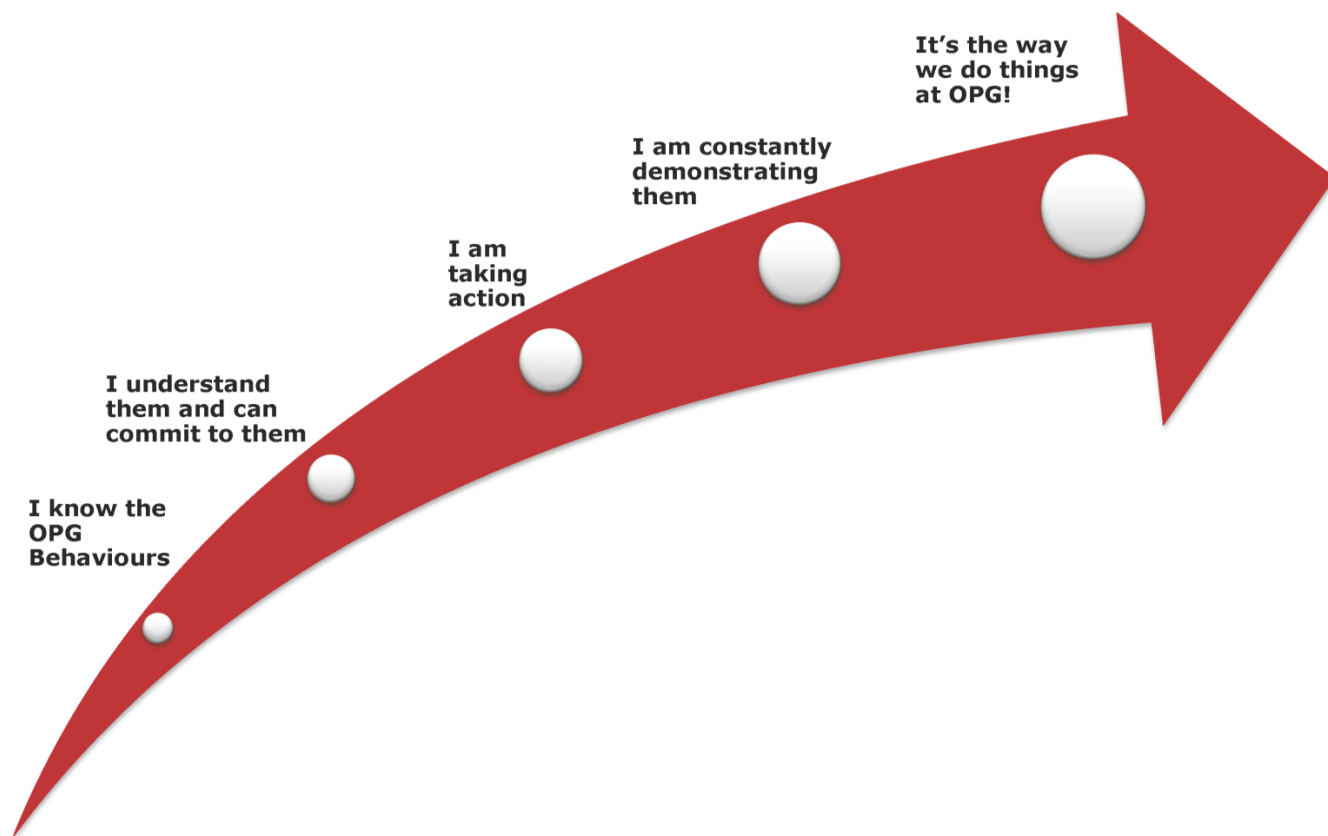
The following are suggestions for ways to get started, progress and reinforce our Behaviours with your team/crew that you can do both formally and informally on a day-to-day basis.

|                            | Formally<br>(i.e. 1:many, groups, public, visible, structured event)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Informally<br>(1:few or 1:1, interpersonal, private, less visible, ongoing process )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ways to Get Started</b> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Put OPG Behaviours as an agenda item and use the tools in this guide to help you with a structured process.</li> <li><input type="checkbox"/> Use Behaviours as part of any meeting critique tool you use.</li> <li><input type="checkbox"/> Put up OPG Behaviours posters in your work location.</li> <li><input type="checkbox"/> Feature a story of someone or your team/crew modelling the Behaviours in existing communication channels.</li> <li><input type="checkbox"/> Give people permission to make a change you want to see.</li> </ul>                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify and record a personal leadership commitment or action plan that that is directly focused on the Behaviour(s).</li> <li><input type="checkbox"/> Add a copy of the OPG Behaviours to a highly visible spot as a regular reminder (e.g., your notebook, at your work station)</li> <li><input type="checkbox"/> Engage those that show an immediate interest.</li> <li><input type="checkbox"/> Encourage and give permission to debate, discuss, and disagree to shift the culture to active participation.</li> <li><input type="checkbox"/> Use the language from our Values and Behaviours every day.</li> <li><input type="checkbox"/> Take some risk and be uncomfortable to learn and align to the Behaviours.</li> </ul> |
| <b>Ways to Progress</b>    | <ul style="list-style-type: none"> <li><input type="checkbox"/> Have a team event where Behaviours are a focus/theme.</li> <li><input type="checkbox"/> Create a team plan for implementing Behaviours in your work unit and integrate into your business plan.</li> <li><input type="checkbox"/> Identify work programs where Behaviours play a critical role and identify actions to take to ensure behaviour change is successful.</li> <li><input type="checkbox"/> Inquire into mistakes / problems / challenges / to ensure lessons learned are applied going forward.</li> <li><input type="checkbox"/> Do a “stop, start, continue” assessment with your team/crew to determine what Behaviours need focus.</li> <li><input type="checkbox"/> Include in performance appraisals discussions (PPR) – both “what” results (task) and “how”</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Connect the dots between Behaviours and expected outcomes.</li> <li><input type="checkbox"/> Get feedback from someone you respect how you are demonstrating the Behaviours and what opportunities you can work on.</li> <li><input type="checkbox"/> Coach a team member using the Behaviours as a focus for development.</li> <li><input type="checkbox"/> Call out Behaviour that is inconsistent or ineffective.</li> </ul>                                                                                                                                                                                                                                                                                                         |
| <b>Ways to Reinforce</b>   | <ul style="list-style-type: none"> <li><input type="checkbox"/> Have a practice to recognise individual employees and/or a whole work unit for demonstrating an OPG Behaviour effectively (in a way that picks up on their preference around recognition). Follow up on PPR discussions and performance appraisals.</li> <li><input type="checkbox"/> Put OPG Behaviours as an agenda item on tailboard / team meetings.</li> <li><input type="checkbox"/> Provide team/crew with examples of behaviour change so they can recognize the good examples.</li> <li><input type="checkbox"/> Incorporate into workplace observation and coaching.</li> </ul>                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognize someone privately for demonstrating an OPG Behaviour.</li> <li><input type="checkbox"/> Catch people (employees, peers and others) doing something right around our OPG Behaviours and tell them.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

# **Appendices:** **Tools**

## OPG Behaviours: Culture Progress Check

Use the continuum below to reflect on and discuss your current position on the culture change curve.



## OPG Behaviours: **What It Looks Like**

Consider each of the OPG Behaviours and how they are being demonstrated by you and /or your team. Who can you recognize that is modelling the behaviours and what did they do? What are some examples you can point to or stories you can tell of our behaviours being demonstrated, both in actions and business practices.

|                                  |                                                                                                   |
|----------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Say It, Do It</b>             | Demonstrate personal accountability to deliver results and hold others accountable.               |
| <b>Looks Like</b>                |                                                                                                   |
| <b>Examples/Stories</b>          |                                                                                                   |
| <b>Simplify It</b>               | Create the most straight forward path to execution.                                               |
| <b>Looks Like</b>                |                                                                                                   |
| <b>Examples/Stories</b>          |                                                                                                   |
| <b>Think Top and Bottom Line</b> | Look for ways to improve efficiencies, eliminate waste, maximize generation and make money.       |
| <b>Looks Like</b>                |                                                                                                   |
| <b>Examples/Stories</b>          |                                                                                                   |
| <b>Integrate and Collaborate</b> | Break down silos and work together in support of OPG's mission.                                   |
| <b>Looks Like</b>                |                                                                                                   |
| <b>Examples/Stories</b>          |                                                                                                   |
| <b>Tell it as it is</b>          | Demonstrate open and direct communication to everyone with the intention of making things better. |
| <b>Looks Like</b>                |                                                                                                   |
| <b>Examples/Stories</b>          |                                                                                                   |

## OPG Behaviours: **Conversation Generator**

This tool provides key questions to use to generate conversation with your team/crew. They are linked to each OPG behaviour and there is additional space provided to develop your own.

|                                  |                                                                                                                                                                                                                                                                                          |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Say It, Do It</b>             | <b>Demonstrate personal accountability to deliver results and hold others accountable.</b>                                                                                                                                                                                               |
| <b>Looks Like</b>                | <ul style="list-style-type: none"> <li>What are you accountable for in your role that you are proud of?</li> <li>What do you do to support others to deliver on their commitments?</li> <li>What's a significant learning have you had recently that had a positive impact?</li> </ul>   |
| <b>Examples/Stories</b>          |                                                                                                                                                                                                                                                                                          |
| <b>Simplify It</b>               | <b>Create the most straight forward path to execution.</b>                                                                                                                                                                                                                               |
| <b>Looks Like</b>                | <ul style="list-style-type: none"> <li>What opportunities do you see to simplify our approach?</li> <li>What low value work are we doing that we can eliminate?</li> <li>What are the issues and barriers in our path to execution?</li> </ul>                                           |
| <b>Examples/Stories</b>          |                                                                                                                                                                                                                                                                                          |
| <b>Think Top and Bottom Line</b> | <b>Look for ways to improve efficiencies, eliminate waste, maximize generation and make money.</b>                                                                                                                                                                                       |
| <b>Looks Like</b>                | <ul style="list-style-type: none"> <li>Where are our opportunities to do things better and more efficiently?</li> <li>What smaller costs can be reduced or eliminated for an incremental gain?</li> <li>What are the "Need to haves" vs "Nice to haves"?</li> </ul>                      |
| <b>Examples/Stories</b>          |                                                                                                                                                                                                                                                                                          |
| <b>Integrate and Collaborate</b> | <b>Break down silos and work together in support of OPG's mission.</b>                                                                                                                                                                                                                   |
| <b>Looks Like</b>                | <ul style="list-style-type: none"> <li>How can we better collaborate to problem solve with other teams/departments we count on to get things done?</li> <li>What working relationships do you think you/we need to strengthen?</li> </ul>                                                |
| <b>Examples/Stories</b>          |                                                                                                                                                                                                                                                                                          |
| <b>Tell it as it is</b>          | <b>Demonstrate open and direct communication to everyone with the intention of making things better.</b>                                                                                                                                                                                 |
| <b>Looks Like</b>                | <ul style="list-style-type: none"> <li>What is your best advice to approach having difficult discussions?</li> <li>What ways can we respectfully call out others on inconsistent behaviour?</li> <li>How do you create opportunities to receive quality feedback from others?</li> </ul> |
| <b>Examples/Stories</b>          |                                                                                                                                                                                                                                                                                          |

## OPG Behaviours: **Embed in Your Work Programs**

Your work programs are a practical way to ensure our Behaviours are incorporated into our day-to-day work. Use this tool when you are leading a project, change, business initiative, or process improvement. This simple assessment will help you to determine what OPG Behaviours are critically important for success in your work program and what you need to do to ensure they are demonstrated.

**Name of Work Program**

(i.e. project, change, business initiative, process improvement)

Using the rating scale and gauges below, assess what impact you think each OPG Behaviour has on the success of your work program.



1. From your assessment above, prioritize what 1-2 OPG Behaviours are most critically needed for the success of your work program.

Behaviour 1:

Behaviour 2:

2. Where are there gaps in demonstrating these Behaviours? (refer to OPG Behaviours, What it Is and What it Isn't)

3. As the leader, what do you need to do differently on the Behaviour(s) to address the gap?

4. For others important to the success of this work program, what do they need to do differently to address the gap?

5. How will you know you have achieved the Behaviours needed for this work program?

6. What needs to be in place to ensure you achieve the Behaviours? (i.e. agreed upon measures, feedback process, monitoring, reinforcing communication, training, etc)

**UNDERTAKING JT2.23**

**Undertaking**

To provide information on final performance under each of the metrics in the 2013 balance scorecard, subject to confidentiality issues.

**Response**

The requested information is provided in Attachment 1, "Corporate Balanced Scorecard – Projected Results as of January 20, 2014."

Corporate Balanced Scorecard – Projected Results as of January 20, 2014

| Corporate 2013 Balanced Scorecard – Forecast                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                  |                                                                              |        |         |                       |          |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------|---------|-----------------------|----------|----------------|
| (Revised Jan20, 2014)                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                  |                                                                              |        |         |                       |          |                |
| Weight                                                                                                                                                                                                                                                                                                                                                                                                 | Key Performance Indicators                                                                                                                                                       | Threshold                                                                    | Target | Maximum | Projected Y/E Results | YE Score | Weighted Score |
| 10%                                                                                                                                                                                                                                                                                                                                                                                                    | Safety, Environment, Reliability and Code of Conduct<br>Deliver front-line/core services                                                                                         |                                                                              |        |         |                       |          |                |
| 10%                                                                                                                                                                                                                                                                                                                                                                                                    | • AIR: All Injury rate (Target = CEA Top Quartile)                                                                                                                               | 1.57                                                                         | 0.89   | 0.36    | 0.61                  | 1.26     | 0.00           |
|                                                                                                                                                                                                                                                                                                                                                                                                        | • Safety focus areas:<br>○ Improvement in the area of Work Protection Code<br>○ Continued focus on Situational Awareness<br>• No significant events that impact OPG’s reputation | As determined by CEO                                                         |        |         | Below Threshold       | 0.0      |                |
| 30%                                                                                                                                                                                                                                                                                                                                                                                                    | Financial Performance - Reduce costs & improve OPG financial health                                                                                                              |                                                                              |        |         |                       |          |                |
| 7%                                                                                                                                                                                                                                                                                                                                                                                                     | EBITDA (\$M) (-10%, +15%)                                                                                                                                                        | 948                                                                          | 1,053  | 1,211   | \$1,302M              | 1.50     | 0.11           |
| 5%                                                                                                                                                                                                                                                                                                                                                                                                     | Headcount – Ongoing Operations (+173, -252)                                                                                                                                      | 10,550                                                                       | 10,377 | 10,125  | 10,048                | 1.50     | 0.08           |
| 15%                                                                                                                                                                                                                                                                                                                                                                                                    | Operating OM&A expenditures (\$M) (+5%, -10%)                                                                                                                                    | 2,735                                                                        | 2,605  | 2,344   | \$2,491M              | 1.22     | 0.18           |
| 3%                                                                                                                                                                                                                                                                                                                                                                                                     | Support Services Operating OM&A expenditures (\$M) (+5%, -10%)                                                                                                                   | 643.7                                                                        | 613    | 551.7   | \$575M                | 1.31     | 0.04           |
| 35%                                                                                                                                                                                                                                                                                                                                                                                                    | Fleet Operating Performance - Control costs while delivering front-line/core services                                                                                            |                                                                              |        |         |                       |          |                |
| 25%                                                                                                                                                                                                                                                                                                                                                                                                    | Nuclear: TW.h                                                                                                                                                                    | 45.99                                                                        | 47.99  | 48.99   | 44.69                 | 0.0      | 0.0            |
| 2.5%                                                                                                                                                                                                                                                                                                                                                                                                   | Thermal: Start Guarantee rate                                                                                                                                                    | 85%                                                                          | 94%    | 97%     | 97%                   | 1.50     | 0.04           |
| 7.5%                                                                                                                                                                                                                                                                                                                                                                                                   | Hydro: Availability (%)                                                                                                                                                          | 89.5%                                                                        | 91.6%  | 93.5%   | 91.6%                 | 1.00     | 0.08           |
| 25%                                                                                                                                                                                                                                                                                                                                                                                                    | Project Performance - Support Ontario’s Long Term Energy plan and deliver front-line/core services                                                                               |                                                                              |        |         |                       |          |                |
| 8%                                                                                                                                                                                                                                                                                                                                                                                                     | • OPG Business Transformation Strategy                                                                                                                                           | Meet project milestones and measures specific to each project – See Attached |        |         |                       | 1.00     | 0.08           |
| 4%                                                                                                                                                                                                                                                                                                                                                                                                     | • Niagara Tunnel                                                                                                                                                                 |                                                                              |        |         |                       | 1.25     | 0.05           |
| 4%                                                                                                                                                                                                                                                                                                                                                                                                     | • Lower Mattagami                                                                                                                                                                |                                                                              |        |         |                       | 0.94     | 0.04           |
| 2%                                                                                                                                                                                                                                                                                                                                                                                                     | • Atikokan conversion                                                                                                                                                            |                                                                              |        |         |                       | 0.59     | 0.01           |
| 7%                                                                                                                                                                                                                                                                                                                                                                                                     | • Nuclear Refurbishment                                                                                                                                                          |                                                                              |        |         |                       | 1.06     | 0.07           |
| 100%                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                  |                                                                              |        |         |                       |          | 0.77           |
| These measures form the basis on which our overall corporate performance will be assessed but the scores against these measures and overall Corporate score are not absolute. The Board and President reserve the right to determine the Corporate Score. In exercising their discretion, the Board and President may choose to make adjustments to the Corporate Score or individual scorecard items. |                                                                                                                                                                                  |                                                                              |        |         |                       |          |                |

### 2013 Corporate Balanced Scorecard – Forecast Project Performance Measures

| 2013 Corporate Balanced Scorecard – Project Performance Measures <i>(Revised Jan 20, 2014)</i>                                                                                                                                                                                                                                                                                     | Threshold                                                        | Target                                                        | Maximum                                                        | Projected Y/E Results                                                                                                                                     | YE Score<br>(Below /Target/Above) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <b>Business Transformation</b>                                                                                                                                                                                                                                                                                                                                                     |                                                                  |                                                               |                                                                |                                                                                                                                                           | <b>1.0 – Adjusted by CEO</b>      |
| <b>A. Fully Implement the Centre Led Organization (30%)</b>                                                                                                                                                                                                                                                                                                                        | Both results are at or better than Threshold <sup>(Note 1)</sup> | Both results are at or better than Target <sup>(Note 1)</sup> | Both results are at or better than Maximum <sup>(Note 1)</sup> |                                                                                                                                                           |                                   |
| 1. ELT acceptance of the Deployment Impact Assessment (15%)                                                                                                                                                                                                                                                                                                                        | May 31                                                           | April 30                                                      | March 31 plus CEO assessment of cross-BU collaboration         | Actual completion date - March 20 <sup>th</sup> , 2013 CEO assessment confirmed max Completed May 8 <sup>th</sup> , 2013. CEO assessment confirmed target | <b>1.25</b>                       |
| 2. ELT acceptance of Deployment Readiness Assessment (15%)                                                                                                                                                                                                                                                                                                                         | June 30                                                          | May 31                                                        | April 30 plus CEO assessment of cross-BU collaboration         |                                                                                                                                                           |                                   |
| <b>B. Transforming the way we work (50%):</b>                                                                                                                                                                                                                                                                                                                                      |                                                                  |                                                               |                                                                |                                                                                                                                                           |                                   |
| 1. Key transformational initiatives meet the key milestones indicating progress on transformation. (30%)<br><i>* Key transformational initiatives identified by Builders' input of 1 or 2 key BT initiatives for each BU</i>                                                                                                                                                       | 20 of 30 milestones met as scheduled                             | 25 of 30 milestones met as scheduled                          | All 30 milestones met as scheduled                             | 29 completed as scheduled.                                                                                                                                | <b>1.4</b>                        |
| 2. Business Transformation is embedded in our business practice and culture.<br>a) Business planning appropriately reflects BT initiatives and goals (10%)<br>b) Transition plan in place to reduce oversight and integration aspects of BT and move key support functions of BT team back to functions and support BU's as business as usual (i.e. change mgmt, HR support) (10%) | CEO Assessment                                                   |                                                               |                                                                | CEO Assessment Confirmed as target                                                                                                                        | <b>1</b>                          |
|                                                                                                                                                                                                                                                                                                                                                                                    | Transition Plan in place for 2014 by Dec. 31, 2013               | Minimized oversight of BT by Dec. 31, 2013                    | Transition complete by Dec. 31, 2013                           | Threshold - 2014 Transition plan reviewed with ELT and approved by ELT Executive sponsor on Dec 19 <sup>th</sup> 2013.                                    | <b>0.5</b>                        |
| <b>C. Effectively managing attrition (20%)</b>                                                                                                                                                                                                                                                                                                                                     |                                                                  |                                                               |                                                                |                                                                                                                                                           |                                   |
| Target represents the 2013 Business Plan headcount from ongoing operations (excludes DNNP and Refurbishment)                                                                                                                                                                                                                                                                       | 10,550                                                           | 10,375                                                        | 10,125                                                         | Current finance forecast of YE headcount: 10,048                                                                                                          | <b>1.5</b>                        |

| 2013 Corporate Balanced Scorecard – Project Performance Measures (Revised Jan 20, 2014) | Threshold                                                        | Target                                                        | Maximum                                                        | Projected Y/E Results | YE Score<br>(Below /Target/Above) |
|-----------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------|-----------------------|-----------------------------------|
| Niagara Tunnel                                                                          | Both results are at or better than Threshold <sup>(Note 1)</sup> | Both results are at or better than Target <sup>(Note 1)</sup> | Both results are at or better than Maximum <sup>(Note 1)</sup> |                       |                                   |
| A. Forecasted In-Service Date                                                           | June 30, 2013                                                    | May 15, 2013                                                  | March 31, 2013                                                 | 9 Mar2013 - Max       | 1.25<br>(Based on Cost)           |
| B. Forecasted Final Cost                                                                | \$1.55B                                                          | \$1.5B                                                        | \$1.45B                                                        | \$1.475B Above Target |                                   |
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| 2013 Corporate Balanced Scorecard – Project Performance Measures <i>(Revised Jan 20, 2014)</i>      | Threshold | Target  | Maximum | Projected Y/E Results                                                                         | YE Score<br>(Below /Target/Above) |
|-----------------------------------------------------------------------------------------------------|-----------|---------|---------|-----------------------------------------------------------------------------------------------|-----------------------------------|
|                                                                                                     |           |         |         | 2013. (Maximum)                                                                               |                                   |
| D. Start of Mock-up Construction (date)                                                             | July 30   | July 15 | June 15 | Achieved > 1 month ahead of plan. (Maximum)                                                   |                                   |
| E. Scope Definition—All Approve Darlington Scope Requests <= Health of Scope 20 <sup>(Note 4)</sup> | Dec 31    | Dec 2   | Nov 15  | All approved Darlington Scope Requests <=Health of Scope 20 achieved by November 15 (Maximum) |                                   |

**Notes:**

1. For these projects with multiple components, the entire project takes the score of the lowest performing component
  - If any of the tasks are below Threshold, the project does not meet Threshold
  - All tasks must be at or better than target to achieve target. If any task is below target, the project takes the score of the lowest performing task.
  - All tasks must be at or better than maximum to achieve maximum. If any task is below maximum, the project takes the score of the lowest performing task.
2. Threshold achievement for Niagara and Atikokan will be based on the October month end EPC contractor forecasts
3. Includes formwork, rebar and concrete pour, but does not include shoring removal.
4. Exceptions (approved by the EVP Nuclear Projects) are allowed for the following: Scope resulting from planned inspections or analysis scheduled during or after 2013, i.e. scope resulting from scheduled inspections in the 2015 VBO outage. Any new scope approved by: The Darlington Refurbishment Scope Review Board during or after 2013. Any new scope resulting from the CNSC's review and approval of the EA or ISR. "Approved" Darlington Scope Requests require approval by the Darlington Refurbishment Scope Review Board.
  - The following are the Health of Scope definitions (note the lower the score, the scope is better defined):
    - 90 Scope will not be executed in Nuclear Refurbishment, DSR will be removed pending PSRB approval
    - 60 Pure engineering or procedures with no likely field work (i.e. provide CNSC with reports, update procedures, etc)
    - 50 Assessment is required to build a report for analysis
    - 40 Analyze the completed report to determine actions / path forward
    - 30 Actions to implement selected, may be a component strategy across many systems
    - 20 Work is known at the system or project level but not component
    - 10 Work is known at the component / MEL level
    - 5 DSR is adequately known such that it is ready for Work Order to be input on all Units
    - 4 All Work Orders input for DSR on all applicable Units or all work completed for DSR.

**UNDERTAKING JT2.24**

**Undertaking**

To produce OPG's amended Code of Conduct.

**Response**

The following response was provided at the conference (see Day 2 Transcript p. 61):

The question earlier with respect to the update of the code of conduct to include transparency in the hiring practices, that is actually found in our submission under SEC Interrogatory 002. So the most recent version of the code of conduct is included in that -- sorry, being SEC Interrogatory 012.

**UNDERTAKING JT2.25**

**Undertaking**

To identify which actions were taken in response to the Auditor General's Report and which were already underway.

**Response**

Please refer to Ex. JT2.26 Attachment 1.

**UNDERTAKING JT2.26**

**Undertaking**

To produce a list additional actions OPG will implement, partially or fully, in 2014 and 2015 in response to the Auditor General's report, and estimate associated cost savings for each, if any.

**Response**

Please refer to Attachment 1 which reproduces the table provided in the December 10, 2013 backgrounder provided at Ex L-1.0-3 CME-001. Additional columns have been added to show which actions are specifically in response to the AG report (marked with a "✓") and providing an estimate of cost savings resulting from those actions if available. Additional actions added since the December 10, 2013 backgrounder are shown with grey shading and marked "New."

| <b>ACTIONS - PLANNED AND UNDERWAY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Planned Completion Date</b>                 | <b>Actions in Response to AG Report</b> | <b>Associated Cost Savings</b> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------|--------------------------------|
| <b>Executive and Senior Management Staffing Levels</b> <ul style="list-style-type: none"> <li>Decrease senior management headcount in proportion to overall headcount reductions. (Reduced by 6% since Dec. 2012).</li> <li>New senior executives continue to receive lower compensation than their predecessors;</li> </ul> <p>Hiring of all director and above positions will require CEO approval.</p> <ul style="list-style-type: none"> <li>Reduce headcount by a further 830, for a total reduction of 2,330 and \$1B savings by 2016.</li> </ul> | 2016<br><br>Ongoing<br><br>Ongoing<br><br>2016 | <br><br><br><br>✓<br><br>               | <br><br><br><br>N/A<br><br>    |
| <b>Benchmarking of Staffing Levels at Nuclear Facilities</b> <ul style="list-style-type: none"> <li>Business plans to define continuing actions to move from current 8% over benchmark to benchmark (down from 17% over in Feb. 2012).</li> <li>CNSC and other external peer groups confirm OPG continues to ensure strong nuclear safety and operational performance.</li> </ul>                                                                                                                                                                       | 2016<br><br>Ongoing                            | <br><br>                                |                                |
| <ul style="list-style-type: none"> <li><b>NEW:</b> Update benchmarking results to measure against changes relative to industry.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                              | Q4 2014                                        | ✓                                       | N/A                            |
| <ul style="list-style-type: none"> <li><b>NEW:</b> Staffing level imbalances in Nuclear will be addressed through business transformation, business planning, redeployment and expected attrition.</li> </ul>                                                                                                                                                                                                                                                                                                                                           | 2015/16                                        | ✓                                       | No estimate available          |

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| <p><b>Recruitment Practices and Requirements</b></p> <ul style="list-style-type: none"> <li>Centralized recruitment function to improve controls, compliance and efficiency of hiring processes.</li> <li>Amend Code of Conduct to clarify expectation regarding hiring policies. Failure to follow policy will result in disciplinary action.</li> <li>Conduct compliance reviews for internal/external vacancies.</li> <li>Reviewed all groups with same addresses to ensure valid hiring process was followed.(reviewed 284 files from 2011, 2012; no documentation retained for others beyond two years; found 4 cases without proper documentation.)</li> </ul>                                                                                                                                                         | <p>Complete</p> <p>Q1 2014</p> <p>Ongoing</p> <p>Complete</p>                                                                                       | <p>✓</p> <p>✓</p> | <p>N/A</p> <p>N/A</p>                          |
| <p><b>Compensation and Incentive Awards</b></p> <ul style="list-style-type: none"> <li>Implement outcomes of government legislation to regarding broader public sector executive compensation.</li> <li>Reduce headcount by additional 830 for total reduction of 2,330 and \$1B savings by 2016 (already achieved 1,500 reduction since Jan. 2011);</li> <li>Reduce all management AIP for 2013 by 10%. Board to review AIP program for 2014 and beyond</li> <li>Continue to seek collective agreements that reflect OPG business objectives and government compensation constraints.</li> <li>Reduced base salary costs for management by 9% compared to 2010.</li> <li><b>NEW:</b> Management staff mandated to enter performance objectives into the electronic system that allows for compliance monitoring.</li> </ul> | <p>Contingent on government legislation</p> <p>2016</p> <p>Q1 2014</p> <p>Ongoing</p> <p>Completed. Further reductions ongoing</p> <p>Completed</p> | <p>✓</p> <p>✓</p> | <p>\$2.7M due to 2013 reduction</p> <p>N/A</p> |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                          |                                                    |                                                    |
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| <p><b>Employee Housing and Moving Allowance</b></p> <ul style="list-style-type: none"> <li>• Adopt Ontario Public Service Relocation policy for management employees.</li> <li>• Conduct review of practices and controls related to employee relocation, including a review of practices for guarantee house values.</li> <li>• Review OPS relocation policy against collective agreements to determine what if any changes are required.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Q1 2014</p> <p>Q1 2014</p> <p>Coterminous with collective bargaining</p>                                                                                                              | <p>✓</p> <p>✓</p> <p>✓</p>                         | <p>No estimate available</p> <p>N/A</p> <p>N/A</p> |
| <p><b>Security Clearance Requirements</b></p> <ul style="list-style-type: none"> <li>• Review security clearance requirements for non-nuclear employees to ensure appropriate levels in place.</li> <li>• Implement enhanced compliance monitoring method.</li> <li>• Implemented controls to ensure immediate security clearance compliance for new hires and ongoing compliance for existing employees.</li> <li>• CNSC, CSIS audits validate that OPG has an industry-leading nuclear security clearance program. All employees who require access to nuclear site or sensitive nuclear information have appropriate clearance.</li> <li>• All board members at the time of the AG audit now have security clearance.</li> </ul> <p><b>Pensions and Benefits</b></p> <ul style="list-style-type: none"> <li>• Begin implementation of Board directed management pension and benefits reforms.</li> <li>• Participate in Province's review of electricity sector pension plan reforms.</li> <li>• Any changes to pension and benefits for unionized staff will be a matter for future rounds of collective bargaining.</li> </ul> | <p>Q1 2014</p> <p>Q3 2014</p> <p>Complete</p> <p>Complete</p> <p>Complete</p> <p>Q1 2014</p> <p>TBC – dependent on Ministry of Finance</p> <p>Coterminous with collective bargaining</p> | <p></p> <p>✓</p> <p>✓</p> <p></p> <p>✓</p> <p></p> | <p></p> <p>N/A</p> <p></p> <p></p> <p></p>         |

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| <p><b>Managing Contractors and Staff Overtime</b></p> <ul style="list-style-type: none"> <li>• Conduct comprehensive assessment of contractor control framework, including contract structures, time capture and approval processes and tools.</li> <li>• Implement time tracking system for contractors at nuclear sites.</li> <li>• Implemented enhanced management process approvals and controls to limit individual overtime in Nuclear.</li> <li>• <b>NEW:</b> Enhanced management processes, approvals and controls to limit individual overtime in Nuclear. Actions allowed within the current collective agreements have been implemented to bring outliers into normal practice and better manage overtime.</li> </ul> | <p>Q2 2014</p> <p>Q1 2014</p> <p>Completed</p> <p>Completed</p> | <p>✓</p> <p>✓</p> | <p>N/A</p> <p>No estimate available</p> |
| <p><b>Use of Non Regular Staff and Contract Resources.</b></p> <ul style="list-style-type: none"> <li>• Strengthen business case requirements and approvals for hiring retirees as contractors. (<b>NEW:</b> Policy now in place requiring additional business case and approvals requirements for hiring contractors)</li> <li>• Strengthen succession planning and develop knowledge transfer plans for critical roles.</li> </ul>                                                                                                                                                                                                                                                                                             | <p>Q2 2014</p> <p>Q4 2014</p>                                   | <p>✓</p>          | <p>N/A</p>                              |
| <p><b>Sick Leave Trend</b></p> <ul style="list-style-type: none"> <li>• <b>NEW:</b> Enhance the sick leave management process to identify and manage unusual sick leave pattern through the use of enhanced management and supervisory compliance monitoring metrics and reports.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Q4 2014</p>                                                  | <p>✓</p>          | <p>No estimate available</p>            |

**UNDERTAKING JT2.27**

**Undertaking**

To clarify whether first-day health and dental benefits coverage applies to new employees during their probationary period.

**Response**

Yes, health and dental benefits apply to new employees during their probationary period and are effective the first day worked.

**UNDERTAKING JT2.28**

**Undertaking**

To provide available information on savings resulting from adoption of 24-month window for filing dental and health claims.

**Response**

OPG expects to save approximately \$20k per year in reduced administration costs related to the processing of claims greater than two years old. Older claims are more difficult and time consuming to process.

In addition, OPG expects to realize cost savings associated with the adjudication and grievance/arbitration processes. Claims greater than two years old often do not have all of their required documentation, due to the lapse of time. This results in a challenge to the claim which then has to be adjudicated.

Furthermore, limiting the claim window to two years also reduces OPG's risk of fraudulent claims and brings OPG in line with the practices of other companies.

While the estimated cost savings associated with tightening the Health and Dental claim window are not large, there is still value to OPG in doing so.

**UNDERTAKING JT2.29**

**Undertaking**

To make best efforts to provide information on savings resulting from change from five to four consecutive sick days permitted without medical follow-up.

**Response**

Based on the transcript at page 145, lines 19 – 27, the undertaking was actually to provide a graph, not “information on savings.”

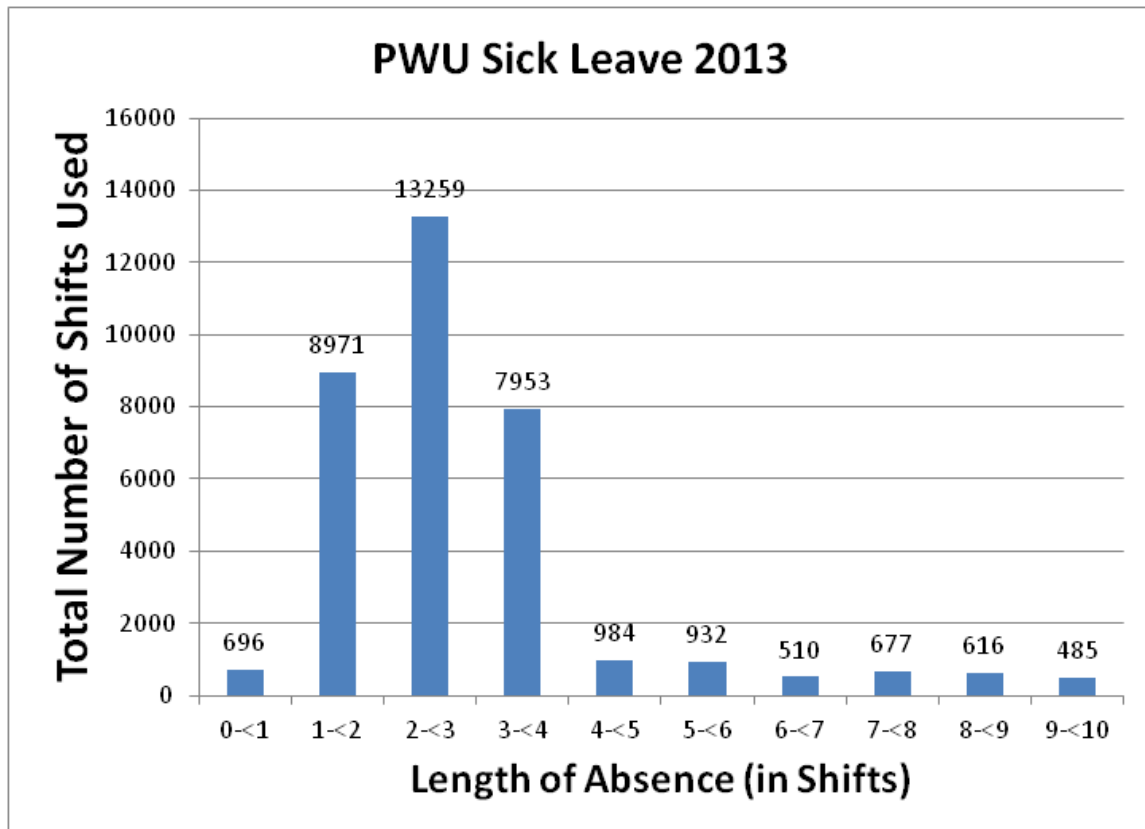
MR. CROCKER: Okay. Can you provide the same graph, or the same type of graph since you have limited it to four days?

MR. FITZSIMMONS: I would have to look at whether or not we’ve reproduced that graph with the imposition of this new standard.

MR. CROCKER: Okay.

MR. MILLAR: So JT2.29. I guess that is on a best-efforts basis

The requested graph is below.



**UNDERTAKING JT2.30**

**Undertaking**

To confirm whether overtime is included in calculation of 35-hour and 40-hour FTEs.

**Response**

Overtime is not included in the calculation of the 35-hour and 40-hour FTEs.

**UNDERTAKING JT2.31**

**Undertaking**

To confirm whether 2013 actual overtime amounts can be quantified, and advise whether they can be provided.

**Response**

The 2013 actual overtime amount was \$167.1M.

**UNDERTAKING JT2.32**

**Undertaking**

To advise whether it is possible to provide a table showing end-of-year number of ongoing regulated regular employees, non-regular employees, Darlington refurb employees, and new-build nuclear employees.

**Response**

OPG notes that this undertaking overlaps with the information requested by Board Staff in Undertaking JT2.33. Accordingly, OPG will provide its response to this undertaking as part of Undertaking JT2.33, which is to be provided in advance of the settlement conference.

## **UNDERTAKING JT2.34**

### **Undertaking**

To provide the bottom-line number associated with the table in response to Board Staff interrogatory 101.

### **Response**

The cost of the 2.75% increase was calculated to be approximately \$21.0M year over year including base rates, overtime and benefits.

The offsets in the PWU Agreement included:

- Elimination of the Goalsharing bonus
- Elimination of Radiation Protection Clothing
- Net savings in health and dental
- Efficiency Gains- MAR and Shift Turnover
- Adding "Radiation Protection Technicians" to the hiring hall
- Hard threshold PSA
- Ability to "claw back" family time taken but not repaid
- Extension of targeted severance provisions.

The aggregate value of these offsets was calculated to be approximately \$22.0M per year.

The calculations associated with the net costs and savings were presented to the Government to satisfy its expectation regarding "net zero" in the form attached as Attachment 1, (Confidential Advice to Government), and was accepted. Attachment 1 contains information that may be used by OPG during the next round of collective bargaining. Therefore the attachment has been provided on a confidential basis, to be withheld from PWU and SEP, since its public production would prejudice OPG's negotiating position.

In its Advice to Government, OPG also included savings associated with staff reductions that amounted to a large overall net savings, and a smaller saving associated with the cost associated with collective bargaining by adding a third year to the collective agreement. These amounts produced savings beyond the "net zero" amount.

In Ex. L-6.8-17 SEC-106, the 2013 interest arbitration between the Society of Energy Professionals ("SEP") and OPG, Arbitrator Albertyn, found that the PWU agreement resulted in economic increases of 0.73% per year attributable to the compounding of wages (cumulative effective year over year). The Albertyn arbitration did not consider additional savings related to staff reductions and bargaining referred to in OPG's net zero calculation contained in the Advice to Government document. For strategic labour relations reasons these were not put before the arbitrator by OPG. The information is also not included in Ex L-6.8-1 Staff-101.

**UNDERTAKING JT2.35**

**Undertaking**

Provide reference to companies used in salary surveys in most recent collective bargaining process.

**Response**

While the undertaking reads "...companies used in salary surveys in most recent collective bargaining process", as per the Technical Conference Transcript (pp. 169 - 170), the context of the request was to point to the interrogatory response which provided the list of companies being referenced in the pre-filed evidence at Ex. F4-3-1 (page 20) "... as reported by major salary surveys". To be clear, this section of evidence was specific to management group compensation only.

The list of companies referenced at Ex. F4-3-1 (page 20) that the witness was trying to locate in the exchange at the technical conference can be found at Ex. L-6.8-2, AMPCO-058 (r).

Samples of salary surveys considered in collective bargaining was provided in Ex L-6.8-1 Staff-002, Attachment 7, *Canada Labour and Employee Relations Network Collective Bargaining Wage Increases – August 2012* and in Ex JT2.36, Attachment 1, *Collective Bargaining Monitoring Overview*, and in Ex F4-3-1, Section 4.2.1, Tables 2 and 3; and Section 4.2.2, Tables 4 and 5.

**UNDERTAKING JT2.36**

**Undertaking**

To provide broader Ontario public sector averages used in benchmarking analysis in most recent collective bargaining process.

**Response**

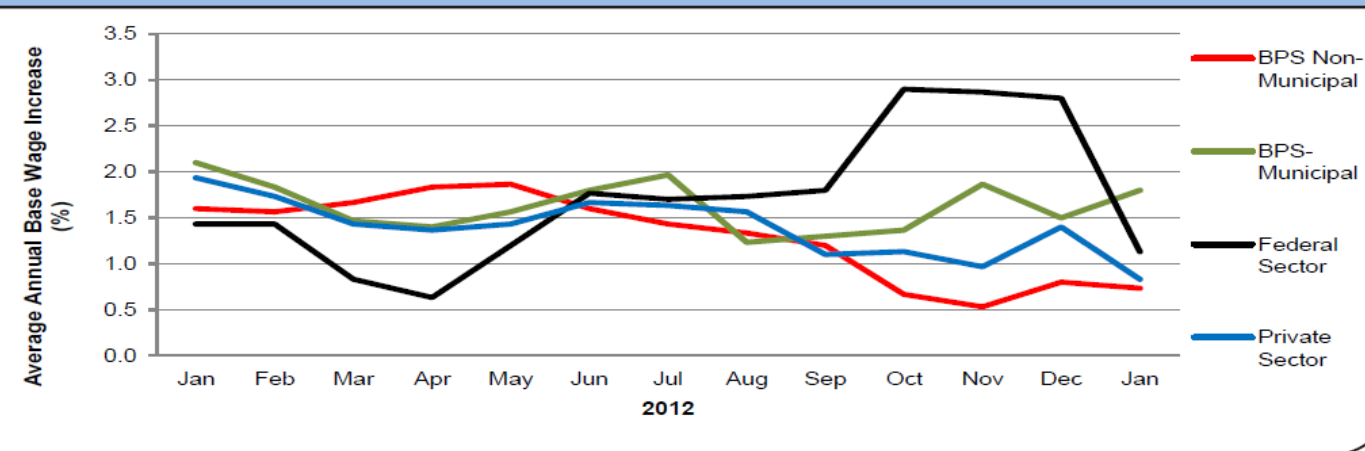
The requested information is provided as Attachment 1.

# Collective Bargaining Monitoring Overview

## January 16, 2013



Graph 1: Public and Private Sector Collective Agreement Settlement Trends as of January 16, 2013



The above graph depicts the three-month moving average annual base wage increase for agreements covering 150 or more employees in the BPS Non-Municipal, the BPS Municipal, Federal and Private sectors in Ontario.

For the period of January 2012 to January 2013, the moving average annual base wage increase for the BPS Non-Municipal has declined since May and settled at 0.73% in January 2013.

The Federal sector moving average annual base wage increase continues an upward trend, peaks in October and edges down in January 2013.

The moving average annual base wage increase for the Private Sector has been declining and reaches its lowest point (0.83%) in January 2013.

Wage Information is based on agreements covering 150 or more employees, a sample that represents 81% of all unionized employees in Ontario. Wage information is based on agreements ratified between January 1, 2012 and January 16, 2013 as of January 16, 2013. Wage information consists of an average annual base wage increase over the duration of a collective agreement and excludes lump sum payments. For the Private sector, wage information includes COLA estimates.

**UNDERTAKING JT2.37**

**Undertaking**

To explain how the ratio of 3:1 in response to Board Staff interrogatory 121(b) was arrived at, and explain how the methodology differed from the Auditor General's.

**Response**

The employer/employee contribution ratio is generally calculated using employer contributions to Current Service Cost and the total employee contributions. Based on the OPG Pension Plan Report to Members 2012, p. 2, this ratio has been approximately 3:1 since 2009.

The Auditor General calculated the employer/employee contribution ratio using the employer contributions to Current Service Cost + Deficit Repayment + Voluntary Payment, and the total employee contributions. Including these special payments yields a higher employer/employee contribution ratio, which was approximately 5:1 for 2012.

A copy of OPG's Pension Plan Report to members 2012 is provided as Attachment 1 to this response.

# OPG Pension Plan

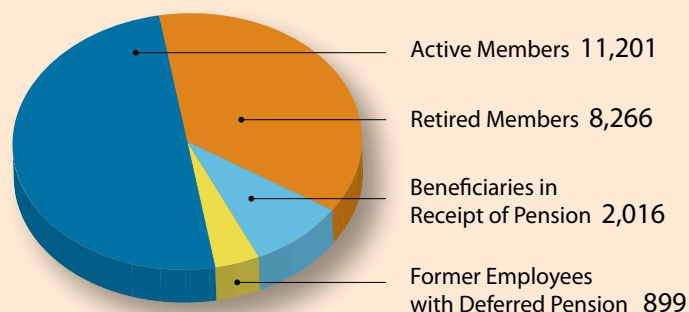
## Report to Members 2012

The Ontario Power Generation Inc. (OPG) Pension Plan (Plan) 2012 Report to Members is intended to provide members with information about the operation and status of the Plan. This report includes information on the Plan's membership profile, funding, investment performance, and governance structure. The assets of the Plan (Fund) have performed well during the economic challenges of recent years but longer retirement periods and historically low interest rates are driving up pension liabilities. OPG is committed to keeping you informed and providing a sustainable pension throughout your retirement.

### Plan Facts at a Glance

|                       |                                                                                 |
|-----------------------|---------------------------------------------------------------------------------|
| <b>Asset Value</b>    | ▪ \$10.3 billion as at December 31, 2012                                        |
| <b>Rate of Return</b> | ▪ One year return of 9.4%<br>▪ Ten year (2003 - 2012) annualized return of 7.4% |

### Membership Profile



### Important Notice

All the terms of the OPG registered pension plan (Plan) are set out exclusively in the Plan text, as amended and filed with the Financial Services Commission of Ontario. While this Report summarizes certain terms of the Plan, this Report does not change or supplement the Plan text in any manner whatsoever. Accordingly, the Plan text will govern exclusively in all cases should any questions or differences arise. The Plan is separate from the OPG supplementary pension plan. This Report contains no information relating to the OPG supplementary pension plan.

## Funding of the OPG Pension Plan

With over \$10 billion in assets, the Plan is well positioned to pay pensions for many years. However, pension plans are required to take into consideration all obligations over a much longer time horizon. When we look at the projected asset values and pension liabilities over the long term, the Plan is in a deficit position (liabilities are larger than assets) and OPG, like many other employers, is taking steps to close the gap.

OPG analyzes the financial position of the Plan on an ongoing basis and files a valuation with the Financial Services Commission of Ontario every three years. The valuation is conducted by an external actuary. The valuation report prepared by the Plan actuary determines whether the Plan is in a surplus or a deficit position. These determinations are made using three different approaches:

- on a **going concern basis** (which assumes the Plan is continued indefinitely);

- on a **solvency basis** (which assumes a termination of the Plan and the settlement of the Plan's liabilities as at the date of the report. As permitted by applicable law, this calculation is subject to adjustments (1) to exclude the value of indexation (inflation adjustment) and (2) to take into account the changes in the values of assets and liabilities over a five year period (smoothing)); and
- on a **wind-up basis** (which assumes a termination of the Plan and the settlement of the Plan's liabilities as at the date of the report, without any adjustments).

The Plan's most recent actuarial valuation report was prepared as at January 1, 2011. That report showed that the Plan has a deficit on a going concern basis and a small surplus on a solvency basis (see table below).

The next valuation will be prepared as at January 1, 2014.

| Going Concern             | January 1, 2011<br>(\$ millions) | Solvency                        | January 1, 2011<br>(\$ millions) |
|---------------------------|----------------------------------|---------------------------------|----------------------------------|
| Actuarial Value of Assets | \$9,638                          | Solvency Assets (smoothed)      | \$9,283                          |
| Actuarial Liability       | \$10,193                         | Solvency Liabilities (smoothed) | \$9,280                          |
| Unfunded Liability        | (\$555)                          | Solvency Excess                 | \$3                              |

OPG is making special contributions to the Plan of \$65 million per year, over a period of 15 years to eliminate the going concern deficit of \$555 million in accordance with applicable laws.

The law requires that contributions be made to pension plans on a going concern basis and on a solvency basis – but not on a wind-up basis. The Plan's deficit, calculated on a wind-up basis, was approximately \$5.7 billion as at January 1, 2011.

The contributions to the Plan by OPG and its employees over the five year period 2009-2013 are:

| (\$millions)                 | 2009         |     | 2010         |     | 2011         |     | 2012         |     | 2013 (est.)  |     |
|------------------------------|--------------|-----|--------------|-----|--------------|-----|--------------|-----|--------------|-----|
| <b>Employee Contribution</b> | <b>\$83</b>  |     | <b>\$82</b>  |     | <b>\$80</b>  |     | <b>\$75</b>  |     | <b>\$72</b>  |     |
| ▪ Current Year Service       | \$72         | 25% | \$75         | 25% | \$74         | 26% | \$73         | 26% | \$72         | 24% |
| ▪ Transfers In               | \$11         |     | \$7          |     | \$6          |     | \$2          |     | n/a          |     |
| <b>Employer Contribution</b> | <b>\$264</b> |     | <b>\$270</b> |     | <b>\$300</b> |     | <b>\$370</b> |     | <b>\$300</b> |     |
| ▪ Current Service Cost       | \$212        | 75% | \$219        | 75% | \$218        | 74% | \$225        | 75% | \$233        | 76% |
| ▪ Deficit payment            | \$28         |     | \$28         |     | \$65         |     | \$65         |     | \$65         |     |
| ▪ Voluntary payment          | \$24         |     | \$23         |     | \$17         |     | \$80         |     | \$2          |     |

- *Power Workers' Union-represented employees* contribute 5% of pensionable earnings up to \$50,100, plus 7% of pensionable earnings in excess of \$50,100
- *Society of Energy Professionals-represented and Management Group employees* contribute 7% of pensionable earnings.

The payments out of the Plan over the five year period 2009-2013 are:

| (\$millions)                       | 2009  | 2010  | 2011  | 2012  | 2013 (est.) |
|------------------------------------|-------|-------|-------|-------|-------------|
| <b>Benefit Payments</b>            | \$346 | \$360 | \$387 | \$420 | \$440       |
| <b>Transfers/Lump Sum Payments</b> | \$100 | \$62  | \$97  | \$163 | n/a         |
| <b>Expenses</b>                    | \$32  | \$33  | \$36  | \$35  | \$36        |

## OPG Pension Plan

## Report to Members 2012

### Growth of Liabilities

As at the last valuation, OPG's pension liabilities were larger than pension assets and are growing at a faster pace than the assets. The value of the Fund's assets continually changes based on market performance. Similarly, the value of the Plan's liabilities continually changes with long term Canadian interest rates as the primary driver. If the growth of the Fund's assets matches or exceeds the growth in the Plan's liabilities, the Plan's funded status will remain stable or improve. If, however, the Plan's liabilities grow faster than the Fund's assets, the Plan's funded status will worsen.

As long term Canadian interest rates decline, as has happened steadily over the past decade, the Plan's liabilities increase (and have increased significantly over the past several years). In a declining interest rate environment, the Fund requires more assets today to pay for the Plan's future benefit payments. This situation is one of the contributing factors that has led to the Plan's deficits that we see today.

### Investment Performance

| % Annual Returns         | 2006  | 2007 | 2008   | 2009  | 2010  | 2011 | 2012  | 10 yr annualized |
|--------------------------|-------|------|--------|-------|-------|------|-------|------------------|
| OPG Pension - Total Fund | 12.3  | 2.0  | (17.4) | 15.0  | 12.2  | 6.9  | 9.4   | 7.4              |
| Benchmark                | 12.7  | 1.7  | (19.0) | 16.1  | 12.4  | 5.7  | 9.8   | 7.3              |
| Value Added              | (0.4) | 0.3  | 1.6    | (1.1) | (0.2) | 1.2  | (0.4) | 0.1              |

The Fund rate of return for 2012 was 9.4%, which is slightly below the benchmark target of 9.8%.

The Fund's performance is measured against the performance of a benchmark. The Fund's benchmark return reflects the returns of market indices for each asset class category in which the Fund is invested, weighted proportionally by the benchmark asset mix of the Fund. The chart above provides the investment returns compared to the established market benchmark by year.

In 2012, the Fund realized a total return of 9.4 percent, underperforming the benchmark return of 9.8 percent. This relative underperformance was primarily the result of the overweight to bonds, offset by strong results from real estate and foreign equities. On a ten-year annualized basis, the Fund is in line with its benchmark.

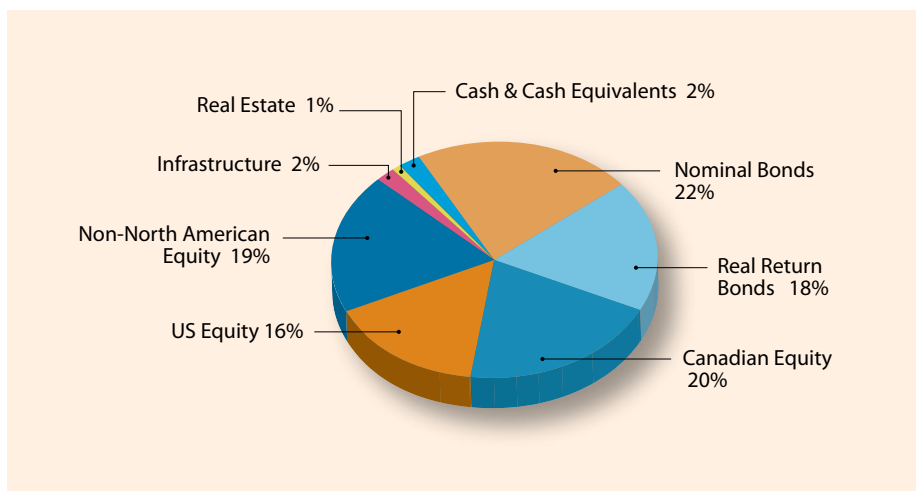
As at December 31, 2012, the Fund held approximately 18 percent of its investments in real return bonds. The vast majority of these bonds are guaranteed by the Government of Canada and the return on these bonds closely matches the rate of inflation. This matching partially protects the Plan against increases in the Plan's cost of future pension benefits due to inflation. During 2012, the Fund's bond portfolio, which consists primarily of real return bonds and long-term nominal government bonds, returned 3.9 percent.

There are a limited number of real return bonds and long-term bonds available in the market. As a result, beginning in the second quarter of 2010, the Fund implemented a bond overlay strategy. This strategy consists of entering into financial contracts in order to extend the average maturity dates in, and increase the inflation sensitivity of, the bond portfolio, thereby increasing the matching of the liabilities of the Plan with the assets in the Fund.

# OPG Pension Report to Members 2012

## Asset Mix

This chart shows the Plan's asset mix as at December 31, 2012. The Fund continues to invest in global infrastructure and real estate and as such, the allocations to these asset classes are expected to increase over the next several years.



## Governance

The OPG Pension Plan is governed by the Ontario Pension Benefits Act, and the Federal Income Tax Act. The Plan text also forms part of the Collective Agreement for The Society and the Power Workers' Union. OPG as "**Administrator**" of the Plan acts through its Board of Directors (Board). We measure ourselves against standards for governance, internal controls and risk management that reflect best practices and the highest standards.

The governance structure defines the roles and accountabilities of those who manage the Plan. The Board has delegated various

responsibilities to:

- the Board's **Compensation and Human Resources Committee** relating to the administration of the benefits, including Plan design; and
- the Board's **Audit and Finance Committee** relating to the administration of the Plan's assets.

The Board's **Audit and Finance Committee** appoints senior OPG management to the **Pension Committee**, which has been delegated the responsibility to supervise the operations of the Plan, manage the Plan assets and implement policies and procedures.

## Additional Information

2012 financial information for the Plan's assets and an electronic copy of this Report are available:

- on OPG's intranet at: **HumanResources>Benefits>PensionPlan**; and
- on the pensioners' website at <https://pensioners.opg.com>.

Pensioners and beneficiaries can obtain a password for the pensioners' website by e-mailing Pensioner Services at: **pensionerservice@opg.com**.

**UNDERTAKING JT2.38**

**Undertaking**

To confirm whether data is available to populate the table in CCC 24, attachment 5 for 2014 and 2015 based on forecasts, and if so, to update the table with those numbers.

**Response**

A forecast of the 2014 and 2015 performance incentive ("AIP") payout cost was included in the 2013 - 2015 Business Plan, which is the basis of the pre-filed evidence at Ex. F4.4.1, Table 1. The attached chart has been updated to include this information.

The Nuclear Station Specific Results Bonus is not specifically broken out in the business plan. OPG does not have a forecast of the total number of employees expected to earn an incentive payment in the test period.

| OPG Performance Incentive Payments 2009 - 2013 |                                        |                   |                          |                                                            |
|------------------------------------------------|----------------------------------------|-------------------|--------------------------|------------------------------------------------------------|
| Performance Year                               | Performance Incentive Plan             | Employee Category | Total Incentive Payments | Total Number of Employees in receipt of Incentive Payments |
| 2009                                           | Annual Incentive Plan ("AIP")          | Management Group  | \$24M                    | 1428                                                       |
|                                                | Award for Performance ("AFP")          | Society           | \$8M                     | 4069                                                       |
|                                                | Goalsharing                            | PWU               | \$7M                     | 7321                                                       |
|                                                | Nuclear Station Specific Results Bonus | Management Group  | \$0.33M                  | 30                                                         |
|                                                | Nuclear Station Specific Results Bonus | PWU               | \$1.6M                   | 170                                                        |
|                                                | Nuclear Station Specific Results Bonus | Society           | \$0.88M                  | 105                                                        |
|                                                | <b>2009 Total</b>                      |                   | <b>\$41.81M</b>          | <b>13123</b>                                               |
| 2010                                           | AIP                                    | Management Group  | \$30.26M                 | 1448                                                       |
|                                                | AFP                                    | Society           | \$9.7M                   | 4020                                                       |
|                                                | Goalsharing                            | PWU               | \$8M                     | 7213                                                       |
|                                                | Nuclear Station Specific Results Bonus | Management Group  | \$0.08M                  | 8                                                          |
|                                                | Nuclear Station Specific Results Bonus | PWU               | \$1.61M                  | 179                                                        |
|                                                | Nuclear Station Specific Results Bonus | Society           | \$0.88M                  | 93                                                         |
|                                                | <b>2010 Total</b>                      |                   | <b>\$50.53M</b>          | <b>12961</b>                                               |
| 2011                                           | AIP                                    | Management Group  | \$28.97M                 | 1293                                                       |
|                                                | Goalsharing                            | PWU               | \$7.9M                   | 6929                                                       |
|                                                | Nuclear Station Specific Results Bonus | Management Group  | \$0.37M                  | 36                                                         |
|                                                | Nuclear Station Specific Results Bonus | PWU               | \$1.76M                  | 179                                                        |
|                                                | Nuclear Station Specific Results Bonus | Society           | \$0.92M                  | 94                                                         |
|                                                | <b>2011 Total</b>                      |                   | <b>\$39.92M</b>          | <b>8531</b>                                                |
| 2012                                           | AIP                                    | Management Group  | \$27.4M                  | 1230                                                       |
|                                                | Nuclear Station Specific Results Bonus | Management Group  | \$0.44M                  | 34                                                         |
|                                                | Nuclear Station Specific Results Bonus | PWU               | \$1.89M                  | 179                                                        |
|                                                | Nuclear Station Specific Results Bonus | Society           | \$0.99M                  | 90                                                         |
|                                                | <b>2012 Total</b>                      |                   | <b>\$30.72M</b>          | <b>1533</b>                                                |
| 2013                                           | AIP                                    | Management Group  | \$19.14M                 | 1186                                                       |
|                                                | Nuclear Station Specific Results Bonus | Management Group  | \$0.39M                  | 35                                                         |
|                                                | Nuclear Station Specific Results Bonus | PWU               | \$1.88M                  | 185                                                        |
|                                                | Nuclear Station Specific Results Bonus | Society           | \$1.11M                  | 101                                                        |
|                                                | <b>2013 Total</b>                      |                   | <b>\$22.52M</b>          | <b>1507</b>                                                |
| 2014 PLAN                                      | AIP                                    | Management Group  | \$29.1M                  | N/A                                                        |
|                                                | Nuclear Station Specific Results Bonus | Management Group  | N/A                      | N/A                                                        |
|                                                | Nuclear Station Specific Results Bonus | PWU               | N/A                      | N/A                                                        |
|                                                | Nuclear Station Specific Results Bonus | Society           | N/A                      | N/A                                                        |
|                                                | <b>2014 PLAN Total</b>                 |                   | <b>\$29.1M</b>           | <b>0</b>                                                   |
| 2015 PLAN                                      | AIP                                    | Management Group  | \$29.1M                  | N/A                                                        |
|                                                | Nuclear Station Specific Results Bonus | Management Group  | N/A                      | N/A                                                        |
|                                                | Nuclear Station Specific Results Bonus | PWU               | N/A                      | N/A                                                        |
|                                                | Nuclear Station Specific Results Bonus | Society           | N/A                      | N/A                                                        |
|                                                | <b>2015 PLAN Total</b>                 |                   | <b>\$29.1M</b>           | <b>0</b>                                                   |

**Notes:**

*Total Incentive Payments* reflect the value of awards earned in the *Performance Year*, however these amounts are accrued and paid out in the following year (i.e. The 2009 Incentive Payments were actually paid out in 2010);

*AFP* was suspended effective 2011;

*Goalsharing* was suspended effective 2012

**UNDERTAKING JT2.39**

**Undertaking**

To provide the two consultants' reports done after the contract renewal with NHSS.

**Response**

The requested reports are provided as Attachments 1 and 2.



## **End of Term Strategy: Market Best Practices**

**Ontario Power Generation**

**9 October, 2009**



## ■ Executive Summary

- Review of Current Environment
- Areas of Consideration
- Strategic Options
- End of Term Strategy Market Information
- Summary



- Over the past 29 months, OPG has been working to develop and then execute its End of Term Strategy (ETS) for its IT outsourcing agreement with NHSS. OPG and NHSS have come to an agreement for a renegotiated contract
- OPG has requested that Everest provide an assessment of the ETS that has been employed against market best practices. The deliverable is divided into two reports; the first is a narrative on ETS market best practices and the second is an assessment of OPG's ETS relative to these best practices
- As the first of the reports, this document is focused on market best practices for ETS
- As the outsourcing marketplace has matured and the need to develop strategies around an end of term event has become more frequent, Everest has developed a Best Practice framework that is applied to assist a Buyer in developing its ETS
- The ETS Development Framework provides a structured method for creating a strategy based on both market and Buyer-specific information which includes:
  - An assessment of the existing outsourcing environment
  - The major objectives and areas of consideration for an ETS
  - The options that should be reviewed as the possible strategies
- Our analysis includes market based research on commonly employed strategies in the outsourcing industry and Buyer behaviours, including when and how these strategies are being employed



- Executive Summary

- **Review of Current Environment**

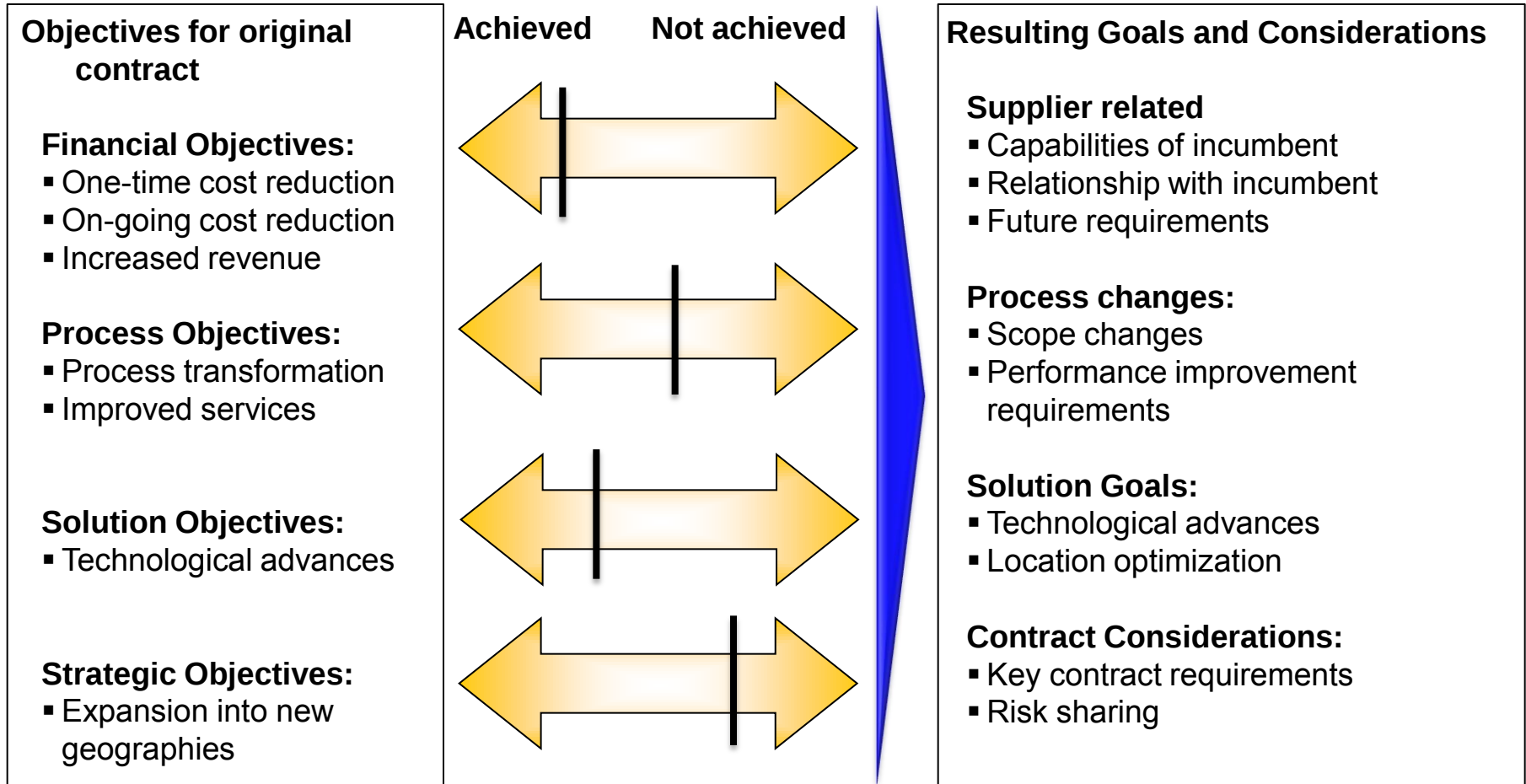
- Areas of Consideration
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- Summary

# When beginning to assess an ETS, there is a need to develop an understanding of the current outsourcing environment



- The factors that influenced the development of the original contract will have changed over time. The Buyer needs to explore the following factors in order to understand which ETS is the best fit for its organization
  - The existing outsourcing relationship needs to be assessed to understand if it achieved the original objectives
  - The existing outsourcing relationship needs to be review against the current marketplace to understand if it is achieving its value potential
  - The changes and evolutions within the marketplace need to be considered for the value they might bring to the Buyer
  - The Buyer needs to review its organizational strategies to understand any constraints that might impact the ETS

# The assessment of the achievement of the original objectives will inform the potential goals and considerations for the ETS

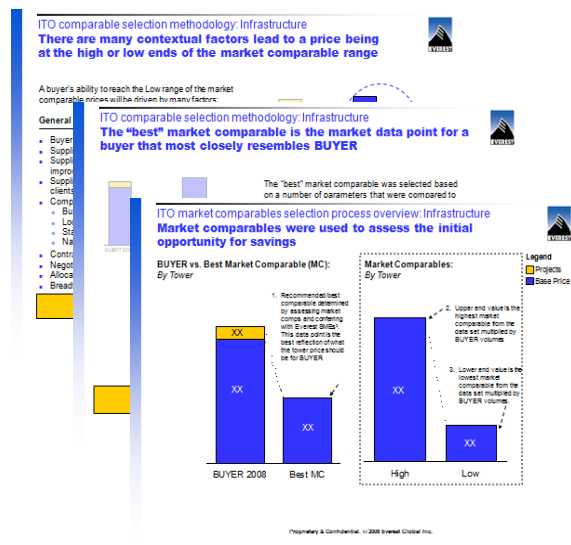


# To understand the cost savings and efficiencies that could be unlocked through an ETS, the current outsourcing agreement must be assessed to market

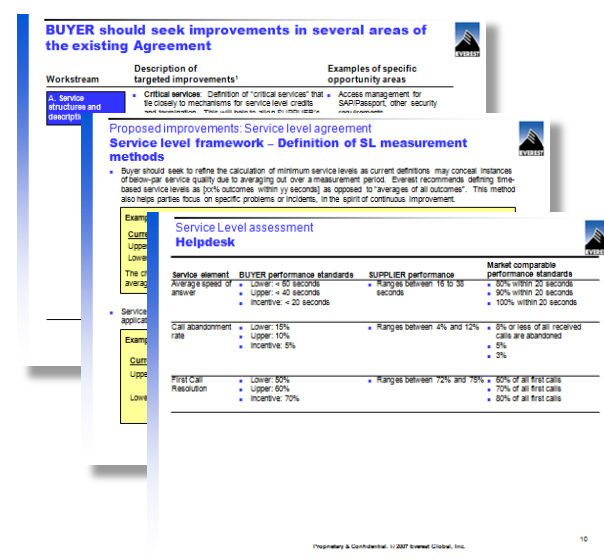
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 JT2.39  
 Attachment 1  
 Page 7 of 23



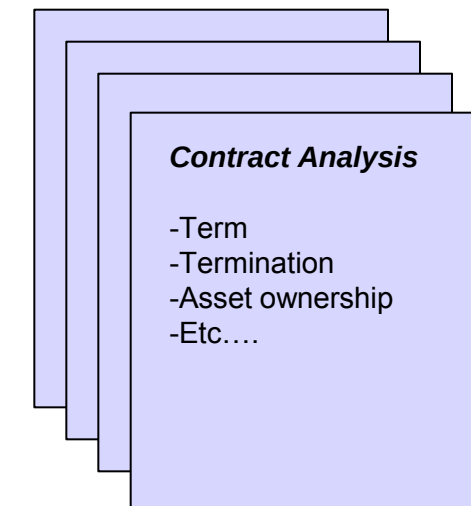
## Market Comparables



## Service Level analysis



## Contract analysis



A review of these three areas against market standards will identify opportunities to achieve further value in 1) Pricing 2) Service Improvements and 3) Contract Terms. These will factor in the selection of the ETS that best achieve this value

# The evolution of the outsourcing market has critical implications for Buyers at the end of an existing agreement



- Maturation of the outsourcing marketplace over the last five years
  - Large number of suppliers with proven capabilities
  - All of the major suppliers have grown rapidly in terms of scale and capabilities, example:
    - TCS and Infosys have over 110K and 90K FTEs respectively
    - IBM and Accenture have over 175K FTEs with more than 50K FTEs in India
  - Expanded IT enabled service offerings
  - Global delivery footprint with suppliers having capabilities to deliver services from all continents, leveraging unique location advantages
    - Major suppliers now have delivery locations in India, China, Central and Eastern Europe, South America and Central America
- Componentization of service delivery enables buyers to buy certain pieces of service or end-to-end transformational service
  - Buyers are moving up the complexity chain, procuring high value analytical and knowledge based services
- Consolidation of the supplier market
  - Industry maturity has led to mergers, acquisitions and consolidations
  - Suppliers have also acquired shared service/captive operations from the buyer community



- Executive Summary
- Review of Current Environment
- **Areas of Consideration**
- Strategic Options
- End of Term Strategy Market Information
- Summary

# Review of the agreement and the market changes uses a four dimension framework to develop detailed objectives and constraints



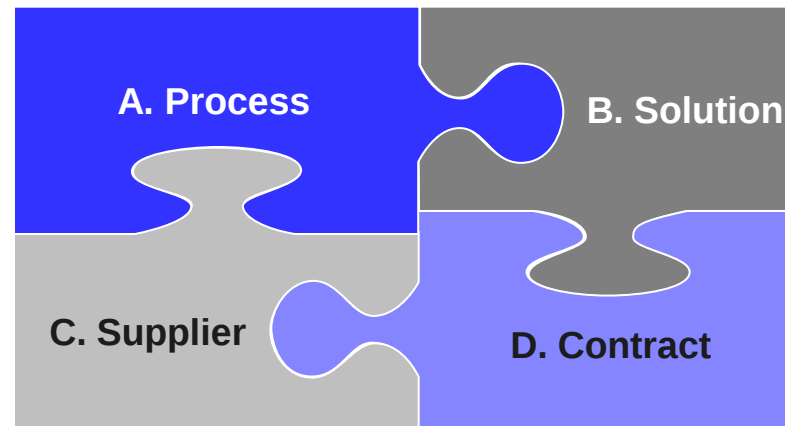
## Dimensions of current agreement review

### Process review sub-dimensions:

- Scope
- Performance management
- Operational infrastructure
- Transition

### Solution review sub-dimensions:

- Technology
- Global sourcing
- Governance



### Supplier review sub-dimensions:

- Supplier portfolio
- Supplier strategy and focus
- Supplier capability

### Contract review sub-dimensions:

- Contract size and duration
- Pricing
- Key terms and conditions

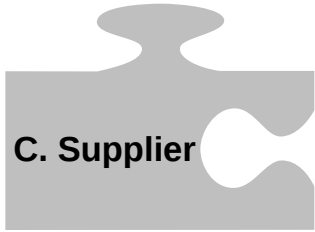
# Assess outsourced Process maturity and review the current Solution to identify major gaps and levers to expand value



| Dimension                                                       | Sub dimension                 | Brief description                                                                                                             |
|-----------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| A blue puzzle piece icon with the text "A. Process" inside it.  | <b>Scope</b>                  | Assessing the process coverage and degree of outsourcing to identify opportunities for evolution                              |
|                                                                 | <b>Performance management</b> | Assessment of type and purpose of metrics, number of SLAs, performance levels, and enforcement strategy                       |
|                                                                 | <b>Transition</b>             | Review of transition methodology, resources, engagement modes, and timelines/cost                                             |
| <hr/>                                                           |                               |                                                                                                                               |
| A grey puzzle piece icon with the text "B. Solution" inside it. | <b>Technology</b>             | Assessing the underlying technology solution in terms of ownership, fragmentation, and deployment options                     |
|                                                                 | <b>Global sourcing</b>        | Comparing the global sourcing adoption to the global sourcing market maturity from process and delivery location perspectives |
|                                                                 | <b>Governance</b>             | Assessing the governance structure in place to address operational and strategic aspects                                      |

# Evaluate Supplier profile and Contract elements to identify evolution themes for next stage of relationship



| Dimension                                                                                                    | Sub dimension                        | Brief description                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>C. Supplier</b></p>  | <b>Supplier portfolio</b>            | Assessment of Buyer's overall supplier portfolio strategy in terms of having a single-supplier strategy versus multi-supplier strategy                                                                  |
|                                                                                                              | <b>Supplier strategy &amp; focus</b> | Examining current supplier's strategy in the market and assessing its alignment with client's objectives                                                                                                |
|                                                                                                              | <b>Supplier capabilities</b>         | Evaluating current supplier's capability across key parameters (such as scale, scope, technology capabilities, and delivery footprint) and its positioning as compared to other suppliers in the market |
|  <p><b>D. Contract</b></p> | <b>Contract size &amp; duration</b>  | Comparison of contract size and duration with market average in view of the stage of the relationship                                                                                                   |
|                                                                                                              | <b>Pricing</b>                       | Assessment of the pros and cons of current pricing structure and indicative overall pricing levels along with pricing evolution opportunities                                                           |
|                                                                                                              | <b>Terms &amp; conditions</b>        | Coverage of key terms and conditions with potential key additions to formalize in the next stage of relationship                                                                                        |



- Executive Summary
- Review of Current Environment
- Areas of Consideration
- **Strategic Options**
- End of Term Strategy Market Information
- Summary

# Developing an ETS should be a collaborative, comprehensive, and non-threatening process designed to identify how to best leverage the different ETS options by process



| Renew                                                | Renegotiate                                                                                           | Restructure                                                                                               | Re-compete                                                                                                                                                                             | Repatriate                                                                                    |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Re-sign existing contract terms with minimal changes | Modify one or a limited number of elements of an outsourcing contract, e.g., price and service levels | Re-think the structure of key contract provisions and key business terms, and re-think in-scope processes | Terminate existing contract and enter into competitive bid process with potential suppliers to evaluate and select one or multiple suppliers to replace the current services agreement | Terminate current outsourcing contract and bring previously outsourced services back in-house |

## Buyers should take six key questions under consideration in choosing their sourcing option

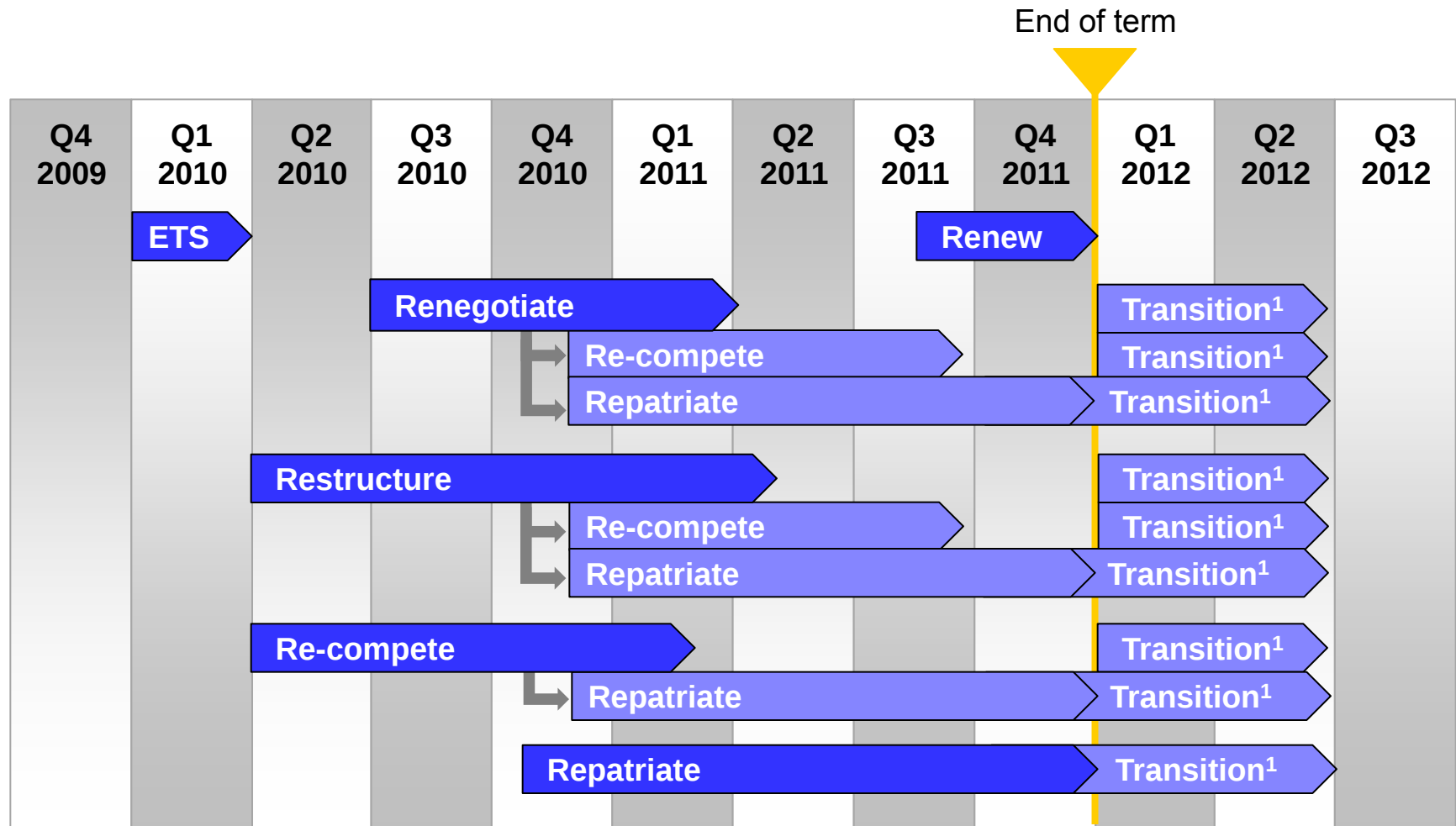
1. To what degree will each sourcing option lead to lower ongoing costs and equal or improved services?
2. What is the approximate one-time cost of each sourcing option?
3. What is the risk of executing each option?
4. What is the effort and duration of implementing each option?
5. How can a client maximize its negotiating leverage?
6. To what extent is the sourcing option strategically aligned?

## The optimal sourcing approach is one that is most likely meet a buyer's targeted outcomes

### Examples of outcomes:

- |                                                          |                                                     |
|----------------------------------------------------------|-----------------------------------------------------|
| <input checked="" type="checkbox"/> Financial return     | <input checked="" type="checkbox"/> Service quality |
| <input checked="" type="checkbox"/> Legal and compliance | <input checked="" type="checkbox"/> Acceptable risk |

# Buyers should initiate an ETS at least two years before the end of current contract term, earlier if inclusive of transition assistance period



1 Example assumes current agreement contains provision for transition and transition assistance

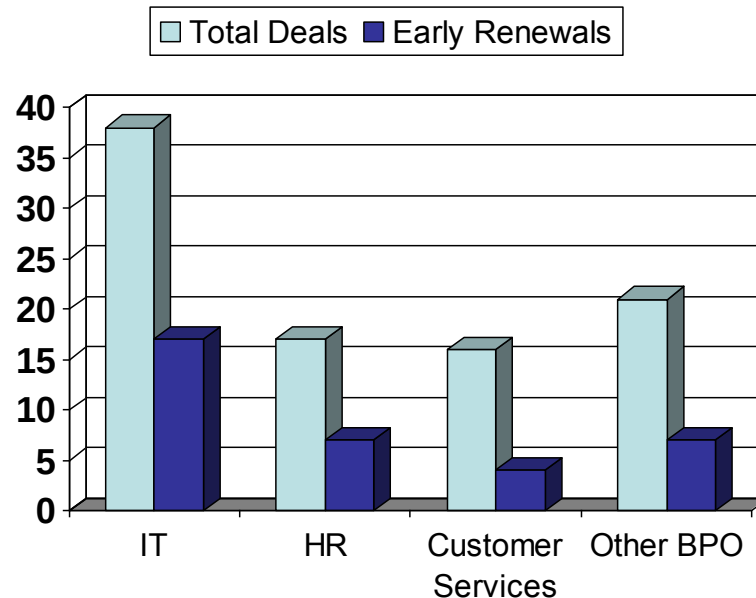


- Executive Summary
- Review of Current Environment
- Areas of Consideration
- Strategic Options
- **End of Term Strategy Market Information**
- Summary

# Approximately 80% of ending IT outsourcing contracts have been renegotiated with the incumbent supplier; a significant portion of those being early renewals<sup>1</sup>



- 38% of those agreements studied decided to renew their contract before then end-date<sup>2</sup>
- Almost 50% of IT and HR deals renewed early<sup>2</sup>



"IT" includes infrastructure and ADM.

"HR" includes single- and multi-function HR deals as well as recruitment (RPO)

"Other BPO" includes multi-tower deals as well as single-process BPO deals that had fewer than five relationships that had outsourced a particular business process.

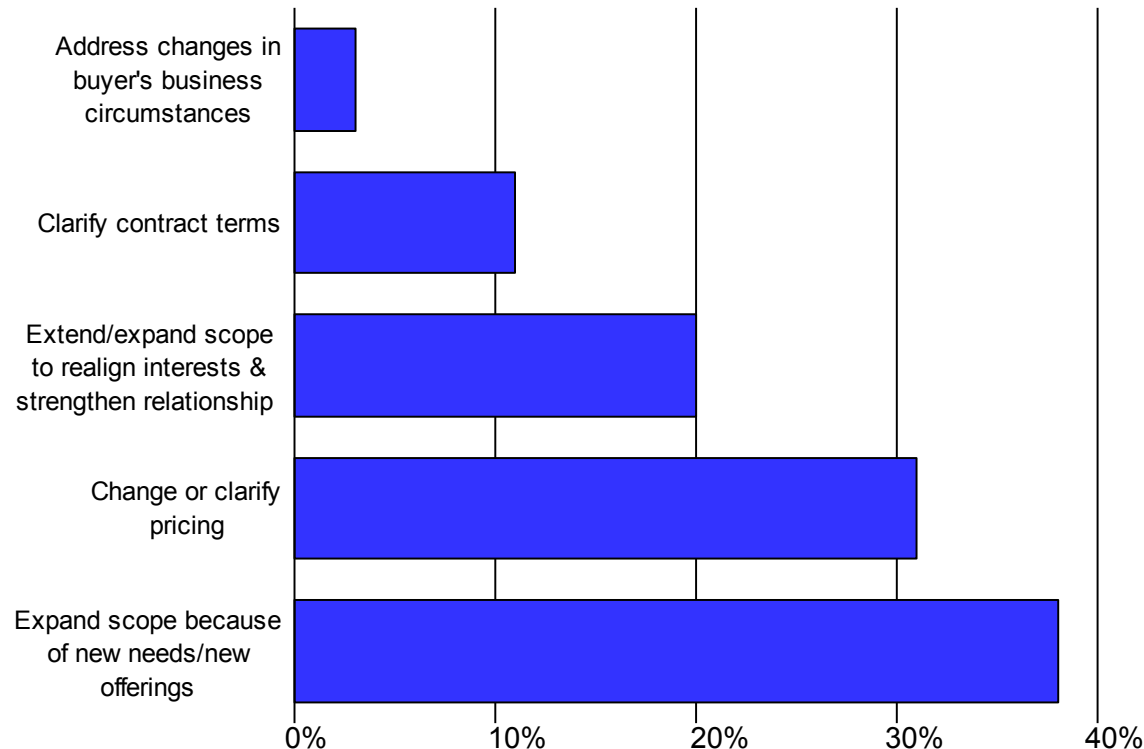
© 2009 Outsourcing Center. All rights reserved.

Source: 1: Everest Research Institute, based on statistically significant sample of the 8000 ITO transactions in the Everest Transaction Intelligence Database

Source 2: Everest Outsourcing Journal February 2009

# The majority of buyers studied stated that they renewed their deals because of new needs or new offerings from the supplier

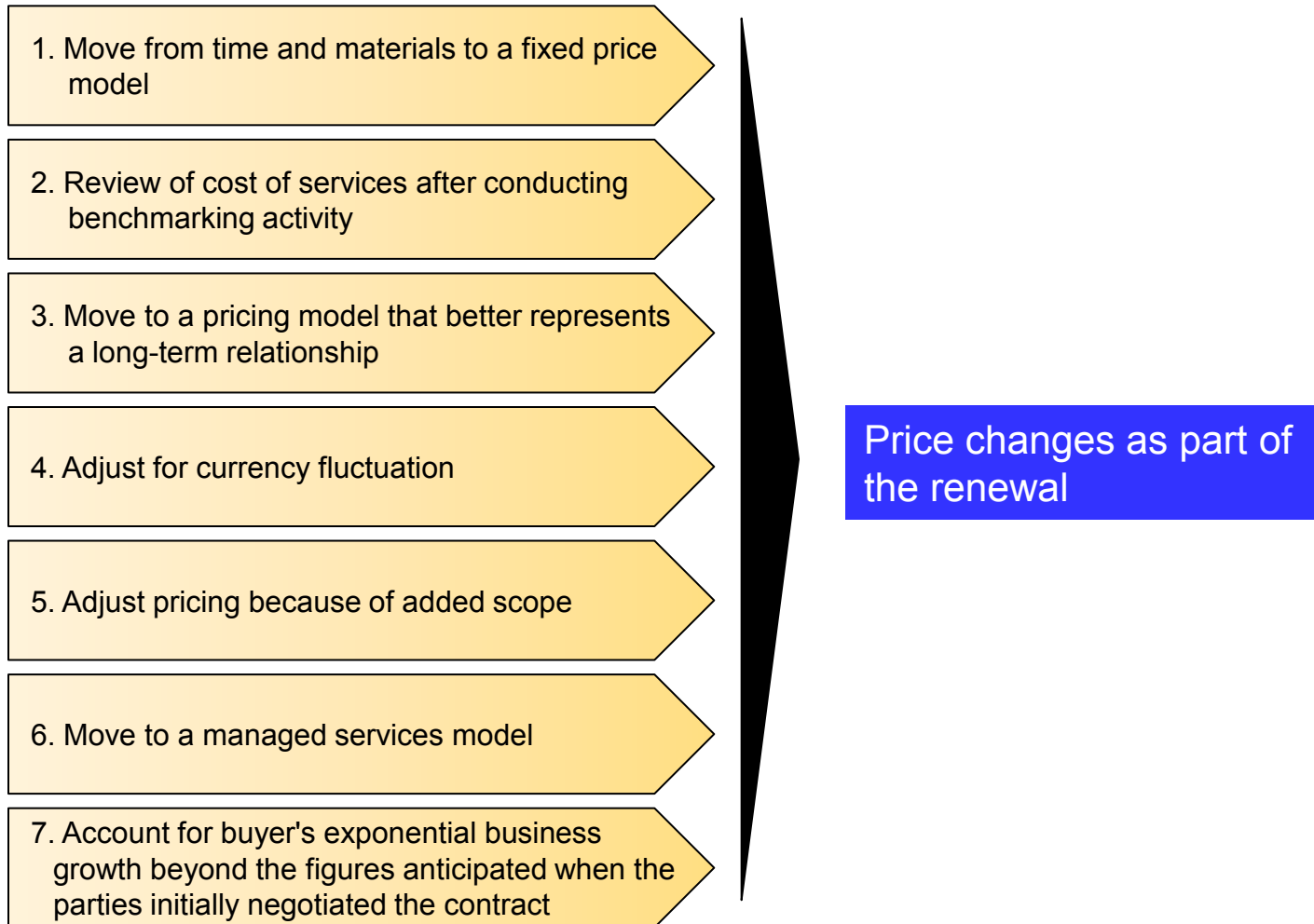
## Reasons for early contract renewal



Source: Everest Outsourcing Journal February 2009

**Everest research and experience shows a wide range of savings when re-negotiating or re-tendering – nearly 80% gain 20% in savings or more. The actual savings gained depends on factors such as the context of the deal, original financial arrangement, degree of unions or off-shoring, etc.**

# The study found the following drivers among the agreements that renewed their contracts early to clarify pricing



# The study also found the following drivers among the agreements that renewed their contracts early to contract terms



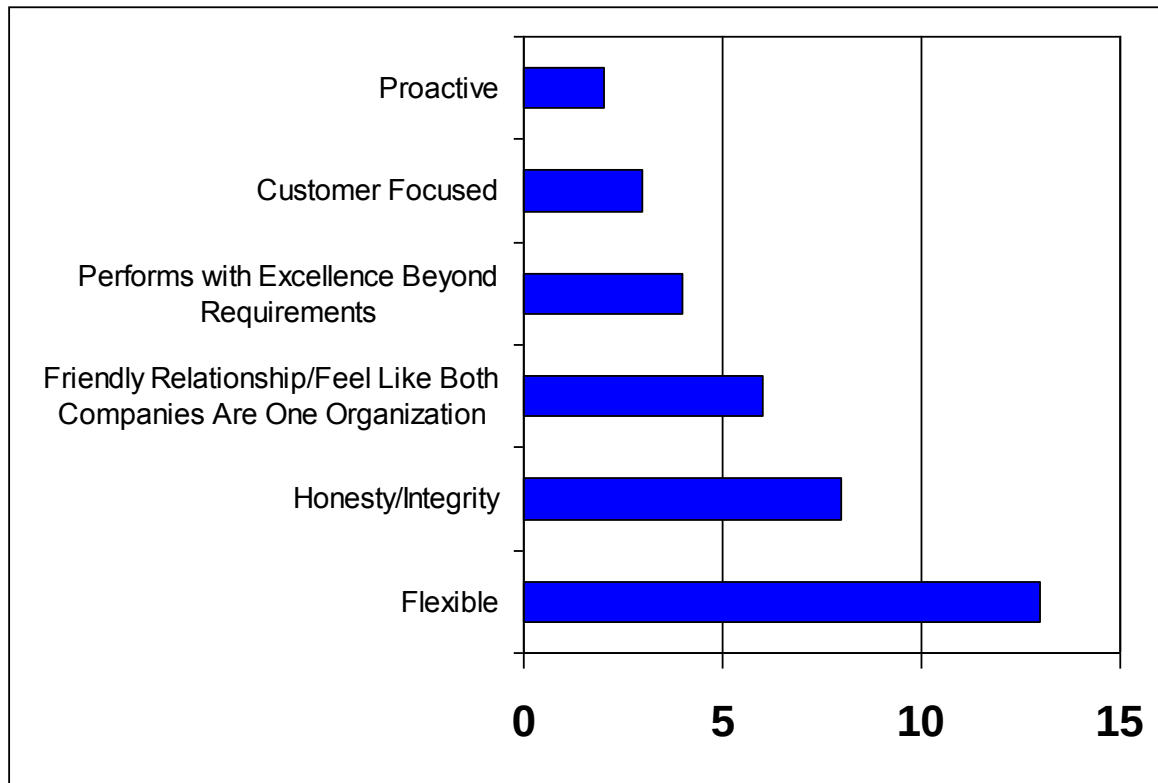
1. Clarify some terms, considering the relationship grew deeper and more collaborative than originally envisioned
2. Restructure contract to allow for continuous growth without having to renegotiate the contract every time
3. End discrepancy in original per-unit pricing around what was considered a billing incident versus a break/fix incident
4. Establish new billing metrics regarding what constitutes an additional resource charge (ARC)

Contract term changes  
as part of the renewal

# The study revealed the top six qualities of providers that influenced the early-renewing buyers' decisions to renew



## Number-One Provider Quality Cited by Buyers Who Renewed Early



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Source: Everest Outsourcing Journal February 2009



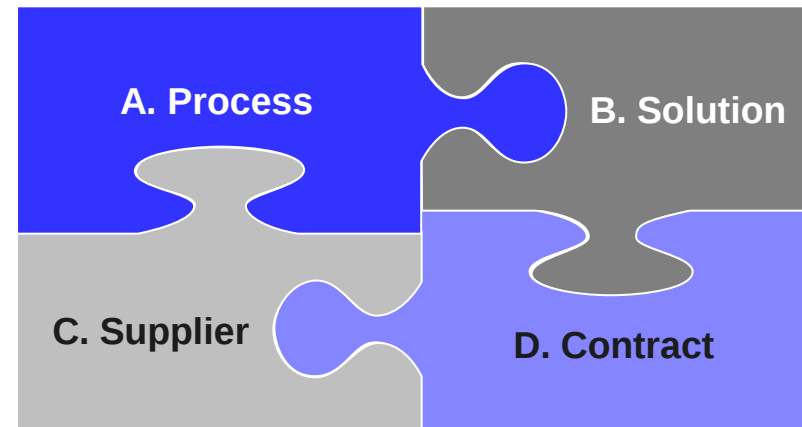
- Executive Summary
- Review of Current Environment
- Areas of Consideration
- Strategic Options
- End of Term Strategy Market Information
- **Summary**

# To ensure a thorough development of an ETS, the Buyer should complete three major activities



- 1** The Buyer's should complete a review of the current environment to answer the following key questions:
- Has the outsourcing engagement delivered the value that was set out to achieve?
  - Has the outsourcing deal achieved its value creation potential?
  - How has the outsourcing marketplace changed?
  - What should be done when or before the deal term comes to an end?

- 2** The Buyer consider the four key dimensions to detail objectives and constraints for the ETS



- 3** The Buyer should apply the high level targets, detailed objectives, and constraints to the five strategy options to assess the appropriate ETS for their outsourcing contract; The result can be one option or a hybrid of the options

Renew

Renegotiate

Restructure

Re-compete

Repatriate



PERFORMANCE & TECHNOLOGY

# OPG – Contract End-of-Term Sourcing Strategy Assessment

Final

October 13, 2009

ADVISORY

# Contents

The contacts at KPMG in connection with this report are:

**Yvon Audette**

Performance &  
Technology  
Partner, Toronto  
KPMG Canada

Tel: (416) 777-8388  
Fax: (416) 777-8462  
yaudette@kpmg.ca

**Marc Finkelstein**

Performance &  
Technology  
Director, Vancouver  
KPMG LLP

Tel: (604) 646-6460  
Fax: (604) 691-3031  
mfinkelstein@kpmg.ca

**John Naas**

Performance &  
Technology  
Manager, Toronto  
KPMG LLP

Tel: (416) 777-3074  
Fax: (416) 777-8462  
jnaas@kpmg.ca

## Page

### Executive summary

- Executive Summary [2]

### Overview

- Overview [4]

### Key findings

- Key findings [6]

### Supporting analysis to key findings

- Diligence in the process of developing OPG's ETS, and diligence in OPG's ETS, relative to leading practices [14]
- Major activities OPG conducted toward the development of the ETS [26]

### Appendix

1. Reference material [28]
2. Leading practices [29]
3. KPMG interview questions and interview list [30]
4. Glossary of acronyms [31]



## Executive Summary

**OPG was entirely consistent with leading practices in both the process to develop its ETS and in the ETS itself.**

### Background:

- Anticipating the 2011 conclusion of a ten-year IT outsourcing agreement with Capgemini/New Horizon System Solutions (NHSS), OPG has been developing, and subsequently executing an end-of-term sourcing strategy (ETS) since early 2007. During that time OPG had undertaken a lengthy process in which it traversed a structured process through which it developed its ETS, founded on a number of interim steps.

### Scope:

- In October 2009 OPG hired KPMG to perform a two-day due diligence review of the process it undertook in developing its ETS, the ETS itself, both against leading practices.

### Approach & Methodology:

- In the assessment timeline (initiated on October 6, 2009 completed October 9, 2009) KPMG employed the follow approach:
  - KPMG assembled a team of three advisors experienced in end-of-term strategy development, outsourcing and due diligence.
  - KPMG made an information request to OPG to obtain necessary documentation related to the ETS development process and the ETS itself. KPMG scheduled interviews with OPG personnel representing key ETS development areas.
  - KPMG evaluated the information gathered from all noted sources against leading practices; leading practices represent a hybrid of what mature organizations would do in similar circumstances, in tandem with leading practices espoused in various popular sourcing and IT management frameworks (e.g. COBIT).
  - KPMG documented its findings (this report) against leading practices.

### Findings:

1. KPMG's review of OPG's ETS development process finds that OPG was entirely aligned with leading practices in the ETS development process. OPG made proper use of the correct inputs at the appropriate times in the process, and each process step involved the right parties.
2. KPMG finds that OPG consistently developed each necessary component of the ETS, aligned each with the business strategy, and rigorously consulted internal and external stakeholders and advisors, therefore KPMG finds that OPG was entirely aligned with leading practices in its ETS.

# Overview



## Overview

### Background

- Ontario Power Generation (OPG) entered into a ten-year IT outsourcing agreement with Capgemini/NHSS in 2001.
- In 2007 OPG undertook a multi-year process to evaluate their sourcing strategy options and to create and execute an end-of-term strategy (ETS) related to the IT outsourcing agreement with Capgemini/NHSS. This process sought to identify and evaluate potential alternatives to the existing contract as well as to renew/modify/extend the existing contract.
- Presently, OPG has completed renegotiating its current agreements based on its ETS. As part of the due diligence process OPG has engaged KPMG LLP/ Canada (KPMG) for the below purpose.

### Purpose

- This document summarizes KPMG's Point of View (POV) of the process OPG undertook to develop an End of Term Strategy, and the ETS itself.

### Approach

- In the assessment timeline (initiated on October 6, 2009 completed October 9, 2009) KPMG employed the following approach:
  - KPMG assembled a team of three advisors experienced in end-of-term strategy development, outsourcing and due diligence.
  - KPMG made an information request to OPG to obtain necessary documentation related to the ETS development process and the ETS itself. KPMG scheduled interviews with OPG personnel representing key ETS development areas.
  - KPMG evaluated the information gathered from all noted sources against leading practices; leading practices represent a hybrid of what mature organizations would do in similar circumstances, in tandem with the leading practices espoused in various popular sourcing and IT management frameworks (e.g. COBIT).
  - KPMG documented its findings (this report) against leading practices.

### Nature of our Work

- KPMG relied on information and representation from OPG management and staff for the completeness and accuracy of the information provided.
- KPMG did not attempt to validate the accuracy of the information received through this review.
- KPMG did not assess the correctness of the decisions made or the quality of the documents reviewed.
- KPMG were not acting as auditors and accordingly, our work did not result in expressing an audit opinion on OPG's ETS or the process in which it was developed.
- KPMG did not conduct a review of the IT renewal contract with Capgemini.

## Key findings



Key findings  
**Page 1 of 7**

| Process Element                | Leading Practices in ETS Development                                  | Findings                                                                                                                                                                                     | KPMG's Point of View                                   |
|--------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| <b>Enterprise Strategy</b>     | <b>Ensure alignment of ETS to the enterprise strategy</b>             | ●Evaluated business plans across all OPG lines of business.                                                                                                                                  | ●OPG's approach was consistent with leading practices. |
|                                |                                                                       | ●Consulted individually with the various business unit leaders to determine their key objectives and priorities. Discussed strategic potential for contract alternates and the implications. | ●OPG's approach was consistent with leading practices. |
|                                |                                                                       | ●Identified specific "business strategies", which were propagated consistently in process documentation.                                                                                     | ●OPG's approach was consistent with leading practices. |
| <b>IT Strategy and Roadmap</b> | <b>Ensure alignment of ETS to the IT strategy and roadmap</b>         | ●Input to the development of the IT strategy was the enterprise strategy.                                                                                                                    | ●OPG's approach was consistent with leading practices. |
|                                |                                                                       | ●Sourcing opportunities, which were segmented by stakeholders, were developed within the parameters derived from the IT strategy.                                                            | ●OPG's approach was consistent with leading practices. |
|                                |                                                                       | ●OPG developed a traceability matrix from IT strategy (IT strategy extract) to hone IT conversations.                                                                                        | ●OPG's approach was consistent with leading practices. |
|                                | <b>Identify and validate relevant objectives from the IT strategy</b> | ●Developed traceability matrix from IT strategy containing specific IT objectives to achieve in the ETS.                                                                                     | ●OPG's approach was consistent with leading practices. |
|                                |                                                                       | ●Broad stakeholder groups formed to consult on the relevance of objectives from several viewpoints.                                                                                          | ●OPG's approach was consistent with leading practices. |
|                                | <b>Determine critical success factors</b>                             | ●OPG identified a set of success factors as part of the IT strategy's main thrusts.                                                                                                          | ●OPG's approach was consistent with leading practices. |

Key findings  
**Page 2 of 7**

| Process Element                  | Leading Practices in ETS Development                         | Findings                                                                                            | KPMG's Point of View                                   |
|----------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| <b>Improvement Opportunities</b> | <b>Explore exploratory improvement opportunities</b>         | ●OPG conducted an independent review of its business processes with an aim to identify improvement. | ●OPG's approach was consistent with leading practices. |
|                                  |                                                              | ●OPG conducted a benchmarking exercise with an external party.                                      | ●OPG's approach was consistent with leading practices. |
|                                  | <b>Explore preparatory improvement opportunities</b>         | ●OPG hired an external party to compose a service catalogue.                                        | ●OPG's approach was consistent with leading practices. |
|                                  | <b>Explore opportunistic improvement opportunities</b>       | ●OPG hired an external party to explore cost saving opportunities.                                  | ●OPG's approach was consistent with leading practices. |
|                                  | <b>Seek external, independent expertise</b>                  | ●Engaged external parties for independent consultation of improvement opportunities.                | ●OPG's approach was consistent with leading practices. |
| <b>Sourcing Opportunities</b>    | <b>Identify and validate relevant sourcing opportunities</b> | ●Assembled a broad stakeholder group for opportunity identification.                                | ●OPG's approach was consistent with leading practices. |
|                                  |                                                              | ●Defined specific sourcing opportunities and associated each with a responsible stakeholder.        | ●OPG's approach was consistent with leading practices. |
|                                  |                                                              | ●Identified key constraints, challenges for each opportunity.                                       | ●OPG's approach was consistent with leading practices. |
|                                  | <b>Seek external, independent expertise</b>                  | ●Engaged external parties for independent consultation of sourcing opportunities.                   | ●OPG's approach was consistent with leading practices. |

Key findings  
**Page 3 of 7**

| Process Element  | Leading Practices in ETS Development            | Findings                                                                                                                          | KPMG's Point of View                                    |
|------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Sourcing Options | Identify and validate relevant sourcing options | ● Assembled a broad stakeholder group for option evaluation, comprised of individuals at varying seniority levels.                | ● OPG's approach was consistent with leading practices. |
|                  |                                                 | ● Documented options with clarity and defined how they may be executed at OPG.                                                    | ● OPG's approach was consistent with leading practices. |
|                  | Seek external, independent expertise            | ● Engaged external parties for independent consultation of sourcing opportunities.                                                | ● OPG's approach was consistent with leading practices. |
|                  | Eliminate infeasible or unattractive options    | ● Leveraged viewpoints of cross-sectional stakeholder team to evaluate feasibility and attractiveness from multiple perspectives. | ● OPG's approach was consistent with leading practices. |
|                  |                                                 | ● Decision makers consulted individuals at all seniority levels.                                                                  | ● OPG's approach was consistent with leading practices. |

Key findings  
**Page 4 of 7**

| Process Element                  | Leading Practices in ETS Development                                                           | Findings                                                                                                                               | KPMG's Point of View                                   |
|----------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| <b>Stakeholder Consultations</b> | <b>Involve stakeholders presently impacted by sourcing arrangement</b>                         | ●Created numerous groups for consultation.                                                                                             | ●OPG's approach was consistent with leading practices. |
|                                  | <b>Involve stakeholders potentially impacted by future sourcing arrangement</b>                | ●Created cross-sectional group with representation across business lines and functions.                                                | ●OPG's approach was consistent with leading practices. |
|                                  | <b>Seek external, independent expertise to facilitate and educate the consultation process</b> | ●Engaged external parties for independent consultation of sourcing opportunities.                                                      | ●OPG's approach was consistent with leading practices. |
|                                  | <b>Create common language for discussing sourcing</b>                                          | ●Created a service catalogue, which focuses discussions on services and the associated metrics.                                        | ●OPG's approach was consistent with leading practices. |
|                                  | <b>Evaluate stakeholder preferences on behalf of the broader stakeholder community</b>         | ●Consideration made for relevant stakeholders, including regulator, public and unions.                                                 | ●OPG's approach was consistent with leading practices. |
|                                  | <b>Cross-functional, senior approval for major deliverables and decision making</b>            | ●Approval for major deliverables (e.g. business case recommendation, board approval) required sign-off from all involved stakeholders. | ●OPG's approach was consistent with leading practices. |

Key findings  
**Page 5 of 7**

| Process Element                              | Leading Practices in ETS Development                                                                      | Findings                                                                                                                                       | KPMG's Point of View                                   |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| <b>Consultations with Proficient Parties</b> | <b>Consult external organization to provide insight on outsourcing leading practices</b>                  | ●Consultations with outsourcing exemplars in Canada, USA and UK.                                                                               | ●OPG's approach was consistent with leading practices. |
|                                              | <b>Consult external organization to provide insight on outsourcing with potential provider</b>            | ●Consultations / research on local outsourcing arrangement with client of potential provider.                                                  | ●OPG's approach was consistent with leading practices. |
|                                              | <b>Seek external, independent expertise</b>                                                               | ●Retention of external party services for independent consultation.                                                                            | ●OPG's approach was consistent with leading practices. |
|                                              |                                                                                                           | ●External, independent expertise were used throughout the process for validation and verification type assessments.                            | ●OPG's approach was consistent with leading practices. |
| <b>SWOT and PEST Analyses</b>                | <b>Evaluate enterprise SWOT</b>                                                                           | ●Post mortem review of existing contracts (weaknesses and threats).                                                                            | ●OPG's approach was consistent with leading practices. |
|                                              |                                                                                                           | ●Development of improvement (strengths and opportunities).                                                                                     | ●OPG's approach was consistent with leading practices. |
|                                              | <b>Evaluate enterprise PEST</b>                                                                           | ●Conducted risk assessments, using two external parties, addressing political, environmental, socio-cultural and technological considerations. | ●OPG's approach was consistent with leading practices. |
| <b>Risk Assessments</b>                      | <b>Development of a risk register, which catalogs risks and assigns to each an impact and probability</b> | ●Risk assessment performed collaboratively.                                                                                                    | ●OPG's approach was consistent with leading practices. |
|                                              | <b>Assignment of specific risk mitigation responsibility to individuals</b>                               | ●Documented in risk registry.                                                                                                                  | ●OPG's approach was consistent with leading practices. |
|                                              | <b>Risk assessment of the sourcing options</b>                                                            | ●Assessment of the viability of the sourcing alternatives based on four categories of risk.                                                    | ●OPG's approach was consistent with leading practices. |

Key findings  
**Page 6 of 7**

| Process Element      | Leading Practices in ETS Development                                              | Findings                                                                                | KPMG's Point of View                                   |
|----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------|
| <b>Business Case</b> | <b>Business case models all feasible sourcing options</b>                         | ●Business case modeled all feasible sourcing options.                                   | ●OPG's approach was consistent with leading practices. |
|                      | <b>Business case values are traceable to the business objectives</b>              | ●Business case values were traceable to the business objectives.                        | ●OPG's approach was consistent with leading practices. |
|                      | <b>Business case documents and explains assumptions</b>                           | ●Business case documented and explained assumptions.                                    | ●OPG's approach was consistent with leading practices. |
|                      | <b>Business case provides or links to quantitative calculations</b>               | ●Business case referenced source documents of quantitative calculations.                | ●OPG's approach was consistent with leading practices. |
|                      | <b>Consideration of qualitative factors</b>                                       | ●Qualitative analysis of key considerations that were difficult/impossible to quantify. | ●OPG's approach was consistent with leading practices. |
|                      | <b>Business case uses standard quantities to evaluate among competing options</b> | ●Business case consistently used net present value for option costing.                  | ●OPG's approach was consistent with leading practices. |
|                      | <b>Business case highlights the risks associated with each option</b>             | ●Business case highlighted the risk associated with each option.                        | ●OPG's approach was consistent with leading practices. |
|                      | <b>Business approval is granted by a cross-section of senior executives</b>       | ●Business approval was granted by a cross-section of senior executives.                 | ●OPG's approach was consistent with leading practices. |

Key findings  
**Page 7 of 7**

| Process Element              | Leading Practices in ETS Development                                  | Findings                                                                                                  | KPMG's Point of View                                   |
|------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| <b>Sourcing Option / ETS</b> | <b>Commitment of key stakeholders in favouring the option</b>         | ●ETS was endorsed by the Board of Directors, IT Council, Steering Committee and several other OPG groups. | ●OPG's approach was consistent with leading practices. |
|                              | <b>Concurrence of the option's favourability by an external party</b> | ●Third party concurrence was documented.                                                                  | ●OPG's approach was consistent with leading practices. |
|                              | <b>Validation of sourcing option with potential provider</b>          | ●Validation was made with the potential provider who committed to a negotiation timeline.                 | ●OPG's approach was consistent with leading practices. |
|                              | <b>Alternate sourcing option identified and validated</b>             | ●Contingency plans had been documented in the event a satisfactory contract could not be achieved.        | ●OPG's approach was consistent with leading practices. |

## Supporting analysis to key findings



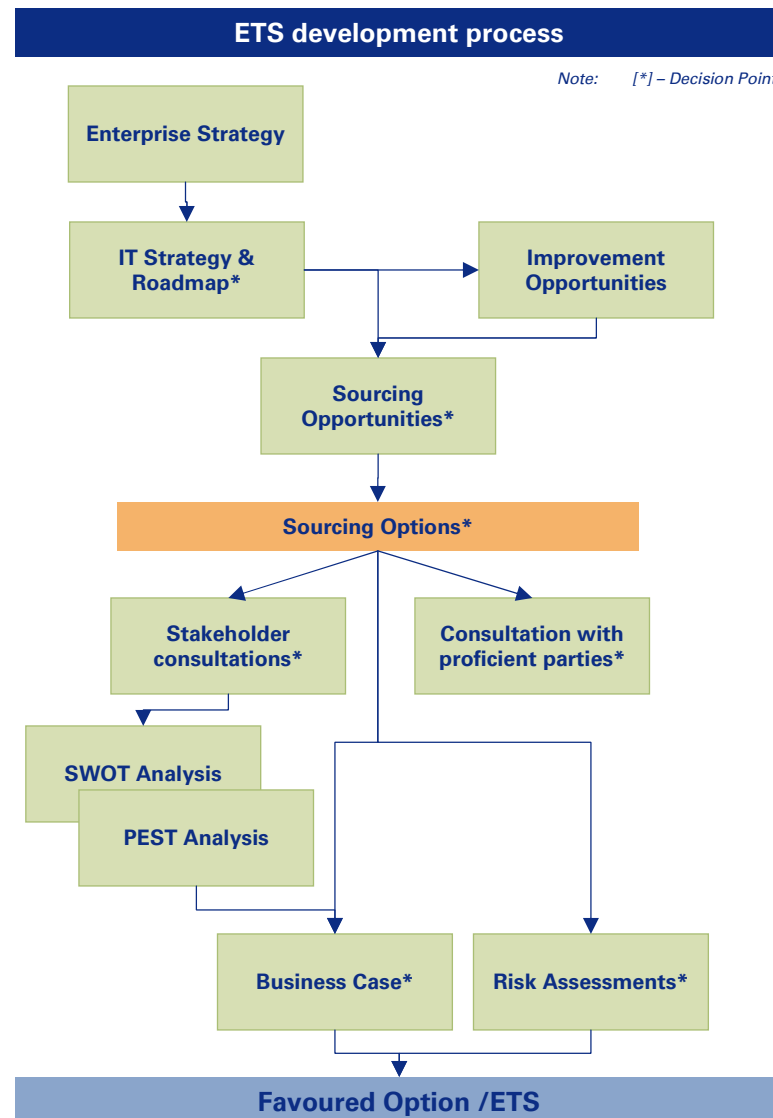
## Supporting analysis to key findings

# Leading practices in the ETS development process

**Leading practices in the ETS development process are espoused in the Control Objectives for Information and related Technology (CobIT) framework, which is a widely adopted framework.**

- It is a leading practice to align all organizational initiatives to objectives expressed in the business strategy.
- The information technology (IT) strategy is an IT manifestation of relevant business objectives, to which IT initiatives are directly linked.
- The IT strategy is one of several key inputs to the ETS, and is used authoritatively to guide downstream IT initiatives. Objectives originating in the IT strategy clarify requirements in cost, performance and other relevant IT metrics, and also provide guidance on the feasibility and attractiveness of potential future state options.
- Other inputs should be used to support decisions related to option refinement, such as a business case, risk assessment, performance reviews, etc. Again, these inputs should align with the IT strategy, and be directly traceable to the business strategy.
- Once high-level options are narrowed, if the option favoured is an existing option, elaboration of the ETS is made both in terms of incremental (relative) and independent (absolute) performance.
- Decision points (DP) are instances where a specific decision should be made prior to proceeding in the ETS development process. Decisions should be supported with robust input at the point they are made.
- Decision points illustrated represent within the ETS development process when inputs should be evaluated and a specific decision is made. These are not the only decision points in the process, but from the due diligence standpoint, they represent points in time at which material decisions should be made related to an ETS.
- Note: Descriptions of process elements, inputs and outputs in subsequent pages are meant as operating definitions to clarify the process and should not be interpreted to be prescriptive or robust.

**The process illustrated below applies generally to an ETS strategy development process.**



## Process elements used for developing the ETS – enterprise strategy

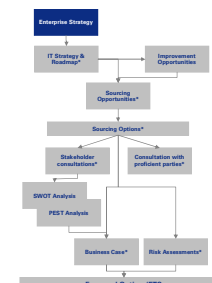
OPG was consistent with leading practices in aligning with the enterprise strategy.

### Description:

- The purpose of the enterprise strategy is to define the high level objectives, goals, constraints and timing for the organization. Interpretation of the enterprise strategy yields sub-strategies related to specific functions, lines of business or other organizational entity.

### Source and Details:

- OPG's enterprise strategy is outlined in the 2008 Annual Report, which can be found on OPG's public website.



| Enterprise Strategy                                |                                                                                                                                                                                                                                               |                                                                                                         |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Leading Practices in ETS development               | Findings                                                                                                                                                                                                                                      | KPMG's Point of View                                                                                    |
| Ensure alignment of ETS to the enterprise strategy | <ul style="list-style-type: none"> <li>Evaluated business plans across all OPG lines of business.</li> </ul>                                                                                                                                  | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
|                                                    | <ul style="list-style-type: none"> <li>Consulted individually with the various business unit leaders to determine their key objectives and priorities. Discussed strategic potential for contract alternates and the implications.</li> </ul> | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
|                                                    | <ul style="list-style-type: none"> <li>Identified specific "business strategies", which were propagated consistently in process documentation.</li> </ul>                                                                                     | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |

## Process elements used for developing the ETS – IT strategy and roadmap

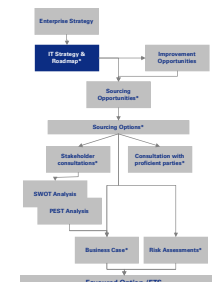
OPG was consistent with leading practices in aligning with the IT strategy and roadmap.

### Description:

- The purpose of the information technology (IT) strategy is to define the high-level objectives, goals, principles, tactics and timing for information technologies for the organization. The IT strategy is a direct translation of business objectives into a future state IT blueprint, expressed as discrete initiatives plotted against a timeline ("roadmap").
- The first decision point in the ETS development process relates to extracting a robust set of objectives from the IT strategy, and validating these objectives with the key stakeholders. Stakeholders should be comprised of business and IT representation.

### Source and Details:

- OPG's 5-year IT strategy document, dated November 2008.
- Identification of a set of IT objectives to achieve in the ETS, which was based on alignment with the IT strategy. The traceability matrix was contained within the Joint Solutioning binder.



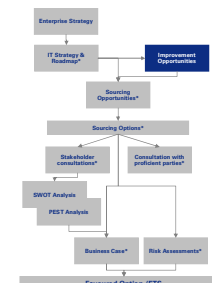
| IT Strategy and Roadmap                                               |                                                                                                                                                                                    |                                                                                                         |
|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Leading Practices in ETS development                                  | Findings                                                                                                                                                                           | KPMG's Point of View                                                                                    |
| <b>Ensure alignment of ETS to the IT strategy</b>                     | <ul style="list-style-type: none"> <li>Input to the development of the IT strategy was the enterprise strategy.</li> </ul>                                                         | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
|                                                                       | <ul style="list-style-type: none"> <li>Sourcing opportunities, which were segmented by stakeholders, were developed within the parameters derived from the IT strategy.</li> </ul> | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
|                                                                       | <ul style="list-style-type: none"> <li>OPG developed a traceability matrix from IT strategy (IT strategy extract) to hone IT conversations.</li> </ul>                             | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| <b>Identify and validate relevant objectives from the IT strategy</b> | <ul style="list-style-type: none"> <li>Developed traceability matrix from IT strategy containing specific IT objectives to achieve in the ETS.</li> </ul>                          | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
|                                                                       | <ul style="list-style-type: none"> <li>Broad stakeholder groups formed to consult on the relevance of objectives from several viewpoints.</li> </ul>                               | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| <b>Determine critical success factors</b>                             | <ul style="list-style-type: none"> <li>OPG identified a set of success factors as part of the IT strategy's main objectives (OPG referred to as "thrusts").</li> </ul>             | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |

## Process elements used for developing the ETS – improvement opportunities

OPG was consistent with leading practices in developing improvement opportunities.

### Description:

- Distinct from the IT roadmap initiatives in the IT strategy, improvement opportunities relate specifically to sourcing, and at this point in the process typically focus on:
  - Exploratory improvement opportunities such as benchmarking, independent reviews, performance assessments, external consultations
  - Preparatory and opportunistic improvements such as IT maturity, process standardization, application rationalization and other efforts toward simplification and standardization



### Source and Details:

- Contained within Joint Solutioning binder, IT Council presentations dating back to early 2007, presentation to the Board of Directors dating back to mid-2007, presentations to ETS (senior executive) Steering Committee dating back to mid-2007.

| Improvement Opportunities            |               |             |                                                                                                                                                    |                                                                                                       |  |  |
|--------------------------------------|---------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--|--|
| Leading Practices in ETS development |               |             | Findings                                                                                                                                           | KPMG’s Point of View                                                                                  |  |  |
| Explore opportunities                | exploratory   | improvement | <ul style="list-style-type: none"><li>OPG conducted an independent review of its business processes with an aim to identify improvement.</li></ul> | <ul style="list-style-type: none"><li>OPG’s approach was consistent with leading practices.</li></ul> |  |  |
|                                      |               |             | <ul style="list-style-type: none"><li>OPG conducted a benchmarking exercise with an external party.</li></ul>                                      | <ul style="list-style-type: none"><li>OPG’s approach was consistent with leading practices.</li></ul> |  |  |
| Explore opportunities                | preparatory   | improvement | <ul style="list-style-type: none"><li>OPG hired an external party to compose a service catalogue.</li></ul>                                        | <ul style="list-style-type: none"><li>OPG’s approach was consistent with leading practices.</li></ul> |  |  |
| Explore opportunities                | opportunistic | improvement | <ul style="list-style-type: none"><li>OPG hired an external party to explore cost saving opportunities.</li></ul>                                  | <ul style="list-style-type: none"><li>OPG’s approach was consistent with leading practices.</li></ul> |  |  |
| Seek external, independent expertise |               |             | <ul style="list-style-type: none"><li>Engaged external parties for independent consultation of improvement opportunities.</li></ul>                | <ul style="list-style-type: none"><li>OPG’s approach was consistent with leading practices.</li></ul> |  |  |

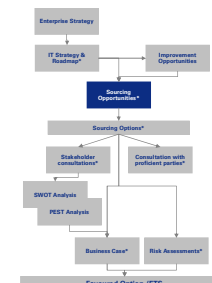
## Leading Practices

# Process elements used for developing the ETS – sourcing opportunities

OPG was consistent with leading practices in developing sourcing opportunities.

### Description:

- Upon defining and validating relevant business and IT objectives, it is prudent to consult a broad representation of stakeholders to define specific sourcing opportunities. Sourcing opportunities are different from sourcing options insofar as sourcing opportunities are not sourcing solutions or potential future state blueprints, rather they define a narrower sourcing opportunity that may form part of a sourcing option.
- The decision point in this process element involves assigning sourcing opportunities to individual “champions” to develop and support the ideas for the subsequent process step.



### Source and Details:

- Contained within Joint Solutioning binder, IT Council presentations dating back to early 2007, presentation to the Board of Directors dating back to mid-2007, presentations to ETS (senior executive) Steering Committee dating back to mid-2007.

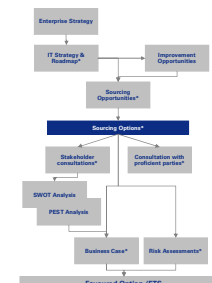
| Sourcing Opportunities                                       |                                                                                                                                               |                                                                                                         |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Leading Practices in ETS development                         | Findings                                                                                                                                      | KPMG's Point of View                                                                                    |
| <b>Identify and validate relevant sourcing opportunities</b> | <ul style="list-style-type: none"> <li>Assembled a broad stakeholder group for opportunity identification.</li> </ul>                         | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
|                                                              | <ul style="list-style-type: none"> <li>Defined specific sourcing opportunities and associated each with a responsible stakeholder.</li> </ul> | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
|                                                              | <ul style="list-style-type: none"> <li>Identified key constraints, challenges for each opportunity.</li> </ul>                                | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| <b>Seek external, independent expertise</b>                  | <ul style="list-style-type: none"> <li>Engaged external parties for independent consultation of sourcing opportunities.</li> </ul>            | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |

## Process elements used for developing the ETS – sourcing options

OPG was consistent with leading practices in developing and evaluating sourcing options.

### Description:

- Sourcing options are the high-level scenarios that could be considered potential solutions based on the identified objectives.
- The decision related to evaluating among sourcing options has high importance for the organization in achieving its objectives. This decision must be made collaboratively among a cross-section of stakeholders representing key business areas (e.g. Legal, Risk, Supply Chain). An independent evaluation is also a leading practice as option selection has significant implications for the organization.



### Source and Details:

- Contained within IT Council presentations dating back to early 2007, presentation to the Board of Directors dating back to mid-2007, presentations to ETS (senior executive) Steering Committee dating back to mid-2007, Everest End-of-Term Strategy Report dated December 2007, end-of-term Charter dated July 2008.

| Sourcing Options                                       |                                                                                                                                   |                                                         |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Leading Practices in ETS development                   | Findings                                                                                                                          | KPMG's Point of View                                    |
| <b>Identify and validate relevant sourcing options</b> | • Assembled a broad stakeholder group for option evaluation, comprised of individuals at varying seniority levels.                | • OPG's approach was consistent with leading practices. |
|                                                        | • Documented options with clarity and defined how they may be executed at OPG.                                                    | • OPG's approach was consistent with leading practices. |
| <b>Seek external, independent expertise</b>            | • Engaged external parties for independent consultation of sourcing opportunities.                                                | • OPG's approach was consistent with leading practices. |
| <b>Eliminate infeasible or unattractive options</b>    | • Leveraged viewpoints of cross-sectional stakeholder team to evaluate feasibility and attractiveness from multiple perspectives. | • OPG's approach was consistent with leading practices. |
|                                                        | • Decision makers consulted individuals at all seniority levels.                                                                  | • OPG's approach was consistent with leading practices. |

## Process elements used for developing the ETS – stakeholder consultations

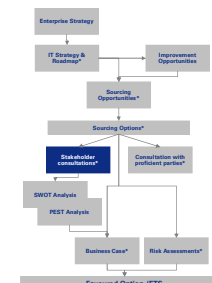
OPG was consistent with leading practices in conducting stakeholder consultations.

### Description:

- Stakeholder consultations create an opportunity to achieve relative or absolute improvements in sourcing. To achieve complete visibility in to improvement opportunities, it is advantageous to include representation from the stakeholder groups (historical and potential) most impacted by sourcing arrangements.

### Source and Details:

- Details related to stakeholder consultations were contained in presentations to the Steering Committee, IT Council and Working Group, Charter document, Meeting Minutes, and several other sources.



| Stakeholder Consultations                                                               |                                                                                                                                                                                         |                                                                                                         |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Leading Practices in ETS development                                                    | Findings                                                                                                                                                                                | KPMG's Point of View                                                                                    |
| Involve stakeholders presently impacted by sourcing arrangement                         | <ul style="list-style-type: none"> <li>Created numerous groups for consultation.</li> </ul>                                                                                             | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Involve stakeholders potentially impacted by future sourcing arrangement                | <ul style="list-style-type: none"> <li>Created cross-sectional group with representation across business lines and functions.</li> </ul>                                                | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Seek external, independent expertise to facilitate and educate the consultation process | <ul style="list-style-type: none"> <li>Engaged external parties for independent consultation of sourcing opportunities.</li> </ul>                                                      | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Create common language for discussing sourcing                                          | <ul style="list-style-type: none"> <li>Created a service catalogue, which focuses discussions on services and the associated metrics.</li> </ul>                                        | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Evaluate stakeholder preferences on behalf of the broader stakeholder community         | <ul style="list-style-type: none"> <li>Consideration made for relevant stakeholders, including regulator, public and unions.</li> </ul>                                                 | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Cross-functional, senior approval for major deliverables and decision making            | <ul style="list-style-type: none"> <li>Approval for major deliverables (e.g. business case recommendation, board approval) required sign-off from all involved stakeholders.</li> </ul> | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |

## Process elements used for developing the ETS – consultations with proficient parties

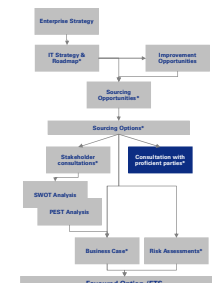
OPG was consistent with leading practices in conducting consultations with proficient parties.

### Description:

- Proficient parties are those who have experience, expertise or knowledge of the process for building an ETS and in the decisions associated with the process steps. This consultation provides an opportunity for leveraging expertise for a specific service or task as well validating process outcomes.

### Source and Details:

- Documentation relating to the various external assessments and reports provided by independent consulting firms and individuals.
- Peer evaluations include site visits and discussions.



### Consultations with Proficient Parties

| Leading Practices in ETS development                                                           | Findings                                                                                                                                                             | KPMG Point of View                                                                                      |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Consult external organization to provide insight on outsourcing leading practices</b>       | <ul style="list-style-type: none"> <li>Consultations with outsourcing exemplars in Canada, USA and UK.</li> </ul>                                                    | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| <b>Consult external organization to provide insight on outsourcing with potential provider</b> | <ul style="list-style-type: none"> <li>Consultations / research on local outsourcing arrangement with client of potential provider.</li> </ul>                       | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| <b>Seek external, independent expertise</b>                                                    | <ul style="list-style-type: none"> <li>Retention of external party services for independent consultation.</li> </ul>                                                 | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
|                                                                                                | <ul style="list-style-type: none"> <li>External, independent expertise were used throughout the process for validation and verification type assessments.</li> </ul> | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |

## Process elements used for developing the ETS – SWOT & PEST

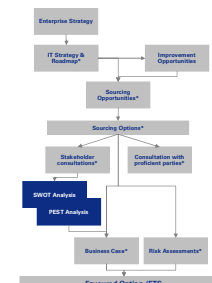
While not using the exact acronyms, OPG was consistent with leading practices in conducting SWOT and PEST analyses.

### Description:

- Strength, Weakness, Opportunities and Threat (SWOT) analysis provide a framework for identifying key factors that may or should influence the ETS.
- Political, Economical, Socio-cultural and Technological (PEST) analysis provide a framework to assess various macro level factors that are typical inputs into developing an ETS.

### Source and Details:

- OPG improvement opportunities analysis
- OPG's contract post mortem process



### SWOT & PEST

| Leading Practices in ETS development | Findings                                                                                                                                                                                          | KPMG Point of View                                                                                                                                                         |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Evaluate enterprise SWOT</b>      | <ul style="list-style-type: none"> <li>● Post mortem review of existing contracts (weaknesses and threats).</li> <li>● Development of improvement (strengths and opportunities).</li> </ul>       | <ul style="list-style-type: none"> <li>● OPG's approach was consistent with leading practices.</li> <li>● OPG's approach was consistent with leading practices.</li> </ul> |
| <b>Evaluate enterprise PEST</b>      | <ul style="list-style-type: none"> <li>● Conducted risk assessments, using two external parties, addressing political, environmental, socio-cultural and technological considerations.</li> </ul> | <ul style="list-style-type: none"> <li>● OPG's approach was consistent with leading practices.</li> </ul>                                                                  |

## Process elements used for developing the ETS – risk assessments

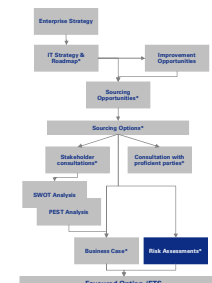
OPG was consistent with leading practices in conducting risk assessments.

### Description:

- Risk assessments are used to identify, qualify and quantify risks associated to the options (and opportunities therein) being considered.

### Source and Details:

- OPG's project risk register, project charter
- Two Independent risk assessments



| Risk Assessments                                                                                          |                                                                                              |                                                         |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Leading Practices in ETS development                                                                      | Findings                                                                                     | KPMG Point of View                                      |
| <b>Development of a risk register, which catalogs risks and assigns to each an impact and probability</b> | ● Risk assessment performed collaboratively.                                                 | ● OPG's approach was consistent with leading practices. |
| <b>Assignment of specific risk mitigation responsibility to individuals</b>                               | ● Documented in risk registry.                                                               | ● OPG's approach was consistent with leading practices. |
| <b>Risk assessment of the sourcing options</b>                                                            | ● Assessment of the viability of the sourcing alternatives based on four categories of risk. | ● OPG's approach was consistent with leading practices. |

## Process elements used for developing the ETS – business case

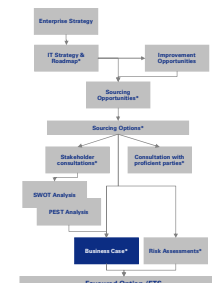
OPG was consistent with leading practices in constructing a business case.

### Description:

- The purpose of a business case is to capture and compare alternatives for initiating a project or task. It will also include supporting documentation and analysis such as a risk assessment, financial justification and approval requirements.

### Source and Details:

- OPG's ETS business case (approved)



| Business case                                                              |                                                                                                                                          |                                                                                                         |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Leading Practices in ETS development                                       | Findings                                                                                                                                 | KPMG Point of View                                                                                      |
| Business case models all feasible sourcing options                         | <ul style="list-style-type: none"> <li>Business case modeled all feasible sourcing options.</li> </ul>                                   | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Business case values are traceable to the business objectives              | <ul style="list-style-type: none"> <li>Business case values were traceable to the business objectives.</li> </ul>                        | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Business case documents and explains assumptions                           | <ul style="list-style-type: none"> <li>Business case documented and explained assumptions.</li> </ul>                                    | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Business case provides or links to quantitative calculations               | <ul style="list-style-type: none"> <li>Business case referenced source documents of quantitative calculations.</li> </ul>                | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Consideration of qualitative factors                                       | <ul style="list-style-type: none"> <li>Qualitative analysis of key considerations that were difficult/impossible to quantify.</li> </ul> | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Business case uses standard quantities to evaluate among competing options | <ul style="list-style-type: none"> <li>Business case consistently used net present value for option costing.</li> </ul>                  | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Business case highlights the risks associated with each option             | <ul style="list-style-type: none"> <li>Business case highlighted the risk associated with each option.</li> </ul>                        | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |
| Business approval is granted by a cross-section of senior executives       | <ul style="list-style-type: none"> <li>Business approval was granted by a cross-section of senior executives.</li> </ul>                 | <ul style="list-style-type: none"> <li>OPG's approach was consistent with leading practices.</li> </ul> |

## Process elements used for developing the ETS – sourcing option / ETS

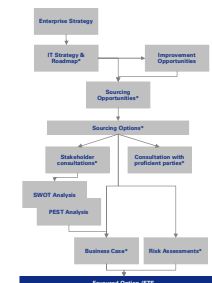
OPG was consistent with leading practices in favouring a sourcing option.

### Description:

- An ETS outlines a favoured sourcing option and a plan of execution. It is based on the assumption that a business case has been approved or a favourable sourcing option has been selected.

### Source and Details:

- Independent assessments
- OPG's approved business case

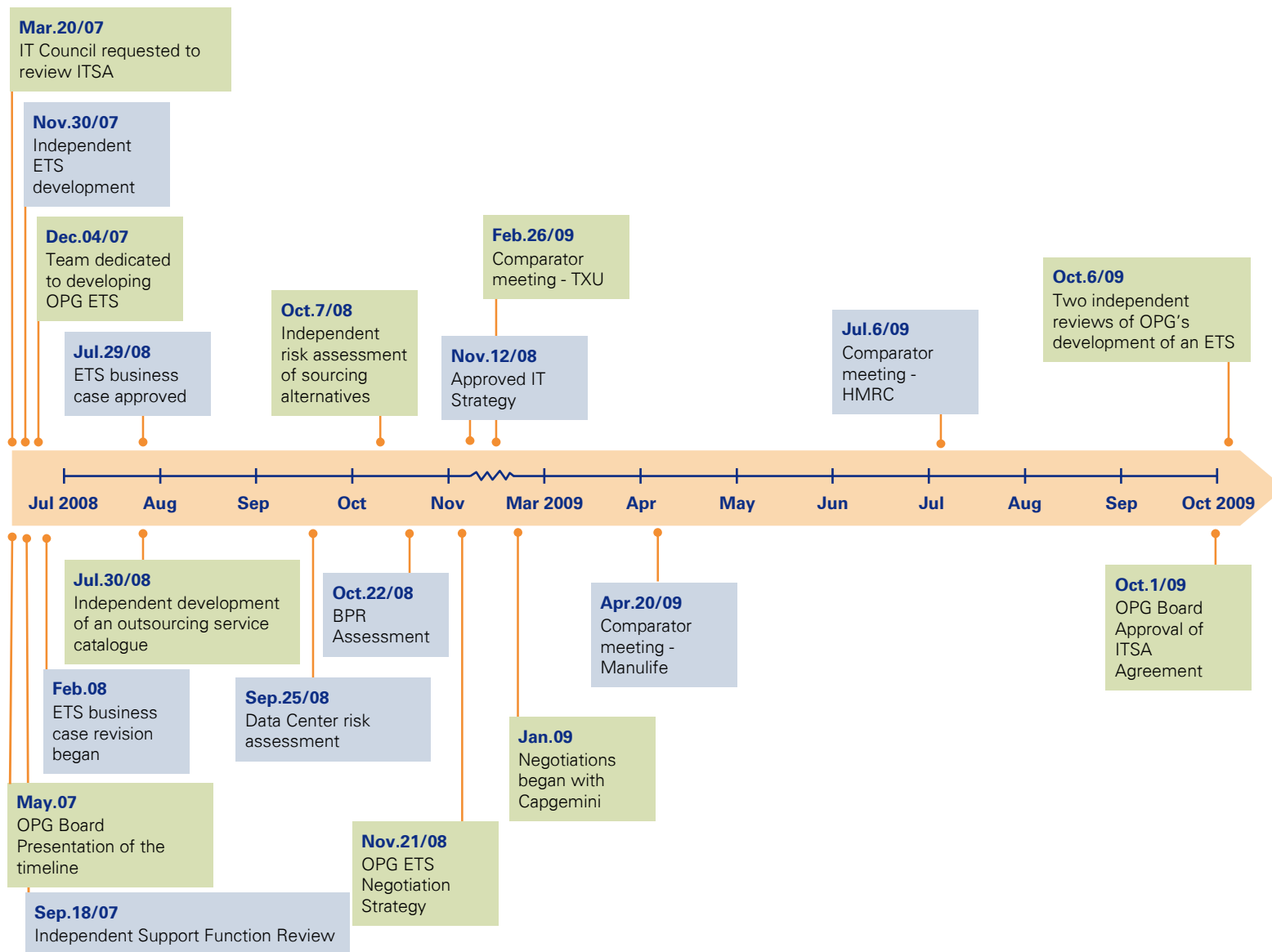


| Sourcing Option / ETS                                                 |                                                                                                                                                              |                                                                                                           |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Leading Practices in ETS development                                  | Findings                                                                                                                                                     | KPMG Point of View                                                                                        |
| <b>Commitment of key stakeholders in favouring the option</b>         | <ul style="list-style-type: none"> <li>• ETS was endorsed by the Board of Directors, IT Council, Steering Committee and several other OPG groups.</li> </ul> | <ul style="list-style-type: none"> <li>• OPG's approach was consistent with leading practices.</li> </ul> |
| <b>Concurrence of the option's favourability by an external party</b> | <ul style="list-style-type: none"> <li>• Third party concurrence was documented.</li> </ul>                                                                  | <ul style="list-style-type: none"> <li>• OPG's approach was consistent with leading practices.</li> </ul> |
| <b>Validation of sourcing option with potential provider</b>          | <ul style="list-style-type: none"> <li>• Validation was made with the potential provider who committed to a negotiation timeline.</li> </ul>                 | <ul style="list-style-type: none"> <li>• OPG's approach was consistent with leading practices.</li> </ul> |
| <b>Alternate sourcing option identified and validated</b>             | <ul style="list-style-type: none"> <li>• Contingency plans had been documented in the event a satisfactory contract could not be achieved.</li> </ul>        | <ul style="list-style-type: none"> <li>• OPG's approach was consistent with leading practices.</li> </ul> |

## Supporting analysis to key findings

# Major activities OPG conducted for the development of their ETS

The timeline of major activities that OPG undertook as part of the development of their ETS are depicted below in chronological order.



# Appendix



## Appendix

### 1. Reference material

**Our findings and the contents of this report are based on the documents reviewed and interviews listed to the right.**

#### Documentation reviewed

- Scan of Boguski Letter to Bonner 20081128.pdf
- Everest\_OPG Negotiation Strategy\_FINAL\_20081121.ppt
- Everest OPG ITO End of Term Strategy\_vFINAL 2007Dec12.ppt
- ETS Business Case Summary Final 20081127 1422.doc
- ETS Business Case Summary - Attachments Final 20081127 1431.doc
- End of Term Charter V09 20080729-3 FINAL.doc
- Contract End of Term - Steering Committee #1 20070822.ppt
- Board Recommendation Cover - 2009 ITSA 20090921 (final).doc
- Appendix 2 - Resolution 20090921 (final).doc
- Appendix 1 - Key Provisions 20090921 (final).doc
- 4.2 Status Update - IT Outsourcing Contract End-of-Term - V1.doc
- 3.1 OPG IT Outsourcing Contract End of Term Status Update 20.ppt
- 3.1 OPG IT Outsourcing Agreements End of Term Status Update .ppt
- 2009 ITSA Approval - Background and Strategy 20090921 (final).doc
- 2.2 OPG IT Outsourcing Contract End of Term - Final.ppt
- 2.1 OPG IT Outsourcing Contract End of Term Recommendation - .ppt
- IT Council Briefing 20090417 - SM Speaking Notes v3.doc
- ITC Action 6.2 Update - OPG IT Outsourcing Contract End of T.ppt
- Project Cygnus - EC Capgemini Update 20080306 Final.ppt
- Project Cygnus - Steering Committee #2 20080220 - Final (wit.ppt
- Working Team (status meeting minutes)
- IT ETS Risk Register Oct. 31 INCLUDING LR SM.xls
- 5 Year Information Technology Strategy R00 Final November 12 2008 rev 2 - EXTERNAL.pdf
- Draft New ITSA-MB1.doc
- DeltaViewMB1.doc

#### Interviews conducted by KPMG with OPG personnel

- Rob Boguski, Vice President, Business Services & Information Technology – 0.5hr, 2009/10/07
- Stephen Mills, Director – Strategic Partnerships, Business Services & IT – 0.5hr, 2009/10/08
- Gwen Keene, Business Manager, Corporate Supply Chain - BS&IT – 0.5hr, 2009/10/08
- Mike Borsch, Director IT Services – 0.5hr, 2009/10/08

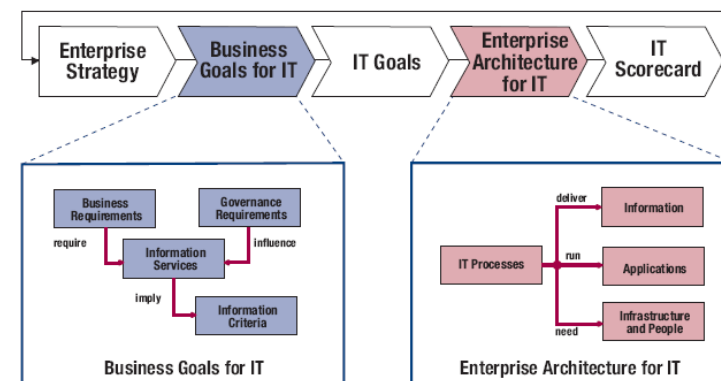
## Appendix

# 2. Industry leading practices

COBIT is one of several frameworks used in KPMG's consideration toward leading practices.

Further to KPMG's experience and knowledge in developing an end of term strategy, and more broadly a sourcing strategy, other industry leading practices confirm this approach.

- Control Objectives for Information and Related Technology (CobIT) is a well recognized framework for assessing IT performance and controls. To further demonstrate the importance of industry practices in developing a strategy CobIT highlights the importance and linkage between an organizations enterprise (or business) goals and IT, as depicted to the left. Further detail of the specific control is CobIT Domain Plan and Organise (PO), control 1.2 Business IT-Alignment.
- The Software Engineering Institute (SEI), also has a well recognized industry practice for assessing maturity and has published a sourcing maturity model – The eSourcing Capability Model for Client Organizations. Within the document it defines five practices to developing a sourcing strategy. They include:
  - Str01, Sourcing Sponsorship, Establish management sponsorship for sourcing
  - Str02, Sourcing Constraints, Identify the constraints that impact the client organization's potential uses of sourcing
  - Str03, Potential Sourcing Areas, Decide to what extent sourcing may be relevant to the client organization
  - Str04, Sourcing Objectives, Define, align, and document sourcing objectives
  - Str05, Organizational Sourcing Strategy, Define, communicate, and maintain the sourcing strategy of the client organization



Source: [Control Objectives for Information and Related Technology version 4.1]

### 3. Interview questions

#### Outsourcing Renewal Strategy (ETS)

- How was the ETS aligned to your corporate strategy?
  - What inputs used in developing the ETS?
  - What objectives did these inputs provide in the development of the ETS (e.g. cost reduction, service definition)?
- What changes have occurred at OPG that impacted the ETS?
- What changes have occurred at Capgemini / NHSS that impacted the ETS (e.g. ownership structure/incentives, risks, capabilities/technology, cost structure, other)?
- What non-financial and non-technical considerations impacted the development of OPG's ETS (e.g. cultural, political)?
- What length of contract is desirable and why?

#### Process

- Have services / positions been evaluated since the last contract as strategic or not (e.g. core competencies of OPG)?
- In the process that was undertaken, who was involved at OPG?
  - What question set was posed? (General or specific to service provision)
- What were the findings from the ETS development process (e.g. leading practices, improvement opportunities)? Did any themes emerge?
- How was it determined that the ETS process was exhaustive in breadth (e.g. explore alternate options)?
- How was it determined that the ETS process was exhaustive in depth (e.g. quantitative and qualitative depth of explorations)?

#### Contract Post Mortem

- In the previous contract, what were the identified pain-points relating to:
  - Costs (particularly unbudgeted/unexpected costs)
  - Quality
  - Scope
  - Timing
  - Service Performance
  - Flexibility
  - Constraints / Limitations
- What measures were taken to compensate for the aforementioned pain-points?
- How successful were you in achieving the IT effectiveness and efficiency sought?
  - Performance measurement
  - Performance
  - Cost
  - Operational transparency
  - Continuous improvement
- Of the aforementioned, what measures were designed into the ETS?

#### Leading Practices

- What other sources were consulted/referenced in the ETS process? (e.g. alternate providers, independent consultants, peers)
- How did you determine the leading practices
- Have leading IT practices factored into ETS development (e.g. benchmarking)

## Appendix

### 4. Glossary of acronyms

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**CobIT – Control Objectives for Information and related Technology**

**DP – Decision Point**

**ETS – End-of-Term Strategy**

**IT – Information Technology**

**ITSA - Information Technology Services Agreement**

**NHSS – New Horizon System Solutions**

**OPG – Ontario Power Generation**

**PEST – Political, Economical, Socio-cultural, Technological**

**PO – Plan & Organize (a CobIT term)**

**SEI – Software Engineering Institute**

**SWOT – Strengths, Weaknesses, Opportunities, Threats**

**UK – United Kingdom**

**USA – United States of America**

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**UNDERTAKING JT2.40**

**Undertaking**

To add a "total" column to the table in response to board staff interrogatory 124, removes the "2007" column, and cross-add from 2008 to 2015 to the "total" column.

**Response**

A modified version of Ex. L-6.8-1 Staff-124, Chart 1 is provided below. In addition to removing the "2007 column" and incorporating the requested "total" column, the modified chart also reflects the updated forecast of 2014 - 2015 pension and OPEB costs presented in Ex. L-6.8-1 Staff-112.

In the EB-2010-0008 Decision With Reasons (page 91), the OEB approved the continued use of the accrual method for determining supplementary pension plan ("SPP") and other post retirement benefit ("OPRB") costs in setting OPG's payment amounts. The circumstances with respect to OPG's SPP and OPRB costs and their recovery have not changed since EB-2010-0008.

On an accrual basis, SPP and OPRB costs are incurred and recognized in accordance with generally accepted accounting principles when the related employee service is considered to be rendered and the benefit is considered to be earned, not when the actual benefit payments are made to retirees in the future. It is the earning of the benefit which results in the cost. Reflecting these costs in payment amounts at the time the costs arise results in an appropriate matching of costs and benefits, thereby avoiding intergenerational equity issues as consistent with generally accepted regulatory principles.

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**Modified Chart 1  
OPRB and SPP Amounts<sup>1</sup>**

| \$M                                                                             | 2008<br>Actual <sup>2</sup> | 2009<br>Actual | 2010<br>Actual     | 2011<br>Actual     | 2012<br>Actual | 2013<br>Actual | 2014<br>Plan | 2015<br>Plan | Total   |
|---------------------------------------------------------------------------------|-----------------------------|----------------|--------------------|--------------------|----------------|----------------|--------------|--------------|---------|
| <b>Actual/Projected<br/>Costs</b>                                               | 157.9                       | 120.4          | 136.1              | 175.6              | 203.0          | 231.3          | 184.6        | 192.9        | 1,401.7 |
| <b>Recoverable<br/>Costs</b>                                                    | 114.0                       | 155.3          | 153.9 <sup>3</sup> | 172.0 <sup>4</sup> | 203.0          | 231.3          | 184.6        | 192.9        | 1,407.0 |
| <b>Actual/Projected<br/>Benefit<br/>Payments</b>                                | 44.2                        | 43.1           | 43.4               | 48.4               | 57.9           | 61.2           | 64.9         | 71.3         | 434.4   |
| <b>Recoverable<br/>Costs Less<br/>Actual/Projected<br/>Benefit<br/>Payments</b> | 69.8                        | 112.2          | 110.5              | 123.6              | 145.1          | 170.1          | 119.7        | 121.6        | 972.6   |

4

<sup>1</sup> Amounts for 2008-2013 exclude those for the newly regulated hydroelectric assets; amounts for 2014 and 2015 include them. Amounts for all years do not include those related to the Nuclear Waste Management Organization.

<sup>2</sup> Amount for recoverable costs represents 9/12 of the annual amount, as the EB-2007-0905 payment amounts came into effect on April 1, 2008. Amounts for actual costs and benefit payments are for the full year.

<sup>3</sup> Represents 12/21 of the sum of 2008 and 2009 amounts, as the EB-2007-0905 payment amounts became effective April 1, 2008 and applied throughout 2010.

<sup>4</sup> Represents 2/21 of the sum of 2008 and 2009 amounts, plus 10/12 of the 2011 amount, as the EB-2010-0008 payment amounts were effective March 1, 2011