EB-2013-0321

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act 1998*, Schedule B to the *Energy Competition Act*, 1998, S.O. 1998, c.15;

AND IN THE MATTER OF an Application Ontario Power Generation Inc. for an order or orders approving payment amounts for prescribed generating facilities commencing January 1, 2014.

SCHOOL ENERGY COALITION CROSS-EXAMINATION COMPENDIUM
(Panel 4 – Nuclear)

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APPROVALS

Updated to reflect Dec 6, 2013 Impact Statement

In this Application, OPG is seeking the following specific approvals:

- The approval of a revenue requirement of $1,739.7M for the previously regulated hydroelectric facilities and a revenue requirement of $6,648.8M for the nuclear facilities for the period of January 1, 2014 through December 31, 2015 as set out in Ex. N1-1-1.

- The approval of an 18 month revenue requirement of $853.4M for the newly regulated hydroelectric facilities for the period of July 1, 2014 through December 31, 2015, calculated as one half of a 2014 revenue requirement of $555.2M plus a 2015 revenue requirement of $575.8M, as set out in Ex. N1-1-1.

- The approval of a rate base of $5,128.0M and $5,084.6M for the previously regulated hydroelectric facilities for the years 2014 and 2015, respectively; a rate base of $2,511.5M and $2,528.2M for the newly regulated hydroelectric facilities for the years 2014 and 2015, respectively; and $3,706.7M and $3,659.0M for the nuclear facilities for the years 2014 and 2015, respectively, as summarized in Ex. B1-1-1.

- Approval of a production forecast of 41.1 TWh for 2014 and 2015 for the previously regulated hydroelectric facilities, a production forecast of 17.9 TWh for July 1, 2014 to December 31, 2015 for the newly regulated hydroelectric facilities; and 95.1 TWh for 2014 and 2015 for the nuclear facilities. The production forecasts are presented in Ex. E1-1-1 and Ex. E2-1-1 and updated in Ex. N1-1-1.

- Approval of a deemed capital structure of 53 per cent debt and 47 per cent equity and a combined rate of return on rate base to be determined using data available for the three months prior to the effective date of the payment amounts order, in accordance

with the Board's Cost of Capital Report, and currently forecast at 8.98 per cent for 2014 and 2015, as presented in Ex. C1-1-1.

- Approval of a payment amount for the previously regulated hydroelectric facilities, of $42.31/MWh effective January 1, 2014 for the average hourly net energy production (MWh) from the previously regulated hydroelectric facilities in any given month (the "hourly volume") for each hour of that month. Production over the hourly volume will receive the market price from the Independent Electricity System Operator ("IESO")-administered energy market adjusted as described at Ex. E1-2-1. Where production from the previously regulated hydroelectric facilities is less than the hourly volume, OPG's revenues will be adjusted by the difference between the hourly volume and the actual net energy production at the market price from the IESO-administered market adjusted as described at Ex. E1-2-1. The calculation of the payment amount for the previously regulated hydroelectric facilities is set out in Ex. I1-2-1 as updated in Ex. N1-1-1.

- Approval of a payment amount for the newly regulated hydroelectric facilities, of $47.59/MWh effective July 1, 2014 for the average hourly net energy production (MWh) from the newly regulated facilities in any given month (the "hourly volume") for each hour of that month. Production over the hourly volume will receive the market price from the Independent Electricity System Operator ("IESO")-administered energy market adjusted as described at Ex. E1-2-1. Where production from the newly regulated hydroelectric facilities is less than the hourly volume, OPG's revenues will be adjusted by the difference between the hourly volume and the actual net energy production at the market price from the IESO-administered market adjusted as described at Ex. E1-2-1. The calculation of the payment amount for the newly regulated hydroelectric facilities is set out in Ex. I1-2-1 as updated in Ex. N1-1-1.

- Approval of a payment amount for the nuclear facilities, of $69.91/MWh effective January 1, 2014.

- Approval for recovery of the audited December 31, 2013 balances of the Hydroelectric Incentive Mechanism, Surplus Baseload Generation and Capacity Refurbishment-Hydroelectric variance accounts for the previously regulated hydroelectric facilities, currently projected to be $120.1M, as described in Ex. H1-1-2 and disposition, beginning January 1, 2015, at a rate of $2.99/MWh applied to the output from the previously regulated hydroelectric facilities.

- Approval for recovery of the audited December 31, 2013 balance of the Nuclear Development Variance Account and a portion of the balance of the Capacity Refurbishment Variance Account - Nuclear for the nuclear facilities, currently projected to be $73.1M as described in Ex. H1-2-1 and disposition, beginning January 1, 2015, at a rate of $1.59/MWh applied to the output from the nuclear facilities.

- Approval to establish, re-establish or continue variance and deferral accounts as follows:
    - A variance account to record the deviation from forecast revenues associated with differences in regulated hydroelectric electricity production due to differences between forecast and actual water conditions.
    - A variance account to record the deviation from forecast net revenues for ancillary services from the regulated hydroelectric facilities and the nuclear facilities.
    - A variance account to record the financial impact of foregone production at its regulated hydroelectric facilities due to surplus baseload generation.
    - A variance account to record interest and amortization of the accumulations up to year end 2013 of 50 per cent of the Hydroelectric Incentive Mechanism net revenues above amounts underpinning the EB-2010-0008 revenue requirement as a credit to ratepayers, proposed to be terminated December 31, 2015.
    - A variance account to record the deviation from forecast capital and non-

capital costs and firm financial commitments associated with work to increase the output of, refurbish or add operating capacity to a regulated facility.

- A variance account to record the deviation from forecast costs incurred and firm financial commitments made in the course of planning and preparation for the development of proposed new nuclear generation facilities.
- A deferral account to record the revenue requirement impact of any change in the nuclear decommissioning liability resulting from an approved reference plan as defined in the Ontario Nuclear Funds Agreement.
- A variance account to capture the tax impact of changes in tax rates, rules and assessments.
- A variance account to record the variance between the tax loss mitigation amount which underpins the EB-2007-0905 Payment Amounts Order and the tax loss amount resulting from the re-analysis of the prior period tax returns based on the OEB's directions in EB-2007-0905 Decision with Reasons as to the re-calculation of those tax losses, to be terminated December 31, 2014.
- A variance account to capture differences between forecast and actual costs and revenues related to the lease of the Bruce nuclear facilities and associated tax effects.
- A variance account to capture depreciation cost differences due to a revised service life, for accounting purposes, of the Pickering nuclear facility.
- A variance account to record the difference between forecast and actual pension and other post-employment benefit costs and associated tax effects related to the regulated hydroelectric and nuclear facilities.
- A deferral account to record the transition and implementation impacts associated with the adoption of the Generally Accepted Accounting Principle of the United States ("USGAAP"), to be terminated December 31, 2014.
- Variance accounts to record the over/under recovery amounts for the hydroelectric variance and deferral accounts and nuclear variance and deferral accounts, respectively.

Evidence supporting the continuation of existing variance and deferral accounts and the creation of new ones is provided in Ex. H1-3-1.

- In respect of the Darlington Refurbishment Project ("DRP") OPG seeks the following as described in Ex. D2-2-1:
    - A finding that OPG's commercial and contracting strategies for the DRP are reasonable;
    - A finding that the proposed capital expenditures of $837.4M in 2014 and $631.8M in 2015 are reasonable;
    - Approval of OM&A expenditures of $19.6M in 2014 and $18.2M in 2015 (Ex. F2-7-1);
    - Approval of in-service additions to rate base of $5.0M in 2012, $104.2M in 2013, $18.7M in 2014, and $209.4M in 2015 for new facilities and related 2014 and 2015 depreciation expense; and
    - Approval to recover the capital cost portion of the actual audited nuclear balance in the Capacity Refurbishment Variance Account as at December 31, 2013, currently projected at $3.7M.

- An order from the OEB declaring OPG's current payment amounts for previously regulated hydroelectric and nuclear facilities interim as of January 1, 2014, if the order or orders approving the payment amounts are not implemented by January 1, 2014.

- An order from the OEB declaring OPG's current payment amounts for the newly regulated hydroelectric facilities interim as of July 1, 2014, if the order or orders approving the payment amounts are not implemented by July 1, 2014.

Chart 2
Nuclear Deficiency, 2014-2015 Test Period
Updated to Reflect the Impact Statement (Ex. N1-1-1)

	($M)	**Notes** *(updated comments in Italic)*
EB-2010-0008 Approved Revenue Requirement	**5,251.5**	Ex. I1-1-1, Table 3 ***(no change)***
Decrease in Cost of Capital	(56.1)	Lower long-term debt costs and ROE ***(no change)***
Increase in the Allocation of Centrally Held Costs	468.0	Primarily due to an increase in pension and OPEB costs (Ex. F4-4-1) ***(increased Pension/OPEB Costs)***
Increase in Outage OM&A	177.5	Mainly due to the 2015 Vacuum Building Outage (Ex. F2-4-2) ***(no change)***
Increase in the Allocation of Support Services Costs	349.8	Due to the transfer of nuclear functions to centre-led corporate groups as part of BT, offset by similar reduction in nuclear costs (Ex. F3-1-2) ***(no change)***
Decrease in Base OM&A	(120.4)	Transfers of costs to corporate groups partially offset by labour cost escalation and higher pension and OPEB costs (Ex. F2-2-1) ***(no change)***
Increase in Depreciation & Amortization	70.5	Increase in Asset Retirement Cost due to ONFA (Ex. F4-1-1) ***(no change)***
Decrease in Bruce Lease Net Revenues	190.8	Increase in Bruce Costs is primarily due to ONFA (Ex. G2-2-1) ***(no change)***
Increase in Income Taxes	86.1	Higher regulatory taxable income is primarily due to pension and OPEB costs (Ex. F4-2-1, Table 5) ***(decreased due to higher Pension/OPEB Costs)***
Other	231.3	Includes the EB-2010-0008 compensation disallowance of $145M as well as differences in Fuel, Property Taxes, other OM&A Costs and Ancillary and Other Revenue ***(increase due to higher Pension/OPEB Costs offset by lower nuclear fuel costs)***
Total Change in Revenue Requirement	**1,397.3**	
Proposed Revenue Requirement for 2014 – 2015 Test Period	**6,648.8**	Ex. N1-1-1, Table 1
Revenue at Current Rates	**4,900.2**	Using forecast production levels for the test period ***(95.1 TWh) (lower forecast production)***
Revenue Requirement Deficiency	**1,748.6**	Ex. N1-1-1, Table 4

MS. SWAMI: Okay.

MR. CROCKER: On page 1 of the compendium I think we describe -- you describe what you are doing, and starting at line 5 toward the end you say:

> "Station-wide four-unit station VBO is required by the regulator every 12 years and a station containment outage and SCO every six years. An SCO also requires that four units be shut down but for shorter duration."

Stopping there, am I correct in assuming that the cost and the terawatt-hour impact of an SCO, a station containment outage, is less than the equivalent cost and terawatt-hour impact of a vacuum building outage?

MS. SWAMI: So if I can start maybe with the second part of your question, which is the terawatt-hour impact. And as we discussed this morning with Mr. Millar, the evidence here talks about the shorter duration of an SCO. I think that is what you are referring to. And when I talked about it this morning, when we actually looked at the scope for this particular outage that is planned in 2015 we recognized that the critical path for the outage was impacted by these two major components, if you will, or systems. That was the emergency water system and the emergency coolant injection system --

MR. CROCKER: Okay. Let me just --

MS. SWAMI: -- that drives the critical path.

MR. CROCKER: Okay. Let me just stop you there so that I understand. That is what you've described yesterday

in the transcript, and I am looking at the very bottom of page 92 of the transcript at line 28, the "lifestyle management plan".

MS. SWAMI: I am sorry, if it's reported --

MR. CROCKER: I'm sorry, "life cycle".

MS. SWAMI: -- as "lifestyle", it's --

MR. CROCKER: Sorry, "life cycle".

MS. SWAMI: -- actually "life cycle".

[Laughter]

MR. CROCKER: Your life cycle, my lifestyle.

MS. SWAMI: Perhaps.

MR. CROCKER: Yes, life -- sorry, life cycle.

MS. SWAMI: Yes, that's --

MR. CROCKER: Correct?

MS. SWAMI: -- correct. So when we do a life-cycle management plan, that's -- what we do from an engineering perspective is we would do inspections to look at what the remaining life on a particular component could be, and this major work that we are talking about in this outage is this piping replacement. I talked about that this morning with the buried piping.

Through an inspection program we realized we need to replace that, and this is the opportunity do that, and it needs to be done. So it's not -- it's done during this window, because the configuration of the plant must be in the shutdown state in order to execute that work, so that's why it's in this outage, and this's what's driving the schedule, and that's what's driving the change in the

production.

MR. CROCKER: Okay. I understand that. And I understood that from your evidence this morning as well.

MS. SWAMI: Yes.

MR. CROCKER: But I still want to go back to see whether I could break this up and to unbundle this a little bit and break it into bits and pieces so we can understand the implications of moving this forward a bit more.

Just to answer my question, under different -- if you were just doing a VBO and an SCO, the SCO would be -- the station containment outage would be shorter and less impact on terawatt-hours than a vacuum building outage, wouldn't it?

MS. SWAMI: So I have tried to answer that question by saying the scope of work, whether you call it a station containment outage or whether you call it a vacuum building outage, the critical path and your work on the critical path defines how long the outage is, so if the SCO -- I'm sorry, the station containment outage was the only thing we were doing in 2015, the length of the outage would remain the same. This is just because we have to do this critical path work.

MR. CROCKER: The length of the 2015 outage would stay the same, is what you are saying to me?

MS. SWAMI: That's correct.

MR. CROCKER: Okay. Assume for the moment for the purpose of my question, and whether it's -- whether ultimately it's of any value or not, we can determine after

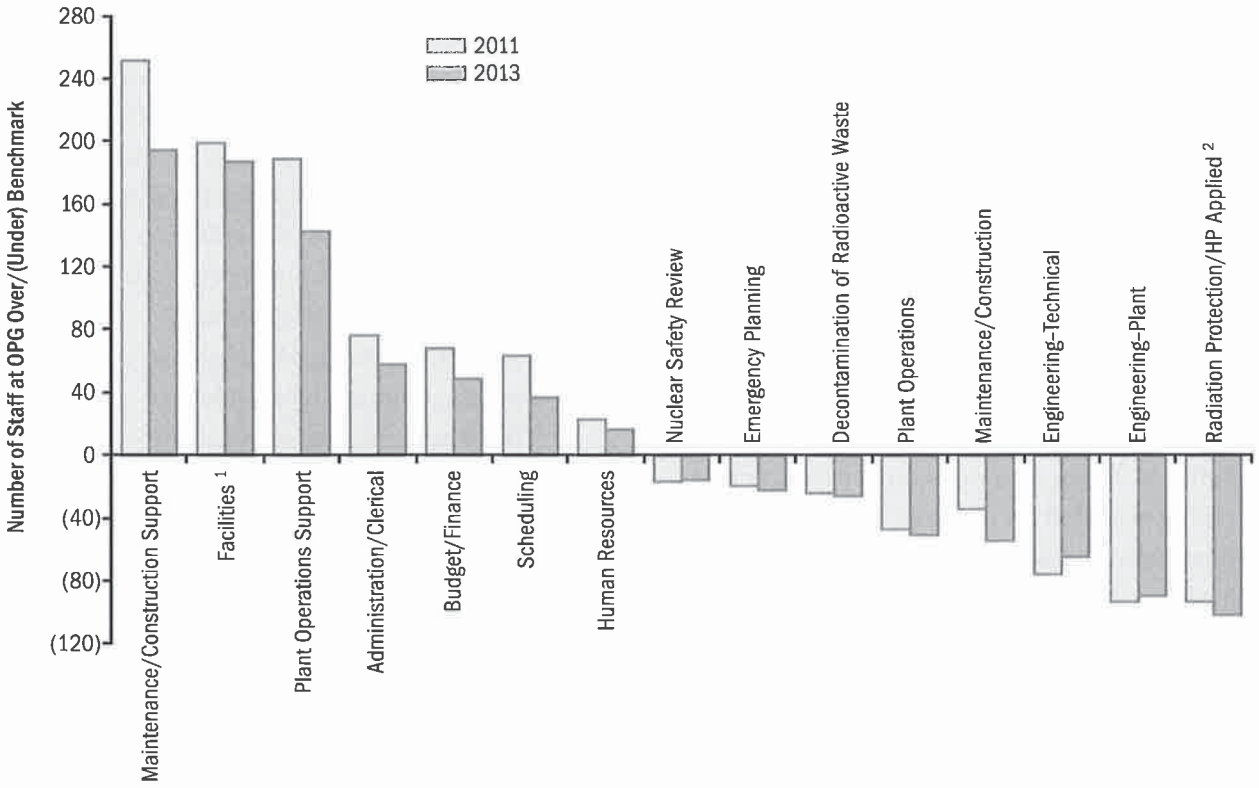
Benchmarking of Staffing Levels at Nuclear Facilities

OPG has been under increasing scrutiny from the OEB to demonstrate that its operations are in line with those of other nuclear stations across Canada and in the United States. In its March 2011 decision, the OEB directed OPG to submit in its next rate application a study comparing staffing levels at its nuclear facilities with industry benchmark data from other nuclear operators in North America.

OPG engaged a consultant who produced two reports for OPG's management to measure and report on whether OPG's nuclear staffing level was in line with comparable organizations. The first, issued in February 2012, noted that OPG's nuclear staffing level was 17% (or 866 employees) higher than the benchmark in 2011, with 23 overstaffed areas and 14 understaffed areas. OPG informed us that it has since adjusted its staff reduction target to address the imbalances. In the second report, issued on the last day of our audit fieldwork in April 2013, the consultant found that OPG's nuclear staffing level was 8% (or 430 employees) above the benchmark, with 23 overstaffed areas and 16 understaffed areas.

Figure 5 shows selected functional areas identified as over- or understaffed in the two studies. Both benchmarking studies found that the overstaffed areas related mainly to support functions (for example, general maintenance, administrative support and human resources) while the understaffed areas related mainly to operational functions (for example, maintenance/construction, plant operations, engineering, emergency planning and safety). We noted that several operational functions were understaffed while their

Figure 5: Selected Areas Identified as Overstaffed/Understaffed at OPG by Nuclear Benchmarking Studies
Source of data: Ontario Power Generation



1. "Facilities" refers to general maintenance and custodial services, such as cleaning and changing light bulbs.
2. "HP" is an acronym for health physics, the physics of radiation protection.

CME Interrogatory #001

Ref: 2013 Annual Report of the Office of the Auditor General of Ontario (December **10,** 2013)

Issue Number: 1.0
Issue: General

Interrogatory

CME wishes to better understand the process undertaken by OPG following the release of the Annual Report of the Office of the Auditor General of Ontario on December 10, 2013. To this end:

(a) Please provide all presentations, PowerPoint slides, briefing notes, or other written memoranda prepared by OPG for OPG's Board of Directors relating to that Report of the Auditor General; and

(b) Please provide all written questions, comments or directions provided by OPG's Board of Directors to OPG relating to that Report of the Auditor General.

Response

Attachment 1 summarizes OPG's ongoing actions in response to the Auditor General's Report.

The Auditor General's Report was issued months after OPG filed its Application and after the filing of OPG's Impact Statement.

Therefore, any attempt to link the potential outcomes from these responsive actions to changes in OPG's 2014 -2015 costs would be speculative at this point. Many of the actions are still being developed. Moreover, full implementation of these actions would require changes in OPG's collective agreements. Even for non-represented employees, notice may be required before the most significant changes could be made. Thus, OPG declines to produce the requested materials on grounds of relevance.

ONTARIO POWER GENERATION

Backgrounder
from Ontario Power Generation

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Dec. 10, 2013

OPG SUMMARY OF KEY ACTIONS
2013 AUDITOR GENERAL REPORT ON HUMAN RESOURCES POLICIES

The Auditor General's report covers a 10-year time period. In some cases the report highlights areas which OPG already had identified and has since addressed, or is currently addressing. In other areas it provides insights into issues the company will act upon and will report back openly and quickly.

In 2010 OPG initiated a business transformation to address culture and process change to ensure OPG meets the expectations and needs of the ratepayers. Since December 2012 the number of senior managers has gone down by six per cent, and since 2010, there's been a nine per cent drop in total base salary costs for management. We will also save an estimated $1 billion over six years (2011-2016) by reducing the overall headcount, from ongoing operations, by 2,330 or 20 per cent of 2011 levels. The departure of 1,500 people since January 2011 has already saved $275 million.

We are continuing that transformation, which was recognized by KPMG as the right way to address the needed change. The Ministry of Energy engaged KPMG to assess OPG's existing benchmark studies and to identify organization and structural opportunities for cost savings. KPMG's report validated OPG's business transformation initiative and its objectives.

"KPMG believes that OPG has employed a systematic and structured approach to developing a company-wide transformation plan. OPG has incorporated many leading practices for implementing a large business transformation such as assigning dedicated staff to implement the transformation, establishing a program management office, incorporating change management with a focus on cultural change and incorporating business transformation milestones into executive performance plans." KPMG Dec. 6, 2012.

The following is a summary of key actions OPG is taking (or has taken) to address the findings. A more detailed list of actions will be posted on our website later this week. In the coming weeks and months it will be updated to show our progress.

ACTIONS – PLANNED AND UNDERWAY	***PLANNED COMPLETION DATE***
Executive and Senior Management Staffing Levels	
• Decrease senior management headcount in proportion to overall headcount reductions. (Reduced by 6% since Dec. 2012).	2016
• New senior executives continue to receive lower	Ongoing

compensation than their predecessors. Hiring of all director and above positions will require CEO approval. • Reduce headcount by a further 830, for a total reduction of 2,330 and $1B savings by 2016.	2016
Benchmarking of Staffing Levels at Nuclear Facilities • Business plans to define continuing actions to move from current 8% over benchmark to benchmark (down from 17% over in Feb. 2012). • CNSC and other external peer groups confirm OPG continues to ensure strong nuclear safety and operational performance.	2016 Ongoing
Recruitment Practices and Requirements • Centralized recruitment function to improve controls, compliance and efficiency of hiring processes. • Amend Code of Conduct to clarify expectation regarding hiring policies. Failure to follow policy will result in disciplinary action. • Conduct compliance reviews for internal/external vacancies. • 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).	Complete Q1 2014 Ongoing Complete
Compensation and Incentive Awards • Implement outcomes of government legislation to regarding broader public sector executive compensation. • Reduce headcount by additional 830 for total reduction of 2,330 and $1B savings by 2016 (already achieved 1,500 reduction since Jan. 2011); • Reduce all management AIP for 2013 by 10%. Board to review AIP program for 2014 and beyond. • Continue to seek collective agreements that reflect OPG business objectives and government compensation constraints. • Reduced base salary costs for management by 9%	Contingent on government legislation 2016 Q1 2014 Ongoing Completed. Further reductions ongoing.

compared to 2010.	
Employee Housing and Moving Allowance • Adopt Ontario Public Service Relocation policy for management employees. • Conduct review of practices and controls related to employee relocation, including a review of practices for guarantee house values. • Review OPS relocation policy against collective agreements to determine what if any changes are required.	Q1 2014 Q1 2014 Coterminous with collective bargaining
Security Clearance Requirements • Review security clearance requirements for non-nuclear employees to ensure appropriate levels in place. • Implement enhanced compliance monitoring method. • Implemented controls to ensure immediate security clearance compliance for new hires and ongoing compliance for existing employees. • 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. All board members at the time of the AG audit now have security clearance.	Q1 2014 Q3 2014 Complete
Pensions and Benefits • Begin implementation of Board directed management pension and benefits reforms. • Participate in Province's review of electricity sector pension plan reforms. • Any changes to pension and benefits for unionized staff will be a matter for future rounds of collective bargaining.	Q1 2014 TBC – dependent on Ministry of Finance Coterminous with collective bargaining
Managing Contractors and Overtime • Conduct comprehensive assessment of contractor control framework, including contract structures, time capture and approval processes and tools. • Implement time tracking system for contractors at nuclear sites.	Q2 2014 Q1 2014

• Implemented enhanced management approvals and controls to limit individual overtime in Nuclear.	Completed
Use of Non Regular Staff and Contract Resources • Strengthen business case requirements and approvals for hiring retirees as contractors.	Q2 2014
• Strengthen succession planning and develop knowledge transfer plans for critical roles.	Q4 2014

For more information, please contact:

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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."

ACTIONS - PLANNED AND UNDERWAY	Planned Completion Date	Actions in Response to AG Report	Associated Cost Savings
Executive and Senior Management Staffing Levels			
• Decrease senior management headcount in proportion to overall headcount reductions. (Reduced by 6% since Dec. 2012).	2016		
• New senior executives continue to receive lower compensation than their predecessors;	Ongoing		
Hiring of all director and above positions will require CEO approval.	Ongoing	✓	N/A
• Reduce headcount by a further 830, for a total reduction of 2,330 and $1B savings by 2016.	2016		
Benchmarking of Staffing Levels at Nuclear Facilities			
• Business plans to define continuing actions to move from current 8% over benchmark to benchmark (down from 17% over in Feb. 2012).	2016		
• CNSC and other external peer groups confirm OPG continues to ensure strong nuclear safety and operational performance.	Ongoing		
• **NEW:** Update benchmarking results to measure against changes relative to industry.	Q4 2014	✓	N/A
• **NEW:** Staffing level imbalances in Nuclear will be addressed through business transformation, business planning, redeployment and expected attrition.	2015/16	✓	No estimate available

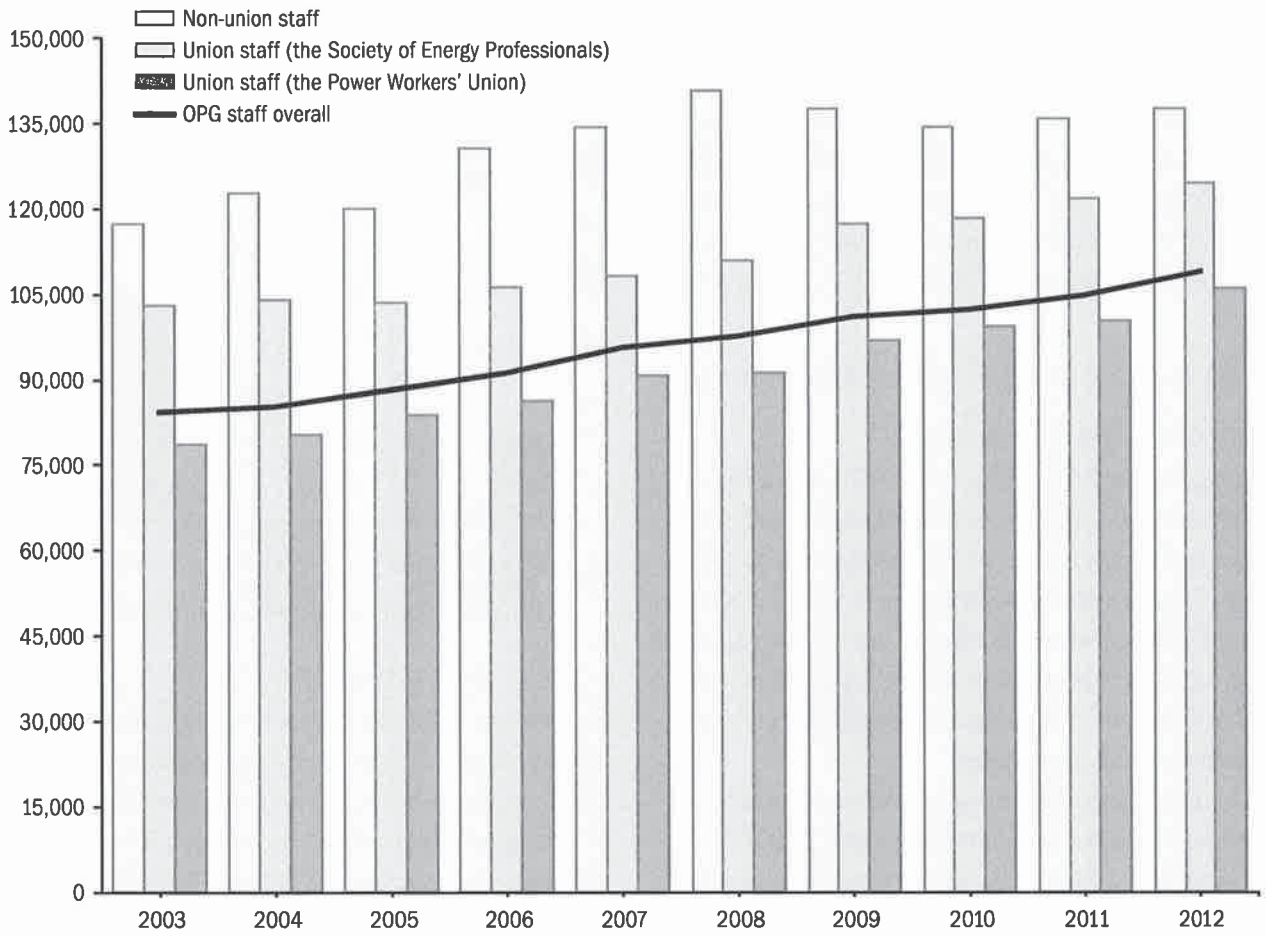
Recruitment Practices and Requirements			
• Centralized recruitment function to improve controls, compliance and efficiency of hiring processes.	Complete		
• Amend Code of Conduct to clarify expectation regarding hiring policies. Failure to follow policy will result in disciplinary action.	Q1 2014		
• Conduct compliance reviews for internal/external vacancies.	Ongoing	✓	N/A
• 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.)	Complete	✓	N/A
Compensation and Incentive Awards			
• Implement outcomes of government legislation to regarding broader public sector executive compensation.	Contingent on government legislation		
• Reduce headcount by additional 830 for total reduction of 2,330 and $1B savings by 2016 (already achieved 1,500 reduction since Jan. 2011);	2016		
• Reduce all management AIP for 2013 by 10%. Board to review AIP program for 2014 and beyond	Q1 2014	✓	$2.7M due to 2013 reduction
• Continue to seek collective agreements that reflect OPG business objectives and government compensation constraints.	Ongoing		
• Reduced base salary costs for management by 9% compared to 2010.	Completed. Further reductions ongoing		
• **NEW:** Management staff mandated to enter performance objectives into the electronic system that allows for compliance monitoring.	Completed	✓	N/A

Employee Housing and Moving Allowance			
• Adopt Ontario Public Service Relocation policy for management employees.	Q1 2014	✓	No estimate available
• Conduct review of practices and controls related to employee relocation, including a review of practices for guarantee house values.	Q1 2014	✓	N/A
• Review OPS relocation policy against collective agreements to determine what if any changes are required.	Coterminous with collective bargaining	✓	N/A
Security Clearance Requirements			
• Review security clearance requirements for non-nuclear employees to ensure appropriate levels in place.	Q1 2014		
• Implement enhanced compliance monitoring method.	Q3 2014	✓	N/A
• Implemented controls to ensure immediate security clearance compliance for new hires and ongoing compliance for existing employees.	Complete	✓	
• 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.	Complete		
• All board members at the time of the AG audit now have security clearance.	Complete	✓	
Pensions and Benefits			
• Begin implementation of Board directed management pension and benefits reforms.	Q1 2014		
• Participate in Province's review of electricity sector pension plan reforms.	TBC – dependent on Ministry of Finance		
• Any changes to pension and benefits for unionized staff will be a matter for future rounds of collective bargaining.	Coterminous with collective bargaining		

Managing Contractors and Staff Overtime • Conduct comprehensive assessment of contractor control framework, including contract structures, time capture and approval processes and tools. • Implement time tracking system for contractors at nuclear sites. • Implemented enhanced management process approvals and controls to limit individual overtime in Nuclear.	Q2 2014 Q1 2014 Completed	✓	N/A
• **NEW:** 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.	Completed	✓	No estimate available
Use of Non Regular Staff and Contract Resources. • Strengthen business case requirements and approvals for hiring retirees as contractors. (**NEW:** Policy now in place requiring additional business case and approvals requirements for hiring contractors) • Strengthen succession planning and develop knowledge transfer plans for critical roles.	Q2 2014 Q4 2014	✓	N/A
Sick Leave Trend • **NEW:** 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.	Q4 2014	✓	No estimate available

Figure 6: Average Total Earnings* for OPG Staff, 2003–2012 ($)

Source of data: Ontario Power Generation



* Average total earnings include base salary, overtime, incentives and bonuses as well as various types of allowances.

staff whose annual base salaries exceeded the maximum amount set out in the base salary schedule by more than $100,000, and in one case in 2005 and 2006 by more than $200,000. OPG told us that before 2010 it had treated the maximum as a guideline rather than a limit, and had approved and implemented salary increases before the 2010 pay freeze legislation. OPG also informed us that since 2010, no salary increases had been provided to the employees whose base salaries already exceeded the maximum.

We found similar instances for about 1,200 unionized staff who had received more than the maximum set out by the base salary schedule in 2012. OPG explained that this was because of the implementation of new base salary schedules for PWU staff in 2002 and Society staff in 2006. Essentially, if an employee's old base salary exceeded the maximum set out in the new schedule, he or she was "green circled" to maintain the old level while still receiving annual wage increases.

Sunshine List

OPG is required by the *Public Sector Salary Disclosure Act, 1996* to disclose annually the names, positions, salaries and total taxable benefits of any employees who made $100,000 or more in a calendar year. (This disclosure is popularly known as the "Sunshine List.")

The number of OPG staff on the Sunshine List has grown steadily since the organization was created in 1999, albeit at a slower pace after the 2010 pay freeze legislation. Over the last 10 years,

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
	2009 Total		**$41.81M**	**13123**
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
	2010 Total		**$50.53M**	**12961**
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
	2011 Total		**$39.92M**	**8531**
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
	2012 Total		**$30.72M**	**1533**
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
	2013 Total		**$22.52M**	**1507**
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
	2014 PLAN Total		**$29.1M**	**0**
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
	2015 PLAN Total		**$29.1M**	**0**

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

Opportunity Analysis
Nuclear Generation

Nuclear: Overview

Scope

- Our analysis of structural and organizational opportunities for Nuclear includes both nuclear plants (Darlington and Pickering) as well as the support organization within the Nuclear business unit

Hypothesis Development

- Ten hypotheses were developed for the Nuclear function
- Hypotheses were developed based on:
  - Past OPG benchmark reports (Scott Madden, 2009-2011)
  - Our team's knowledge of power generation leading practices as well as cross-industry leading practices
  - Analysis of organizational structure and company budgets

OPG's Business Transformation Program

- OPG has recently initiated a significant company wide Business Transformation (BT) program. Within Nuclear, the BT program includes projects across Engineering, Maintenance, Outage Management, and Support Services.
- Staffing plan improvements will be met through attrition and changes to the workforce development program.
- OPG expects savings from Nuclear related projects of 556 FTEs
  - OPG has completed Nuclear BT-related staffing reductions of 118.5 FTEs

Nuclear: Information Sources

We collected financial, operational and organizational data as well as conducted interviews with OPG senior staff. The tables below provide a description of the type of data used and the names of individuals we interviewed.

Documents	
Name	**Description**
Nuclear Business Plan 2013-2015	■ Overview and individual plans for all functional areas and their relation to the broader goals of business transformation
Business Unit Cost Reports	■ Detailed costs for each department by cost element
Payroll/ Organizational Data	■ Listing of job titles and compensation for full-time, part-time and temporary workers within Nuclear and at each location
Nuclear Engineering Briefing Note	■ Overview of the key progress made under the EN-02 program
Nuclear Engineering Fleet View Tool	■ Overview of the tools used to highlight condition in engineering program health
Business Transformation Plan	■ An overview of the key initiatives and risks of the BT program including targets, risks and the impact to the organizational design
Nuclear Supply Chain White Paper	■ Outlines current supply chain practices and proposes new metrics to improve performance
Nuclear Costs Improvement Trends	■ Overview of the progress made at OPG plants relative to peers, including a per unit breakdown of costs

Interviews	
Name	
Wayne Robbins Chief Nuclear Officer	**Laurie Swami** VP Nuclear Services
Stephun Cliver Chief Supply Officer	**Glen Jager** SVP Pickering
Mark Elliott SVP Nuclear Engineering	**Carla Carmichael** VP Nuclear Finance
Martin Tulett VP Nuclear Supply Chain	**Doug Radford** Darlington
Ajay Upadhyaya Outage Manager	**John Blazanin** Business Support Director
Jody Hamade Enterprise Risk Manager	**Dan Sawyer** SVP Darlington
John Gierlach Project Risk Management	

Nuclear: KPMG Hypotheses

KPMG Hypotheses	Rationale
1) **OPG can increase revenues and extend Pickering Unit 6 operation by reducing Pickering Forced Loss Rate (FLR)**	■ From 2011 Scott Madden Benchmark Report - Pickering plant FLR performance was approximately 10%, which was 5 times greater than the 2011 median 1.89% for CANDU reactors ■ Nearly all improvement in FLR contributes to bottom line revenue due to the Non-Fuel Operating Cost ($) being virtually independent of MWh produced ■ Leading practice in this area is to identify and track leading indicators of equipment reliability to reduce unplanned (forced) loss rates
2) **OPG can improve revenue and reduce operations and maintenance costs by reducing the corrective maintenance backlog**	■ Both Darlington and Pickering have performed in Q3 or Q4 in Scott Madden Benchmarking reports in Corrective Maintenance Backlog from 2008-2012 ■ High corrective maintenance backlogs are indicative of sub-optimal work management, engineering, and materials management performance ■ Top quartile corrective backlog performance is approximately four-times better than either Darlington or Pickering. It does not seem that all of the performance difference can be attributed to the technical differences between CANDU and other light water reactor technologies
3) **OPG can significantly reduce non-fuel operating cost and improve operating performance by shifting to a fleet based business model.**	■ Leading practice in this area is to have effectively instituted fleet based business models ■ A fleet based model is premised on strong centralized governance with clear objectives and performance standards which are defined by a common set of policies and processes ■ Fleet based organizations tend to achieve top-quartile cost and operations performance through aggressively leveraging best-in-class policy, processes, procedures, and methods with consistent and appropriate supporting systems and tools throughout the organization.

Nuclear: KPMG Hypotheses

KPMG Hypotheses	Rationale
4) **OPG can reduce non-fuel operating costs by outsourcing routine facilities maintenance**	■ Leading practice in this area is to optimize work-force costs through a constant comparison to the cost of similar services provided by third-party outsourcers, assuring that personnel with the appropriate skills and competencies are available as needed by the business
5) **OPG can reduce non-fuel operating costs by offshoring CAD drawing updates**	■ Leading practice in this area is to optimize the use of internal staff for more strategic and conceptual engineering projects and off-shoring the more technical work which does not take a working understanding of the business ■ Internal engineers in this model must be responsible for assuring that the work completed is appropriate and will function once installed; something OPG is familiar doing under the EPC model currently in place
6) **OPG can reduce non-fuel operating costs through outsourcing selective engineering functions**	■ Leading practice to achieve work-force effectiveness and efficiency is accomplished through a balanced approach of strategic outsourcing of lower-level/skill activities while maintaining appropriate levels of safety and quality
7) **OPG can improve equipment reliability, reduce re-work, and lower material costs through better engineering workforce effectiveness.**	■ Increased levels of work for OPG's Nuclear Engineering organization is unavoidable as the Pickering plant continues to age and Darlington is fast approaching refurbishment ■ Tools and applications can be leveraged, including Passport, that provide an aggregate view of system health, planning, scheduling, and tracking the work required to improve productivity, performance and workflow

Nuclear: KPMG Hypotheses

KPMG Hypotheses	Rationale
8) **OPG can reduce operations and maintenance costs and deployed capital costs by improving the consistency of planning and scheduling**	■ Reducing process variability can provide a simplified path to quality and cost effective outsourcing ■ Improved leveraging of individual skills and competencies between sites can both improve quality and reduce cost ■ Leading practice in this area is to consistently work to remove as much organization, process, and control variability as possible to consistently achieve better cost and operational performance results ■ Reducing process variability inevitably improves the quality of business, financial, regulatory, and other support services as measured by their internal customers
9) **OPG can reduce non-fuel operating cost and reduce the forced loss rate by improving the process and schedule of parts ordering**	■ Equipment reliability is reduced through the inability to purchase appropriate materials in a timely fashion and increases forced loss incidents ■ Warehouse and working capital costs are increased through inappropriate supply chain management buying unnecessary materials ■ Reduce workforce efficiency and effectiveness by not ensuring the availability of the “right part at the right time”
10) **OPG can reduce training costs and improve training quality by centralizing the training function across the enterprise**	■ Leading practice in this area is to centralize support functions to drive better performance and reduce delivery cost

Nuclear H1: OPG can increase revenues and extend Pickering Unit 6 operation by reducing Pickering Forced Loss Rate (FLR)

Findings

- Benchmarking report analysis indicated that Pickering plant FLR performance was approximately 10%, which was 5 times greater than the 2011 median 1.89% for CANDU reactors
- OPG has identified high FLR as an issue and had developed a plan to reduced FLR.
  - OPG current business plan calls for reducing Pickering FLR from 7% to 5.5% by 2015.
  - OPG believes revenue can be increased by improving the maintenance condition at Pickering allowing Unit 6 operations to be extended through 2020 (one additional year beyond current plans)
- OPG has focused its Maintenance business plan on this issue and has clear programs in place to achieve their targets such as 3K3 and better outage planning
  - 3K3 is a special group of 3000 highly important outage work packages
- Related OPG Projects: Several included within 2013 – 2015 Business Plan (Pickering Station)

Related Project Review – 2013-2015 Business Plan (Pickering Station)

Estimated Savings

- OPG current business plan calls for reducing Pickering FLR from 7% to 5.5% by 2015. This FLR reduction could increase revenue by approximately $9.5M per year

Depth of Analysis

- Evidence of strong data driven analysis of how Pickering FLR improvements will be achieved
- Less evidence of detailed analysis of ability to extend Unit 6 operations through 2020
- Note: 2012-2015 Nuclear Business Plan does not include any specific value for Unit 6 operational extension

Quality of Plan

- Business Plan provides significant detail on how the FLR reduction plan will be achieved and milestones monitored

Source: 2013-2015 Nuclear Business Plan, Scott Madden Nuclear Benchmarking Reviews

Nuclear H1: OPG can increase revenues and extend Pickering Unit 6 operation by reducing Pickering Forced Loss Rate (FLR) (cont'd)

Project Review – Pickering Station

Complexity of Execution

Execution timelines are dependent on:

- Resolving recurring equipment failures including fuel handing system and turbine generator
- Completing scheduled work-down of maintenance backlog
- Shift to Days Based Maintenance (which will require approval of minor off-shift staffing requirements defined by CNSC)
- Improvements in parts availability in time for planned maintenance work
- Effective execution of 3K3 outage work program

This hypothesis has been addressed by OPG and there appears to be no incremental opportunity for this hypothesis

Nuclear H2: OPG can improve revenue and reduce operations and maintenance costs by reducing the corrective maintenance backlog

Findings

- Benchmarking reports identified OPG Corrective Maintenance backlog has been Q4 at Pickering A&B and Q3 at Darlington since 2008; in 2011 both units increased relative to peers due to the redefinition of critical components under INPO AP-913
- Management interviews identified poor outage management and human error as the primary drivers of this poor performance
- OPG has identified reducing corrective maintenance backlog as an opportunity to reduce costs and improve revenue
- The maintenance business plan has established targets and a roadmap to better manage the backlog moving forward by focusing on minor modifications, reducing emergent work, highlighting where human error was a factor and shifting maintenance into planned outages
- Related OPG BT Project(s): Reduce planned work volumes (3K3), Reliability improvement plan

OPG BT Project Review – Reduce planned work volumes (3K3), Reliability improvement plan

Estimated Savings

- OPG has targeted backlog reduction of $11M ($3M for 2013, $6M for 2014, $2M for 2015)
- P5-8 Fuel Handling Reliability project ($29M), Equipment Reliability initiatives ($5M)

Depth of Analysis

- Evidence of strong data driven analysis that prioritize projects in order to reduce overall backlog
- Clear understanding of the human performance errors that have contributed to FLR and the issues are evident to the team
- Clear targets to track progress in both human error and backlog production

Quality of Plan

- Corrective Maintenance is the core focus of the improvement
- Maintenance Plan provides significant detail on how the FLR reduction plan will be achieved and milestones monitored

Source: 2013-2015 Nuclear Business Plan, Scott Madden Nuclear Benchmarking Reviews

Nuclear H2: OPG can improve revenue and reduce operations and maintenance costs by reducing the corrective maintenance backlog (cont'd)

OPG BT Project Review – Reduce planned work volumes (3K3), Reliability improvement plan

Complexity of Execution

Execution timelines are dependent on:

- Resolving recurring equipment failures including fuel handing system and turbine generator
- Ability to improve human performance in conjunction with the reduction in staff
- Strong support from supply chain and engineering working groups
- Shift to Days Based Maintenance which will require approval of off-shift staffing requirements

This hypothesis has been addressed by OPG and there appears to be no incremental opportunity for this hypothesis

Nuclear H3: OPG can reduce non-fuel operating costs and improve operating performance by shifting to a fleet based business model

Findings

- OPG does not currently operate a fleet based business model
- Benchmarking reports highlight that OPG has historically experienced a wide-range of variability in performance between plants (Darlington Q2 to Q3 and Pickering low Q4)
- Each plant has established a unique culture and set of operational processes, which has also allowed duplication of roles to exist between units
- OPG has identified this as an opportunity area and has established a strategy to transform to a fleet based business model in order to reduce variability between plants which will reduce non-fuel operating costs
- The proposed model will deploy Corporate / Site Functional Area Manager (CFAM/SFAM) roles to increase accountability, reduce variability in performance and standardizing processes across all plants and units

OPG BT Project Review

Estimated Savings

- No FTE savings assigned. This initiative is an enabler to other initiatives which have captured the relevant FTE savings

Depth of Analysis

- Management interviews demonstrate that this strategy has been thoroughly investigated and is applicable to plants within OPG

Quality of Plan

- This strategy has been integrated into several Business Transformation projects
- Each project has specific targets for headcount reduction targets

Complexity of Execution

- Some complexity with redefining roles within new processes and department structures for this project as some changes to job description documents will be required.

This hypothesis has been addressed by OPG and there appears to be no incremental opportunity for this hypothesis

Source: 2013-2015 Nuclear Business Plan, Scott Madden Nuclear Benchmarking Reviews, Management Interviews

[redacted]

Findings

- OPG does not currently outsource facilities maintenance related activities in Nuclear
- KPMG analysis identified 147 FTE within Nuclear East Facilities group
- [redacted]
  - [redacted]
  - [redacted]
- The [redacted] identified spend their time performing grounds maintenance work (e.g. snow removal, lawn cutting) and other maintenance activities such as ditches, road repair, and walkways
- Management has indicated that they have conducted some preliminary analysis on the feasibility of outsourcing facilities work by visiting facilities in US to see how the model would look in action
- Outsourcing work inside the protected area has a higher level of complexity as contractors need to be security cleared, trained and Orange Badged to perform tasks
- Outsourcing services inside the protected area requires equipment used to be monitored in accordance with radiation procedures inside the protected area
- The current business plan calls for reducing O&M Support Staff headcount from 51 in 2012 to 36 by 2015 (a reduction of 15 FTEs) that will be achieved through personnel attrition rates however this does not include any facilities management jobs identified above
- No BT projects currently address this opportunity

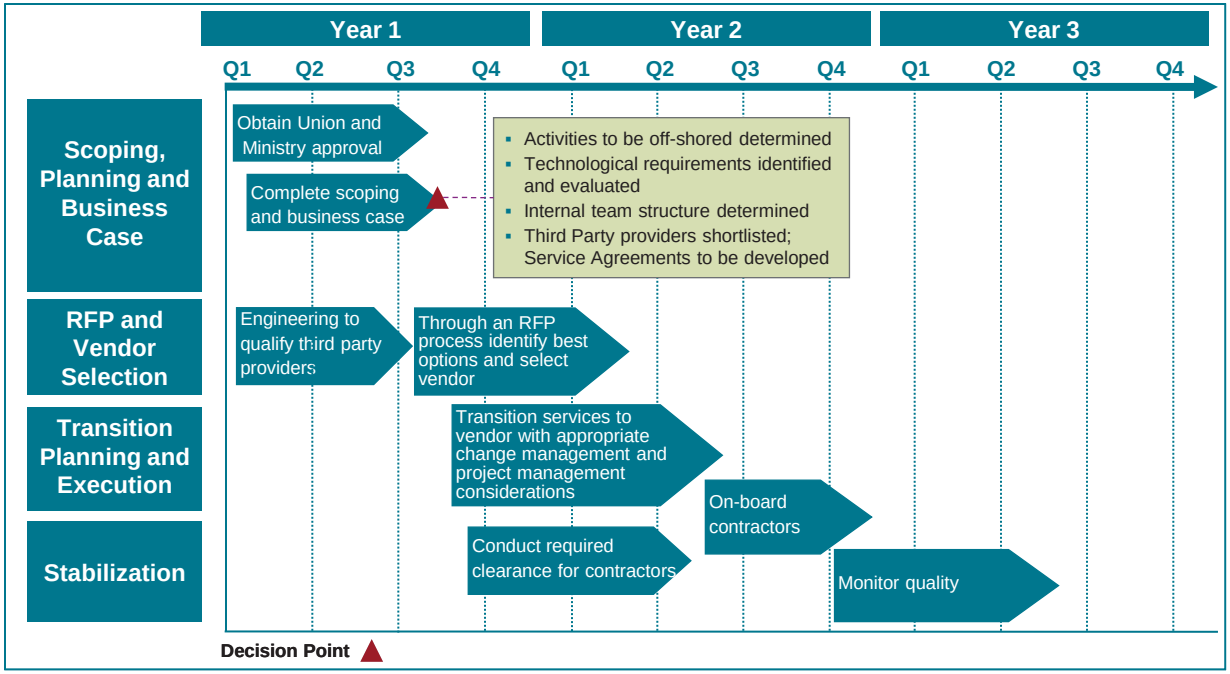
There is an incremental opportunity for this hypothesis

Source: OPG Organizational Data, Management Interviews

Nuclear

Opportunity #1: Implementation Plan

Implementation Plan



Opportunity Detail*

[redacted]

Description

- The implementation has four phases: i) Scoping, Planning and Business Case ii) RFP and Vendor Selection iii) Transition Planning and Execution iv) Stabilization
- There is a significant upfront investment required to effectively implement an outsourcing arrangement including clearly defining the scope of work to be performed, identifying and qualifying potential vendors and negotiating the contract and implementing the transition plan
- It also requires a permanent investment in a service delivery management function for governance and oversight of the outsourced services once they are established.

Assumptions and dependencies

- OPG is permitted to offshore roles
- OPG is able to identify a cost effective outsourcing partner
- HR is able to negotiate changes to job classifications and collective agreements
- Lower skilled positions are replaced with more cost-efficient labor alternatives
- [redacted]
- Union discussions are not prolonged
- Significant changes to the collective agreements are not required
- No impact to nuclear safety
- Ratepayer reaction to outsourcing of roles does not negatively affect OPG

*Actual savings achieved for the period covered and the time to achieve these savings will vary from the information presented and the variations may be material

Nuclear H5: OPG can reduce non-fuel operating costs by offshoring CAD drawing updates

Findings

- OPG has identified an opportunity to outsource CAD drawing updates to current EPC vendors however business plans for engineering do not include a reduction in tactical engineering work beyond EPC design activities for example CAD drawing updates.
- Management reports indicate that 20 FTE will perform CAD drawing updates. Based on activity descriptions, KPMG estimates that 18 FTEs perform activities.
- Management interviews confirmed that some tactical engineering work activities are viable candidates for offshoring
- Nuclear and non-nuclear generator owners and operators have been successful in offshoring tactical lower skill-based engineering activities
- Related OPG BT Project(s): Optimize In-House Drawing Modifications

OPG BT Project Evaluation – Optimize In-House Drawing Modifications

Estimated Savings

- [redacted]

Depth of Analysis

- Reduction in FTEs is segmented by job type which highlights how targets will be achieved
- Appears that much of the current Drawing Office responsibilities are largely small modifications that could be completed by a small internal team with the exception of drawing updates

Quality of Plan

- The plan identifies the appropriate work to outsource to EPC vendors and capitalizes on existing relationships to manage the workload
- Headcount reduction is associated with attrition and does not include the possibility of incremental reductions

Complexity of Execution

- Managing service levels with EPC vendors

There is an incremental opportunity for this hypothesis

Source: 2013-2015 Nuclear Business Plan, Business Transformation Plan, Management Interviews

Nuclear

Opportunity #2: Offshoring CAD Drawings work

Opp #2

Lower operating costs by offshoring CAD drawing updates within Nuclear

Summary Evidence

- The business plan for engineering does not indicate a reduction in tactical engineering work beyond EPC design activities.
- Management reports indicate that 20 FTE will perform CAD drawing updates. Based on activity descriptions, KPMG estimates that 18 FTEs perform activities.
- KPMG research indicates offshoring costs for similar work can be as low as $30k per FTE per year
- Management indicate that severance could reach up to 2 years for 85% of staff with 15% retiring. The number of staff requiring severance could make this opportunity unappealing.

Next Steps

- Validate savings opportunities with internal Finance representatives
- Determine the internal requirements to ensure drawings can be effectively managed and updated by a third party
- Work with engineering to determine a path forwards for reducing heads in the drawings office and redistribute these individuals in vacant engineering roles
- Integrate opportunity into Business Transformation plans and ensure there is clear ownership (likely to be Mark Elliott)

ESTIMATED SAVINGS POTENTIAL*

Savings Methodology

- 18 FTEs performing CAD drawing updates, average salary of $93k
- Base case assumes that offshoring is still not a permitted option for OPG
- Stretch case assumes 18 FTE can be offshored
  - 18 x ($93k-$30k) equals $1.1m
- One time severance costs could reach up to $2.8m depending length of service
- One time costs also include transition costs assumed to be $0.3m-$0.6m

Implementation Complexity

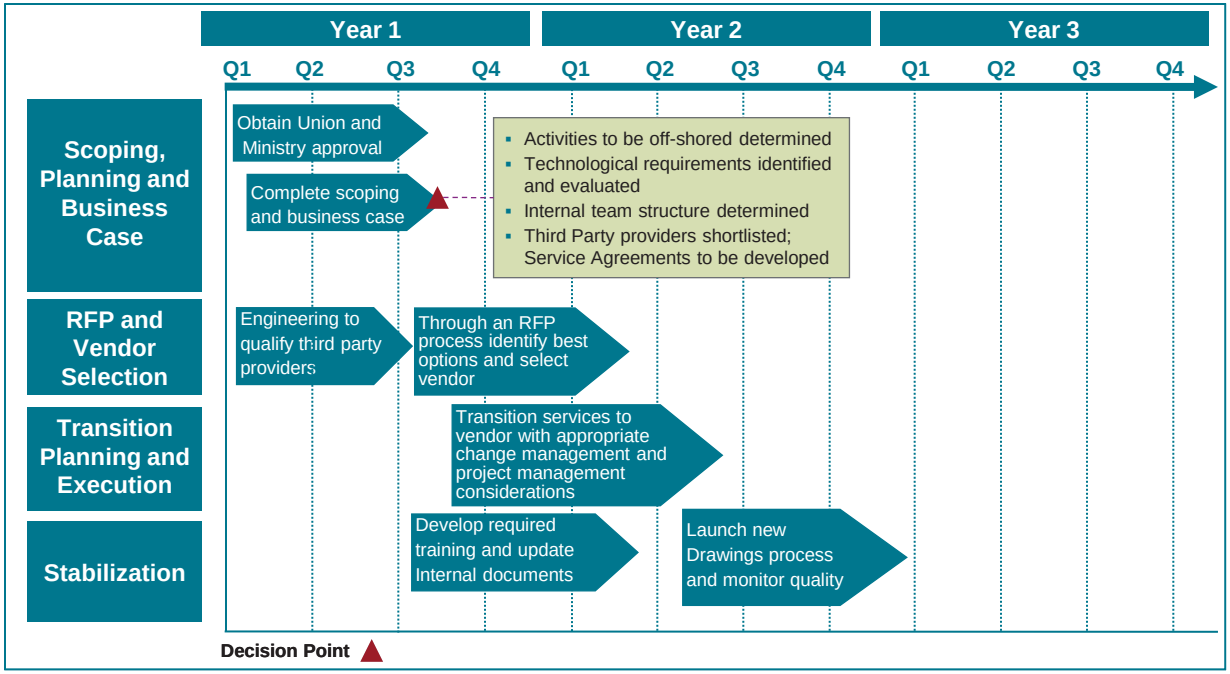
- Changes to work practices with union personnel will potentially require new contracts to eliminate selected jobs from collective bargaining agreement
- Changes in process for long tenured engineers will have to be managed by senior management with the move towards an EPC and centre-led model
- Ability to redeploy roles moved offshore will significantly reduce severance costs

*Actual savings achieved for the period covered and the time to achieve these savings will vary from the information presented and the variations may be material

Nuclear

Opportunity #2: Implementation Plan

Implementation Plan



Opportunity Detail*

Estimated Base	• $0m
Estimated Stretch	• $1.1m
Estimated One-time Costs	• One-time severance cost may reach up to $2.8m depending on length of service • Transition Costs: $0.3m - $0.6m

Description

- The implementation has four phases: i) Scoping, Planning and Business Case ii) RFP and Vendor Selection iii) Transition Planning and Execution iv) Stabilization
- There is a significant upfront investment required to effectively implement an offshoring arrangement including clearly defining the scope of work to be performed, identifying and qualifying potential vendors and negotiating the contract and implementing the transition plan
- It also requires a permanent investment in a service delivery management function for governance and oversight of the outsourced services once they are established.

Assumptions and dependencies

- OPG is permitted to offshore roles
- OPG is able to identify a cost effective outsourcing partner
- Engineering is able to easily replace drawing engineers in other vacant roles to minimize severance
- Transition does not require large systems changes
- Union discussions are not prolonged
- Significant changes to the collective agreements are not required
- Ratepayer reaction to outsourcing of roles does not negatively affect OPG

*Actual savings achieved for the period covered and the time to achieve these savings will vary from the information presented and the variations may be material

Findings

- Management interviews indicate that historically OPG has not outsourced many engineering functions and performed most work in-house
- OPG has recently changed their operating model and has selected two vendors to support an EPC model that outsources design work and allows engineers to work on additional projects at the same time
- Moving towards an EPC model is consistent with power generation industry leading practices
- Related OPG BT Project(s): Leverage move to EPC Model

OPG BT Project Review – Leverage move to EPC Model

Estimated Savings

- [redacted]

Depth of Analysis

- Evidence of strong data driven analysis and reasonable assumptions which support a reduction due to making better use of design vendors and modification drawings
- Clear evidence is demonstrated that the impact to overall quality and efficiency of individual engineers will improve
- Master Service Agreements (MSA's) are in place with two Contractors to improve price and a reduction in turnaround time

Quality of Plan

- OPG's plan provides a clear vision for how internal roles will adapt to the new process

Complexity of Execution

- Changing behaviour of engineers to be evaluate and monitor quality versus adherence to process
- Ensure quality level of design work with vendors

This hypothesis has been addressed by OPG and there appears to be no incremental opportunity for this hypothesis

Source: 2013-2015 Nuclear Business Plan, Nuclear Engineering Briefing Note

Nuclear H7: OPG can improve equipment reliability, reduce re-work, and lower material costs through better engineering workforce effectiveness

Findings

- Management interviews indicated that OPG has historically had to perform a high level of rework which increased engineering costs
- OPG recognized this inefficiency and launched the EN-02 initiative to reduce costs in 2009, which focused on three key ways to improve the value for money in engineering: efficiency opportunities; stopping lower value work; organizational changes to better enable staff
- The EN-02 initiative is used to consolidate the drawing and major components offices to reduce re-work and improve communication and has improved the use of tools such as “Fleet View” so that engineers understand the priority of what work has to be completed
- Related OPG BT Project(s): EN-02 initiative, Automate System and Component Health Reports

OPG BT Project Review – EN-02 initiative, Automate System and Component Health Reports

Estimated Savings

- The Engineering business plan identifies a reduction of 57 FTEs linked to these projects

Depth of Analysis

- Evidence of strong planning and analysis to support the centralization of some services and to identify efficiency improvements
- Clear understanding of the link between consolidation and the reduction in headcount
- Change management plans are in place to ensure that all factors are considered including safety and financial performance

Quality of Plan

- EN-02 provides significant detail on where headcount reductions are coming from and appropriately segments the key initiatives of the program

Complexity of Execution

- Execution risks are largely mitigated as these plans were already largely completed by the end of 2011 and are on all on-track to meet their anticipated savings
- Maintaining progress from EN-02 in conjunction with new BT initiatives

This hypothesis has been addressed by OPG and there appears to be no incremental opportunity for this hypothesis

Source: 2013-2015 Nuclear Engineering Business Plan, Nuclear Engineering Briefing Note

Nuclear H8: OPG can reduce operations and maintenance costs and deployed capital costs by improving the consistency of planning and scheduling

Findings

- Management interviews indicated that OPG has experienced a variation in processes and performance as a result of different processes at Pickering and Darlington
- This issue is being addressed with the CFAM/SFAM model and the centralization of certain activities above the plant level, namely Engineering and Support Services
- Management highlighted that historically poor maintenance planning and outage management has been a major contributor to OPG's FLR which has been benchmarked in the fourth quartile for Pickering and second quartile for Darlington
- Currently the maintenance plan at both Darlington and Pickering shift focus to minor modifications to reduce the need for major capital investments, so work planning efficiency will be of greater importance moving forwards
- Related OPG BT Project(s): Amalgamation of Work Control and Outage

OPG BT Project Review – Amalgamation of Work Control and Outage

Estimated Savings

- Expected savings of 71 Full Time Equivalents (FTEs)

Depth of Analysis

- Evidence of strong planning and analysis to support the centralization of work management services to reduce redundant roles and mandates
- Clear demonstration of the link between consolidation and the reduction in headcount

Quality of Plan

- The plan continues from the successful completion of the Pickering A&B amalgamation, using the same approach to improve the efficiency of planning and to standardize the outage and scheduling processes
- Demonstration of execution can be seen in the most recent outage performance where improved documentation and planning significantly improved the outage days

Source: 2013-2015 Nuclear Business Plan, Scott Madden Nuclear Benchmarking Reviews

Nuclear H8: OPG can reduce operations and maintenance costs and deployed capital costs by improving the consistency of planning and scheduling (cont'd)

OPG BT Project Review – Amalgamation of Work Control and Outage

Complexity of Execution

- Important to make new processes and tools apparent to all staff involved in scheduling and outages to reduce the risk of human error
- Reducing duplicate roles is supported by Business Transformation's move to a centre-led organization that reduces variability in management style

This hypothesis has been addressed by OPG and there appears to be no incremental opportunity for this hypothesis

Nuclear H9: OPG can reduce non-fuel operating cost and reduce forced loss rate by improving the process and schedule of parts ordering

Findings

- Management interviews indicated that OPG has had issues with late and incorrect ordering of parts and materials contributing to forced loss
- OPG identified this opportunity to reduce operating costs and is part a major focus in the Supply Chain Briefing Paper
- The new Supply Chain group has shifted the accountability for ordering parts to the plant manager to reduce wasteful orders
- The new Supply Chain group has also standardized the request process to ensure parts are ordered in time for their scheduled use
- Related OPG Business Plan Project(s): Plant/Project Accountability

OPG Project Review – Plant/Project Accountability

Estimated Savings

- The focus of this initiative is effectiveness

Depth of Analysis

- Evidence of strong data driven rationale that demonstrates the issues from late ordering with reasonable assumptions that support improved inventory management
- Supply chain white paper shows clear evidence of the impact that stock-outs and high levels of inventory have on business performance
- Management indicated that targets are in place to track progress

Quality of Plan

- Accountability for the Bill of Material and Master Equipment List already has been successfully transferred to Plant Design and Projects design

Complexity of Execution

- The project has already been executed

This hypothesis has been addressed by OPG and there appears to be no incremental opportunity for this hypothesis

Source: 2013-2015 Supply Chain Business Plan, Supply Chain Briefing Paper

Nuclear H10: OPG can reduce training costs and improve training quality by centralizing the training function across the enterprise

Findings

- Management interviews indicated that OPG has historically conducted training separately for each business unit resulting in duplication of some activities
- OPG has identified this as an opportunity to reduce training costs by centralizing this activity across all of OPG in business transformation
- Management indicated that a high level of attrition is expected and new staff may be required to meet target staffing level
- Related OPG BT Project(s): Training - Support & Planning Consolidation, Consolidate Common Training Content

OPG BT Project Review – Training - Support & Planning Consolidation, Consolidate Common Training Content

Estimated Savings

- 36 FTEs

Depth of Analysis

- Evidence of strong data driven analysis of how centralization and headcount reduction could/would occur
- No evidence that significant residual potential opportunity value remaining

Quality of Plan

- Business Plan provides significant detail on how the reduction plan will be achieved and milestones monitored.

Complexity of Execution

- Execution timelines are dependent on the speed at which the training CFAM (Corporate Functional Area Manager) can effectively take over function from local training managers
- To help mitigate risks OPG has hired an experienced training executive, formally at INPO, to lead and direct centralization process

This hypothesis has been addressed by OPG and there appears to be no incremental opportunity for this hypothesis

Source: 2013-2015 Nuclear Business Plan (O&M Support), Business Transformation Plan

SEC Interrogatory #014

Ref: A4-1-1/Attach 1

Issue Number: 1.2
Issue: Are OPG's economic and business planning assumptions for 2014-2015 appropriate?

Interrogatory

Please provide, for each of the initiatives listed:

(a) The current status of the initiative;
(b) The amount of incremental spending invested to date to implement the initiative;
(c) The amount of incremental spending included in the Application to implement the initiative;
(d) The savings or other benefits achieved to date;
(e) The savings or other benefits expected to be achieved in 2014 and 2015; and
(f) The savings or other benefits expected to be achieved after 2015.

Response

The table contained in Attachment 1 provides the information requested.

It should be noted that the savings outlined relate to work elimination and not necessarily staff reductions, as the initiatives are aligned with specific work processes and the actual labour dollar savings result from attrition across the company. For instance, for the BAS initiative – *Optimization and Elimination of duplication of Services – Document Management*, we have reduced the work equivalent to 14 staff. However, all 14 of those staff have been reassigned to other work in the company. In contrast, for BAS *Staff Reductions through Services Optimization*, we have reduced the work equivalent to 23 staff and all 23 staff have left the company.

BU	Initiative Name	a) Current Status of Initiative	b) Amount of incremental spending invested to life to date (Dec 31, 2013)	c) Amount of incremental spending included in the Application (2014 and 2015)	d) Savings or other benefits achieved life to date (Dec 31, 2013)	e) Savings or other benefits in 2014 and 2015	f) Savings or other benefits in 2016
Hydro-Thermal	Merge Hydro-Thermal business units, Fully Implement Centre-Led Engineering and Reduce engineering involvement in non-engineering work	This initiative is on track. Merging of Hydro and Thermal Businesses is complete. Implementation of centre-led engineering is in progress, with finalization in 2014, as part of Phase 2 of Business Transformation (on schedule). In 2013, the central Engineering and Technical Services was already working with embedded engineering staff at all stations to engage them in fleet work programs. In addition, working sessions to streamline risk assessment and asset management strategies were conducted.	$0	$0	Reduced work by the equivalent of 8 staff	Further reduce work by the equivalent of 40-50 staff	Further reduce work by the equivalent of 50-60 staff
Nuclear	Create Center Led Engineering Organization	Initiative has been completed and closed for tracking. The transformation to Centre-led Nuclear Engineering is complete, with the exception of the Tritium Removal Facility and site Chemistry – Technical. These will be aligned post redeployment. Stated benefits have been achieved and the business plan is aligned to support the organizational structure.	$0	$0	Reduced work by the equivalent of 25 staff	Further reduce work by the equivalent of 2 staff	None

BU	Initiative Name	a) Current Status of Initiative	b) Amount of incremental spending invested to life to date (Dec 31, 2013)	c) Amount of incremental spending included in the Application (2014 and 2015)	d) Savings or other benefits achieved life to date (Dec 31, 2013)	e) Savings or other benefits in 2014 and 2015	f) Savings or other benefits in 2016
Nuclear	Create Security & Emergency Services Organization	Initiative has been completed and closed for tracking. Additional initiatives have been developed to implement the reductions to the Work Program.	$0	$0	Reduced work by the equivalent of 12 staff. Eliminate duplicate Threat Software $10k savings year over year.	Further reduce work by the equivalent of 22 staff	Further reduce work by the equivalent of 12
Nuclear	Corrective Action Program	Initiative complete. Initiative was able to simplify Corrective Action Program and centralize infrastructure. Increase individual managerial accountability for correcting problems. Improve quality of evaluations and actions. Eliminate low-value process steps. Completed initiative includes: • 30 % reduction in level of effort for the Corrective Action Program since 2011 • Amalgamate 3 site SCR databases into a single instance. Completed August 2013 (savings of $200k/yr)	SCR Database upgrade costs $1.4M	$0	Reduced work by the equivalent of 17 staff. $200k annual savings through consolidation of SCR databases. 30 % reduction in level of effort for the corrective action program since 2011	Further reduce work by the equivalent of 2 staff	None

SEC Interrogatory #015

Ref: A4-1-1/Attach 1

Issue Number: 1.2
Issue: Are OPG's economic and business planning assumptions for 2014-2015 appropriate?

Interrogatory

With respect to the individual initiatives:

(a) Please explain more fully "The deliverable of this initiative is to optimize and expand the Administrative support ratio from 2:1 to 3/4:1."

(b) Please explain why the Applicant has 1100 "Apparent Cause Evaluators". Please confirm that those individuals do not have that role as their sole or full-time role in the Company. Please provide more context to help understand why there were so many, and why the dramatic reduction in their numbers is appropriate while maintaining safety and reliability.

(c) Please confirm that only support and planning related to training is being consolidated, and the individual business units will retain their own training functions.

Response

a) The Nuclear Benchmark for the Administrative Support Services function indicates that the ratio of managers supported by administrative clerks could be as high as 4:1 (or 4 managers supported by 1 clerk). This initiative will reduce Administrative Support staff to get to a 3:1 to a 4:1 range.

b) Historically OPG had multiple qualified evaluators in nuclear line organizations for redundancy and flexibility reasons. By reducing the number of qualified individuals, a smaller group of employees are performing a greater number of evaluations. The smaller group of qualified evaluators has allowed OPG to more efficiently focus its training and the quality of the evaluations has been improving as a result. The reduction in the number of qualified evaluators has been facilitated by a reduction in the total number of reports and evaluations since 2011. Individuals do not have the Apparent Cause Evaluator role as their sole/full-time role.

c) Not confirmed. Support and planning related to training is being consolidated along with the design and delivery of all training required across all businesses. Business units will not retain their own training functions, but rather access the centre-led training function.

of my clients obtained from OPA, and this was a request for the materials behind their August 15, 2012, letter to you.

And there on page 17, we see that they indicate at the time the numbers were coming out at 9 terawatt-hour reduction in renewable energy production, because -- precipitated by the continued operation of Pickering.

Do you have any -- first of all, do you have any reason to dispute the fact that that would be one of the impacts?

MS. SWAMI: It potentially could be one of the impacts. But I really can't speak to an e-mail from the OPA.

MR. POCH: All right. And just so we are clear, the fuel channel life extension, which would be the -- which could enable, potentially could enable running Pickering beyond the 247,000 effective full-power hours --

MS. SWAMI: So just to be clear, the 247,000 gets us to the end of 2020. Fuel channel life extension could allow us, through a number of approvals and processes, to get to 261,000 at Pickering. It's a small part of the fuel channel life extension project.

But our business plan today is to operate until the end of 2020. What it allows for is some more flexibility.

MR. POCH: Okay. CNSC, Canadian Nuclear Safety Commission, has not approved that?

MS. SWAMI: That is correct.

MR. POCH: All right. Now, just in terms of the impact on potential surplus energy, the information we –-

and I will take you to it, and you don't have to accept the numbers precisely. I just wanted you to get a sense of it.

The information my client obtained from the Ontario Power Authority suggests that these impacts are -- can be quite significant. We have already noted that their observation that it could be 9 terawatt-hours of renewable production that is curtailed. We just -- just for -- to put a dollar sense on that, at page 18 of our material, we've reproduced from -- the cite is there at the bottom of the page -- OPA's web pages what wind energy is costing these days and how much how much is being produced.

And 9 terawatt-hours, according to the numbers in the middle of that table, suggest about three years of production, worth of production at the time, total wind production in Ontario. And presumably it's gone up since then, so that would be somewhat less than three years' worth now. And at $90 a megawatt-hour, that would be over $800 million of renewable power that gets curtailed but has to be paid for.

Would you agree that this can be a significant impact?

MR. KEIZER: I just have a problem. My colleague is starting first with an e-mail where there is a reference to renewables and continued ops. The witness has indicated that they don't believe that -- one, that they can't speak to that e-mail, and they don't know that there necessarily is a connection between the operation of Pickering and the curtailment of the wind, given that we have got a very diversified and flexible system that could be triggered, in

all number of reasons why that would happen. And now we are talking about an approximate cost related to the wind.

It just seems to me that this is a point of argument. It's not for these witnesses to comment on what the value of wind would be in this system. They are here to speak to the nuclear operations, the benchmarking, and the projects that have formed part of the business plan related to nuclear, not with respect to the value of wind or the cost of curtailment of that wind.

MS. HARE: Mr. Poch?

MR. POCH: Can we sum it up this way, then, panel? You haven't analyzed the impact on renewables of your various efforts to run or extend or increase the output of Pickering? Or of Darlington, for that matter?

MS. SWAMI: Not specifically. We did, in our business case summary, look at a model of the overall system, but it did not look specifically at would we curtail wind, would this happen, would that happen. It was a general model that was used to look at the value of Pickering going forward.

And I guess to that point, I would just say that while this is information that I recognize is from reliable sources -- at least this website -- what I would say is that the OPA has still provided us with a letter that said that Pickering is of value to the system, that it's capacity for the future, that it enhances the flexibility on the system in the future, and it supports the grid on the eastern side of Toronto, and so that there is more than

OPA wrote, but I can't either say that this is the correct number. This is their analysis and --

MR. POCH: You don't have another number to offer us?

MS. SWAMI: No, I don't.

MR. POCH: Okay.

MS. SWAMI: The only thing I would add, though, is that this -- that's 2014 and 2015, and I think that the factors that we have to look at are also that the continued operations business case was looking at continuing to operate until 2020. And the value of Pickering increases in those outer years, when the Darlington and Bruce facilities are scheduled to go into refurbishment.

And so the surplus electricity in those two years needs to be considered in the context of all of the needs going forward, and that Pickering does provide that flexibility to the system.

MR. POCH: All right. I just want to get a sense of how things have changed since 2012.

The study that we have included, that we have obtained from OPA when we asked for the materials underlying their August 15th letter, the only study we got was the one, excerpts of which are included in our materials starting at page 21 -- at page 20. And that's their April 16th, 2012 study.

And you will see at page 21 there, you will see that -- some familiar numbers. They talk about a range of minus 0.76 billion to plus 1.33 billion. Those are the same numbers in their letter to you.

be after we spend another 39 million this year, and we want to continue operations.

And there is additional cost to continuing operations, which is what's before this board as part of your payments. That’s the larger numbers that we are dealing with.

I am just looking at -- and those costs are still avoidable, and those costs aren't committed; correct?

MS. SWAMI: So what I would say is that continuing to operate Pickering is affirmed in the long-term energy plan.

MR. POCH: I understand.

MS. SWAMI: And that is part of our business plan. We rely on these documents to make those decisions, and what we are presenting here in one phase is the Pickering continued operations project which we have been discussing.

The second part of this discussion is our ongoing costs for operating our facilities, and certainly that is part of what we are here to discuss. But it's not this context of should we continue to operate or not, because I believe that decision has been made.

MR. POCH: Well, your counsel and I will have fun in final argument debating where the line is drawn. I am just trying to get a fix on what the numbers are that flow, and the costs and the impacts on customers.

Would you agree with me that directionally, if the load forecast has fallen, you would expect potential surplus energy -- all else being equal, potential surplus energy as a result of running Pickering will go up.

MS. SWAMI: I would say potential surplus energy would

interrogatories and at page 16, I have reproduced part of the transcript from the technical conference where it's acknowledged that neither OPA, in its analysis that it provided you, nor in OPG's analysis of Pickering continued operations, was surplus base load generation impacts of Pickering continued operations considered.

And I am wondering why that wouldn't be a factor for you in your business planning for Pickering, then or now?

MS. SWAMI: So the question that I think you are referring to here is with respect to the Pickering continued operations business case, and --

MR. POCH: Sure and --

MS. SWAMI: And so that was the consideration we did not consider, as I stated here, surplus base load generation in that business case.

From a planning perspective OPG plans, and our business plan is clear, that we plan to operate Pickering and Darlington as described. So Darlington, as you know, will go through refurbishment and continue to operate, and Pickering will continue to operate until 2020. That is what our business plan says.

MR. POCH: All right. And those business plans, and the business cases for the fuel channel management, fuel channel life extension, none of these business cases speak to the impact this will have on surplus base load generation.

And my question is: Why would that not be a consideration for the organization?