KPMG

cutting through complexity

Ministry of Energy

Assessment of Organizational and Structural Opportunities at OPG

DRAFT DOCUMENT
Confidential – Commercially Sensitive Material

December 6, 2012

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How to use this document

The Ministry of Energy engaged KPMG to assess existing benchmarking studies and to identify organizational and structural opportunities for cost savings at Hydro One and OPG.

Our role was to outline opportunities that came to our attention during our work and to offer our comments and recommendations for the Ministry's consideration. These comments, by their nature, may be critical as they relate solely to opportunities for change or enhancement and will not address the many strong features of OPG's current activities and undertakings.

Estimated savings in this report are based on specific assumptions and actions undertaken by OPG. Actual savings achieved for the period covered and the time to achieved these savings will vary from the information presented and the variations may be material.

Our procedures consisted solely of inquiry, observation, comparison and analysis of OPG-provided information. We relied on the completeness and accuracy of the information provided. Such work does not constitute an audit. Accordingly, we have expressed no opinion on financial results, internal controls or other information.

Our analysis and advice is intended solely for the Ministry's Senior Management's internal use and may not be edited, distributed, published or relied on by any other person.

Acronyms

Acronym	Definition
A/P	Accounts Payable
A/R	Accounts Receivable
ALARA	As Low As Reasonably Achievable (with respect to radiation exposure)
BI	Business Intelligence
BT (BTI)	Business Transformation (Business Transformation Initiative)
CAD	Computer Aided Design
CANDU	CANada Deuterium Uranium Reactor
CFAM	Corporate Functional Area Manager
CNSC	Canadian Nuclear Safety Commission
COE	Center of Excellence
EAM	Enterprise Asset Management
EPC	Engineering, Procurement, Construction
EPSCA	Electrical Power Systems Construction Association
ERP	Enterprise Resource Planning
ESA	Engineering Service Agreement
FLM	Frontline Manager
FLR	Forced Loss Rate
FTE	Full Time Equivalent
GB	Gigabyte

Acronym	Definition
HTO	Hydro Thermal Operations
HVAC	Heating, Ventilation & Air Conditioning
ICOFR	Internal Controls Over Financial Reporting
IESO	Independent Electricity System Operator
IMT	Information Management Transformation
INPO	Institute of Nuclear Power Operations
MSA	Master Service Agreement
MWh	Mega-Watt Hour
NHSS	New Horizon System Solutions
O&M, OM&A	Operations & Maintenance; Operations, Maintenance & Administration
P&C	People & Culture
PO	Purchase Order
PSA	Public Service Alliance
RFP	Request for Proposal
SFAM	Site Functional Area Manager
SFSC	Shared Financial Service Centre
SW	Safety & Wellness
TB	Terabyte
WANO	World Association of Nuclear Operators

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Executive Summary

The Ministry of Energy engaged KPMG to assess existing benchmarking studies and to identify organizational and structural opportunities for efficiencies at Hydro One and OPG.

The Provincial Government announced plans in the 2012 Ontario Budget to move forward with a comprehensive review of the electricity sector and its various agencies. One element of the review is an independent, critical review and assessment of existing benchmarking at Hydro One and OPG in an effort to improve efficiency and find additional value for rate-payers and the Province.

In August 2012, the Ministry of Energy engaged KPMG to perform this review. The study has four main objectives:

1. Review and analyze existing benchmarking studies on compensation, productivity and efficiency
2. Identify organizational and structural opportunities for efficiency improvements within Hydro One and OPG
3. Prepare high level plans for improving efficiency
4. Identify potential impacts on rate-payers

This report addresses objectives 2 and 3 of the project for OPG (Deliverables #3 and #4 from the Ministry's RFP). In this report, we identify organizational and structural opportunities for efficiency improvements within OPG and corresponding high level implementation plans.

This report reviews the following OPG business areas: Nuclear, Nuclear support functions, Hydro, Hydro/Thermal support functions, Supply Chain, IT, Finance, and HR. The following functions were out of scope: Thermal plant operations, Legal and Communications.

Our previous report reviewed and analyzed existing benchmarking reports from OPG. Where applicable, we used the benchmark report review findings to identify potential areas for improvement within OPG and to guide our analysis of organizational and structural opportunities. In this study, we were asked to consider all opportunities including ones that OPG may not have been previously allowed to pursue, such as offshoring.

Approach and Methodology

The Ministry requested that structural and organizational improvement opportunities be identified based on the analysis of benchmarking reports provided by OPG. That is, where OPG's performance was materially different than an industry benchmark, we investigated the causes of the difference and determined whether an opportunity to improve productivity or efficiency existed.

Due to limitations of the benchmarking reports from both OPG and Hydro One, a revision of our initial approach was required in order to be able to identify material opportunities. Our revised approach was reviewed and approved by the Ministry prior to the commencement of this portion of the study.

Executive Summary

Revised Approach

Our approach focused on identifying large structural and organizational opportunities and did not focus on identifying individual process-level improvements.

Methodology

Hypothesis Development

- We developed a set of hypotheses for each function. Where benchmark report analysis was available, we focussed on areas where metrics indicated that performance was lower than the industry median. We developed hypotheses as to how performance could be improved or operating costs could be reduced in these specific areas.
- Where benchmark report analysis was not developed, our functional advisors developed a set of hypotheses based on power industry and cross-industry leading practices and industry experience.

Hypothesis Testing

- We then collected evidence from OPG to prove/disprove our hypotheses. Hypothesis testing occurred in two waves where we collected extensive organizational, financial and operational data and conducted multiple interviews within each functional area of OPG.
- If additional hypotheses were identified in our interviews, we added them to our on-going list and collected evidence to prove/disprove them.

Opportunity Identification/Evaluation

- Where sufficient evidence existed to prove a hypothesis, we then conducted further analysis to determine the size of the opportunity by estimating the potential savings. Our savings estimates are based on preliminary analysis of the opportunities and require more detailed analysis if the opportunity is pursued.
- After developing opportunity profiles, we validated our assumptions and inputs used in our calculations with OPG
- Where OPG had already identified the opportunity as part of its business transformation program or its business plan, we provided our review of OPG's analysis and implementation plan for the opportunity. Specifically we provided a review for:
  - **Depth of Analysis**: We reviewed OPG's analysis to determine if the opportunity sizing was in line with our estimates.
  - **Quality of Plan**: We reviewed if OPG had a satisfactory plan in place to realize the opportunity.
  - **Complexity of Execution**: We identified key challenges that OPG may face associated with this type of project.

Executive Summary

OPG's Business Transformation Program

In late 2010, OPG began executive discussions regarding initiating a large scale transformation program to address changes in both expected demand and retiring work force. The transformation program includes all major functions of the business including Nuclear, Hydro/Thermal, Supply Chain, Finance, Human Resources, Information Technology, Legal and Corporate Services. OPG has estimated savings of about $200m between 2012-2015 for this program which includes a reduction of 2000 FTEs.

The opportunities that we have identified in this report are incremental to the identified or existing initiatives within OPG's Business Transformation program or within OPG's 2013-2015 business plans.

Based on observations from management interviews, business plans and project plans, 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.

Source: Management interviews, OPG Business Plans, OPG Cost Efficiency and Performance Review Executive Summary, Update on Business Transformation - Dec 10, 2012

Executive Summary

Findings – Nuclear, Nuclear Support Functions

The following table provide lists the hypotheses that we tested for Nuclear and Nuclear support functions and the type of opportunity identified.

Nuclear Hypotheses	Opportunity?
1) OPG can increase revenues and extend Pickering Unit 6 operation by reducing Pickering Forced Loss Rate (FLR)	In 2013-2015 Business Plan
2) OPG can improve revenue and reduce operations and maintenance costs by reducing the corrective maintenance backlog	In Business Transformation Program
3) OPG can significantly reduce non-fuel operating cost and improve operating performance by shifting to a fleet based business model.	In Business Transformation Program
4) [redacted]	[redacted]
5) OPG can reduce non-fuel operating costs by offshoring CAD drawing updates	Incremental Opportunity
6) [redacted]	[redacted]
7) OPG can improve equipment reliability, reduce re-work, and lower material costs through better engineering workforce effectiveness.	In Business Transformation Program
8) OPG can reduce operations and maintenance costs and deployed capital costs by improving the consistency of planning and scheduling	In Business Transformation Program
9) OPG can reduce non-fuel operating cost and reduce the forced loss rate by improving the process and schedule of parts ordering	In 2013-2015 Business Plan
10) OPG can reduce training costs and improve training quality by centralizing the training function across the enterprise	In Business Transformation Program

Executive Summary

Findings – Hydro, Hydro/Thermal Support

The following table provide lists the hypotheses that we developed for Hydro and Hydro/Thermal Support and the type of opportunity identified.

Hydro Hypotheses	Opportunity?
1) OPG can reduce operating costs by centralizing operating centres	In 2013-2015 Business Plan
2) OPG can lower operating costs through offshoring CAD drawing updates	No incremental opportunity
3) OPG can improve the efficiency and workflow of engineering projects through leveraging PassPort and other operations, maintenance, and engineering support applications	In Business Transformation Program
4) OPG can reduce operating costs by further outsourcing support services staff	No incremental opportunity
5) OPG can reduce the time required to select contractors by prequalifying contractors for different types of work under Master Service Agreements (MSAs) or Engineering Service Agreements (ESAs) which will improve efficiency and reduce costs	No incremental opportunity
6) OPG can improve efficiency and improve workflow by standardizing processes and documents across each plant	In Business Transformation Program

Executive Summary

Findings – Supply Chain

The following table provide lists the hypotheses that we developed for Supply Chain and the type of opportunity identified.

Supply Chain Hypotheses	Opportunity?
1) OPG can reduce operational costs by developing a shared service organization for procurement	In 2013-2015 Business Plan
2) OPG can reduce operating costs by strategically sourcing products and services from suppliers	Incremental Opportunity
3) OPG can lower operating costs by reducing inventory levels of non-critical items	In Business Transformation Program

Executive Summary

Findings – Information Technology

The following table provide lists the hypotheses that we developed for Information Technology and the type of opportunity identified.

Information Technology Hypotheses	Opportunity?
1) OPG can reduce its computing services costs by consolidating and/or standardizing hardware and software platforms	No incremental opportunity
2) OPG can reduce its computing services by rationalizing/ consolidating duplicate or aging applications	In 2013-2015 Business Plan
3) OPG can reduce computing services costs by increasing the ratio of virtualized servers to physical servers	No incremental opportunity
4) OPG can reduce its computing services costs by consolidating its data centre facilities	No incremental opportunity
5) OPG can reduce its storage costs through demand management and/or employing an end point driven storage cost model	No incremental opportunity
6) OPG can reduce its computing services costs by leasing its IT assets and shifting accountability of the asset management function to an IT outsourcer	No incremental opportunity
7) OPG can reduce application services costs by offshoring the Nuclear Legacy System Support	No incremental opportunity
8) OPG can reduce desktop support costs by expanding self service functionality	In 2013-2015 Business Plan
9) [redacted]	[redacted]

Executive Summary

Findings - Finance

The following tables provide a summary of the hypotheses we developed for each functional area and the type of opportunity identified.

Finance Hypotheses	Opportunity?
1) OPG can reduce Finance & Controllership costs by centralizing transactional processes	In Business Transformation Program
2) OPG can further reduce Finance & Controllership costs for functions that have been centralized and standardized by outsourcing and/or offshoring of those processes	Incremental Opportunity
3) OPG can lower Finance & Controllership costs and improve efficiency through greater automation of transactional processes, business analysis, financial reporting, and planning and budgeting	In Business Transformation Program
4) OPG can decrease Finance & Controllership costs by instituting strict guidelines around materiality, rationalizing the approval process for such things as POs, invoices, cash disbursements, and journal entries	In Business Transformation Program
5) OPG can improve Finance & Controllership productivity by reducing the number of reports that are produced, and by instituting self-service portals for ad-hoc reporting	In Business Transformation Program
6) OPG can decrease Treasury costs, and potentially generate additional revenue by centralizing and standardizing all activities related to treasury including cash management, hedging, and short term investments	No incremental opportunity
7) OPG can increase returns from the Fund Management function by taking an active management approach to the investments related to the defined benefit pension plan and the segregated nuclear remediation funds	In Business Transformation Program
8) OPG can reduce assurance costs combining all related activities under a single assurance function and by using a risk-based approach	In Business Transformation Program

Executive Summary

Findings – Human Resources

The following tables provide a summary of the hypotheses we developed for each functional area and the type of opportunity identified.

Human Resources Hypotheses	Opportunity?
1) OPG can increase HR efficiency by creating Centers of Excellence for specialized expertise	In Business Transformation Program
2) OPG can reduce operating costs by outsourcing or offshoring administrative and routine HR activities	Incremental Opportunity
3) OPG can reduce operating costs by increasing use of self service tools by managers and employees	In Business Transformation Program
4) OPG can increase HR efficiency by establishing HR business partner roles in business units	In Business Transformation Program

Executive Summary

Opportunity Summary

The following are the incremental opportunities identified, the estimated annual savings and estimated one-time costs. Savings have been estimated in terms of base case and stretch case where the base case requires a moderate level of change to OPG's current operating model in a particular function while the stretch case can require significant change to OPG's operating model. The estimated savings are annual and net of on-going costs.

Functional Area	Incremental Opportunity	Estimated Annual Base Case Savings ($m)	Estimated Annual Stretch Case Savings ($m)	Estimated One-time Costs ($m)
Nuclear	1) Reduce facility maintenance costs through outsourcing some facilities management activities	0.8	2.6	Severance: Up to 2.7(base)/8.8(stretch)
Nuclear	2) Lower operating costs by offshoring CAD drawing updates within Nuclear	-	1.1	Severance: Up to 2.8 Transition Costs: 0.3-0.6
Supply Chain	3) Achieve greater savings through strategic sourcing of products and services	14	24	
Finance	4) Reduce Finance costs for functions that have been centralized and standardized by offshoring transactional processes	-	1.9	Severance: Up to 5.8 Transition Costs: 0.8-1.2
Human Resources	5) Reduce HR costs by offshoring administrative and transactional tasks	-	5	Severance: Up to 15 Transition Costs: 0.8-1.2
	Total	14.8	34.6	Severance: Up to 32.4 Transition Costs: 1.9-3.0

Notes:

1) 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.
2) Stretch case calculated for offshoring only as this option requires significant change to current outsourcing/offshoring mandates.
3) OPG management indicated that severance may be up to 2 years for severed staff. The range provided here assumes all staff that are severed are eligible for 2 years of severance. KPMG expects that actual eligible severance, attrition, and options to move impacted staff to open roles will help to lower total severance costs.
4) Procurement savings are incremental to existing targets in Supply Chain Business Plan.

Executive Summary

Opportunity Summary

In most cases we found that, as part of its Business Transformation program, OPG had identified and developed detailed plans for the opportunities associated with our hypotheses. The main areas of incremental opportunity for efficiency and productivity improvements that we identified are through offshoring/outsourcing and strategic sourcing.

Offshoring

Offshoring involves moving work activities to a different country to take advantage of lower cost labour. Although OPG had evaluated the use of offshoring previously, the use offshoring as a method for reducing operating costs was not an option available at the time. In order for OPG to realize savings and efficiency from offshoring, it will need to be granted permission to use this approach. Offshoring public sector jobs may not be viewed favorably by the public and will not be viewed favorably by unions. This option will likely draw a negative reaction and may pose political and reputational risks for OPG.

Strategic Sourcing

Strategic sourcing involves using specialized staff to reduce the total cost of purchased goods and services. Use of strategic sourcing is a common practice in the utilities industry and this approach can yield significant savings. OPG has identified strategic sourcing as a key supply chain initiative within its Business Transformation program. The opportunity we have identified is incremental to the strategic sourcing savings that OPG has forecast. Realizing the incremental savings from strategic sourcing will require additional skilled, experienced procurement practitioners to be hired within the Supply Chain organization.

Project Background and Objectives

Project Background and Objectives

Background

The provincial government announced plans in the 2012 Ontario Budget to move forward with a comprehensive review of the electricity sector and its various agencies. One element of the review is an independent, critical review and assessment of existing benchmarking at Hydro One and OPG in an effort to improve efficiency and find additional value for rate-payers and the Province.

The Ministry of Energy engaged KPMG to assess existing benchmarking studies and to identify organizational and structural opportunities within Hydro One and OPG.

Objectives

This study has four main objectives:

1. Review and analyze existing benchmarking studies on compensation, productivity and efficiency
2. Identify organizational and structural opportunities for efficiency improvements within Hydro One and OPG
3. Prepare high level plans for improving efficiency
4. Identify potential impacts on rate-payers

Scope of this Report

In this report, we identify organizational and structural opportunities for efficiency improvements within OPG and have prepared high level plans for improving efficiency. *(Deliverables #3 and #4 from the Ministry's RFP)*

Our previous report reviewed and analyzed existing benchmarking reports from OPG. Where analysis was developed, we used this knowledge to identify potential areas for improvement within OPG and to guide our analysis of organizational and structural opportunities. In this study, we were asked to consider all opportunities including ones that OPG may not have been previously allowed to pursue, such as offshoring.

Functional Areas Reviewed

The following OPG business areas were reviewed:

- Nuclear, Nuclear support functions
- Hydro, Hydro/Thermal support functions
- Supply Chain
- IT
- Finance
- HR

Out of Scope Functions

The following functions were not reviewed:

- Thermal Operations – *as directed by the Ministry*
- Legal – *size and scope not relevant for this review*
- Communications – *size and scope not relevant for this review*

Methodology and Approach

Opportunity Identification Approach

Overview

In the RFP for this study, the Ministry requested that structural and organizational improvement opportunities be identified based on the analysis of benchmarking reports provided by OPG. That is, where OPG's performance was materially different than an industry benchmark, we investigated the causes of the difference and determined whether an opportunity to improve productivity or efficiency existed.

Due to limitations of the benchmarking reports, a revision of our initial approach was required in order to be able to identify material opportunities across the major areas of the business. Our revised approach was reviewed with and approved by the Ministry prior to the commencement of this portion of the study.

The revised approach augments the initial approach with hypothesis based analysis to identify specific improvement opportunities based on comparing power industry and cross-industry leading practices to OPG's current operating strategy within a function.

Relevance of Past Benchmarking Reports

As discussed in our Benchmarking Analysis report, although many reports were provided by OPG there were limitations to the reports that prohibited us from developing a view of operational performance across all areas of OPG. These limitations included:

- **Span of Business Functions:** Reports did not exist for all business functions. For example, there were no benchmarking reports for the procurement function and therefore no basis of comparison.
- **Coverage within Business Functions:** In business functions where reports existed, some reports did not review all sub-functions and therefore performance comparison could only be conducted for a limited set of areas.
- **Level of Detail:** Some reports provided summary benchmarks at a function level while other reports provided detailed benchmarks at the function, sub-function and activity level. Without comparisons at the sub-function and activity level, high level benchmarks are only directional and require significant analysis to determine where specific structural or organizational opportunities exist.
- **Age of Report**: In our benchmark report review, we reviewed reports that were created within the last five years. Any major change in the company in the last few years would diminish any insights developed from our review of more older benchmark reports.

Opportunity Identification Approach (cont'd)

Revised Approach: Hypothesis based Analysis

Our approach focused on identifying large structural and organizational opportunities and did not focus on identifying individual process-level improvements.

Methodology

Hypothesis Development

- We developed a set of hypotheses for each function. Where benchmark report analysis was available, we focussed on areas where metrics indicate that performance was lower than the industry median. We developed hypotheses as to how performance could be improved or operating costs could be reduced in these specific areas.
- Where benchmark report analysis was not developed, our functional advisors developed a set of hypotheses based on power industry and cross-industry leading practices and industry experience.

Hypothesis Testing

- We then collected evidence from OPG to prove/disprove our hypotheses. Hypothesis testing occurred in two waves where we collected extensive organizational, financial and operational data and conducted multiple interviews within each functional area of OPG.
- If additional hypotheses were identified in our interviews, we added them to our on-going list and collected evidence to prove/disprove them.

Opportunity Identification/Evaluation

- Where sufficient evidence existed to prove a hypothesis, we then conducted further analysis to determine the size of the opportunity by estimating the potential savings. Our savings estimates are based on preliminary analysis of the opportunities and require more detailed analysis if the opportunity is pursued.
- After developing opportunity profiles, we validated our assumptions and inputs used in our calculations with OPG
- Where OPG had already identified the opportunity as part of its business transformation program or its business plan, we provided our review of OPG's analysis and implementation plan for the opportunity. Specifically we provided a review for:
  - **Depth of Analysis**: We reviewed OPG's analysis to determine if the opportunity sizing was in line with our estimates.
  - **Quality of Plan**: We reviewed if OPG had a plan in place to realize the opportunity.
  - **Complexity of Execution**: We identified key challenges that OPG may face associated with this type of project.

Identified Opportunities and OPG's Business Transformation Program

OPG has initiated a significant, company-wide business transformation program

In late 2010, OPG began executive discussions regarding initiating a large scale transformation program to address changes in both expected demand and retiring work force. The transformation program includes all major functions of the business including Nuclear, Hydro/Thermal, Supply Chain, Finance, Human Resources, Information Technology, Legal and Corporate Services.

OPG has estimated savings of about $200m between 2012-2015 for this program which includes a reduction of 2000 FTEs.

The opportunities that we have identified in this report are incremental to the identified or existing initiatives within OPG's Business Transformation program or within OPG's 2013-2015 business plans.

Based on observations from management interviews, business plans and project plans, 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.

Source: Management interviews, OPG Business Plans, OPG Cost Efficiency and Performance Review Executive Summary, Update on Business Transformation - Dec 10, 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

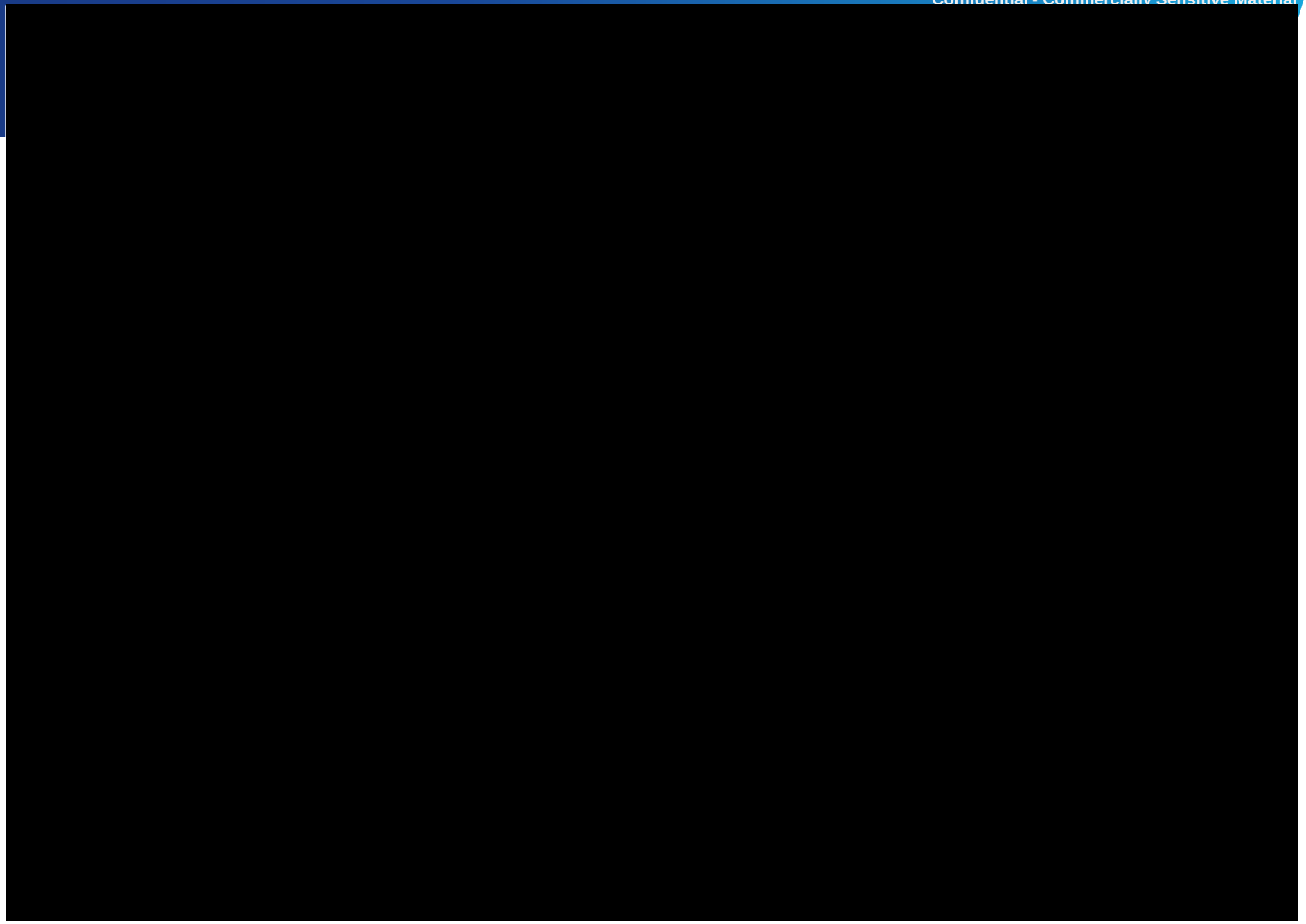
[redacted]

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

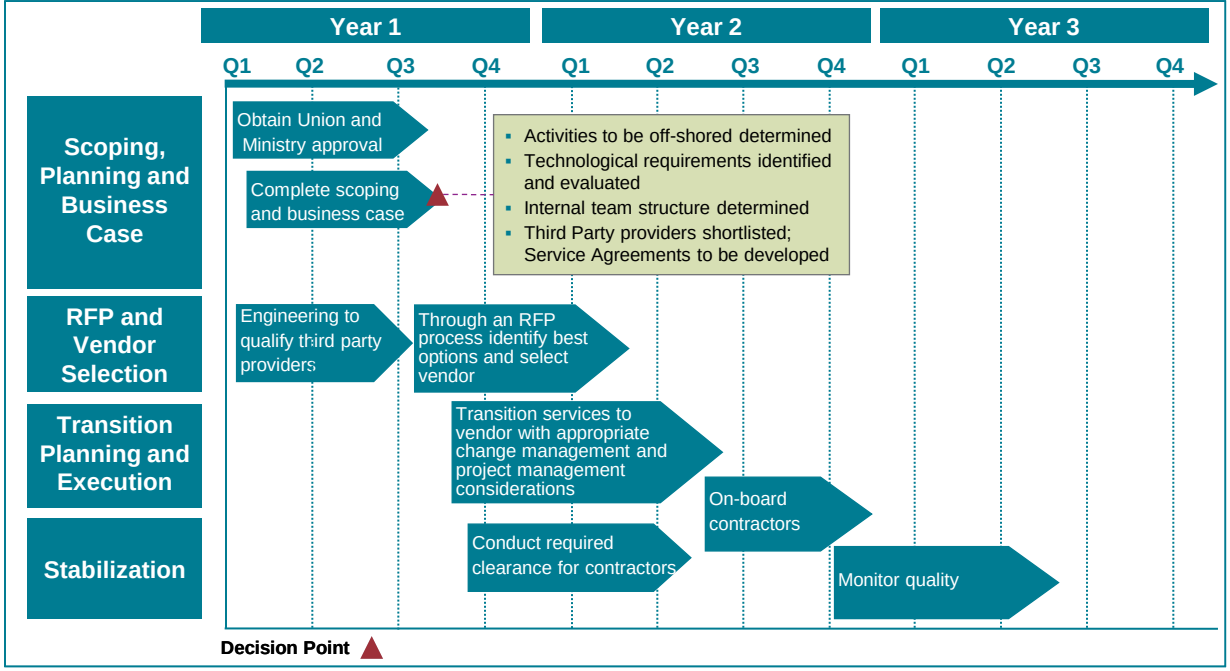
Source: OPG Organizational Data, Management Interviews



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

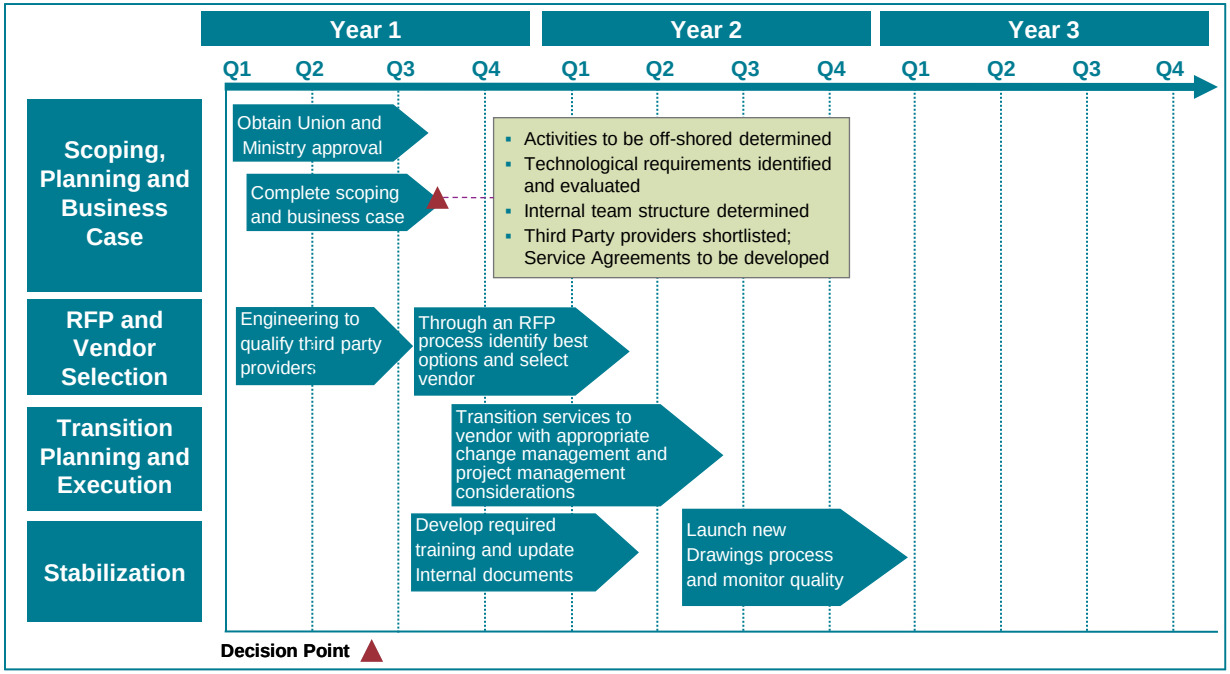
- Changes to work practices with union personnel will potentially require new contracts to eliminate selected jobs from collective bargaining agreement
- Changes in process for long tenured engineers will have to be managed by senior management with the move towards an EPC and centre-led model
- Ability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

[redacted]

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

Opportunity Analysis

Hydro/Thermal Generation

Hydro/Thermal - Overview

Scope

- Our analysis of structural and organizational opportunities focuses on Hydro generation (regulated and non-regulated) and the recently combined support organization for Hydro and Thermal.
- As directed by the Ministry, we did not review the Thermal generation function.

Hypothesis Development

- Six hypotheses were developed for the Hydro/Thermal function
- Hydro hypotheses were developed based on :
  - 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 Hydro/Thermal, the scope of the BT program is focused on standardizing processes and documents between the thermal and hydro teams, consolidating asset management and maintenance programs, improving plant level processes and reducing the administrative burden for engineering staff and other skilled workers
- Staffing plan improvements will be met through attrition and changes to the workforce development program.
- OPG expects savings from Hydro/Thermal related projects of 105 FTEs

Hydro/Thermal : 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	
Subhead	**Description**
Hydro Business Plan 2013-2015	■ An overview of the key projects, organizational changes and key deliverables and projections for the hydro/thermal business
Thermal Business Plan 2012-2014	■ An overview of the key projects, organizational changes and key deliverables and projections for the thermal business
Hydro Business Plan 2012-2014	■ An overview of the key projects, organizational changes and key deliverables and projections for the hydro business
EUCG/Navigant Benchmarking Study 2009	■ A summary of OPG hydro plant performance based on peer groups established by both benchmarking groups ended 2009
EUCG/Navigant Benchmarking Study 2010	■ A summary of OPG hydro plant performance based on peer groups established by both benchmarking groups ended 2010
Engineering SAMP process and Risk Measurement	■ An overview of how engineering projects are evaluated and the process that is used to review investments

Interviews
Name
Mario Mazza VP HTO Strategy and Business Support Focus Area
Al Reid Hydro Plant Manager
Joe Siracusa SVP HTO Engineering
Robby Sohi Director, Plant Engineering Services
Chris Utracki Section Manager, Production Support

Hydro/Thermal : KPMG Hypotheses

KPMG Hypotheses	Rationale
1) **OPG can reduce operating costs by centralizing operating centres**	■ Leading practice in this area is to centralize operations staff across a number of hydro plants to reduce headcount and improve accountability for plant operations
2) **OPG can lower operating costs through offshoring CAD drawing updates**	■ With the expected volume of drawings and documents to be produced in both Thermal and Hydro until 2020 due to special projects, an opportunity to offshore much of this work volume would improve efficiency of engineers and reduce administrative tasks for high-skilled workers ■ This opportunity could provide opportunities to further leverage the EPC contracts already in place
3) **OPG can improve the efficiency and workflow of engineering projects through leveraging PassPort and other operations, maintenance, and engineering support applications**	■ Tools and applications can be leveraged to provide an aggregated / integrated view of system health and can also be used to track productivity, performance and workflow

Hydro/Thermal : KPMG Hypotheses

KPMG Hypotheses	Rationale
4) **OPG can reduce operating costs by further outsourcing support service activities**	■ Leading practice in this area is to optimize labour costs by outsourcing facilities, janitorial and other support services that are available from third party providers, assuring that the appropriate safety, quality and performance is maintained.
5) **OPG can reduce the time required to select contractors by prequalifying contractors for different types of work under Master Service Agreements (MSAs) or Engineering Service Agreements (ESAs) which will improve efficiency and reduce costs**	■ Leading practice in this area is to pre-qualify a number of contractors for a specific functions and types of work to reduce the time spent evaluating RFP's and allows for work flow and productivity to improve ■ Having an MSA / ESA will reduce the FTEs who previously screened service proposals
6) **OPG can improve efficiency and improve workflow by standardizing processes and documents across each plant**	■ Leading practice in this area is to standardize the method by which to evaluate investments, work packages and repairs by standardizing templates and documents to align with the firm's strategy

Hydro/Thermal H1: OPG can reduce operating costs by centralizing operating centres

Findings

- Currently has six operating centres as well as embedded maintenance staff servicing its 65 hydroelectric generating stations, 233 dams/water control structure and other civil infrastructure
- Plant Regionalization including Hydro Work Centre consolidation has been identified as a future opportunity in the 2013-2015 business plan
  - Management expects regionalization to reduce embedded maintenance staff at plants which will reduce total maintenance headcount
  - Operations teams are moving towards remote operations where possible so long as all regulatory requirements are met
  - OPG is planning on using roving project crews staffed from the closures of both Lambton and Nanticoke thermal plants. The expectation is to reduce selected work currently performed by embedded staff
- Management interviews indicate that although centralizing operations is identified, no plan or business case for this initiative has been made, making the timeline for implementation no earlier than 2015 or 2016
- In order to determine the expected savings, each plant will require a detailed assessment to determine the automation costs to enable remote support, and that security and safety requirements can be met
- Related OPG Project(s): Plant Regionalization Post 2014 in 2013-2015 Business Plan

OPG Project Review – Plant Regionalization Post 2014

Estimated Savings

- Savings have not been calculated for this opportunity
- Savings potential of this project are dependant on a number of factors, such as:
  - Level of capital investment required to further automate partially automated stations
  - Requirements and complexity of the IESO electricity market
  - Present requirement of operating presence at US/Canadian border (e.g. at the Saunders/NYPA FDR powerhouses)
  - Geographic dispersion of OPG facilities and reliability of remote communications (fibre-optic networks, etc).

Source: 2013-2015 HTO Business Plan, HTO Plant data, Management Interviews

Hydro/Thermal H1: OPG can reduce operating costs by centralizing operating centres (cont'd)

OPG Project Review – Plant Regionalization Post 2014

Depth of Analysis

- The analysis is extremely preliminary at this point with no formal business case developed nor formal implementation plan
- OPG will need to develop a plan to evaluate the levels of automation at each facility in order to determine the extent of centralization that is possible
- The proposed timeline could have incremental cost savings if it is accelerated into the 2014-2016 business plan

Quality of Plan

- No plan for this project has been developed at this time, pursuing this opportunity sooner could accelerate a significant amount of savings
- Due to the uncertainty of the coal-closure milestone and other approved/on-going projects OPG has not prioritized this initiative, with potential execution taking place in the 2016 to 2019 timeframe

Complexity of Execution

- OPG does not have the capacity to conduct this analysis currently and will have to assign an internal team or engage a third-party
- The implementation plan for this type of reorganization must be performed by a party capable of understanding the technical requirements of plant automation as well as developing the organizational framework to centralize operations effectively

This hypothesis has been addressed and there is no incremental opportunity for this hypothesis. However, this opportunity does require further scoping to determine savings and implementation costs.

Source: 2013-2015 HTO Business Plan, HTO Plant data, Management Interviews

Hydro/Thermal H2: OPG can lower operating costs through offshoring CAD drawing updates

Findings

- Management indicated that there are 19 staff in drawing/drawing management (13 Hydro and 6 Thermal) that perform a variety of drawing maintenance activities such as revising field marked prints, issuing updated drawings, and registering drawings in system.
- Unlike the draftspersons in Nuclear, these staff also conduct a significant amount of non-drafting duties involved with on-going projects and plant maintenance.
- Management estimates that only 15% of this group's time is spent on drafting updates and archiving
- This group does not operate out of a central location but is spread across the province supporting the 28 work sites
- Management interviews indicated that as HTO Thermal plants move to a "mothball" condition OPG will need to maintain existing drawings and design documents in a retrievable state if future fuel conversion is performed
- There are no BT programs related to this hypothesis

Opportunity Assessment

- Based on our analysis, there does not appear to be a material opportunity to offshore CAD drawing activities within Hydro/Thermal Operations as the activities are highly distributed and represent 15% of total activity time across 19 FTEs

There appears to be no incremental opportunity for this hypothesis

Source: 2013-2015 HTO Business Plan, HTO organizational data, Management Interviews

Hydro/Thermal H3: OPG can improve the efficiency and workflow of engineering projects through leveraging PassPort and other engineering applications

Findings

- Management interviews indicated that OPG has been operating with 2 major ERP/EAM systems since the mid 1990's and significant duplication in ERP/EAM functionality exists
- The planning phase (blueprinting & design) is scheduled is to be completed by the end of 2012 and the execution business case is currently being developed
- Additional information provided indicates that the execution phase is expected to commence in 2013 upon approval of the execution business case, and phased roll-out is expected by the end of 2014
- HTO has a team in place that is actively involved in the blueprinting phase of the project and participated in over 100 workshops over the last 8 months, resulting in the development of a detailed business requirement document
- Related OPG BT Project(s): Implement Information Management Transformation project (SAP to PassPort/Asset Suite)

OPG BT Project Review – SAP to PassPort/Asset Suite

Estimated Savings

- The driver for HTO transition to the PassPort/Asset Suite is the elimination of existing OPG ERP/EAM system duplication and to achieve net IT savings. Savings are primarily expected to come at the corporate level by way of licensing fees
- Analysis has been conducted on internal processes and no productivity or process improvements are expected

Depth of Analysis

- The analysis conducted by HTO appears robust (including transition blueprinting)
- HTO did not identify additional process/work flow related savings opportunities beyond the expected software licensing savings contained in CIO business plan.

Source: 2013-2015 HTO Business Plan, Management Interviews

Hydro/Thermal H3: OPG can improve the efficiency and workflow of engineering projects through leveraging PassPort and other engineering applications (cont'd)

OPG BT Project Review – SAP to PassPort/Assets Suite

Quality of Plan

- The plan appears to be leveraging lessons-learned from previous software transition projects to minimize operational impact and assure adequate training

Complexity of Execution

- One of the major issues identified during blueprinting is associated with data migration from SAP to AS7 and the significant "data clean-up" required before the project "goes live" in 2014; mitigation plans are being developed to manage this issue
- While OPG uses a separate system to manage/control high energy isolation ("Lock-out" Tag-out"), they are aware of the importance of assuring system synchronization prior to system "go-live" to assure personnel safety and asset security

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

Hydro/Thermal H4: OPG can reduce operating costs by further outsourcing support services activities

Findings

- HTO's strategy is to outsource additional lower-skilled work while respecting the PSA provisions of the collective agreement and value for money principals (where it is cost effective and practical to do so)
- HTO is currently outsourcing non-core activities/services such as road maintenance/ditching, vegetation control (spraying/brushing), grass cutting, snow clearing, janitorial and site security
- Average levels of outsourcing per activity range from 30% to 90%
- Related OPG Project(s): Outsourcing low-skilled support work strategy

OPG Project Review – Outsourcing low-skilled support work strategy

Estimated Savings

- Savings are calculated on a case-by-case basis

Depth of Analysis

- It appears that HTO is continually looking for opportunities to outsource low-skilled work where available, keeping things in-house for a specific set of requirements and appropriate reasons

Quality of Plan

- There is no formal implementation plan, but rather a strategy to pursue these opportunities when they are identified and achievable
- The plan appears reasonable and acknowledges the challenges that HTO faces from all constraints (geography, collective bargaining, etc.)

Complexity of Execution

- Availability of vendors to service geographically remote locations

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

Source: HTO Provided Data, Management Interviews

Hydro/Thermal H5: OPG can reduce the time required to select contractors by prequalifying contractors for different types of work under Master Service Agreements (MSAs) which will improve efficiency and reduce costs

Findings

- OPG has used two MSAs (called ESAs) for engineering services with Worley Parsons and AMSL (AMEC and SNC Lavalin partnership); both contracts have expired and HTO and Supply Chain are re-evaluating the going-forward re-tender strategy based on the shrinking thermal plant footprint
- Management indicated that the MSAs delivered significant value in terms of competitive pricing, quality engineering services and reduced the cost of administration and procurement effort
- MSAs in maintenance and project work are also commonly used in HTO and are renewed every three years so to force contracted firms to uphold quality and to remain cost competitive
- Centre-led engineering is expected by management to increase the use of contractors on lower-skilled work moving forward; HTO will use EPC contracts wherever possible
- For major Greenfield projects OPG has been engaging contractors to provide turnkey solutions as shown in the Niagara Tunnel and Mattagami River Projects
- OPG's "Water-to-Wire" strategy, meaning the prime contractor is awarded all of the work on a generating unit from the intake water to the outbound transmission wires, has been used to "best allocate risk" while achieving an appropriate price point
- HTO has also bundled certain types of engineering work that is contracted out where cost effective and practical (e.g., Dam Safety Design Reviews and Plant Condition Assessments)
- HTO also contracts out specialty engineering work that was historically performed internally; including bridge design/inspection/analysis, turbine runner modelling and design
- Related OPG BT Project(s): ESA Agreements

OPG Project Review – ESA Agreements

Estimated Savings

- Future savings cannot be accurately estimated as MSAs have been used historically at OPG

Source: Management Interviews, HTO documentation

Hydro/Thermal H5: OPG can reduce the time required to select contractors by prequalifying contractors for different types of work under Master Service Agreements (MSAs) which will improve efficiency and reduce costs (cont'd)

OPG Project Review – ESA Agreements

Depth of Analysis

- HTO has not clearly outlined how it will use MSAs in the future given the uncertainty from coal closure and how this will effect capacity
- Due to Worley Parsons and AMSL closures, there is no current shortlist of vendors for particular types of work.
- OPG is now using the electronic tendering system, Biddingo. Most vendors must now pre-qualify through Biddingo process in order to be on the tender list.

Quality of Plan

- OPG's historic approach to using MSAs and contractors was strong in engineering and maintenance
- The success with using MSAs in the past make it likely that the MSAs are being scoped and tendered appropriately

Complexity of Execution

- The uncertainty of coal closure has made it difficult to accurately scope MSAs and determine how internal resources will be allocated
- The additional FTEs available as a result of coal closure will provide additional internal capacity for maintenance work (roving crews to perform specific maintenance work)

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

Hydro/Thermal H6: OPG can improve efficiency and improve workflow by standardizing processes and documents across each plant

Findings

- OPG HTO has been using standard asset management programs that have continuously developed over the past 15 to 20 years
- Plant Condition Assessments have been used since mid 1990s and have been revised periodically
- OPG HTO has developed standard life cycle plans that are prepared for stations that have major end of life decisions to be made or have significant alternatives to evaluate
- OPG HTO has developed a standardized business case template for repairs/investments for all levels of Engineering/Asset Management work
- Management cited that all projects are assigned to one person who has accountability to maintain the scope and timelines that were established at the onset of that project
- Related OPG BT Project(s): Streamline and Further Improve Asset Management Programs

OPG BT Project Review –Streamline and Further Improve Asset Management Programs

OPG Estimated Savings

- 7 FTE

Depth of Analysis

- The analysis has identified the critical business impacts on workflow with the merger of the Thermal and Hydro businesses

Quality of Plan

- The individual templates appear robust and drive a standardized effort to make decisions more process driven

Complexity of Execution

- The existing processes appear well-established within the organizations
- The HTO organization merger will require additional effort to achieve consistency in process compliance

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

Source: HTO Provided Data, SAMP Asset Management Overview, HTO Sample Business Case Templates

Opportunity Analysis

Supply Chain

Supply Chain - Overview

Scope

- Our analysis of structural and organizational opportunities for Supply Chain includes the procurement and inventory functions for all business units
- Our hypotheses focused on business operations and did not review specific capital projects

Hypothesis Development

- Three hypotheses were developed for the Supply Chain function
- Supply Chain hypotheses were developed based on :
  - 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 Supply Chain, the BT program includes projects that impact inventory management and procurement.
- OPG expects savings from Supply Chain related projects of:
  - 119 FTEs (OPG has already realized a reduction of 24 FTEs within Supply Chain)
  - $63m in inventory reduction
  - [redacted]

Source: OPG Business Transformation Plan, Supply Chain 2013-2015 Business Plan

Supply Chain: Data Inputs

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

Key Documents	
Name	**Description**
Supply Chain Business Plan 2013-2015	■ Overview and individual plans for all functional areas and their relation to the broader goals of business transformation
Payroll/ Organizational Data	■ Listing of job titles and compensation for full-time, part-time and temporary workers within OPG
OPG Strategic Sourcing Plan 2012	■ Detailed description of 2011 spend analysis, category strategies and changes the OPG procurement organization
Nuclear Supply Chain White Paper	■ Outlines current supply chain practices and proposes new metrics to improve performance
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

Interviews
Name
Stephun Cliver Chief Supply Officer
Martin Tulett VP Nuclear Supply Chain
Robert DeBartolo Manager, Strategic Sourcing
Paul Mascarin Manager, Strategic Sourcing

Supply Chain: KPMG Hypotheses

KPMG Hypotheses	Rationale
1) **OPG can reduce operational costs by developing a shared service organization for procurement**	■ A cross-industry leading practice is to combine procurement activities across business units into one group. This drives lower operational costs by reducing duplicate activities, standardizing processes, increasing staff utilization and better use of tools. ■ It is common among utility companies to have decentralized procurement departments that are managed and operated within individual business units or individual sites.

2) **OPG can reduce operating costs by strategically sourcing products and services from suppliers**	■ A cross-industry leading practice is to take a strategic and proactive approach to sourcing materials and services from suppliers. Typically this proactive approach includes:
	  ■ Undertaking portfolio analysis to establish the best strategy for managing product categories
	  ■ Monitoring the market for innovations that will bring additional benefits
	  ■ Managing the vendors in their categories (both those with contracts and without) to maintain and improve value
	  ■ Working with their internal groups to understand current and future requirements and develop plans to meet them
	  ■ Bringing innovations to their internal groups and encouraging them to consider new and alternative ideas
	■ Utility companies are beginning to adopt this approach although it is not yet an industry standard

3) **OPG can lower operating costs by reducing inventory levels of non-critical items**	■ A power industry leading practice is to reduce or eliminate non-critical inventory, excluding inventory that is no longer manufactured or difficult to obtain ■ Reducing or eliminating inventory can reduce labour and facilities costs ■ Vendor managed inventory is a common method to reduce total cost of inventory ownership ■ Historically, utility companies store non-critical inventory in the same fashion as critical inventory

Supply Chain H1: OPG can reduce operational costs by developing a shared service organization for procurement

Findings

- Prior to 2012, OPG had six different groups performing procurement activities across the company
- Between 2011 and 2012, OPG performed a detailed assessment of its procurement activities; the assessment involved a detailed spend analysis, an organizational review and a category analysis
- OPG identified duplicate activity and non-standardized processes across the six groups as an opportunity to improve efficiency and has created a transformation plan
- OPG projects related to this hypothesis: Supply Chain 2013-2015 Business Plan

OPG Project Review – Supply Chain 2013-2015 Business Plan

Estimated Savings

- 119 FTEs (across all supply chain consolidation initiatives)

Depth of Analysis

- This opportunity has been clearly identified and estimated savings have been quantified

Quality of Plan

- Consolidation of six groups into one has occurred earlier in 2012
- OPG has developed a reasonable plan with FTE savings estimated to 2015 driven by several procurement related transformation projects

Complexity of Execution

- Matching the skill set required for new organization with the skills and experience of existing staff
- Ensuring compliance with new standardized processes
- Delivering equal or better service levels with new procurement organization

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

Source: OPG Business Transformation Plan, Supply Chain 2013-2015 Business Plan, Management Interviews

Supply Chain H2: OPG can reduce operating costs by strategically sourcing products and services from suppliers

Findings

- Prior to 2012, OPG did not have a structured, standardized approach to strategic sourcing across the organization
- Between 2011 and 2012, OPG performed a detailed assessment of its procurement activities; the assessment involved a detailed spend analysis, an organizational review and a category analysis
- OPG identified strategic sourcing as an opportunity to reduce operating costs and has developed a plan to implement a structured approach to procurement across the organization
- The centralized procurement organization is in the process of being developed and it will take 12 months to complete staff recruitment and training and for the team to begin performing
- Management indicated that OPG is restricted from negotiating early payment discounts. This is a common sourcing tool where buyers negotiate with vendors for a discount on invoice totals if invoices are paid within a specific number of days from the receipt of invoice. e.g. 10 days
- OPG Projects related to this hypothesis: Supply Chain 2013-2015 Business Plan

OPG Project Review – Supply Chain 2013-2015 Business Plan

[redacted]

Depth of Analysis

- The approach used to drive benefits such as bringing new spend under management and rationalizing and standardizing existing spend under management follow leading practice
- The analysis identifies methods for improvement across 13 high level spend categories, however, the analysis for each category appears somewhat limited and there is no quantification of these opportunities in terms of savings

Source: OPG Business Transformation Plan, Supply Chain 2013-2015 Business Plan, Management Interviews

Supply Chain H2: OPG can reduce operating costs by strategically sourcing products and services from suppliers (cont'd)

OPG Project Evaluation – Supply Chain 2013-2015 Business Plan

Quality of Plan

- The plans are high level and more detailed planning will be required before they can be implemented
- The plans do not identify more complex opportunities such as innovation, substitute products, within contract negotiations, vendor or contract management as opportunities, which should be considered where appropriate

Complexity of Execution

- Experienced strategic sourcing staff will need to be developed or acquired
- More detailed analysis and planning will be required to drive successful execution
- Cultural change required as strategic sourcing team will need to develop stronger, trust-based relationships with internal groups and will need to be recognized as leaders in their area

There is an incremental opportunity for this hypothesis

Supply Chain

Opportunity #3: Achieve greater savings through strategic sourcing of products and services

Opp #3

Achieve greater savings through strategic sourcing of products and services

Summary Evidence

- Prior to 2012, each procurement group purchased goods and services for their respective business unit
- OPG strategic sourcing group has just been formed this year
- [redacted]
- Management interviews suggest that this analysis was preliminary
- Review of KPMG analysis of 13 spend categories with the OPG procurement team confirmed additional savings is achievable
- Management interviews indicate that OPG is restricted from negotiating early payment discounts

Next Steps

- Engage with Business Units to identify high priority categories
- Begin recruitment of experienced strategic sourcing staff
- Develop detailed category plans for all major spend categories, with savings targets and specific implementation plans
- Work with Business Units to refine and obtain sign-off
- Form category implementation teams that include Business Unit representative
- Establish Procurement Program management
- Manage implementation and track benefits delivery

[redacted]

Implementation Complexity

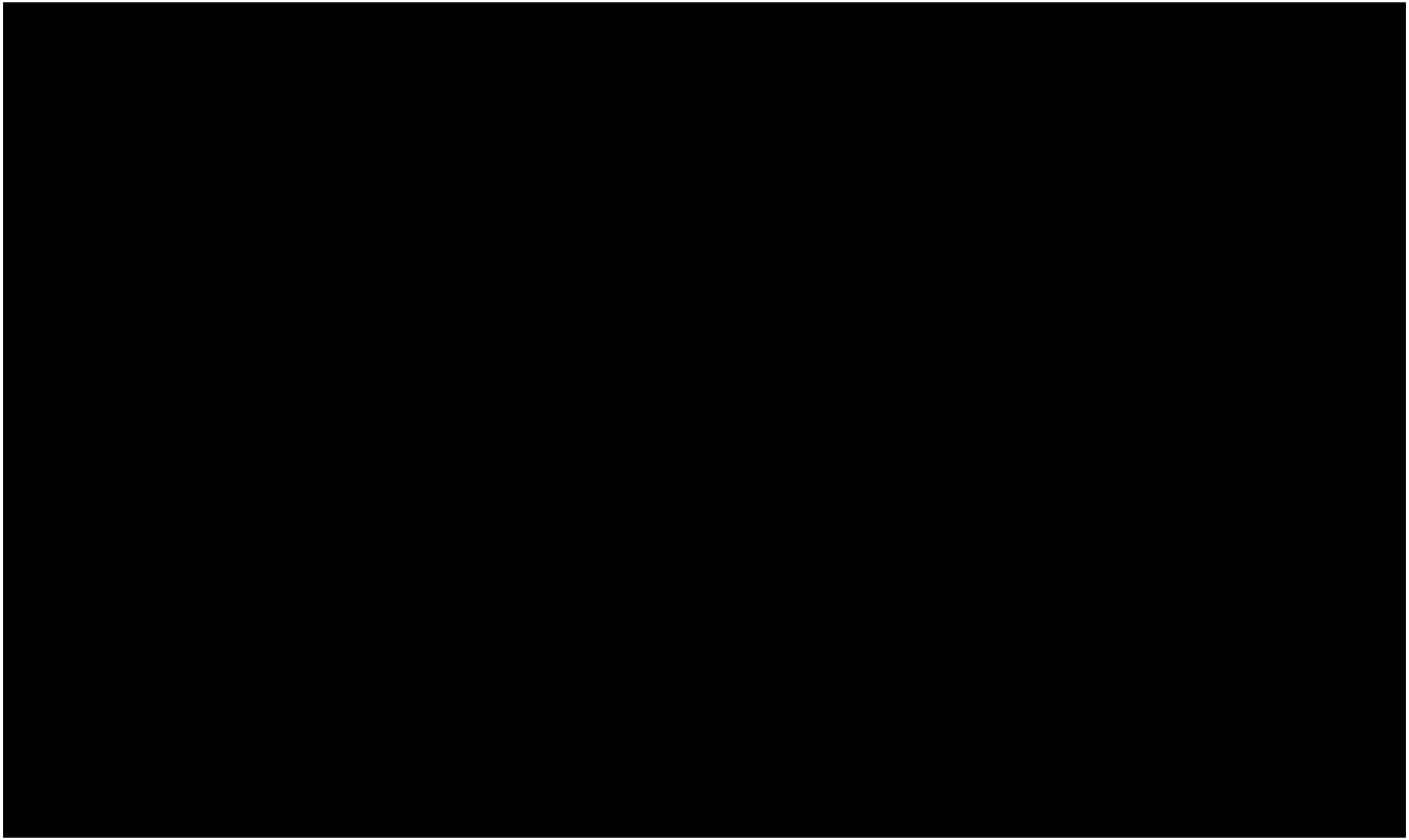
- This will involve a change in the way Procurement/Supply Chain interact with the Business Units and a change in the way Business Units 'view' Procurement/Supply Chain, which will take time and force 'category managers' to develop strong influencing and leadership skills.
- Category manager will also need to understand the market and major suppliers for their categories

*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

Source: OPG Business Transformation Plan, Supply Chain 2013-2015 Business Plan, Management Interviews

Supply Chain

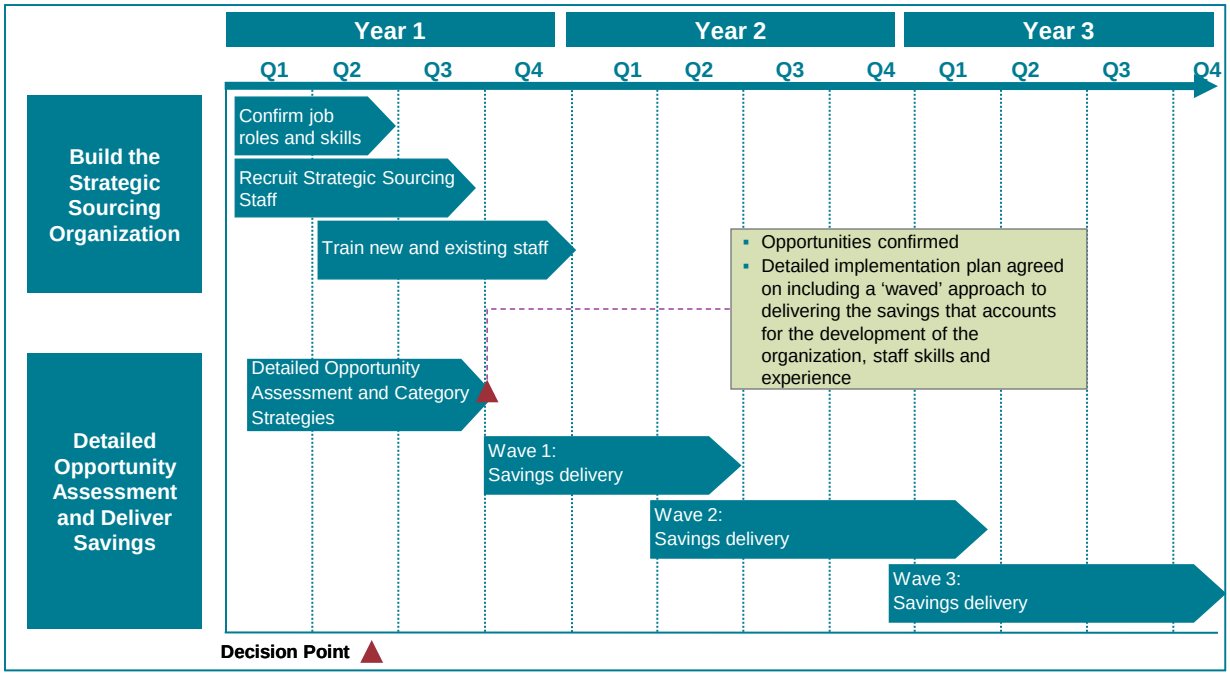
Opportunity #3: Analysis



Supply Chain

Opportunity #3: Implementation Plan

Implementation Plan



Opportunity Detail*

[redacted]

Description

- The implementation has two phases: i) Build the Strategic Sourcing Organization ii) Detailed Opportunity Assessment and Deliver Savings
- Hiring skilled, experience procurement professionals quickly will be the limiting factor for OPG to achieve the incremental savings identified
- OPG expects that it will require 12 months to recruit and train staff to ensure they have the skills and experience to deliver these savings.

Assumptions and dependencies

- OPG will be able to hire/train the team in order to have the skills, experience and capability
- Savings analysis is based on 2011 spend -- assumption that future spend profile will have a similar profile
- Savings will be spread evenly across each 'wave' of savings, however detailed analysis will be required to identify the value that will be delivered in each wave
- Additional strategic sourcing staff will augment existing strategic sourcing staff. Actual number of strategic sourcing staff required is dependent on how spend categories are distributed and managed
- Basic tools in place for use by procurement team
- Vendors have not implicitly included payment discounts in current contracts
- Any restrictions on early payment discounts can be overcome/removed
- New roles do not require changes to collective agreement

*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

Supply Chain H3: OPG can lower operating costs by reducing inventory levels of non-critical items

Findings

- Currently, OPG has more than $600m of inventory on hand – this includes critical/non-critical, plant/non-plant items
- Previous policy did not hold nuclear plant managers accountable for inventory levels which resulted in excess inventory ordering of both plant and non-plant related items
- Between 2011-2012, OPG conducted a detailed analysis of inventory and identified excess inventory as an opportunity area
- OPG has developed a transformation plan to improve inventory levels and change inventory policy and accountability
- Related OPG BT Project(s): Nuclear Warehouse Initiatives - Discontinue Receiving QL-4 items (non-plant equipment)

OPG Project Evaluation – Nuclear Warehouse Initiatives - Discontinue Receiving QL-4 items (non-plant equipment)

Estimated Savings

- 2013-2015 Business Plan estimates an inventory reduction of $60m by 2015

Depth of Analysis

- Evidence of data driven analysis of plant and non-plant inventory
- Highlights key driver of current inventory levels which is that nuclear plant managers do not have accountability for inventory

Quality of Plan

- OPG has developed a reasonable plan to achieve inventory targets

Complexity of Execution

- Driving behavioural change at nuclear plants
- Working with vendors to manage inventory for non-plant items

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

Source: OPG Business Transformation Plan, Supply Chain 2013-2015 Business Plan, Management Interviews

Opportunity Analysis

Information Technology (IT)

Information Technology: Overview

Scope

- Our analysis of structural and organizational opportunities for IT includes the corporate IT function and all staff performing IT activities within each business unit
- Our hypotheses focused on business operations and did not review specific capital projects

Hypothesis Development

- Nine hypotheses were developed for the IT function
- IT Hypotheses were developed based on :
  - Past OPG IT benchmarking reports (Internal Analysis, 2009-2010)
  - Our team's knowledge of IT leading practices in the power generation industry and other asset-intensive industries
  - 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 IT, OPG stated that business transformation initiatives were started in 2009. In 2010-2011, OPG developed a plan with an aim to reduce IT costs from [redacted]
- OPG expects savings from IT related projects of [redacted]
- Currently, 24 transformation initiatives are being implemented

Information Technology: 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 key data used and the names of individuals we interviewed.

Key Documents	
	Description
IT Business Plan	■ Provided by OPG, these documents offered a high level view of OPG's business plan and IT cost savings initiatives
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 OPG
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

Interviews	
Name	
Jong Kim, VP & Chief Information Officer	
Mike Borsch, IT Director	

Information Technology: KPMG Hypotheses

KPMG Hypotheses	Rationale
1) **OPG can reduce its computing services costs by consolidating and/or standardizing hardware and software platforms**	■ Standardization of vendors and platforms is a cross-industry leading practice that increases efficiency by reducing the level of skill sets that need to be maintained, reducing the number of contracts that need to be managed, reducing the complexity of managing system changes and achieving greater economies of scale through greater purchase volume discount potential ■ Benchmark report analysis indicated that OPG's server costs were above the industry median
2) **OPG can reduce its computing services by rationalizing/ consolidating duplicate or aging applications**	■ Redundant applications that perform similar functions can be removed thereby reducing licensing, maintenance, and support costs. Support costs due to heterogeneous applications include increased numbers of interfaces that need to be managed, increased risk for change-related errors, and therefore increased downtime risk and impacted productivity.
3) **OPG can reduce computing services costs by increasing the ratio of virtualized servers to physical servers**	■ Analysis of Benchmark Reports indicated that OPG's server virtualization percentage in 2010 was below the industry average. By increasing the ratio of virtualized servers to physical servers, OPG can reduce the number of servers that need to be procured and managed. ■ A reduced server footprint will increase the useful life of the data-centre and therefore defer the cost of potential upgrades and expansion ■ A reduced server footprint can also have a corresponding impact on power and HVAC consumption
4) **OPG can reduce its computing services costs by consolidating its data centre facilities**	■ Consolidating data centers can reduce facilities related operating costs, avoid data centre upgrade capital costs and can potentially generate revenue by leasing or selling surplus data center facilities
5) **OPG can reduce its storage costs through demand management and/or employing an end point driven storage cost model**	■ Operational efficiency can be realized through storage demand management, especially in the area of email storage ■ Efficiency can be achieved by moving to an end-point model for storage cost rather than the current per GB of storage capacity used. This will slow the growth in storage costs through employing a different resource cost unit for storage from OPG's current IT services provider.

Information Technology: KPMG Hypotheses

KPMG Hypotheses	Rationale
6) **OPG can reduce its computing services costs by leasing its IT assets and shifting accountability of the asset management function to an IT outsourcer**	■ Leasing IT assets and shifting the accountability for the asset management function to the outsourcer can reduce asset management overhead costs such as renewal cycles and contracts
7) **OPG can reduce application services costs by offshoring the Nuclear Legacy System Support**	■ Efficiency improvements can be achieved by leveraging shared development resources and moving commoditized application maintenance functions to a lower cost location
8) **OPG can reduce desktop support costs by expanding self service functionality**	■ Helpdesk costs are variable and dependant on call volumes; an expansion of self service site functionality will result in a reduction of helpdesk calls. Reduced volumes of helpdesk calls will reduce the demand for helpdesk agents and can improve productivity of resources.
9) **OPG can improve efficiency by further outsourcing transactional IT activities**	■ Transactional IT activities that have remained within OPG may be candidates for outsourcing ■ Outsourcing transactional activities can improve IT service efficiency by implementing greater discipline

Information Technology H1: OPG can reduce its computing services cost by consolidating and/or standardizing hardware and software platforms

Findings

- In the 2010 benchmark report, OPG's reported costs for desktops and Wintel servers were higher than the industry median
- Management interviews indicate that consolidation of hardware and software platforms has been achieved with the implementation of a commodity contract for workstations and servers
- Legacy servers are planned to be sourced from the new contract during the refresh cycle in the next 2-3 years that will drive further platform consolidation through the new contract, which is expected to result in a net 5% reduction in overall hardware purchase and deployment costs
- There are no BT projects related to this hypothesis

Opportunity Assessment

- OPG has identified the opportunity associated with this hypothesis and has implemented a plan to realize the opportunity-related savings
- The project has been implemented so focus will shift towards continued monitoring of costs and efficiency

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

Sources: Final OPG IT Cost Benchmark Analysis – 2010, BS&IT – Programming & Performance Improvement, Management Interviews

Information Technology H2: OPG can reduce computing services cost by rationalizing/consolidating duplicate or aging applications

Findings

- OPG is currently delivering against a planned application rationalization initiative, which to date has resulted in the consolidation and rationalization of 807 applications down to 470 applications; OPG has plans in place to further reduce the application portfolio to 400 applications within the next two years
- Although not part of the business transformation program, this initiative is well defined, has allocated resources and the associated savings have been factored into OPG's IT function current budget and 2013-2015 business plan
- The cost savings associated with the elimination of applications through the rationalization/consolidation project were determined by evaluating each application on 2 dimensions: service level and the complexity of the application
- As part of its efforts to eliminate redundant applications, OPG has developed a clear application architecture to help determine which are the most appropriate applications to target based on criteria such as risk, age, complexity, use, and business criticality
- OPG has spent a significant amount of time negotiating with business stakeholders and planning the consolidation/rationalization process
- The due diligence conducted by OPG IT team is expected to help facilitate and ease the future rationalization/consolidation efforts
- There are no BT projects related to this hypothesis

Opportunity Assessment

- OPG has identified the opportunity associated with this hypothesis and has implemented a plan to realize the opportunity-related savings
- The project is currently being implemented so focus will shift towards continued monitoring of costs and efficiency

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

Source: BS&IT – Programming & Performance Improvement, Management Interviews

Information Technology H3: OPG can reduce computing services costs by increasing the ratio of virtualized servers to physical servers

Findings

- In the 2010 benchmark report, OPG's level of server virtualization was reported below the industry average, however, since 2010 OPG has virtualized an initial set of 500 Wintel servers to 92, and 68 Unix servers down to 17
- Management interviews indicated plans to further virtualize both Wintel and Unix environments from 370 to 25 and 45 to 11 respectively within the next refresh cycle (2-3 years)
- The cost savings associated with increasing the server virtualization ratio efforts have already been included in the OPG IT function's current budget and business plan for 2013-2015
- Management interviews revealed that OPG has adopted to synchronize its server virtualization efforts with the asset refresh cycle to mitigate risk, which implies there is no additional benefit with advancing the virtualization schedule
- There are no BT projects related to this hypothesis

Opportunity Assessment

- OPG has identified the opportunity associated with this hypothesis and has implemented a plan to realize the opportunity-related savings
- The project has been implemented so focus will shift towards continued monitoring of costs and efficiency

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

Source: Final OPG IT Cost Benchmark Analysis – 2010; BS&IT – Programming & Performance Improvement, Management Interviews

Information Technology H4: OPG can reduce its computing services costs by consolidating its data centre facilities

Findings

- OPG currently operates 6 data centers across the province
- Management interviews indicated that current data centre redundancy is intentional for reliability, resiliency, as well as security related reasons
- There are two predominant data centre facilities, however, the remainder of the facilities consist of on-site local file servers and domain controllers which present limited opportunities for further consolidation or optimization
- Management indicated that they had optimized the current layout and physical data centre facilities at 700 University Avenue and conducted a business case to evaluate the cost/benefit of relocating that facility to a co-location facility; results indicated that the costs of moving the facility and proposed operating costs would be greater than retaining the facility at it current location
- The feasibility of leveraging the Province's facility had also been considered but deferred due to lack of existing capacity
- There are no BT projects related to this hypothesis

Opportunity Assessment

- Based on our analysis, data centre consolidation is not an opportunity available to OPG based on security related requirements

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

Source: Final OPG IT Cost Benchmark Analysis – 2010; BS&IT – Programming & Performance Improvement, Management Interviews

Information Technology H5: OPG can reduce its storage costs through demand management and/or employing an end point driven storage cost model

Findings

- In the 2010 benchmark report, OPG's storage cost per gigabyte was reported as higher than the industry average
- Management interviews indicated that efforts are underway to implement demand management practices to curb increased demand for storage capacity and thereby manage the growth rate of storage related costs
- OPG is planning to maintain the current per TB storage pricing model until it has maximized the internal storage volume reductions at which time OPG will pursue an endpoint driven storage cost model with its managed IT services provider during the next outsourcing contract renewal
- The pricing model approach is anticipated to maximize the cost savings benefits of switching the storage pricing model
- IT management is aggressively working to reduce the storage costs related to email, personal drives and shared drives used by end users; management indicated that storage volumes were reduced by 10% in 2011 and expects the trend to continue until 2015
- The cost savings associated with storage demand control efforts have already been included in the OPG IT function's current budget and business plan for 2013-2015
- Management estimates of declining storage demands over the next three years are based on the implementation of storage demand controls and the assumption that overall storage demand will further decline with the organization's reduction in headcount
- There are no BT projects related to this hypothesis

Opportunity Assessment

- OPG has identified the opportunity associated with this hypothesis and the opportunity-related savings are included in the current IT budget and business plan for 2013-2015

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

Source: Final OPG IT Cost Benchmark Analysis – 2010; BS&IT – Programming & Performance Improvement, Management Interviews

Information Technology H6: OPG can reduce its computing services costs by leasing its IT assets and shifting accountability of the asset management function to an IT outsourcer

Findings

- OPG currently owns all of its IT assets, with the exception of the PassPort mainframe and storage assets
- Management interviews indicate that they are currently evaluating the potential for divestiture of all IT assets
- OPG has the option to shift accountability of asset management to its outsourcer during the upcoming contract renegotiations
- Related OPG BT Project(s): Plan, Negotiate, and Transition to next OPG IT Outsource Contract

OPG BT Project Review – Plan, Negotiate, and Transition to Next OPG IT Outsource Contract

Estimated Savings

- Estimated costs and savings for IT asset leasing have not been calculated

Depth of Analysis

- OPG management has identified leasing IT assets as an option and will determine whether to include this as part of the next outsourcing contract
- OPG management indicated that they are in progress of evaluating the potential savings for leasing IT assets

Quality of Plan

- OPG IT leadership is currently preparing for negotiations and implementation of the next IT outsourcing contract by establishing the IT outsourcing scope definition, service definition, outsource strategy and associated business cases for support

Complexity of Execution

- Developing appropriate financial assumptions for both scenarios of owning and leasing IT assets
- Ensuring flexibility within the outsourcing contract to economically move, change, upgrade IT assets to match required service levels

This hypothesis has been addressed by OPG and there is no incremental opportunity for this hypothesis. However, this opportunity does require further scoping to determine savings and implementation costs.

Source: Management Interviews

Information Technology H7: OPG can reduce application services costs by offshoring the Nuclear Legacy System Support function

Findings

- The Nuclear Legacy System Support function is not delivered by IT and is controlled by the business unit
- These systems are highly customized and are very specialized in nature
- The potential savings from labour arbitrage or economies of scale available through outsourcing would be eliminated due to the highly specialized nature of the Nuclear Legacy System Support function, which would preclude the ability to offshore development and maintenance of those applications
- There are no BT projects related to this hypothesis

Opportunity Assessment

- Due to the specialized nature of this function, outsourcing this function is not a feasible opportunity available to OPG

There appears to be no incremental opportunity for this hypothesis

Source: Management Interviews

Information Technology H8: OPG can reduce desktop support cost by expanding the self service functionality

Findings

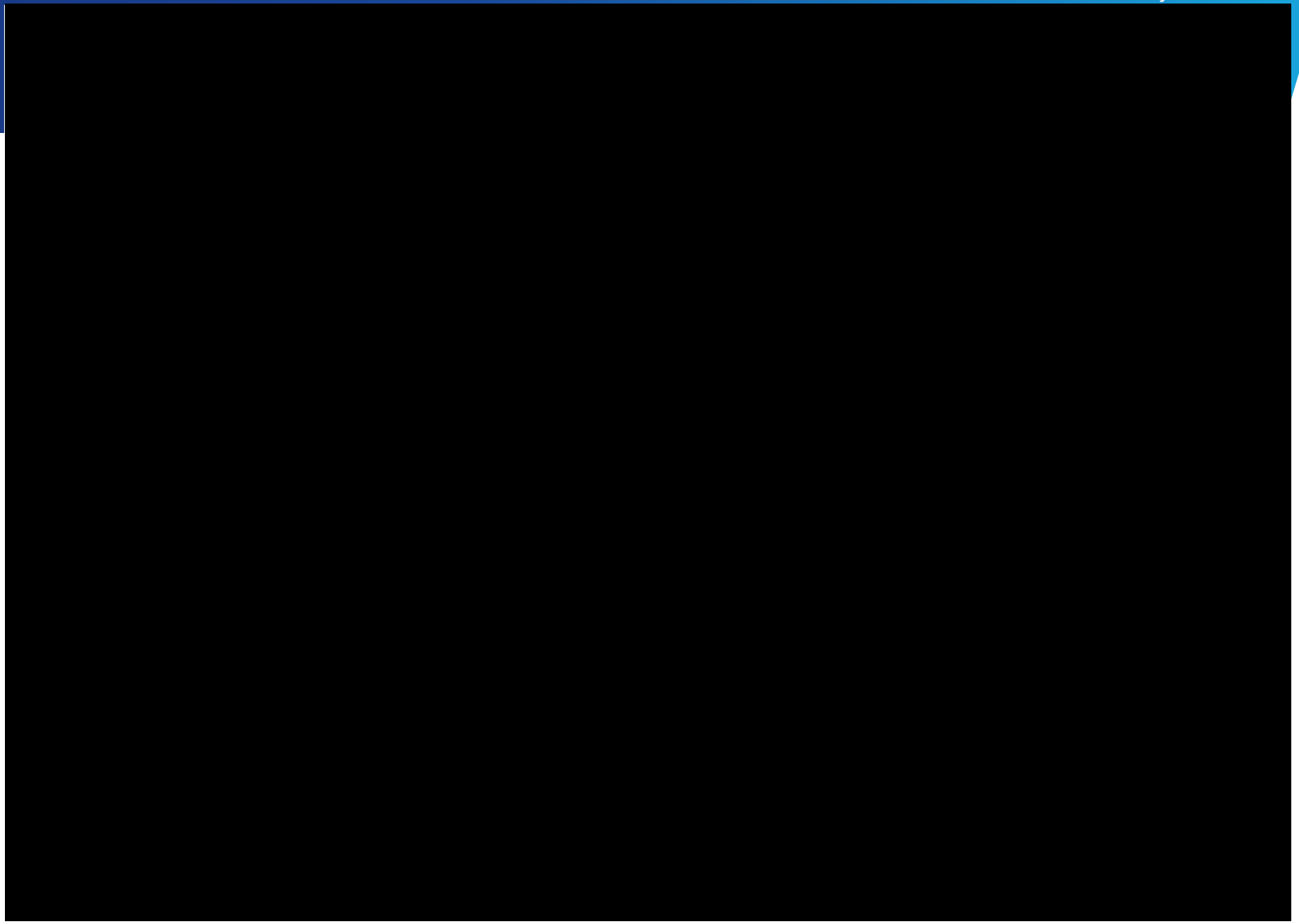
- In the 2010 benchmark report, OPG's costs per helpdesk transaction were higher than its comparative peers
- OPG has identified high call volumes as an efficiency improvement opportunity
- OPG is currently implementing self service functionality to help reduce helpdesk call volumes, which will directly reduce desktop support costs
- There are no BT projects related to this hypothesis

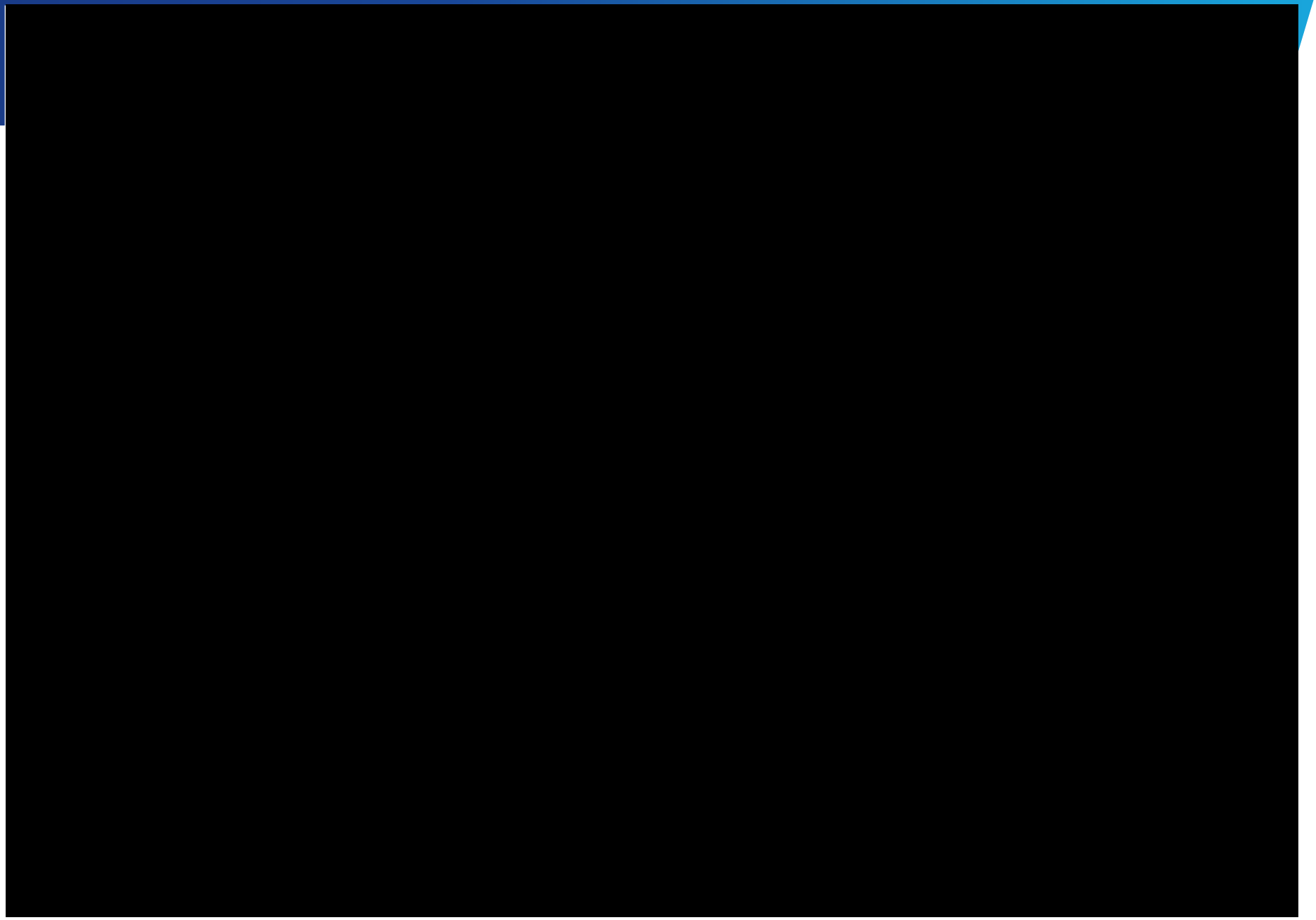
Opportunity Assessment

- OPG has identified the opportunity associated with this hypothesis and has implemented a pilot program to realize the opportunity-related savings
- The project is currently being implemented so focus will shift towards continued monitoring of costs and efficiency

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

Source: Final OPG IT Cost Benchmark Analysis – 2010; BS&IT – Programming & Performance Improvement, Management Interviews





Opportunity Analysis

Finance

Finance: Overview

Scope

- Our analysis of structural and organizational opportunities for Finance includes the corporate Finance function and all staff performing Finance activities within each business unit
- Our hypotheses focused on business operations and did not review specific capital projects

Hypothesis Development

- Eight hypotheses were developed for the Finance function
- Finance Hypotheses were developed based on :
  - Past OPG Finance benchmarking reports (The Hackett Group, 2008)
  - Our team's knowledge of Finance leading practices in the power generation industry and other asset-intensive industries
  - Analysis of organizational structure and company budgets

OPG's Business Transformation Program

- OPG has recently initiated a significant, company-wide Business Transformation (BT) program. Relating to the Finance function, the BT program includes projects that include centralization of finance activities, improving transaction processing and improving access to and quality of information.
- OPG expects savings from finance related projects of 144 Full Time Equivalents (FTEs)

Finance: 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 key data used and the names of individuals we interviewed.

Key Documents	
	Description
Finance Business Plans 2012-2014, 2013-2015	■ Provided by OPG, these documents provided a high level view of OPG's business plan and Finance cost savings initiatives
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 OPG
Business Transformation Plan	■ Listing and description of each project within the Business Transformation program

Interviews
Name
Donn W.J. Hanbidge Chief Financial Officer
Robin Heard VP Finance & Chief Controller

Finance: KPMG Hypotheses

KPMG Hypotheses	Rationale
1) **OPG can reduce Finance & Controllership costs by centralizing transactional processes**	■ A cross-industry leading practice is to employ a centralized model to not only reduce costs, but also improve the consistency and quality of the transactional processes ■ Since these processes involve a high volume of repeatable activities, they offer the greatest opportunity to take advantage of economies of scale and workload balancing
2) **OPG can further reduce Finance & Controllership costs for functions that have been centralized and standardized by offshoring transactional processes**	■ Offshoring allows finance organizations to take advantage of labour arbitrage while maintaining the same level of customer service to their internal clients ■ Offshoring of finance processes have reached a level of maturity that provides a wide range of established solutions at very competitive rates
3) **OPG can lower Finance & Controllership costs and improve efficiency through greater automation of transactional processes, business analysis, financial reporting, and planning and budgeting**	■ Leading practice organizations are building financial systems that integrate their ERP system with business intelligence, business performance measurement, and financial reporting systems ■ This improves the accuracy and timeliness of financial data and greatly reduces the need for manual intervention
4) **OPG can decrease Finance & Controllership costs by instituting strict guidelines around materiality, rationalizing the approval process for such things as POs, invoices, cash disbursements, and journal entries**	■ Many finance organizations are able to reduce costs by eliminating non-value added activities, especially those that impact month end financial reporting ■ Many finance teams are staffed to meet peak month end demand, staff levels can be decreased if these non-value added activities are eliminated

Finance: KPMG Hypotheses

KPMG Hypotheses	Rationale
5) **OPG can improve Finance & Controllership productivity by reducing the number of reports that are produced, and by instituting self-service portals for ad-hoc reporting**	■ Many finance organizations spend a significant amount of time creating and reconciling reports that do not provide business value ■ Costs can be reduced by eliminating redundant reports and providing users with appropriate access to a central data source that allows them to perform analysis without involving Finance
6) **OPG can decrease Treasury costs, and potentially generate additional revenue by centralizing and standardizing all activities related to treasury including cash management, hedging, and short term investments**	■ Centrally managed programs involving activities such as cash pooling and internal hedging will both decrease administrative charges, and also have the potential to generate additional investment income
7) **OPG can increase returns from the Fund Management function by taking an active management approach to the investments related to the defined benefit pension plan and the segregated nuclear remediation funds**	■ By investing directly in a wider range of asset classes such as infrastructure, real estate and private capital, OPG could have the potential to achieve greater returns on their assets without exposing the funds to significantly higher risk ■ This approach requires an upfront investment in people and infrastructure to support the strategy, but many organizations with a material pool of investable funds have seen positive return on investments from moving to active management
8) **OPG can reduce assurance costs combining all related activities under a single assurance function and by using a risk-based approach**	■ A cross-industry leading practice is to review the entire enterprise risk management framework in order to identify opportunities to streamline the amount of time and effort spent on assurance related activities without exposing the company to any additional risk ■ This often involves consolidating financial control activities with operational reviews to eliminate redundancies

Finance H1: OPG can reduce Finance & Controllership costs by centralizing transactional processes

Findings

- Transactional processes include activities such as accounts payable, cash disbursements, invoicing, collections, general ledger and financial reporting
- Previously, OPG had a decentralized Finance organization with transactional finance processes occurring in multiple business units; OPG identified this as an opportunity for improvement and currently has several initiatives aimed at centralizing transactional finance processes
- Automation and centralization of transactional processes are key methods used in the Finance transformation initiative to lower operating costs and improve the consistency and quality of transactional processes
- Related OPG BT Project(s): Centralization of staff into a COE for BCS Reviews and Project Reporting, Centralization of Accounting, Standardize and Centralize Financial Management Reporting, Nuclear Finance Service Delivery Structure, Hydro/Thermal Finance Service Delivery Structure, and Support Services Finance Service Delivery Structure

OPG BT Project Review

Estimated Savings

- 83 FTE

Depth of Analysis

- This initiative is supported by internal analysis and the implementation of the centralization is complete in many cases
- A major transition was conducted in May of 2012 and the headcount savings have already been achieved or are well underway
- This initiative maximizes the efficiency improvement because the appropriate functions have been centralized - in the case of invoice receipt and imaging, the activities have been outsourced, which further reduces cost

Quality of Plan

- This business transformation initiative is essentially complete

Complexity of Execution

- Business units must be deterred from rebuilding shadow finance roles to replace the resources that have been centralized

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

Source: Business Transformation Plan, Management Interviews

Finance H2: OPG can further reduce Finance & Controllership costs for functions that have been centralized and standardized by offshoring transactional processes

Findings

- Currently OPG has outsourced some transactional finance processes, however, OPG has not used offshoring for any roles
- Management interviews indicate that offshoring finance activities could help to reduce Finance operating costs and that this has been identified as an opportunity internally in the past
- Outsourcing and offshoring allows finance organizations to take advantage of significant labour arbitrage while maintaining the same level of customer service to their internal clients
- KPMG market analysis of offshoring to a low cost centre shows savings rates of between 5% and 65% when compared with current internal salary costs
- Both outsourcing and offshoring of finance processes have reached a level of maturity that provides a wide range of established solutions at very competitive prices
- There are currently no BT initiatives aimed towards offshoring and further outsourcing of finance functions, as OPG finance leadership is attempting to rationalize and optimize the finance roles and activities performed in-house before any additional outsourcing or offshoring efforts are pursued

There is an incremental opportunity for this hypothesis

Finance

Opportunity #4: Reduce Finance costs for functions that have been centralized and standardized by offshoring transactional processes

Opp #4

Reduce Finance costs for functions that have been centralized and standardized by offshoring transactional processes

Summary Evidence

- According to OPG Finance Business Plan, after standardization and centralization transformation initiatives have been completed the size of the Finance organization will be [redacted]
- [redacted]
- Industry analysis shows that offshoring to a low cost centre, such as India, can provide up to 65% savings when compared with current internal costs
- Management indicates that severance could reach up to 2 years per staff - the number of staff requiring severance could make this opportunity unappealing

[redacted]

Next Steps

- Identify the specific roles that are appropriate for outsourcing
- Prepare detailed business case for this opportunity
- Identify potential outsource vendors and potential locations
- Conduct vendor selection process

Implementation Complexity

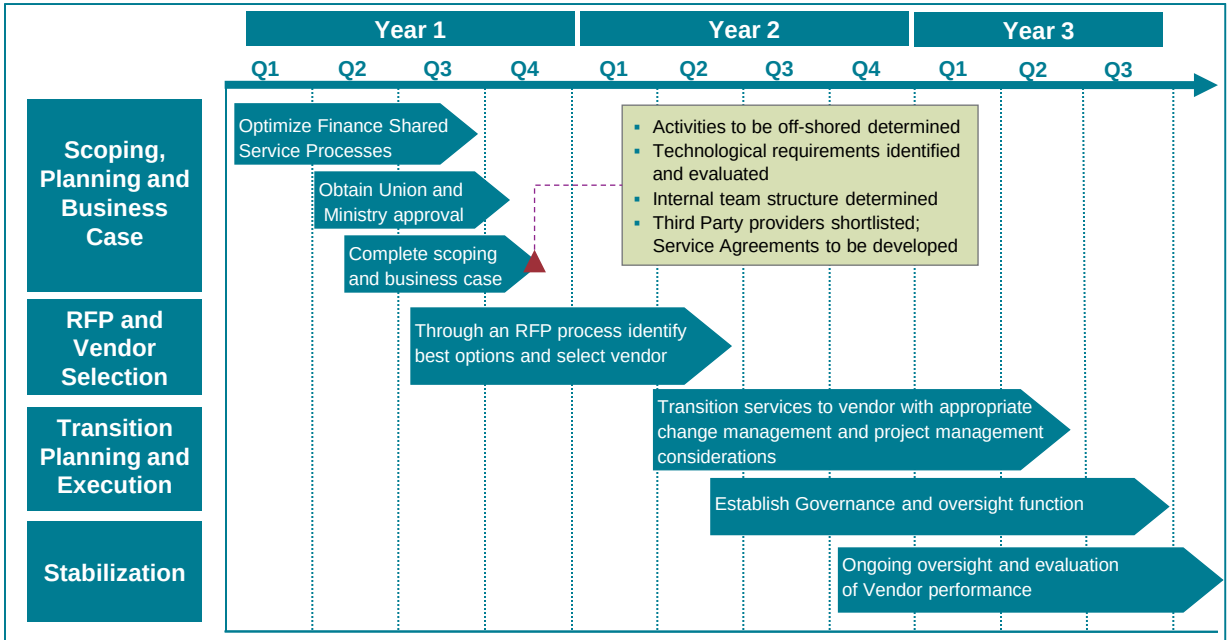
- Political and reputational risks associated with any layoffs as a result of offshoring
- Ensuring the right level of project management and change management are in place during the transition
- Ensuring proper governance in place to manage and monitor service level agreement with the outsourcing provider

*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

Finance

Opportunity #4: Implementation Plan

Implementation Plan



Opportunity Detail*

Estimated Base	• $0m
[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 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
- Successful implementation of BT related projects before offshoring
- Transition does not require large system changes
- Union discussions are not prolonged
- Significant changes to the collective agreements are not required
- Ratepayer reaction to offshoring 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

Finance H3: OPG can lower Finance & Controllership costs and improve efficiency through greater automation of transactional processes, business analysis, financial reporting, and planning and budgeting

Findings

- Benchmark report analysis indicates that OPG had a higher Planning and Performance Management Cost as a Percent of Revenue and General Accounting Cost as a Percent of Revenue than the industry median in 2008
- Automating the transactional processes is identified as one of the main goals of the Finance transformation initiative and has several supporting initiatives aimed at supporting this
- Leading practice organizations are building integrated financial system architecture that link an ERP with business intelligence, business performance measurement and financial reporting systems to improve the accuracy and timeliness of financial data
- Related OPG BT Project(s): Transaction Processing Efficiency Improvements

OPG BT Project Review - Transaction Processing Efficiency Improvements

Estimated Savings

- 16 FTE

Depth of Analysis

- Internal analysis has outlined specific headcount targets associated with the initiative, and those targets are based on a realistic assessment of the potential efficiency gains through automation
- This initiative recommended by OPG Finance leadership maximizes the efficiency improvement, because it transitions the organization to single standard platforms for their major finance responsibilities

Quality of Plan

- Finance will need to ensure that appropriate resources from Finance, IT and Supply Chain are assigned to the project. Resource plans for this project were not available for review.

Complexity of Execution

- This initiative will therefore require close collaboration between IT, Finance and Supply Chain as it is reliant on improved procurement processes that cleanse the data used for automated matching

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

Source: Business Transformation Plan, Management Interviews

Finance H4: OPG can decrease Finance & Controllership costs by instituting strict guidelines around materiality, rationalizing the approval process for such things as POs, invoices, cash disbursements, and journal entries

Findings

- Analysis of Benchmark Reports indicates that OPG had a higher Cash Disbursement Cost as a Percent of Revenue than the industry median in 2008
- OPG Finance leadership had established streamlined guidelines and policies for Finance and have completed implementation of three BT projects
- Many finance organizations are able to reduce costs by eliminating non-value added activities, especially those that impact month end financial reporting
- Related OPG BT Project(s): Efficiency Improvements to BCS Process, Improve Efficiency of Business Travel and Expense Process, and Streamline OAR Governance

OPG BT Project Review

Estimated Savings

- 2 FTE

Depth of Analysis

- There are specific headcount targets associated with the initiative, and those targets are based on a realistic assessment of the potential efficiency gains through process improvement – All three initiatives were completed in Q1 2012
- This initiative recommended by OPG Finance leadership maximizes the efficiency improvement, because the majority of the improvement opportunities were implemented prior to formal Finance Transformation – The remaining initiatives were completed in Q1 2012

Quality of Plan

- This business transformation initiative is complete

Complexity of Execution

- These process efficiencies were completed in Q1 2012

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

Source: Business Transformation Plan, Management Interviews

Finance H5: OPG can improve Finance & Controllership productivity by reducing the number of reports that are produced, and by instituting self-service portals for ad-hoc reporting

Findings

- OPG is currently working to centralize and standardize its financial management reporting activities
- Many finance organizations spend a significant amount of time creating and reconciling reports that do not provide business value. Costs can be reduced by eliminating redundant reports and providing users with appropriate access to a central data source that allows them to analyze without involving finance
- Related OPG BT Project(s): Standardize and Centralize Financial Management Reporting, and OPG-Wide Performance / Scorecard Reporting

OPG BT Project Review

Estimated Savings

- 2 FTE

Depth of Analysis

- There are specific headcount targets associated with the initiative, and those targets are based on a realistic assessment of the potential efficiency gains through rationalized reporting and standard tools
- This initiative recommended by OPG Finance leadership maximizes the productivity improvement because the target operating model for management reporting aligns with leading practice

Quality of Plan

- The success of this initiative is almost entirely reliant on the technology solution being implemented as a part of IMT. A plan for the Finance component of the business transformation initiative was not available for evaluation.

Complexity of Execution

- Streamlined management requires a standard tool that meets the needs of the users. The Finance team is reliant on the implementation of the new Microsoft BI tool, which is being implemented as a part of IMT.
- The use of standard reporting across the entire organization requires buy-in from operations leadership to accept the new reporting framework. If both Nuclear and Hydro-Thermal cannot align on the content, format and frequency of reporting, then it will be difficult to realize savings

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

Source: Business Transformation Plan, Management Interviews

Finance H6: OPG can decrease Treasury costs, and potentially generate additional revenue by centralizing and standardizing all activities related to treasury including cash management, hedging, and short term investments

Findings

- OPG is currently working to improve the efficiency of the treasury operations by centralizing treasury operations in one area
- Centrally managed programs involving activities such as cash pooling and internal hedging will decrease administrative charges and have the potential to generate additional investment income
- Related OPG BT Project(s): Efficiency Improvements to Treasury Operations & Fund Management (Shared Back Office)

OPG BT Project Review

Estimated Savings

- 1 FTE

Depth of Analysis

- This initiative is supported by an internal analysis of OPG data
- The initiative is aimed at further refining the back office and some resource pooling, but any significant cost saving opportunities have already been realized
- This initiative maximizes the productivity improvement because centralization and standardization are already essentially in place

Quality of Plan

- This business transformation initiative's savings potential is minimal and the plan is appropriate for the size of the opportunity

Complexity of Execution

- Ensuring segregation of duties, although this appears to have been addressed by OPG through separate reporting lines

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

Source: Business Transformation Plan, Management Interviews

Finance H7: OPG can increase returns from the Fund Management function by taking an active management approach to the investments related to the defined benefit pension plan and the segregated nuclear remediation funds

Findings

- By investing directly in a wider range of asset classes, such as infrastructure, real estate and private capital, companies have the potential to achieve greater returns on their assets, without exposing the funds to significantly higher risk
- While the investment management function has been largely outsourced, based on discussions with management, the fund management team within OPG Finance take a very active role in managing the investments from both the pension plan and the nuclear remediation fund
- Returns over the last 5 years have been comparable to the major pension funds in Canada, and the pension fund has taken a more aggressive approach in terms of investment philosophy. This includes opportunities to invest directly in real estate and infrastructure projects.

Opportunity Assessment

- This practice is currently being used successfully by OPG so focus should be on improving the results and efficiency of these efforts

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

Source: Management Interviews

Finance H8: OPG can reduce assurance costs combining all related activities under a single assurance function and by using a risk-based approach

Findings

- OPG has recently combined separate groups responsible for assurance activities
- Leading practice involves reviewing the enterprise risk management framework to identify opportunities to streamline the amount of time and effort spent on assurance related activities without exposing the company to any additional risk
- Combining disparate groups also leads to lower costs through better resource utilization and process standardization
- Related OPG BT Project(s): Internal Audit - Assurance Integration and Efficiency

OPG BT Project Review: Internal Audit - Assurance Integration and Efficiency

Estimated Savings

- 6 FTE

Depth of Analysis

- OPG has identified opportunities to improve efficiency that are supportable through the headcount and activity analysis. OPG has identified and consolidated the following activities under a single assurance sub-function within Finance: Internal Audit, ICOFR, Nuclear Oversight, SAS 70, ISO 18001, and Darlington refurbishment Oversight
- This initiative recommended by OPG Finance leadership maximizes the efficiency improvement, as it is based on leading practices

Quality of Plan

- The organizational realignment is already complete

Complexity of Execution

- The business transformation initiative relies on management self-assessment as a key component of the overall assurance process. Internal and external stakeholders will need to accept this approach.

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

Source: Business Transformation Plan, Management Interviews

Opportunity Analysis

Human Resources

Human Resources: Overview

Scope

- Our analysis of structural and organizational opportunities for Human Resources includes the corporate Human Resource function and all staff performing Human Resource activities within each business unit
- Our hypotheses focused on business operations and did not review specific capital projects

Hypothesis Development

- Four hypotheses were developed for the Human Resources function
- Human Resource hypotheses were developed based on:
  - Past OPG HR benchmarking reports (Internal Analysis, 2009-2010)
  - Our team's knowledge of HR leading practices in the power generation industry and other asset-intensive industries
  - 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 Human Resources, the BT program includes projects to change the organizational structure, rationalize activities, and centralize activities.
- OPG expects savings from Human Resources related projects of 233 FTEs

Human Resources: 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 key data used and the names of individuals we interviewed.

Key Documents	
	Description
HR Business Plans 2013-2015	■ Provided by OPG, these documents provided a high level view of OPG's business plan and Finance cost savings initiatives
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 OPG
Business Transformation Plan	■ Listing and description of each project within the Business Transformation program
SVP Scorecards	■ Performance management documents explaining how the performance of the senior HR leadership is evaluated

Interviews
Name
Barb Keenan SVP People & Culture Chief Ethics Officer
Paul Cordingley VP HR Business Partners
Craig Halkey VP Total Rewards & Solution Centre
Jason Fitzsimmons VP Safety & Wellness
Alan Shiever VP Learning & Development

Human Resources: KPMG Hypotheses

KPMG Hypotheses	Rationale
1) **OPG can increase HR efficiency by creating Centers of Excellence for specialized expertise**	■ Leading HR practice is to create Centers of Excellence (CoE) to pool subject matter experts in each HR area resulting in reduced operating costs due to economies of scale and scope, and increased quality and consistency of service for internal clients
2) **OPG can reduce operating costs by outsourcing or offshoring administrative and routine HR activities**	■ Outsourcing and offshoring administrative and routine activities is a cross-industry leading practice that allows HR organizations to take advantage of labour arbitrage while maintaining the same level of customer service to internal clients
3) **OPG can reduce operating costs by increasing use of self service tools by managers and employees**	■ Automating routine tasks and creating interfaces for self service is a leading HR practice that can reduce the HR workload and free capacity to perform tasks with higher value added
4) **OPG can increase HR efficiency by establishing HR business partner roles in business units**	■ This cross-industry HR leading practice can enable the HR function to be more productive and efficient by working more closely with business units in the areas of strategic decision level support, and program and policy implementation

Human Resources H1: OPG can increase HR efficiency by creating Centers of Excellence for specialized expertise

Findings

- Benchmark report analysis indicates that OPG had a lower HR FTE to employee ratio than the industry median (although it appeared that the report did not capture all employees). Deploying Centers of Excellence (CoE) can improve this ratio through economies of scale and scope as well as increased quality and consistency of service for internal clients.
- OPG has established CoEs in the areas of Talent Management & Recruiting, Learning & Development, Safety & Wellness, Total Rewards, Employee & Labour Relations, and Organizational Effectiveness through various business transformation initiatives
- Related OPG BT Project(s): Staffing & Recruiting, Training – Support & Planning Consolidation, Leadership Development Programs, Workforce Planning, Safety & Wellness Governance Managed System, Implement & Staff Target Safety Wellness Organization, Safety & Wellness Shared Services Development and Implementation, Establish Total Rewards COE, Consolidate Joint Forums, Transfer Corporate Center Employee Communication, and Solutions Centre

OPG BT Project Review - *all related BT projects*

Estimated Savings

- 160 FTEs

Depth of Analysis

- Each functional area of HR suitable for centralization was targeted and a BT project was developed to capture the opportunity. The scope of OPG BT initiatives include all major sub functions of HR and capture the material cost savings and efficiency improvements

Quality of Plan

- All BT initiatives related to this opportunity are supported by detailed plans. The implementation plans are divided into clear stages. Each stage is assigned an owner, accountable for its successful implementation. There is a clear staffing and funding schedule developed for each stage in the implementation process.

Complexity of Execution

- Ensuring equal or better services levels in a new HR operating model and the need for changes to language in the collective agreements to enable business unit transfers

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

Source: ScottMadden's Ontario Power Generation HR Metrics Analysis, September 2009, Management Interviews

Human Resources H2: OPG can reduce operating costs by offshoring administrative and routine HR activities

Findings

- Previous benchmark reports indicated that OPG's 2008 HR Expense ratio, 0.92%, lagged the industry average of 0.88% (latest available)
- Management interviews indicate that offshoring routine HR activities could help to reduce HR operating costs and that they have identified this opportunity in the past. OPG has not use offshoring for any HR roles.

[redacted]

OPG BT Project Review - *all related BT projects*

Estimated Savings

- The focus of these initiatives is on improving effectiveness

Depth of Analysis

- The business transformation plans related to this opportunity are supported by internal OPG analysis and data. A strategic objectives of the business transformation initiatives is to remove transactional and administrative tasks from the internal HR roles.

Quality of Plan

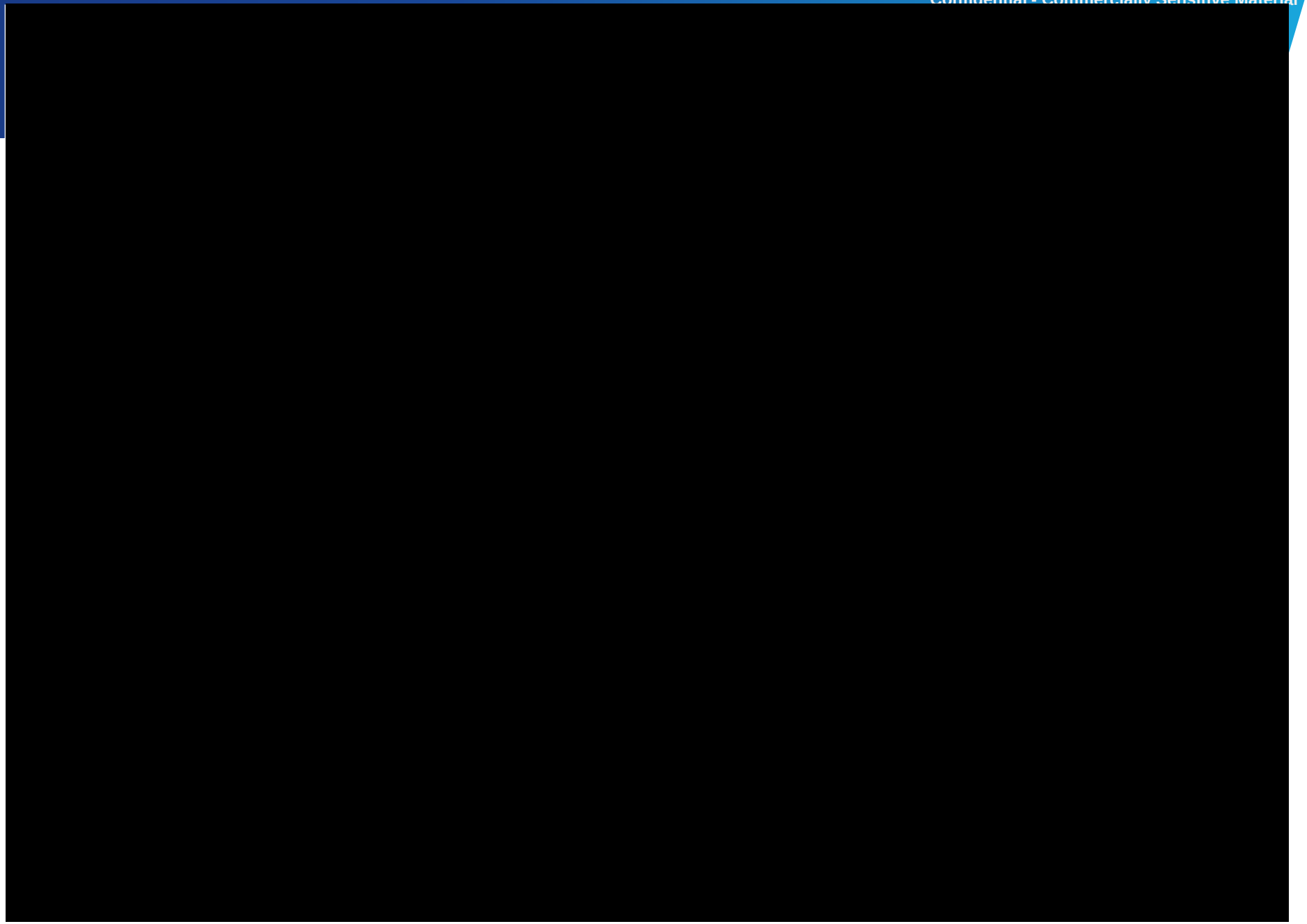
- The implementation plans are divided into clear stages; each stage is assigned an owner, accountable for its successful implementation

Complexity of Execution

- Union position on outsourcing roles
- Ensuring the right level of project management and change management are in place during the transition
- Ensuring proper governance in place to manage and monitor service level agreement with the outsourcing provider

There is an incremental opportunity for this hypothesis

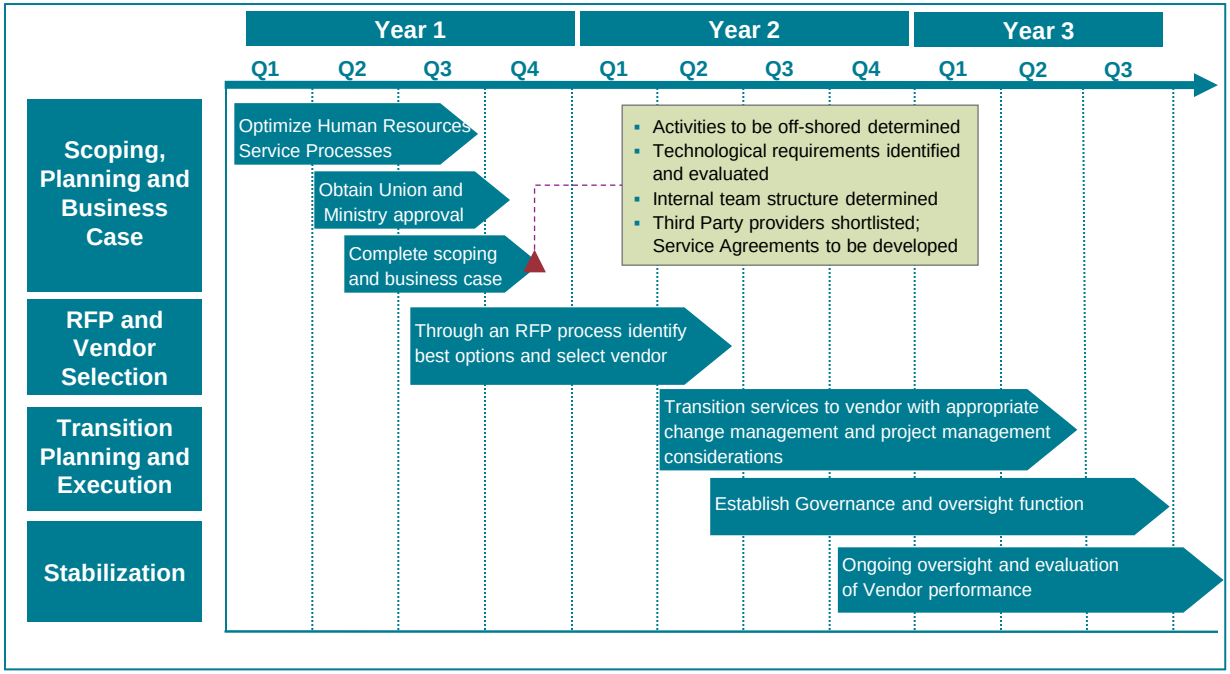
Source: ScottMadden's Ontario Power Generation HR Metrics Analysis, September 2009 , Business Transformation Plan, HR Business Plans, Management Interviews



Human Resources

Opportunity #5: Implementation Plan

Implementation Plan



[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 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
- Successful implementation of BT related projects before offshoring
- Transition does not require large system changes
- Union discussions are not prolonged
- Significant changes to the collective agreements are not required
- Ratepayer reaction to offshoring 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

Human Resources H3: OPG can reduce operating costs by increasing use of self service tools by managers and employees

Findings

- OPG does not currently widely use HR self service tools within the organization. Automating routine tasks and creating interfaces for self service will reduce the HR workload and free capacity to perform tasks with higher value add.
- OPG has identified this as an opportunity and management interviews indicate that OPG is reengineering key processes required to achieve efficiency improvements in HR.
- The HR design team have identified approximately 50 major processes that will enable process efficiencies and reductions in effort required by both HR staff and line management. Automation and self service capability will be incorporated into this process redesign work.
- Related OPG BT Project(s): Process Redesign

OPG BT Project Review – Process Redesign

Estimated Savings

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

Depth of Analysis

- The initiative was based on the a study of the current processes used, and tasks and activities performed by HR employees
- This initiative recommended by OPG Human Resources leadership realizes no cost savings in terms of headcount reduction, however, the implementation of such an initiative is essential in creating an effective HR department

Quality of Plan

- The scope of the OPG BT initiatives includes all major processes within HR and captures the material productivity and efficiency improvements
- The Process Redesign initiative is supported by a detailed plan and each stage of implementation will be assigned an owner, responsible for the successful implementation of the actions

Complexity of Execution

- Dependent on IT implementation timeline aligning with the planned Process Redesign implementation schedule

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

Source: HR Business Plans, Management Interviews

Human Resources H4: OPG can increase HR efficiency by establishing HR business partner roles in business units

Findings

- Historically, HR practitioners did not play the role of business partner within business units. Rather they were involved in more transactional and administrative task.
- OPG recognized this as an opportunity and removed transactional and administrative tasks from these practitioners through outsourcing, automation and centralization efforts. The new role of an embedded HR was transformed to a strategic business partner focused on providing strategic advise, advocating, team building and problem solving.
- Related OPG BT Project(s): New Business Partner Model, HR Performance and Analysis, Transfer EPSCA Support from HR Function, and Improve Labour Relations Capability

OPG BT Project Review - *all related BT projects*

Estimated Savings

- 32.6 FTEs

Depth of Analysis

- The business transformation plans related to this opportunity were supported by internal OPG analysis and data
- This initiative recommended by OPG captures most of the cost savings, and productivity and efficiency improvements

Quality of Plan

- All business transformation initiatives related to this opportunity are supported by detailed plans
- The implementation plans are divided into clear stages; each stage is assigned an owner, accountable for its successful implementation
- There is a clear staffing and funding schedule developed for each stage in the implementation process

Complexity of Execution

- Dependent on the successful establishment of the shared services center and process and automation Business Transformation Initiatives
- Delivering equal or better service levels to HR clients

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

Source: HR Business Plans, Management Interviews

KPMG

cutting through complexity

Appendix
BT Projects Mapped to Functional Areas

OPG Transformation Projects

Nuclear: Sub-Functions

Sub-Function	Description
Operations	■ Operate and monitor structures, systems and components, monitor control effluents and monitor and control plant chemistry
Maintenance	■ Perform all planning, scheduling, and maintenance activities as well as to control radiation exposure and contamination
Engineering	■ Conduct configuration control, engineering design changes and coordinate project management activities with maintenance and construction
Asset Management & Reliability	■ Develop a long term maintenance plan and conduct surveillance and performance tests ■ Analyze performance and reliability of structures, systems and components and perform predictive maintenance
Supply Chain	■ Manage Supply Chain activities including procurement, inventory management, warehousing and contract services
Waste Management	■ Fuel management, transportation, handling and disposal
Support Services	■ Provide environmental, regulatory support, facilities management and other support services
Training	■ Develop, conduct and disseminate key training modules for all levels of employees
Leadership	■ Determining the key vision and values of the organization as well as the selected management model
Loss Prevention & Safety	■ Providing security, safety, emergency, licensing and monitoring services

Nuclear: OPG Transformation Projects Mapped to Sub-Function

Sub-Function	OPG Transformation Project
Operate Plant	■ Pickering Continued Operations – develops a clear plan for the plan to improve Pickering plant performance to 2015 and safely manage it until its close in 2020
Work Management	■ Days based maintenance – reducing manpower requirements at night to improve capacity during daytime hours ■ Preventive Maintenance – ensuring work is focused on the right equipment at the right frequency, leveraging minor modifications above full scale investments ■ Amalgamation of Work Control and Outage – streamline the work control and outage functions at Pickering A&B into a single organization to eliminate duplicate activities
Configuration Management	■ Leverage move to EPC model – outsource design steps to two vendors, which allows Engineers to work on more than one project at a time ■ Centre Led Engineering – remove plant focused groups and redundant roles, common organizational reporting for engineers ■ EN-02 initiative – changes to work programs and consolidating the drawing office and major components ■ Automate System and Component Health Reports – allows for issues to be made more visible to maintenance and planning teams so they can be addressed
Equipment Reliability	■ Reduce planned work volumes (3K3) – shift preventive maintenance into planned outages to reduce FLR ■ Reliability improvement plan - improving equipment reliability and reducing FLR at primarily Pickering (7% to 5.5%)
Materials & Services	■ Plant/Project Accountability – transfers ownership of equipment and materials to plant and project teams ■ PE Process Efficiency – reduce average time to complete evaluations without reducing engineering rigour

Nuclear: OPG Transformation Projects Mapped to Sub-Function (Continued)

Sub-Function	OPG Transformation Project
Support Services	■ Amalgamate Support Teams – combines the support teams for operations, maintenance and performance improvement for the fleet into a single group to improve RP Services ■ Centralize ALARA planning – removes the planning function from the plant level ■ Remote Monitoring Technology – makes better use of monitoring technology to reduce staff requirements and meet BT targets
Loss Prevention	■ Fukushima Projects – $130M in capital and $34M in OM&A to improve certain security and safety features in response to the incident in Fukushima, Japan
Training	■ Centre Led Training – centralizes the training function to standardize expectations of leadership and improve performance across the entire organization
Nuclear Fuel	■ Centre Led NWMD - merges common groups in WM to improve efficiency ■ Standardized Reporting – increased focus on System Health and Performance to ensure issues are more visible and foreseeable
Leadership	■ Centre Led Functions – develop a network of accountable and capable leaders (Corporate Functional Area Manager / Site Functional Area Manager) with an increased span of control with better monitoring to improve fleet performance
Business Services	■ Create Strategic Planning and Benchmarking Organization – uses external and industry leading standards such as INPO and WANO to track performance
Human Resources	■ Succession planning – addresses key areas where leadership is both aging or lacking and capture knowledge to prevent a skill-gap ■ Rising-Stars Programs – identifies high potential individuals and quickly prepare them for senior roles ■ Strategic Partnerships – creates specialized programs in colleges and universities to improve the future talent pool

Hydro/Thermal : Sub-Functions

Sub-Function	Description
Operations	■ Operate and monitor structures, systems and components, monitor control effluents and monitor and control plant chemistry
Maintenance	■ Perform all planning, scheduling, and maintenance activities
Engineering	■ Conduct configuration control , engineering design changes and coordinate project management activities with maintenance and construction
Asset Reliability & Management	■ Develop a long term maintenance plan and conduct surveillance and performance tests ■ Analyze performance and reliability of structures, systems and components and perform condition based maintenance
Supply Chain	■ Manage Supply Chain activities including procurement, inventory management, warehousing and contract services
Support Services	■ Provide environmental, regulatory support, facilities management and other support services
Training	■ Develop, conduct and disseminate key training modules for all levels of employees
Leadership	■ Determining the key vision and values of the organization as well as the selected management model
Loss Prevention & Safety	■ Providing security, safety, emergency, licensing and monitoring services

Information Technology: Sub-Functions

Sub-Function	Description
Business Support *(Office of the CIO)*	■ Responsible for IT sourcing management, cost integration, and business effectiveness
Application Services	■ Responsible for application maintenance and support
Computing Services *(Infrastructure Services)*	■ Responsible for infrastructure and asset management
Desktop Support *(End User Computing)*	■ Responsible for helpdesk and incident management

The categories in bold came from the 2010 EUCH Benchmark report and the IT organizational chart (2007) .
Italicized headings are KPMG's nomenclature for the IT major sub-functions

Information Technology: OPG Transformation Projects Mapped to Sub-Function

Sub-Function	OPG Transformation Project
Business Support *(Office of the CIO)*	■ 2012 CIO Management Team Optimization: This initiative optimizes the management function in the CIO through an early quick win of moving to the transition organization that will complete the delivery of IMT and transition to a new fully outsourced IT model in 2016
	■ Optimize Project Oversight Staff for 2013-2014 Project Portfolio: This initiative optimizes the Project Oversight function currently performed by internal staff within the CIO within the constraints of the existing Outsource Contract
	■ Dismantle Information Management Transformation Program (IMT) Project Team: The IMT program is being integrated with the overall OPG Business Transformation (BT) initiative and are expected to achieve the planned IMT outcome while supporting critical BT initiatives
	■ Plan, Negotiate, and Transition to Next OPG IT Outsource Contract: Prepare for, negotiate, and implement the next IT Outsourcing contract
Application Services	■ Optimize Internal IT Application Support Function: This initiative optimizes the application support function currently performed by internal staff within the CIO
Computing Services *(Infrastructure Services)*	■ N/A
Desktop Support *(End User Computing)*	■ Optimize Internal Transactional IT Functions: This initiative optimizes the support functions currently performed by internal staff within the CIO that are operational and/or transactional

Finance: Sub-Functions

Sub-Function	Description
Finance & Controllership	■ Responsible for business partner controllership functions such as business & decision support, BU planning & forecasting, management reporting and analytics, and internal controls support. Other activities such as finance support services, business planning & reporting, taxation, and financial shared services also fall under this finance function
Assurance	■ Focused on performing internal audit and nuclear oversight finance functions. Nuclear oversight function was recently reorganized under assurance
Treasury	■ Accountable for cash management, financing, and insurance functions. Insurance makes up a large percentage of the cost associated with Treasury – However, in the industry insurance costs are not usually associated with the treasury function
Fund Management	■ Responsible for managing the pension and nuclear funds. Although the direct management of the funds has been outsourced, oversight and decision making decisions are still performed in-house
Investment Planning	■ Focused on performing investment strategy review, project allocation, business case support & review, major projects strategic decision support & portfolio reporting, and property tax

Finance: OPG Transformation Projects Mapped to Sub-Function

Sub-Function	OPG Transformation Project
Finance & Controllership	■ Efficiency Improvements to BCS Process: Streamlines process and governance ■ Improve Efficiency of Business Travel & Expense Process: Replaces OPG's business expense policy with the province's policy ■ Streamline OAR Governance: Streamlines the finance approval process ■ Centralize Accounting & Time Reporting into Shared Financial Service Centre (SFSC): Consolidate BU Accounting activities into a SFSC, standardize accounting processes to reduce low value activities, and leverage automation of Tempus time distribution ■ Standardize and Centralize Financial Management Reporting: Establish standard suit of reports to minimize ad-hoc reporting, consolidate standardized cost reporting systems and utilize automated delivery reports ■ Transaction Processing Efficiency Improvements: Centralize and standardize AR and AP transaction processing into SFSC, migrate to a single AP system, and leverage automated transaction processing capabilities ■ Nuclear Finance Service Delivery Structure: Streamline the group by leveraging centralized and automated processes and eliminate redundant work programs

Finance: OPG Transformation Projects Mapped to Sub-Function

Sub-Function	OPG Transformation Project
Finance & Controllership	■ Hydro-Thermal Finance Service Delivery Structure: Streamline the group by leveraging centralized and automated processes and regionalize Hydro-thermal finance support ■ Support Services Finance Service Delivery Structure: Streamline through consolidation and leveraging of centralized and automated processes ■ OPG-Wide Performance/Scorecard Reporting: Implement a corporate-wide performance reporting process and tool to enable centralization of OPG & BU performance management reporting ■ Streamline Business Planning Process: Modifying process to meet use requirements while implementing/maintaining industry best practices. Streamline Business Planning Process ■ Improve Efficiency of Taxation Processes: Improve efficiency of income tax, customs, commodity and property tax processes and consolidate all tax activities in one centre of excellence ■ Improve Efficiency of External Reporting & Controls: Improve efficiency of external reporting, regulatory accounting and internal controls program by streamlining external reporting and regulatory accounting processes, and optimizing support for internal controls over financial reporting program

Finance: OPG Transformation Projects Mapped to Sub-Function

Sub-Function	OPG Transformation Project
Assurance	■ Nuclear Oversight Service Delivery Structure: Change Service Delivery Structure for the execution of Nuclear Independent Assessments as performed by Nuclear Oversight in support ■ Internal Audit – Assurance Integration and Efficiency: Develop integrated risk-based assurance plan, leverage other assurance functions, rely on management self-assessment, and achieve process efficiency improvements
Treasury	■ Efficiency improvements to Treasury Operations (Insurance): Insurance support to be reduced by introducing standardized insurance terms for contracts ■ Efficiency Improvements to Treasury Operations and Fund Management (Shared Back-Office): Centralize Treasury operations in one area by relocating the back office from Fund Management to Treasury
Fund Management	■ *No BTI Available*
Investment Planning	■ Centralization of Staff into a COE for BCS Reviews and Project Reporting: Centralizes project analytics employees

Human Resources: Sub-Functions

Sub-Function	Description
HR Business Partners	■ Responsible for the strategic and business unit focused human resources decision support, and program and policy implementation to the organization's business units
Organizational Effectiveness	■ Responsible for strengthening the organization's effectiveness in achieving its intended outcomes by directing culture and organizational change, building a learning culture, implementing organizational design, developing and maintaining intellectual capital, ensuring organizational learning, agility and transformation, and managing knowledge
Talent Management & Recruiting	■ Responsible for strategies, tactics, and processes for recruiting and developing the human resources needed to support the organization's culture and business objectives
Learning & Development	■ Responsible for designing, developing and providing the organization's employees with the necessary training and development opportunities to align knowledge and skills with role responsibilities and requirements for current positions and develop for future organizational needs
Total Rewards	■ Responsible for the design, implementation, evaluation, and administration of direct and indirect employee compensation
Employee & Labour Relations	■ Responsible for the elements of formal labour-management relations, and adherence to employment and labour laws
Safety & Wellness	■ Responsible for enterprise and employee safety and wellness. Including the organization's efforts to prevent and/or mitigate loss, risk to or from personnel, and risk arising from all elements surrounding the work environment

Human Resources: OPG Transformation Projects Mapped to Sub-Function

Sub-Function	OPG Transformation Project
Talent Management & Recruiting	■ HR Performance and Analysis: Significant reduction in the HR data fields maintained in HR systems and in the production of information and analysis to support HR programs and OPG business needs ■ Staffing & Recruiting: Transfer all employees engaged in staffing tasks within Nuclear, Hydro and Thermal into the Talent organization ■ Workforce Planning: Establish common tools and methodology to establish workforce planning efforts at the corporate and local levels ■ Talent Management Initiatives: Reduce talent management services, to a more affordable level ■ 360 Assessment Outsourcing: Outsource the administration and feedback of 360 assessments currently completely by a combination of Talent Management and Human Resource Business Partners ■ Governance Review: Establishment of governance for People and Culture in the areas of Total Rewards, Employee and Labour Relations, Talent Management and Business Change

Human Resources: OPG Transformation Projects Mapped to Sub-Function

Sub-Function	OPG Transformation Project
Safety & Wellness	■ Outsource Disability Case Management: Third party service provider will provide service in the management of occupational and non-occupational claims ■ Outsource SW Specialist Services: This project is aimed at aligning the entire corporation with respect to attaining quality external services ■ Implement & Staff Target Safety Wellness Organization: This initiative is to implement and staff a restructured safety and wellness organization with 40% fewer staff ■ Safety & Wellness Governance Managed System: Develop a corporate level model for safety and wellness governance and managed system documentation ■ Safety and Wellness - Shared Service Development and Implementation: Implement and staff a centralized shared services center for safety and wellness inquiries ■ Outsource Occupational Health Surveillance: Outsource occupational health surveillance medical testing and screening for OPG employees ■ Walk-in Wellness Clinics: Close down the walk-in Wellness clinic offices at all sites

Human Resources: OPG Transformation Projects Mapped to Sub-Function

Sub-Function	OPG Transformation Project
Total Rewards	■ Establish Total Rewards COE: Transition the current Compensation Benefits and Pensions units into a strategic Centre Of Excellence ■ Benefits Processes: Transfer all benefits administration functions for employees and pensioners to Great-West Life ■ Pension Processes: Expand scope of pension administration services provided by Mercer to manage all administration directly with employees on behalf of OPG ■ Pensioner payroll: Outsource Pensioner payroll to the Trustee to be funded through the Pension Plan ■ Governance Review: Establishment of governance for People and Culture in the areas of Total Rewards, Employee and Labour Relations, Talent Management and Business Change
HR Business Partners	■ New Business Partner Model :The embedded HR becomes a strategic advisor, advocate, team builder, and problem solver ■ Staffing & Recruiting: Transfer all employees engaged in staffing tasks within Nuclear, Hydro and Thermal into the Talent organization ■ Consolidate Hydro-Thermal-Corporate Directors into 1 Position and Reduce 1 Admin: 3 Hydro, Thermal and Corporate Supply Chain Directors retired and replaced by 1 Director ■ 360 Assessment Outsourcing: Outsource the administration and feedback of 360 assessments currently completely by a combination of Talent Management and Human Resource Business Partners ■ Process Redesign: Reengineer key processes required to achieve reductions in People & Culture ■ Solutions Centre: Create an HR solutions centre to manage all general inquiries and process transactional work from employees and managers

Human Resources: OPG Transformation Projects Mapped to Sub-Function

Sub-Function	OPG Transformation Project
Employee & Labour Relations	■ Outsource Disability Case Management: Third party service provider will provide service in the management of occupational and non-occupational claims ■ Transform Corporate Centre Employee Communications: Transform the existing HR Employee Communications into a Stakeholder Relations Corporate Centre of internal communication expertise ■ Governance Review: Establishment of governance for People and Culture in the areas of Total Rewards, Employee and Labour Relations, Talent Management and Business Change ■ Improve Labour Relations Capability: Develop appropriate labour relations capability at the executive level, FLM level and within P&C through targeted training
Organizational Effectiveness	■ Transfer EPSCA Support from HR Function: Transfer support for Electrical Power System Construction Association (EPSCA) from OPG HR to the Contractors and EPSCA ■ Change Management Function: Ensure that People and Culture maintains an ongoing model for organization changes to preserve structure integrity and reduce frequency of discrete organizational changes

Human Resources: OPG Transformation Projects Mapped to Sub-Function

Sub-Function	OPG Transformation Project
Learning & Development	■ Training - Support & Planning Consolidation: Integrate support & planning functions from nuclear, thermal, hydro and leadership training organizations ■ Consolidate Common Training Content: Consolidate content within TIM's, which are common and separating courses or components of courses that are unique ■ Reduction in Training Re-Qualifications: Reduce the frequency of identified requalification's to reduce the number of training deliveries with a focus on classroom delivered training ■ Review Entry Level Requirements for Training Programs: Increase the recognition of external training and education upon hire and stop re-training qualified new hires ■ Orange Badge Training – Nuclear Station Access: Remove the personnel which infrequently access nuclear stations from the Orange Badge Training ■ Training Content, Duration & Method: One-time and ongoing review of all training courses to validate content, duration appropriateness, and delivery method ■ Reduction in Training Qualifications: Reduce excessive qualification linkages to eliminate unnecessary time spent in training by clearly establishing qualification requirements for each work group ■ Leadership Development Programs: Consolidate all existing leadership development resources and programming to ensure on-going development efforts are aligned ■ Investigate Potential to Outsource Training: Investigate use of external suppliers for delivery of existing training requirements for employees ■ Training Facilities: To investigate the possibility for migrating all training activities to other facilities with the intent of closing down one facility