KPMG

cutting through complexity

Ministry of Energy

Assessment of Benchmarking Reports from OPG

Confidential – Commercially Sensitive Material

Revised

December 7, 2012

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How to use this document

The Ministry of Energy engaged KPMG undertake a critical review, assessment and summary of existing compensation, efficiency and productivity benchmarking studies that have been completed on Ontario Power Generation (OPG).

Our role was to assess appropriateness of each benchmarking report, identify gaps and rank OPG against its relative peer group. 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 the OPG's current activities and undertakings.

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 control 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
BWR	Boiling Water Reactor
CANDU Reactor	CANada Deuterium Uranium Reactor
CM	Corrective Maintenance
COG	Candu Owners Group
DM	Deficient Maintenance
EUCG	Electric Utility Cost Group
EU-HRMG	Electric Utility Human Resources Metrics Group
FP&A	Financial Planning and Analysis
FTE	Full Time Equivalent
GWh	Giga-Watt Hour
IAEA	International Atomic Energy Agency
IEA	International Energy Agency
INPO	Institute of Nuclear Power Operations
LAN	Local Area Network
LWR	Light Water Reactor
MW DER	Mega-Watt Distributed Energy Resources
MWh	Mega-Watt Hour
NEI	Nuclear Energy Institute
NOC	Nuclear Operating Cost
NPI	Nuclear Performance Indicator
OS	Operating System
PUEC	Production Unit Energy Cost
PWR	Pressurized Water Reactor
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 cost savings at Hydro One and OPG.

The scope of work was to address four main objectives:

- Review and analyze existing benchmarks on compensation, productivity and efficiency
- Identify organizational and structural opportunities for efficiency improvements and Hydro One and OPG
- Prepare a high level 2-3 year plan for improving efficiency without sacrificing reliability and safety
- Develop an analysis that will identify impacts on rate-payers.

This report contains the review of existing benchmarking reports on efficiency, productivity and compensation from OPG. From the RFP, this report represents deliverables #1 and #2. In this report we review the following business functions: Nuclear Generation, IT, Finance, HR and Compensation.

Of the eighteen reports provided by OPG, seven reports were used in our benchmark report evaluation covering the five functional areas listed above. Although many reports were provided by OPG, several could not be used in our analysis. Some reports were more than five years old and outside the review timeframe, some reports did not contain benchmarking data and some reports pertained to areas outside the scope of the study.

Of the reports that were used in the study, we found that i) reports did not exist for all business functions and therefore some business functions such as Hydro have not been reviewed in this study ii) In business functions where reports existed, some reports did not review all sub-functions and iii) Some reports provided summary benchmarks at a function level while other reports provided detailed benchmarks at the function, sub-function and activity level.

Given the constraints listed above, the benchmark report evaluation does not cover all business functions and our analysis is also restricted to the level of detail provided by the reports and therefore varies significantly across each business area.

The shortage of data impacted the method in which we planned to identify potential opportunity areas. As a result, an alternate approach was taken to identifying opportunity areas which included significantly more primary data analysis and additional interviews to compare and evaluate operating models for each business function. The outputs from this approach are detailed in a supplementary report, “Assessment of Structural and Organizational Opportunities at OPG”.

Executive Summary

Benchmarking Report Assessment – Nuclear and Finance

Nuclear Benchmark Report Summary			
Report	**Methodology Appropriateness**	**Metrics**	**Trend Analysis**
Ontario Power Nuclear Benchmarking Report: 2009 -2012 **Author: ScottMadden**	■ Methodology used was appropriate ■ The data collection is from both WANO and EUCG which are both reliable and consistent sources ■ Peer group includes WANO members which included CANDU Owners Group members and uses the most appropriate peers in each section ■ No less than 13 and up to 48 peers were used in different sections	■ 9 efficiency/productivity metrics were provided ■ All metrics were evaluated as appropriate ■ Based on a report clarification interview with OPG, we recognize that a substantial number of more detailed nuclear metrics are measured by OPG but were included in this report.	■ Year over year analysis indicates that OPG Non-Fuel Operating Cost per MWh has trailed the industry median since 2008 ■ Pickering significantly underperforms relative to the industry median in the area of time lost due to unplanned energy losses (Forced Loss Rate) whereas Darlington performs better than the industry median and Darlington Unit 3 performs at the top of the CANDU peer group

Finance Benchmark Report Summary			
Report	**Methodology Appropriateness**	**Metrics**	**Trend Analysis**
World-Class Progress Report Finance – Final Results: 2006, 2008 **Author: Hackett Group**	■ Methodology used was appropriate ■ Compared against 11 North American energy companies ■ Evaluated every sub-function with Finance ■ Reviewed sub-functions that are conducted within the company and outsourced	■ 50 efficiency/productivity metrics were provided ■ 47 of 50 metrics evaluated as appropriate ■ The report is comprehensive and no additional metrics were identified	■ Year over year data was not provided in the analysis window for the project (2007-2012)

Executive Summary

Benchmarking Report Assessment - IT

IT Benchmark Report Summary			
Report	**Methodology Appropriateness**	**Metrics**	**Trend Analysis**
Final OPG IT Cost Benchmark Analysis: 2008-2010 **Author: OPG**	■ Methodology used was not appropriate ■ The report appears to be an internally generated report ■ Comparison of EUCG IT metrics ■ The report does not clarify whether the data collection approach or the data was reviewed by EUCG for appropriateness or if the formulas used to calculate OPG values were verified to be correct ■ Unclear on why this set of metrics were chosen ■ The study peer group is comprised of 11 North American utilities	■ 30 efficiency/productivity metrics were provided ■ 26 of 30 were evaluated as appropriate ■ The IT metrics that were selected in this study varied significantly in terms of level of analysis. Some overall comparisons of hardware/ software/ personnel and outsourcing spending were excluded while detailed activity comparisons were included. ■ Common, industry standard comparisons that have been excluded from this analysis such as spend by tower or capital/operational cost distribution would provide a better comparison against industry peers	■ Year over year analysis indicates that OPG's IT spend per energy unit hour has consistently been lower than the median ■ The IT spend per employee is also lower than the industry median, however, it is unclear the definition for employees is consistent across all participating companies ■ Server metrics indicate that OPG has lagged the industry in virtualization of servers

Executive Summary

Benchmarking Report Assessment - HR

HR Benchmark Report Summary			
Report	**Methodology Appropriateness**	**Metrics**	**Trend Analysis**
Ontario Power Generation HR Metrics Analysis & Benchmarking of Human resources Function Metrics : 2005-2008, 2009-2010 **Author: ScottMadden**	■ Methodology used was not appropriate ■ Comparison of EU-HRMG metrics ■ The peer group is not a reflective comparator for OPG. When considering only Very Large employers, all the comparators, except 1 are US companies. ■ The 'Employment at Will' and publically funded healthcare differences significantly impact both the number of required HR team members and employment costs ■ Study comparisons were conducted in US dollars with no normalization for the large currency rate changes that occurred during the study period.	■ Nine efficiency/productivity metrics were provided ■ Three of nine metrics were evaluated as appropriate ■ Comparison by job type and level would allow for better comparison of specific roles	■ Year over year indicates that OPG has more HR staff per employee than the industry *mean – however since the methodology in this study was deemed not to be appropriate, these results would need to be verified.*

Executive Summary

Benchmarking Report Assessment - Compensation

Compensation Benchmark Report Summary			
Report	**Methodology Appropriateness**	**Metrics**	**Trend Analysis**
Ontario Power Generation HR Metrics Analysis: 2007/08 **Author: ScottMadden**	■ Methodology used was appropriate ■ Compared against 40 Utilities ■ Comparison of EU-HRMG metrics	■ Three compensation related metrics were provided ■ Two of three metrics were evaluated as appropriate ■ Comparison by job type and level would allow for a better comparison of specific roles	■ Year over year analysis indicates that OPG's variable compensation is lower as a percent than the industry median in both 2007 and 2008
Benchmarking of HR Function Metrics at OPG with Other Electric Utilities: 2009/10 **Author: ScottMadden**	■ Methodology used was appropriate ■ Compared against 42 Utilities ■ Comparison of EU-HRMG metrics	■ Four metrics provided in report ■ All metrics were evaluated as appropriate ■ Comparison by level and job type would allow for a better comparison of specific roles	■ Year over year analysis indicates that OPG spends a greater percentage of its labour expenses on overtime costs than peers
Report Name: Market Total Compensation Review (OPG): 2010 **Author: Mercer**	■ Methodology used was appropriate ■ Compared against 12 private sector and 12 public sector organizations ■ Collected data using a custom survey and combined with data from Mercer's Benchmark Database	■ Six metrics provided in report ■ All metrics were evaluated as appropriate ■ Comparison by job type would allow for a better comparison of specific roles	■ Year over year data was not provided

Introduction

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 for cost savings at Hydro One and OPG.

The scope of work was to address four main objectives:

1. Review and analyze existing benchmarks on compensation, productivity and efficiency
   - Part of the review was to identify any material gaps in the existing benchmarking studies and provide recommendations to address these gaps
2. Identify organizational and structural opportunities for efficiency improvements and Hydro One and OPG
   - Opportunities may include but are not limited to contracting out, and operational and divisional alignments
3. Prepare a high level 2-3 year plan for improving efficiency without sacrificing reliability and safety
   - This plan would identify key steps focused on achieving improvements along key metrics and benchmarked rankings that would create efficiencies and attain greater savings
4. Develop an analysis that will identify impacts on rate-payers.

The scope of this analysis includes the following OPG business areas:

- Nuclear
- Hydro
- IT
- Finance
- HR
- Compensation

This report is contains the review of efficiency, productivity and compensation benchmarking reports from OPG. From the RFP, this report represents deliverables #1 and #2.

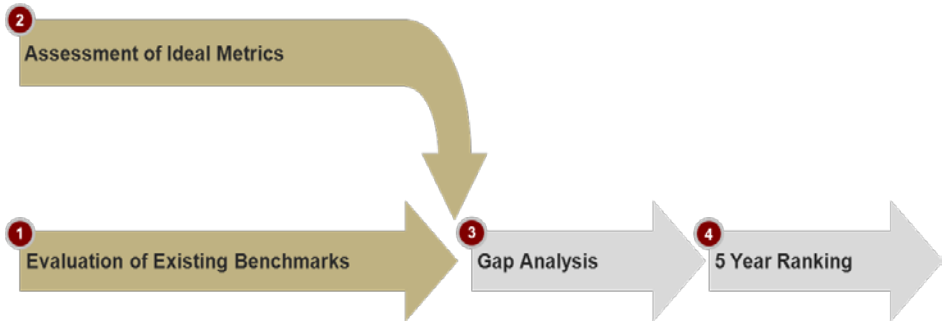
Methodology and Approach

Our approach to evaluating benchmarking reports from OPG

This phase of the project involved preparing an evaluation of benchmarking studies that address compensation, efficiency and productivity at OPG.

The evaluation involved identifying any gaps in the existing benchmarking studies, and creating a baseline understanding of OPG's performance which was to be used to determine structural and operational efficiency opportunities.

The diagram below illustrates the four steps of the evaluation of each report.



1. Evaluation of Existing Benchmarks

The project team reviewed and analyzed the existing benchmarking studies. This included a review of the appropriateness of the methodologies for each report and an evaluation of the quality of the metrics and benchmarks used. The following questions were asked of each report in order to determine the appropriateness of the study:

- Has the business purpose of the benchmarking exercise been clearly defined?
- Was the data collection approach appropriate and not limited by data availability, or other constraints which could limit its quality and comprehensiveness?
- Was the sample size and geographic distribution of the benchmarks appropriately thought through and accounted for?
- Has a normalization of the data, such as currency conversions and labour rate conversions, been implemented to ensure that benchmarks and metrics are as comparable as possible?
- Were there any specific constraints that could skew the interpretation of benchmark comparisons?

Our approach to evaluating benchmarking reports from OPG

2. Assessment of Expected Metrics

Based on the scope, purpose and level of depth of each report, the senior members of the project team and advisor group developed a preliminary opinion of the efficiency/productivity metrics and types of peers that they would expect to see. Additionally, the team identified external factors which should be accounted for to ensure a relevant comparison, including operating environments, geographical considerations and environmental issues.

3. Gap Analysis

The expected metrics for each respective benchmark report were compared against the actual benchmark report metrics and gaps were identified. The gap metrics represent either areas that are not covered or areas that are insufficiently covered by each benchmark report. Metric gaps were only identified in areas that related to efficiency, productivity and compensation.

4. 5-Year Ranking

The project team aggregated each of the key report metrics that related efficiency, productivity or compensation. This year over year analysis was used to evaluate OPG's performance over the last 5 years. Where year over year data was not available, key metrics were selected to illustrate in year performance.

Benchmarking Reports provided by OPG

18 reports were provided by OPG, 7 reports were used in our benchmark report evaluation covering 5 functional areas

OPG Benchmark Reports	Functional Area																		
Report Name	Company wide-Compensation	Generation	IT - Internal	IT - Outsourced	HR - Internal	HR - Outsourced	Finance- Internal	Finance - Outsourced	Administration	Enterprise Risk Management	Regulatory Affairs	Corporate Citizenship	Legal	Source	Operational Focus	Within Evaluation Timeline?	Benchmarking report?	In scope?	Used?	Reason
World-Class Progress Report Finance Final Results							2006, 2008							Hackett	Productivity / Efficiency	Yes	Yes	Yes	Yes	In-scope
OPG Nuclear 2009 Benchmarking Report		2003-2008												ScottMadden	Productivity / Efficiency, Reliability, Safety	Yes	Yes	Yes	Yes	In-scope
2010 Nuclear Benchmarking Report		2004-2009												ScottMadden	Productivity / Efficiency, Reliability, Safety	Yes	Yes	Yes	Yes	In-scope
2011 Nuclear Benchmark Report		2005-2010												ScottMadden	Productivity / Efficiency, Reliability, Safety	Yes	Yes	Yes	Yes	In-scope
OPG HR Metrics Analysis	2006-2008				2006-2008									ScottMadden	Compensation	Yes	Yes	Yes	Yes	In-scope
Benchmarking of Human resources Function Metrics and OPG with Other Electric Utilities	2003-2010				2003-2010									Internal / SocttMadden	Compensation, Productivity / Efficiency	Yes	Yes	Yes	Yes	In-scope
Final OPG IT Cost Benchmark Analysis 2010			2007-2010											EUCG	Productivity / Efficiency	Yes	Yes	Yes	Yes	In-scope
Business Planning and Benchmarking Regulated Hydroelectric		2006-2009												Navigant / CEA / EUCG	Productivity / Efficiency, Reliability	Yes	No	Yes	No	Benchmarks not provided
Achieving World-Class Performance Finance Benchmark Results							2005-2006							Hackett	Productivity / Efficiency	No	Yes	Yes	No	Age of Report
OPG BS&IT IT Benchmarking Results & Analysis 2007			2005-2007											Gartner / EUCG	Productivity / Efficiency	No	Yes	Yes	No	Age of Report
Final OPG IT Cost Benchmark Analysis 2008			2003-2008	2003-2008										Gartner / EUCG	Productivity / Efficiency	Yes	Yes	Yes	No	More recent report used
Final OPG IT Cost Benchmark Analysis 2009			2007-2009											EUCG	Productivity / Efficiency	Yes	Yes	Yes	No	More recent report used
Corporate Executive Board Legal Department Spending and Staffing Benchmarking													2011	Corporate Executive Board	Productivity/Efficiency	Yes	Yes	Yes	No	Scope of Function
Uranium Procurement Program Assessment		2011												Longenecker & Associates	Procurement	Yes	No	No	No	Out of Scope
Uranium Supply Status and Procurement Strategy		2008												Ux Consulting	Procurement	Yes	No	No	No	Out of Scope
Enterprise Risk Management (ERM) Health Check										2010				Corpo Executive Board	ERM	Yes	No	No	No	Out of Scope
OEB Payments Application, OPG Regulatory Affairs Process Review											2012			ScottMadden	Rate Filing	Yes	No	No	No	Out of Scope
OPG Corporate Citizenship Benchmarking Review												2009		Grant Stream	Corporate Social Responsiblity	Yes	Yes	No	No	Out of Scope

Impacts on our analysis due to availability of data

Although many reports were provided by OPG, several could not be used in our analysis :

- **Age of Reports:** The analysis timeframe for this study, as indicted in the RFP, spanned the past 5 years. Any report that provided data older than 5 years was not used. Major changes in the company in the past 5 years would diminish any insights from the review of these benchmark reports.
- **Benchmarks not provided**: Some reports provided, although informative, did not contain comparisons of OPG performance to benchmarks. Without the benchmarks and OPG performance, we could not evaluate the report in light of the objective of the study.
- **Out of Scope**: The project scope was to review benchmarking reports on *productivity, efficiency and compensation*. Benchmark reports that did not provide these types of metrics were considered out of scope. For example, reports describing the level of uranium supply were provided -- these did not fall within the scope of efficiency, productivity or compensation.

Additionally, other factors limited the level of data analysis:

- **Span of Business Functions**: Reports did not exist for all business functions. Functions that did not have reports included Hydro and procurement.
- **Coverage within Business Functions:** In business functions where reports existed, some reports did not review all sub-functions.
- **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.

Implication

- Given the constraints listed above the benchmark report evaluation does not cover all business functions. In this report we reviewed the following business functions: Nuclear Generation, IT, Finance, HR and Compensation.
- Our analysis is also restricted to the level of detail provided by the reports and therefore varies significantly across each business area
- The shortage of data also impacted the method in which we planned to identify potential opportunity areas since some functions had no benchmark reports to identify improvement areas
- This has required an alternate approach to identify opportunity areas:
  - Significantly more primary data analysis
  - Additional interviews to compare and evaluate operating models for each business function

Analysis
Nuclear

Nuclear - Summary

Nuclear Benchmark Report Summary			
Report	**Methodology Appropriateness**	**Metrics**	**Trend Analysis**
Ontario Power Nuclear Benchmarking Report: 2009 -2012 **Author: ScottMadden**	■ Methodology used was appropriate ■ The data collection is from both WANO and EUCG which are both reliable and consistent sources ■ Peer group includes WANO members which included CANDU Owners Group members and uses the most appropriate peers in each section ■ No less than 13 and up to 48 peers were used in different sections	■ 9 efficiency/productivity metrics were provided ■ All metrics were evaluated as appropriate ■ Based on a report clarification interview with OPG, we recognize that a substantial number of more detailed nuclear metrics are measured by OPG but were included in this report	■ Year over year analysis indicates that OPG Non-Fuel Operating Cost per MWh has trailed the industry median since 2008 ■ Pickering significantly underperforms relative to the industry median in the area of time lost due to unplanned energy losses (Forced Loss Rate) whereas Darlington performs better than the industry median and Darlington Unit 3 performs at the top of the CANDU peer group

Nuclear: Ontario Power Generation Nuclear Benchmarking Reports

Report Name: Ontario Power Nuclear Benchmarking Report (2009 through 2012)			
Study Author	Scott Madden	**Benchmark Types**	Efficiency
Area of Study	Nuclear	**Date Published**	July of each year 2009-2012
Survey Period	2009 to 2012		

Appropriateness of Methodology	**Objective** • There is a clear objective, which is to present a comparison of OPG's Nuclear performance to that of nuclear industry peer groups both in Canada and worldwide • The report was prepared as part of OPG's commitment to "performance informed" business management • The results are used during business planning to drive a top-down target setting process with business improvement as the objective **Data Collection Method** • The data collection is from WANO and EUCG which are reliable and consistent sources **Peer Group** • Peer group includes WANO members which included CANDU Owners Group members and uses the most appropriate peers in each section • No less than 13 and up to 48 peers were used in different sections including peers from INPO **Constraints or Limitations** • The report highlights areas where adjustments or information was missing in certain areas *The approach and methodology are appropriate for the purpose of the report which was to collect data and compare against industry benchmark performance.*

Nuclear: Ontario Power Generation Nuclear Benchmarking Reports

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Generation	*Total Generating Cost per MWh*	**Appropriate**	The Nuclear Energy Institute (NEI) and the International Energy Agency (IEA) use a benchmark for Non-Fuel Operating Cost, Fuel Cost ($/MWh). OPG also uses Total Generating Cost per MWh which is the sum of Non-Fuel Operating Cost, Fuel Cost, and Capital Cost. Given the differences between OPG and most North American plants with respect to both fuel costs and capital costs, the best overall financial comparison metric for OPG facilities to both North American and other CANDU technologies is Total Generating Cost per MWh.
	Non-Fuel Operating Costs per MWh	**Appropriate**	The Non-Fuel Operating Costs per MWh consists of non-fuel operations and maintenance expenses. For nuclear plants, Non-Fuel Operating Costs per MWh contains a variable cost component directly dependent on MWh generation. The non-variable component is heavily dominated by the number of employees/human resources. While the metric is highly appropriate it is important to select peers which have 1) similar total site MW capacity and 2) similar capacity factors. Comparisons of CANDU and Pressurized Water Reactor (PWR)/Boiling Water Reactor (BWR) Non-Fuel Operating Costs per MWh will consistently show that CANDU reactors have higher non-fuel operating costs because of the technology differences. This can be especially true for comparison to US plants which are relatively consistent in utilizing the same basic operations and maintenance processes.

Nuclear: Ontario Power Generation Nuclear Benchmarking Reports

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Generation	*Fuel Cost per MWh*	**Appropriate**	Fuel Cost is a key driver of the total operating cost for power generation. However, once again due to technology differences, comparing CANDU and Pressurized Water Reactor (PWR)/Boiling Water Reactor (BWR) Fuel Costs per MWh will consistently show a bias. In this case, CANDU reactors will have a lower Fuel Cost per MWh as CANDU reactors use natural uranium fuel vs. slightly enriched nuclear fuel used by PWR/BWR facilities. The cost difference is approximately 40%. Most of the reactors compared in the report use PWR or BWR technology.
	Capital Cost per MW DER	**Appropriate**	While incremental capital costs per MW is an appropriate metric , making direct comparisons of CANDU technology to North American peer group technology without recognizing key differences between technology can provide skewed results. The best use for this metric is part of the Total Generating Cost per MWh.

Nuclear: Ontario Power Generation Nuclear Benchmarking Reports

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Reliability	*WANO NPI*	**Appropriate**	WANO defines eleven nuclear performance indicators (NPIs). Eight of the indicators are generally independent of reactor technology type. The WANO NPI sub-indices performance index values are accurate and can be used for relative comparison to other plants at a very high level. The NPI index values do not explain why performance at a specific plant is at a high or low level. As per WANO, the following three indicators are defined in a manner that reflects differences in plant-specific designs, configurations, or operational practices. As a result, data cannot be summarized across reactor types. 1. Safety System Performance 2. Fuel Reliability 3. Chemistry Performance
	Rolling Average Forced Loss Rate (%)	**Appropriate**	This metric is commonly used in the industry across all generation type (thermal, nuclear, gas, etc.) and is appropriate for OPG Nuclear use. Definition per WANO: "The forced loss rate is the percentage of energy generation during non-outage periods that a plant is not capable of supplying to the electrical grid because of unplanned energy losses, such as unplanned shutdown or load reductions. A low value indicates important plant equipment is well maintained and reliably operated."
	Rolling Average Unit Capability Factor	**Appropriate**	This metric is useful because the Unit Capability Factor is a metric with performance limited only by factors within control of plant management. A high unit capability factor indicates effective plant programs and practices to minimize unplanned energy losses and to optimize planned outages. The Unit Capability Factor is inversely related to Forced Loss Rate (as FLR goes up (worse performance) Unit Capability Factor goes down (also worse performance).

Nuclear: Ontario Power Generation Nuclear Benchmarking Reports

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Maintenance	*1-Year Online Elective Maintenance (work orders per unit)*	**Appropriate – but redefined in 2010** Online Elective Maintenance was replaced in 2012 ScottMadden Benchmark Report by a new metric, "Deficient Maintenance Backlog" as defined in INPO* AP-928 Rev 3 (June 2010). 2009 – 2011 reports provide performance to out of date metric.	On-line elective maintenance backlog (based on INPO AP-928 Rev 2) is no longer in use by the industry. ScottMadden notes in their 2011 Report (page 57) "Industry backlog benchmark standards changed with Revision 3 of AP-928 work management Practices at INPO in June 2010. OPG spent the latter half of 2010 preparing to move to the new standard starting in 2011. All three sites converted to the new standard on January 24, 2011." Under the new definition, OPG deficient maintenance backlog performance remained in the second quartile of performance.

Nuclear: Ontario Power Generation Nuclear Benchmarking Reports

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Maintenance	*1-Year Online Corrective Maintenance (work orders per unit)*	**2009 – 2011 reports provide out of date metrics** **New metric is defined in INPO AP-928 Rev 3 (June 2010)**	The 2012 ScottMadden benchmark reflects the new standard. Industry backlog benchmark standards changed with Revision 3 of AP-928 Work Management Practices at INPO in June 2010. All OPG sites converted to the new standard on January 24, 2011. Per AP-928 Rev 3 – Corrective maintenance (CM) : "represents a level of deficiency of a plant component that has failed or is significantly deficient such that failure is imminent (within its operating cycle/preventive maintenance interval) and it no longer conforms to or cannot perform its design function." Corrective maintenance has three classifications: ■ CC - corrective maintenance to be performed on critical components as defined by AP-913 ■ CN - corrective maintenance to be performed on noncritical components as defined by AP-913 ■ CL - corrective maintenance to be performed on run-to-failure components as defined in AP-913 or critical and noncritical components of very low consequence if not corrected. The maintenance backlog is a measure of the count of corrective (or deficient) work orders related to a specific unit.

Nuclear: Ontario Power Generation Nuclear Benchmarking Reports

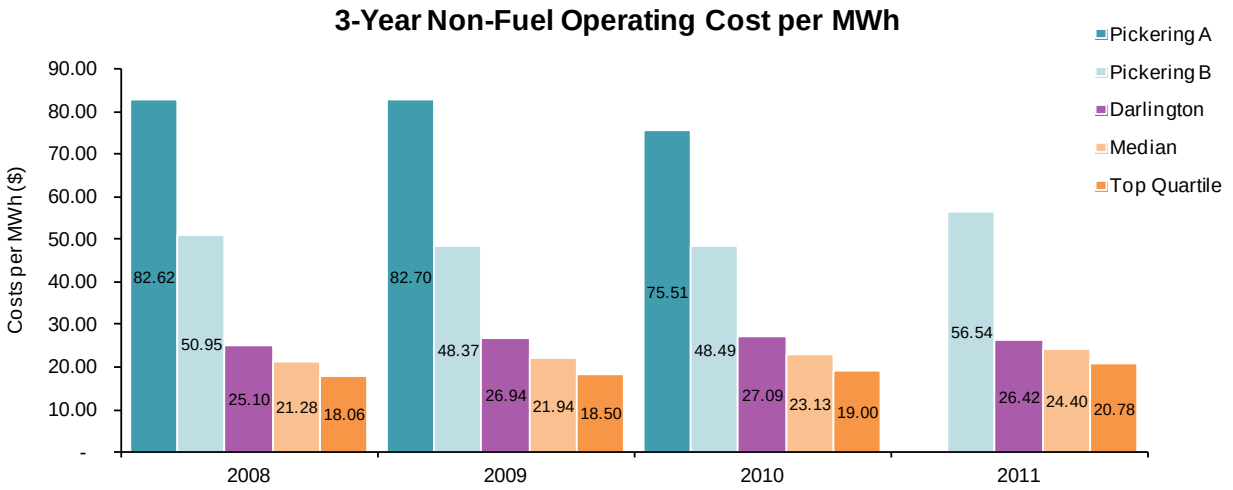
Metric Gap Analysis

Given the scope of this report, we found that the efficiency and productivity metrics used are appropriate and no gaps exists.

Based on a clarification interview with OPG, we recognize that a substantial number of more detailed metrics are measured by OPG and were not included as part of the ScottMadden report.

Nuclear: Ontario Power Generation Nuclear Benchmarking Reports

Ranking Analysis – 3-Year Non-Fuel Operating Cost per MWh

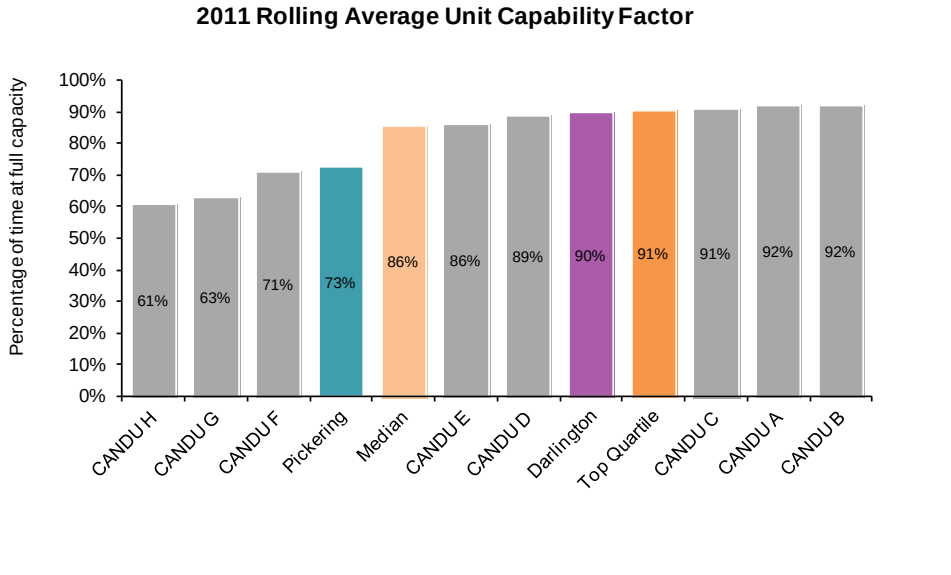


Ranking Analysis

- Darlington has ranked in the middle to bottom of the third performance quartile from 2008 through 2010, with bottom on second quartile performance in 2011. Pickering has consistently ranked at near the bottom of fourth quartile cost performance in all benchmark years.
- Top quartile plants had non-fuel operating costs equal to or better than $20.78/MWh. The best OPG plant performance (Darlington) was $26.42/MWh, $5.64/MWh (27%) higher than best quartile.
- Per ScottMadden, due to the relative technical complexity of CANDU technology compared to other North American reactors, CANDU facilities may require 20 percent more labor. This hypothesis should be tested by performing a more detailed analysis of cost performance across one or more of the EUCG Nuclear Operating Cost (NOC) cost accounts (including cost and staffing levels).
- Fuel Cost per MWh has not varied significantly during this period and is only about 50% of the fuel cost per MWh compared to the North American peer group.
- Also per ScottMadden, the only additional contributing factor which appears in non-fuel operating cost is capitalization policy. But this does not appear to make sense as both Darlington and Pickering have near top (low cost) capital performance per the 2011 3-Year Capital Cost per MW DER.

Nuclear: Ontario Power Generation Nuclear Benchmarking Reports

Ranking Analysis – 2011 Rolling Average Unit Capability Factor (CANDU Unit Basis)

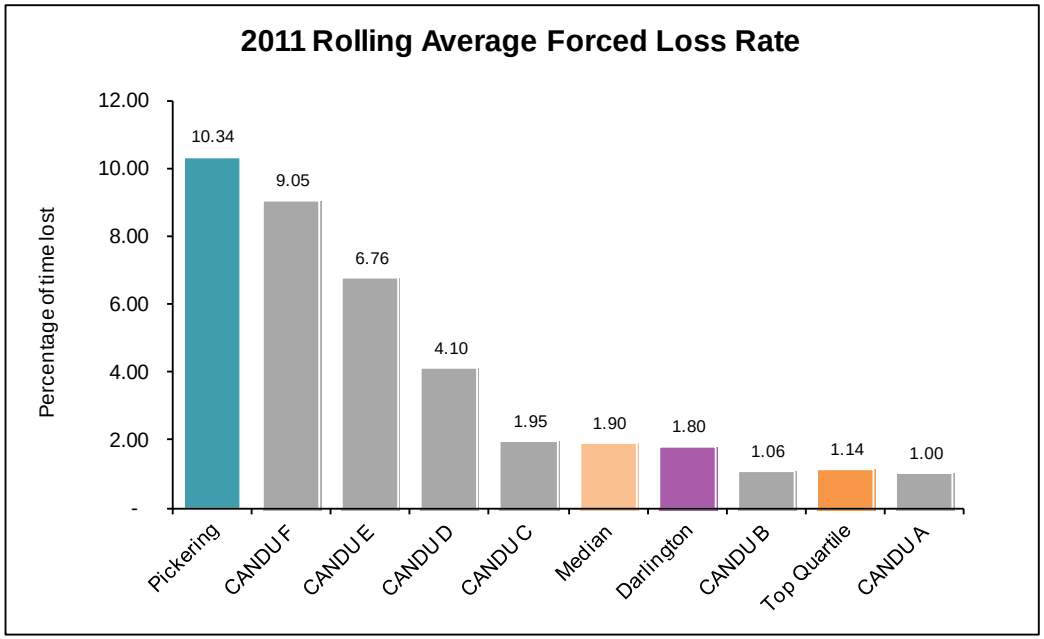


Ranking Analysis

- Rolling Average Unit Capability Factor is compared to only CANDU units and not all North American peer group. CANDU top quartile Unit Capability Factor performance in 2011 was 91% (median 86%).
- Top performing plants achieve higher Unit Capability Factors through effective implementation and integration of equipment reliability, outage management, and human performance programs
- Darlington units appear to have performed above the CANDU median performance but under the top quartile in 2011
- Pickering units appear to perform under the CANDU median performance in 2011

Nuclear: Ontario Power Generation Nuclear Benchmarking Reports

Ranking Analysis – 2011 Rolling Average Forced Loss Rate (CANDU Unit Basis)

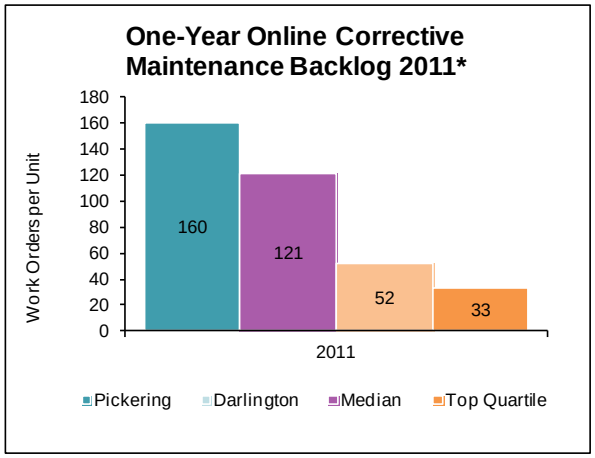


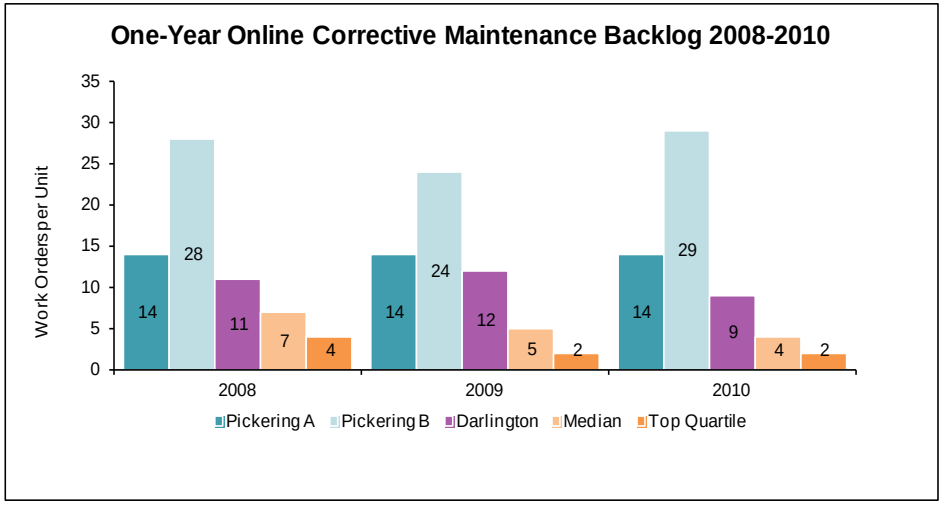
Ranking Analysis

- Forced Loss Rate is a measure of unplanned energy losses such as unplanned shutdown or load reductions
- Forced Loss Rate is influence by equipment reliability, outage management efficiency, and human performance program effectiveness
- Rolling Average Forced Loss Rate is compared to only CANDU units and not all North American peer group. CANDU top quartile Rolling Average Forced Loss Rate performance in 2011 was 1.14% (median 1.90%).
- Darlington units appears to have performed above the CANDU median performance in each year but under the top quartile in 2011
- Pickering units appear to have performed at the bottom of all CANDU peer plants in 2011

Nuclear: Ontario Power Generation Nuclear Benchmarking Reports

Ranking Analysis – 2008 to 2011 On-line Corrective Maintenance Backlog





Ranking Analysis

- The definition for Online Corrective Maintenance was redefined in 2011, therefore results for 2011 are not directly comparable to previous years
- However, reviewing performance of Darlington and Pickering relative to the respective annual median, both appear to consistently underperform relative to the industry median
- Darlington and Pickering B have acknowledged the need to improve engineering throughput and addressing parts obsolescence
- Pickering A has stated that work planning and appropriate scheduling due to parts availability continue to be a significant challenge

**2011 results not comparable due to a definitional change*
Pickering results consolidated in 2011

Analysis
Finance

Finance - Summary

Finance Benchmark Report Summary			
Report	**Methodology Appropriateness**	**Metrics**	**Trend Analysis**
World-Class Progress Report Finance – Final Results: 2006, 2008 **Author: Hackett Group**	■ Methodology used was appropriate ■ Compared against 11 North American energy companies ■ Evaluated every sub-function within Finance ■ Reviewed sub-functions that are conducted within the company and outsourced	■ 50 efficiency/productivity metrics were provided ■ 47 of 50 metrics evaluated as appropriate ■ The report is comprehensive and no additional metrics were identified	■ Year over year data was not provided in the analysis window for the project (2007-2012)

Finance: World-Class Progress Report Finance – Final Results

Methodology Review

World-Class Progress Report Finance – Final Results			
Study Author	Hackett Group	**Benchmark Types**	Productivity/Efficiency
Area of Study	Finance	**Date Published**	July 26, 2010
Survey Period	2006, 2008		

Appropriateness of Methodology	**Objective:** • Although there is no clear objective stated in the report itself, it is apparent that this type of benchmark review would be used to measure the efficiency and cost effectiveness of the finance function. This is entirely appropriate and relevant for the purposes of the KPMG review. **Data Collection Method:** • The data collection method used for this study is appropriate. It uses standard metrics for measuring the productivity and cost effectiveness of finance, and most of the information is objective and verifiable. **Peer Group** • Peer group selection for this study is appropriate in terms of relative size and industry similarity • The sample size and diversity is appropriate for this study. The peer group of 11 North American energy companies is sufficient to provide a good comparison for finance activities. **Constraints or Limitations** • There were no constraints or limitations observed in the study methodology. *The approach and methodology are appropriate for the purpose of the report which was to compare against industry benchmarks.*

Finance: World-Class Progress Report Finance – Final Results

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Finance Cost	*Finance FTEs per Billion of Revenue (Before & After Rebates)*	**Appropriate**	• This metric is a widely accepted metric for measuring the overall efficiency of a finance function
	Finance Resource Allocation	**Appropriate**	• This metric provides a perspective on how the finance budget is spent and the kind of activities performed by the finance function
	Finance Technology Cost as a Percent of Revenue	**Appropriate**	• This metric is an indicator of the use of technology for the finance function and can be an indicator of the level of automation
	Finance Other Cost as a Percent of Revenue	**Appropriate**	• This metric provides a perspective on the amount of spending by the finance department on items other than labour, outsourcing, and technology
	Total Finance Cost as a Percent of Revenue (Before & After Rebates)	**Appropriate**	• This metric is a widely accepted metric for measuring the efficiency of a finance function relative to revenues

Finance: World-Class Progress Report Finance – Final Results

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Transaction Processing	*Cash Disbursement Cost as a Percent of Revenue*	**Appropriate**	• Cash disbursements will typically be proportional to revenue, so this comparison is a good metric to evaluate performance
	Cash Disbursement Labour Cost as a Percent of Revenue	**Appropriate**	• Labour cost represents the vast majority of the cost of finance. This metric should be close to total cost as a percent of revenue.
	Outsourcing Cash Disbursement Cost as a Percent of Revenue	**Appropriate**	• This process can be readily outsourced, so this metric provides a view on the relative aggressiveness and cost of outsourcing
	Cash Disbursement FTEs per Billion of Revenue	**Appropriate**	• Cash Disbursement FTEs per Billion of Revenue is an appropriate metric to compare relative effort involved with this process
	Cash Disbursement Cost per Transaction	**Appropriate**	• Cash Disbursement Cost per Transaction is a good measure of efficiency for the transaction processing function of finance
	Cash Disbursement Transactions Per FTE	**Appropriate**	• Cash Disbursement Transactions Per FTE is an appropriate metric to compare the relative effort involved in this process
	Percent A/P Transactions Require Correction	**Appropriate**	• Percent A/P Transactions Require Correction is a good measure of efficiency of the transaction processing function of finance, and is likely an indication of the level of automation in the process
	Percent Electronic Transactions	**Appropriate**	• Percent Electronic Transactions is a good measure of automation of the transaction processing function of finance

Finance: World-Class Progress Report Finance – Final Results

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
General Accounting	*General Accounting Cost as a Percent of Revenue*	**Appropriate**	• Cost of Finance as a Percent of Revenue is the most widely accepted metric for measuring the efficiency and effectiveness of a finance function. General accounting is the most resource intensive process, so it is important to measure it.
	General Accounting Labour Cost as a Percent of Revenue	**Appropriate**	• Labour Cost represents the vast majority of the cost of finance. This metric should be close to total cost as a percent of revenue.
	General Accounting Outsourcing Cost as a Percent of Revenue	**Appropriate**	• General Accounting Outsourcing Cost as a Percent of Revenue is an appropriate metric because it provides an insight into the level of outsourcing employed at the company
	General Accounting FTEs per Billion of Revenue	**Appropriate**	• General Accounting FTEs per Billion of Revenue is an appropriate metric to measure the efficiency of the general accounting function of finance
	Percent Automated Journal Entries	**Appropriate**	• Percent Automated Journal Entries is a good measure of automation – manual journal entries can be a significant drain on resources
	Month End Close Cycle	**Appropriate**	• Cycle time for the month end close is a key measure of productivity because a high value prevents finance staff from working on other things
	Month End Close Cycle Days to Close	**Appropriate**	• Cycle time for the month end close is a key measure of productivity because a high value prevents finance staff from working on other things
	Month End Close Cycle Days to Report	**Appropriate**	• Cycle time for month end reporting is valuable because the time between close and report can extend significantly if the process is not well controlled

Finance: World-Class Progress Report Finance – Final Results

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Tax Management	*Tax Management Cost as a Percent of Revenue*	**Appropriate**	• Since OPG is required to pay taxes similar to what would be imposed under government tax legislation it is reasonable to use this metric to compare total cost of this process
	Tax Management Labour Cost as a Percent of Revenue	**Appropriate**	• Since OPG is required to pay taxes similar to what would be imposed under government tax legislation it is reasonable to use this metric to compare labour cost of this process
	Tax Management Outsourcing Cost as a Percent of Revenue	**Appropriate**	• Since OPG is required to pay taxes similar to what would be imposed under government tax legislation it is reasonable to use this metric to compare outsourcing cost of this process
	Tax Management FTEs per Billion of Revenue	**Appropriate**	• Since OPG is required to pay taxes similar to what would be imposed under government tax legislation it is reasonable to use this metric to compare FTEs involved in this process
Treasury Management	*Treasury Management Cost as a Percent of Revenue*	**Appropriate**	• Treasury Management Cost as a Percent of Revenue is an appropriate metric to compare total cost of this process
	Treasury Management Labour Cost as a Percent of Revenue	**Appropriate**	• Treasury Management Labour Cost as a Percent of Revenue is an appropriate metric to compare labour cost of this process
	Treasury Management Outsourcing Cost as a Percent of Revenue	**Appropriate**	• Treasury Management Outsourcing Cost as a Percent of Revenue is an appropriate metric which provides insight into the level outsourcing for this function
	Treasury Management FTEs per Billion of Revenue	**Appropriate**	• Treasury Management FTEs per Billion of Revenue is an appropriate metric to compare FTEs involved in this process

Finance: World-Class Progress Report Finance – Final Results

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Compliance Management	*Compliance Management Cost as a Percent of Revenue*	**Appropriate**	• The compliance function typically deals with regulatory matters, which can be a significant requirement for a regulated entity like OPG. Percent of Revenue is the best way to measure.
	Compliance Management Labour Cost as a Percent of Revenue	**Appropriate**	• The compliance function typically deals with regulatory matters, which can be a significant requirement for a regulated entity like OPG. Labour vs. Total Costs are essentially the same.
	Compliance Management Outsourcing Cost as a Percent of Revenue	**Appropriate**	• Very few organizations outsource this function in its entirety, but often supplement an internal team with external consultants or contractors. This metric provides insight into the outsourcing of the compliance management function of finance.
	Compliance Management FTEs per Billion of Revenue	**Appropriate**	• Compliance Management FTEs per Billion of Revenue is an appropriate metric to measure the efficiency of the compliance management function of finance
Planning and Performance Management	*Planning and Performance Management Cost as a Percent of Revenue*	**Appropriate**	• A good indication of the sophistication of the organization. A world class organization will have a larger FP&A function and a smaller general accounting function.
	Planning and Performance Management Labour Cost as a Percent of Revenue	**Appropriate**	• A good indication of the sophistication of the organization. A world class organization will have a larger FP&A function and a smaller general accounting function. Labour vs. total cost are essentially the same.
	Planning and Performance Management Outsourcing Cost as a Percent of Revenue	**Inappropriate**	• This activity was not identified as an outsourced service by OPG and using this metric alone could be misleading. Comparing total cost of this activity is the better metric (listed above).
	Planning and Performance Management FTEs per Billion of Revenue	**Appropriate**	• Planning and Performance Management FTEs per Billion of Revenue is an appropriate metric to measure the efficiency of the planning and performance management function of finance.

Finance: World-Class Progress Report Finance – Final Results

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Business Analysis	*Business Analysis Cost as a Percent of Revenue*	**Appropriate**	• Business Analysis Cost as a Percent of Revenue is a good indication of the sophistication of the organization. A world class organization will have a larger FP&A function and a smaller general accounting function
	Business Analysis Labour Cost as a Percent of Revenue	**Appropriate**	• Business Analysis Labour Cost as a Percent of Revenue is a good indication of the sophistication of the organization. A world class organization will have a larger FP&A function and a smaller general accounting function.
	Business Analysis Outsourcing Cost as a Percent of Revenue	**Inappropriate**	• This activity was not identified as an outsourced service by OPG and using this metric alone could be misleading. Comparing total cost of this activity is the better metric (listed above).
	Business Analysis FTEs per Billion of Revenue	**Appropriate**	• Business Analysis FTEs per Billion of Revenue is an appropriate metric to measure the efficiency of the business analysis function of finance
	Allocation of Analysts' Time for Standard Reports - Collecting/Compiling Data	**Appropriate**	• This metric is a good indication of the role of the business analyst in the organization. It provides insight into organization's utilization of its business analysts (report-runners vs. real decision support and analysis).
	Allocation of Analysts' Time for Standard Reports - Analyzing Information	**Appropriate**	• This metric is a good indication of the role of the business analyst in the organization. It provides insight into organization's utilization of its business analysts.
	Percent of Time Financial and Non-financial Measures are used to Analyze the Success of the Business	**Appropriate**	• Percent of Time Financial and Non-financial Measures are used to Analyze the Success of the Business metric is subjective, so results should only be treated as indicative
	Percent of Time Output of the Cost Analysis is Considered on Target by Internal Customers	**Appropriate**	• Percent of Time Output of the Cost Analysis is Considered on Target by Internal Customers metric is subjective, so results should only be treated as indicative

Finance: World-Class Progress Report Finance – Final Results

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Budgeting	*Percent of Cost Centre Managers/Staff Enter Budget Info into an Application that Auto-feeds a Consolidated Budget Model*	**Appropriate**	• Percent of Cost Centre Managers/Staff Enter Budget Info into an Application that Auto-feeds a Consolidated Budget Model is a good measure of automation of the budgeting function
	Average Number of Days to Complete the Budget	**Appropriate**	• Average Number of Days to Complete the Budget can be a big resource drag. This metric provides insight into the efficiency of the budgeting process
Functional Management	*Function Management Cost as a Percent of Revenue*	**Appropriate**	• Function Management Cost as a Percent of Revenue is an appropriate metric to compare total cost of this process
	Function Management Labour Cost as a Percent of Revenue	**Appropriate**	• Function Management Labour Cost as a Percent of Revenue is an appropriate metric to compare labour cost of this process
	Function Management Outsourcing Cost as a Percent of Revenue	**Inappropriate**	• This activity was not identified as an outsourced service by OPG and using this metric alone could be misleading. Comparing total cost of this activity is the better metric (listed above).
	Function Management FTEs per Billion of Revenue	**Appropriate**	• Function Management FTEs per Billion of Revenue is an appropriate metric to measure the efficiency of the function management function of finance
Experience and Training	*Percent of the Analysis Staff Experienced in Both Finance and Your Company's Operations*	**Appropriate**	• Percent of the Analysis Staff Experienced in Both Finance and Your Company's Operations metric is subjective, so results should only be treated as indicative
	Average Number of Formal Training Hours for Finance Employees	**Appropriate**	• Average Number of Formal Training Hours for Finance Employees metric is subjective based on the experience level of the finance team so results should only be treated as indicative

Finance: World-Class Progress Report Finance – Final Results

Metric Gap Analysis

The metrics included in the report sufficiently span all important finance functions.
No material gaps regarding specific Finance metrics were identified in our analysis of this report.

Finance: World-Class Progress Report Finance – Final Results

Ranking Analysis

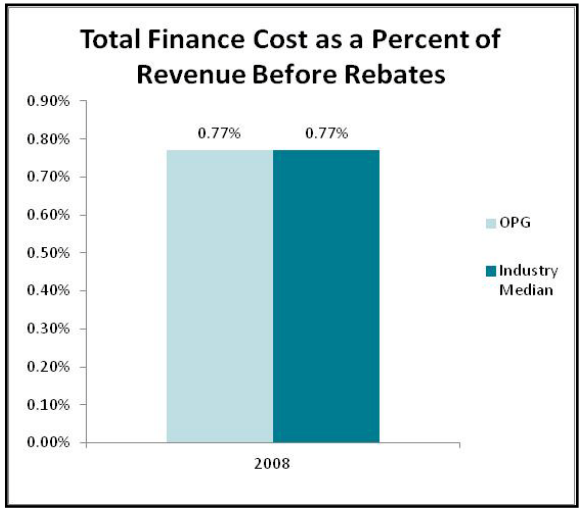
Year over year performance ranking of OPG could not be completed in the area of Finance as multi-year data in the period of analysis was not available.

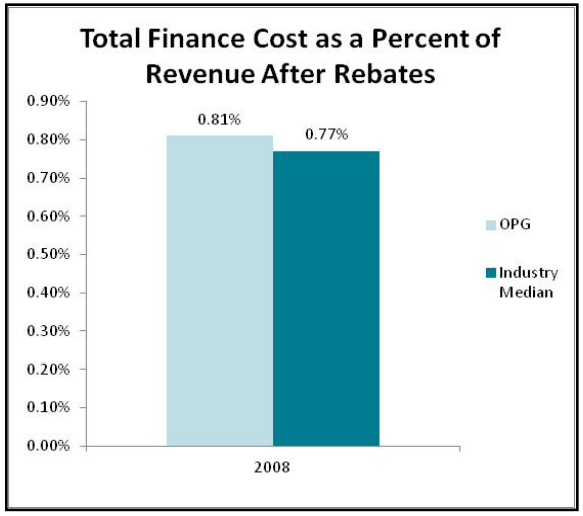
We have provided performance data for the only year that was available in the study period, 2008.

Since these results are over four years old we expect that both OPG's performance and in some cases actual benchmarks to have changed. Underperformance or outperformance in any area in this report does not indicate the currently level of business performance at OPG.

Finance: World-Class Progress Report Finance – Final Results

Total Finance Cost Before Rebates and After Rebates*





Analysis

Total Finance Cost Before Rebates

- In 2008 OPG's Total Finance Cost as a Percent of Revenue before Rebates was the same as the industry median

Total Finance Cost After Rebates

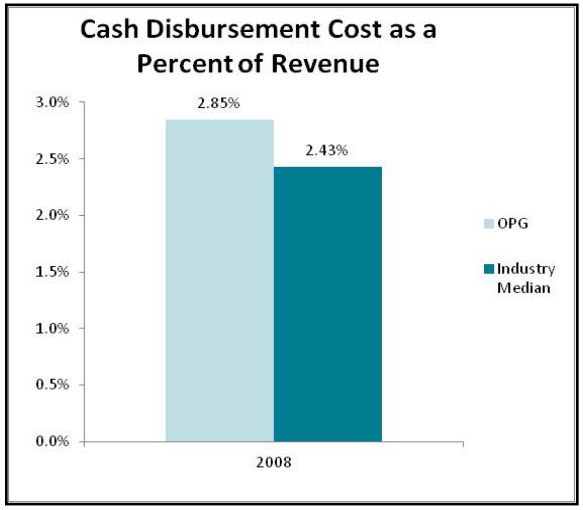
- In 2008, OPG's Total Finance Cost as a Percent of Revenue After Rebates was 5% higher than the industry median

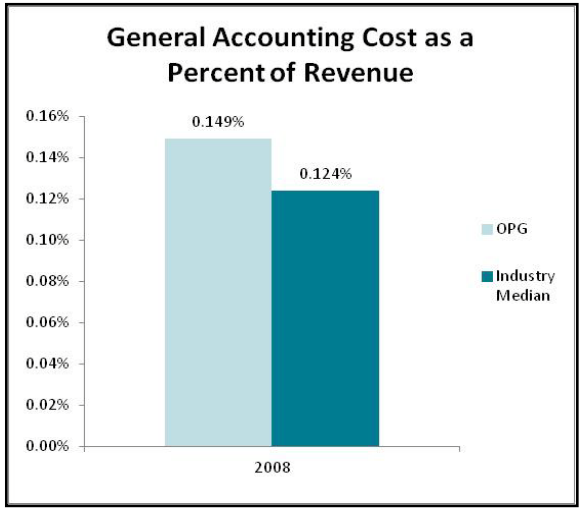
Clarification regarding Rebates - from OPG

OPG was required under its generating license to comply with prescribed market power mitigation measures. The market power mitigation measures included a rebate mechanism that was in place from May 1, 2002 to April 30, 2009. It required OPG to return all revenues exceeding the hourly market rate to the IESO for the benefit of consumers. For benchmarking metrics that use revenue, the revenue amount can be OPG's gross revenue figure or revenue after the rebate. In 2007, OPG's revenue was $5.9 Billion, the revenue rebate was $227 Million, and revenue after the rebate was $5.7 Billion. 2008.

Finance: World-Class Progress Report Finance – Final Results

Cash Disbursement Cost and General Accounting Cost as a Percent of Revenue





Analysis

Cash Disbursement

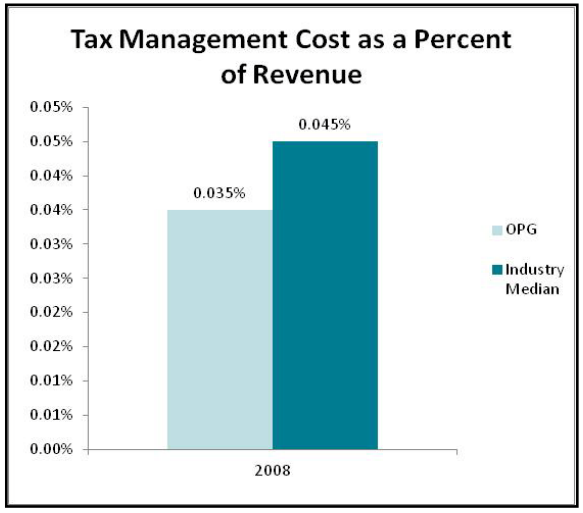
- In 2008, OPG's performance in the Cash Disbursement Cost as a Percent of Revenue metric was 17% higher than the industry median

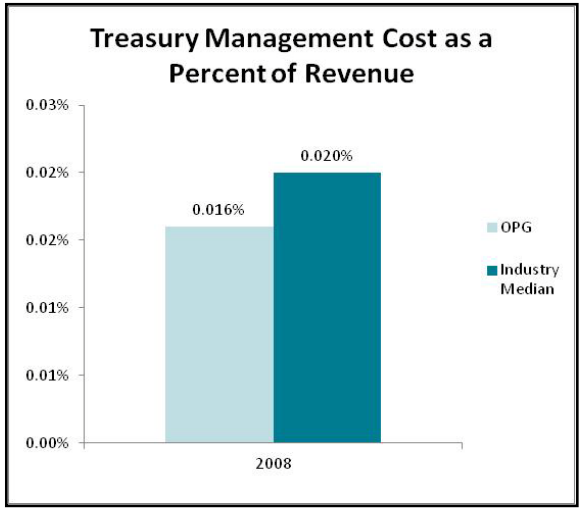
General Accounting

- In 2008, OPG's performance in the General Accounting Cost as a Percent of Revenue metric was 20% higher than the industry median

Finance: World-Class Progress Report Finance – Final Results

Tax Management Cost and Treasury Management Cost as a Percent of Revenue





Analysis

Tax Management

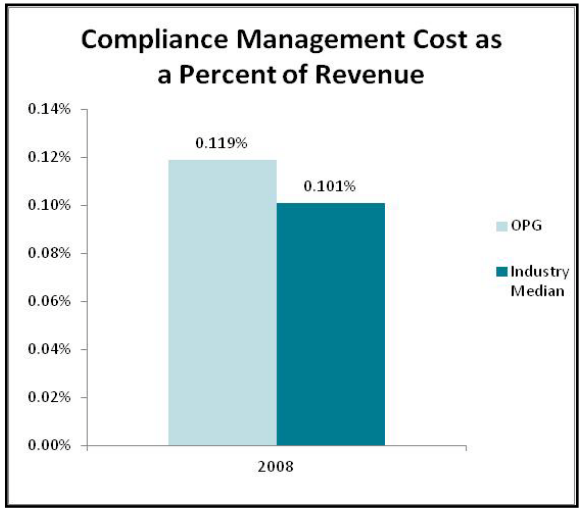
- In 2008, OPG's Tax Management Cost as a Percent of Revenue was lower than the industry median
- In this analysis, OPG has been compared to North American power utilities – therefore costs and effort associated with Tax Management are only broadly comparable

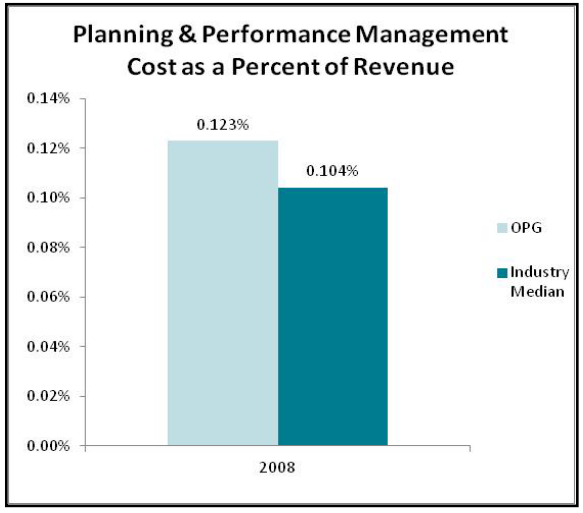
Treasury Management

- In 2008, OPG was lower than the industry median by 20%

Finance: World-Class Progress Report Finance – Final Results

Compliance Management Cost and Planning and Performance Management Cost as a Percent of Revenue





Analysis

Compliance Management

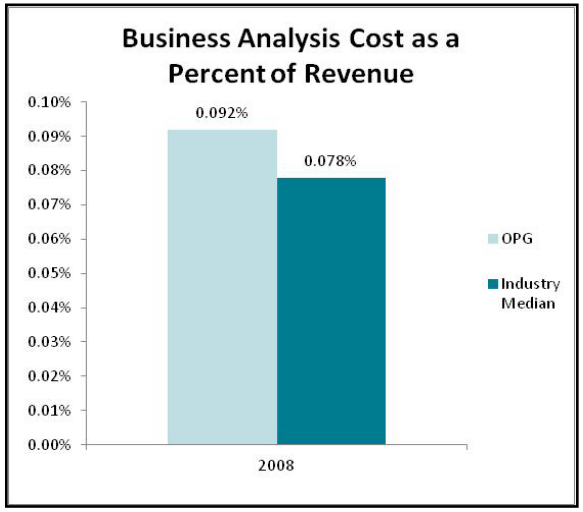
- In 2008, OPG's Compliance Management Cost as a Percent of Revenue result was 18% higher than the industry median

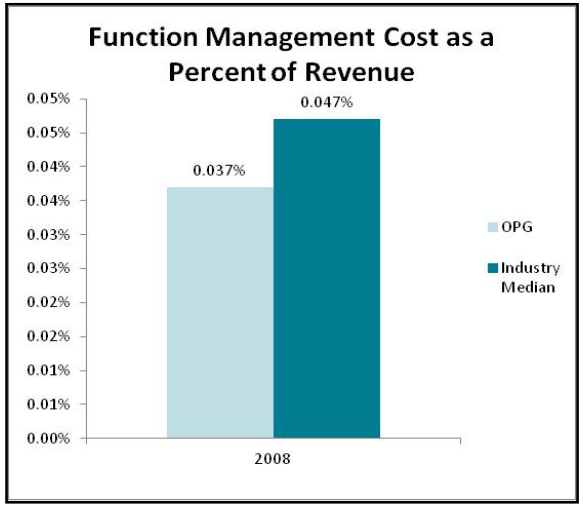
Planning and Performance Management

- In 2008, OPG's performance in Planning and Performance Management Cost was 18% higher than the industry median

Finance: World-Class Progress Report Finance – Final Results

Business Analysis Cost and Function Management Cost as a Percent of Revenue





Analysis

Business Analysis

- In 2008, OPG's Business Analytics Cost as a percent of Revenue was 18% higher than the industry median

Function Management

- In 2008, OPG's performance in Function Management Cost as a Percent of Revenue was 21% lower than the industry median

Analysis

Information Technology (IT)

IT - Summary

IT Benchmark Report Summary			
Report	**Methodology Appropriateness**	**Metrics**	**Trend Analysis**
Final OPG IT Cost Benchmark Analysis: 2008-2010 **Author: OPG**	■ Methodology used was not appropriate ■ The report appears to be an internally generated report ■ Comparison of EUCG IT metrics ■ The report does not clarify whether the data collection approach or the data was reviewed by EUCG for appropriateness or if the formulas used to calculate OPG values were verified to be correct ■ Unclear on why this set of metrics were chosen ■ The study peer group is comprised of 11 North American utilities	■ 30 efficiency/productivity metrics were provided ■ 26 of 30 were evaluated as appropriate ■ The IT metrics that were selected in this study varied significantly in terms level of analysis. Some overall comparisons of hardware/ software/ personnel and outsourcing spending were excluded while detailed activity comparisons were included. ■ Common, industry standard comparisons that have been excluded from this analysis such as spend by tower or capital/operational cost distribution would provide a better comparison against industry peers	■ Year over year analysis indicates that OPG's IT spend per energy unit hour has consistently been lower than the median ■ The IT spend per employee is also lower than the industry median, however, it is unclear the definition for employees is consistent across all participating companies ■ Server metrics indicate that OPG has lagged the industry in virtualization of servers

IT: Final OPG IT Cost Benchmark Analysis - 2010 Report

Methodology Review

Report Name: Final OPG IT Cost Benchmark Analysis - 2010			
Study Author	OPG	**Benchmark Types**	Productivity/Efficiency
Area of Study	IT	**Date Published**	No date provided
Survey Period	2008-2010		

Appropriateness of Methodology	**Objective** • The objective of the study is to compare OPG IT performance against industry benchmarks from EUCG • Efficiency and productivity metrics for the study were selected from the EUCG IT benchmarking database, however selected benchmarks do not indicate a clear objective of the study **Data Collection Method** • The report appears to be an internally generated report (i.e. data collected and synthesized by OPG staff) • The report does not clarify whether the data collected was reviewed by EUCG for appropriateness or if the formulas used to calculate OPG values were verified to be correct **Peer Group** • The study peer group is comprised of 11 North American utilities • The peer group appears to be appropriate but is limited to only EUCG members that participate in the IT surveys **Constraints and Limitations** • Common, industry standard comparisons seemed to excluded from this analysis such as spend by tower or capital/operational cost distribution • The IT metrics that were selected in this study varied significantly in terms level of analysis. Some broad comparisons of hardware/ software/ personnel and outsourcing spending were excluded while detailed elemental comparisons (e.g. Unix cost per physical server were included) *As an internally generated report, the approach and methodology were not clearly defined nor verified by EUCG and therefore not appropriate.*

IT: Final OPG IT Cost Benchmark Analysis – 2010 Report

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
IT Spend	*IT Spend per GWh*	**Appropriate**	• Usually the most common IT efficiency measure is the IT spending as a percentage of revenue and since revenue is proportional to GWH in the utility industry, it should be proportional to that metric
	IT Spend per Employee	**Appropriate**	• Good metric to measure the amount of IT support the workforce is receiving, however, all 'workers' should be included in the denominator including contractors and temporary labour
	IT Spend as Percentage of Revenue	**Appropriate**	• This is the most common measure for IT efficiency
	IT Spend per End User	**Not Appropriate**	• Using FTE count would provide a metric that would better match industry standards like the IT Spend per Employee metric
Desktop Support Service	*Help Desk Cost per Transaction*	**Appropriate**	• Good measure of cost in the Desktop Support tower, especially when the cost distribution among the towers is combined with the previous section for context • This metric would be more appropriate if the Help Desk Cost referred to the cost of an incident and service request from reporting to resolution (end to end)
	First Call Resolution	**Appropriate**	• This is an appropriate metric as long as the channel definition is clear (e.g. phone) and that it refers to all incidents as a first level support
	Average Speed to Answer	**Appropriate**	• This is a key measure for helpdesk efficiency
	Help Desk Tickets per End User	**Appropriate**	• This metric measures volume and be used as a productivity measure

IT: Final OPG IT Cost Benchmark Analysis – 2010 Report

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Desktop Support Service	*Help Desk Costs per End User*	**Appropriate**	• Although appropriate, this is similar to the Helpdesk Cost per Transaction metric
	Desktop Cost per PC	**Appropriate**	• This is an appropriate metric to compare the total costs associated with each PC
	PC per Employee	**Appropriate**	• This metric is appropriate to compare broadly, the allocation of PCs to employees, however, all 'workers' should be included in the denominator including contractors and temporary labour
	PC per End User	**Appropriate**	• This metric provides another way to evaluate the allocation of PCs within a company
	Users per Network Printer	**Appropriate**	• This metric measures whether the ratio of users per network printer is efficient and is a key desktop cost drivers
Computing Services	*Computing Costs per Data Centre*	**Not Appropriate**	• This benchmark does provide reasonable comparisons of computing costs as it does not normalize data centre size
	IT Sites per Data Centre	**Not Appropriate**	• This metric does not measure efficiency or productivity of the Computing Services
	Mainframe Cost per MIPS	**Appropriate**	• This is an appropriate metric to measure computing power unit cost
	Unix Cost per Physical Unix Server	**Appropriate**	• This is an appropriate metric to measure unit server cost

IT: Final OPG IT Cost Benchmark Analysis – 2010 Report

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Computing Services	*Unix Cost per Unix OS*	**Appropriate**	• Although appropriate, this is similar to the Unix cost per Physical Unix Server metric
	Wintel Cost per Physical Wintel Server	**Appropriate**	• This is an appropriate metric to measure unit server cost
	Wintel Cost per Wintel OS	**Appropriate**	• Although appropriate, this is similar to the Wintel Cost per Physical Wintel Server metric
	% of Unix Virtualization	**Appropriate**	• This is a good indicator to indicate utilization and cost efficiency of Unix servers
	% of Wintel Virtualization	**Appropriate**	• This is a good indicator to indicate utilization and cost efficiency of Wintel servers
	Storage Cost per Gigabyte	**Appropriate**	• This in an appropriate metric to measure unit costs for storage
	Storage Capacity per End User	**Not Appropriate**	• This metric does not measure efficiency or productivity.

IT: Final OPG IT Cost Benchmark Analysis – 2010 Report

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Telecom Services	*Data Network Cost per End User*	**Appropriate**	• This is an appropriate metric to measure cost efficiency
	Data Network Cost per LAN Port	**Appropriate**	• Although appropriate, this is similar to the Data Network Cost per End User metric
	Data Network Cost per Network Device	**Appropriate**	• Although appropriate, this is similar to the Data Network Cost per End User metric
	Voice Cost per End User	**Appropriate**	• This is an appropriate metric to measure cost efficiency
	Voice Cost per Phone Extension	**Appropriate**	• Although appropriate, this is similar to the Voice Cost Per End User metric
	Phone Extensions per End User	**Appropriate**	• Although appropriate, this is similar to the Voice Cost Per End User metric

IT: Final OPG IT Cost Benchmark Analysis – 2010 Report

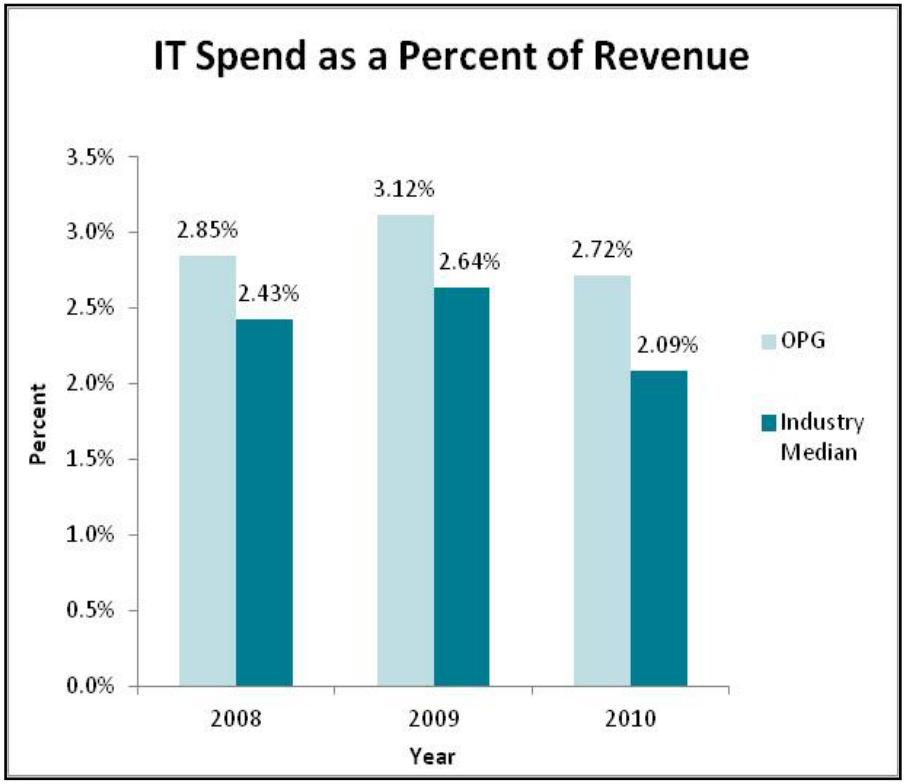
Metric Gap Analysis

Based on our review of the report, the following metric gaps were identified as an important area to consider in measuring performance at OPG. The additional metrics are recommended to better understand the IT cost distribution and business alignment.

Functional Area	Metric Gap	Recommended Metric to Close Gap
IT Spend	**Understanding the IT investment profile** • Provide a high level picture if IT is investing in the right areas	**IT Operational vs. IT Capital Expenses (% of total spend)**
	IT Investment Alignment with the Business • Classifying IT spending into categories that show impact on business outcomes helps with IT spend alignment	**Strategic IT Spending Categories: Run-the-Business, Grow-the-Business and Transform-the-Business IT Spending**
	Categorized IT Spend • Provide insight if IT Spend is distributed in the right areas	**Hardware, Software, Personnel and Outsourcing Spending Distribution**
	The Relative Investment in IT Towers • To provide insight into the workload of the IT towers and whether this is the desired distribution	**IT Spending by Technology Tower**
Staffing	**Internal Support** • To determine if IT is staffed appropriately	**% IT Employees vs. Total Employees**
	Understand Contractor Usage • A higher percentage of contract labor would result in higher cost over long periods	**% Contractors vs. Internal IT staff**
	Distribution of IT staff per tower • Indicator of which towers are labor intensive	**IT Staff per Tower**

IT: Final OPG IT Cost Benchmark Analysis – 2010 Report

Ranking Analysis – IT Spending as a Percent of Revenue

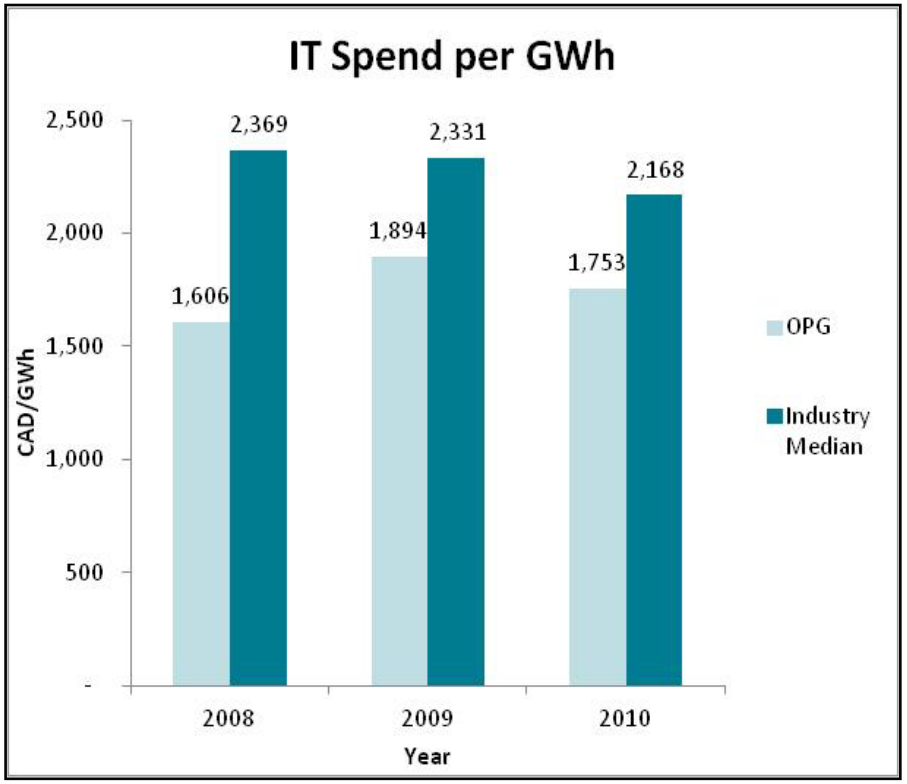


Ranking Analysis

- IT Spending as a Percent of Revenue is the most common measure for IT efficiency
- OPG's IT Spend as a Percent of Revenue has been above the industry median from 2008 to 2010
- Revenue rates can differ significantly across utilities, therefore IT spend per GWh and per FTE are additional metrics that should be used to compare overall IT spend
- Since 2008 OPG's IT Spend as a Percent of Revenue has been in the 3rd/4th quartile
- In 2010, OPG's IT Spend as a Percent of Revenue decreased 4.6% compared to 2008 levels versus an industry median decrease of 14%

IT: Final OPG IT Cost Benchmark Analysis – 2010 Report

Ranking Analysis – IT Spend per GWh

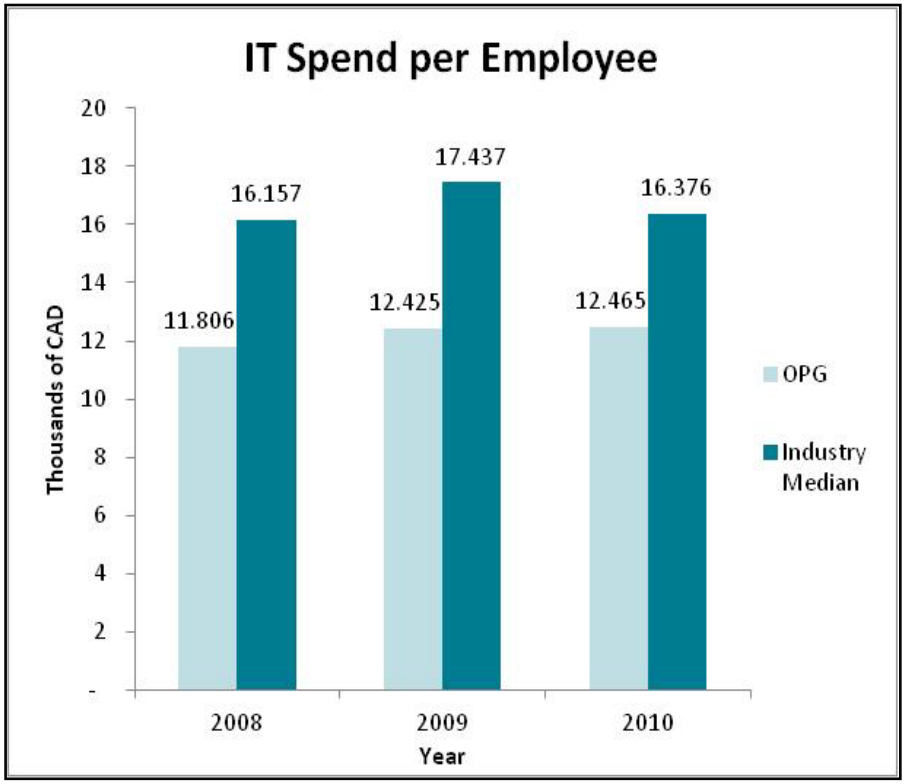


Ranking Analysis

- The IT Spend per GWh is a utility specific metric and is similar to the IT Spend as a Percent of Revenue metric
- This metric compares production to IT spend minimizing any rate bias that may exist
- OPG's performance in this metric signals that relative to the electricity output generated by the company IT spending is being used efficiently
- From 2008 to 2010, OPG's IT Spend per GWh has been below the industry median
- Since 2008 OPG's IT Spend per GWh has increased by 9.2%
- The industry median has decreased by 8.5% from 2008 to 2010
- In 2008, OPG outperformed the industry median by 32.2%, however, this advantage shrank to only 19.1% by 2010
- Since 2008 OPG's IT Spend per GWh has been in the 2nd quartile

IT: Final OPG IT Cost Benchmark Analysis – 2010 Report

Ranking Analysis – IT Spend per Employee

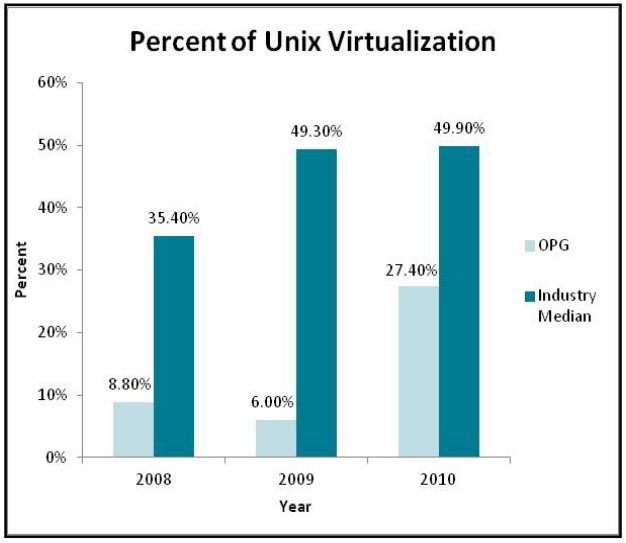


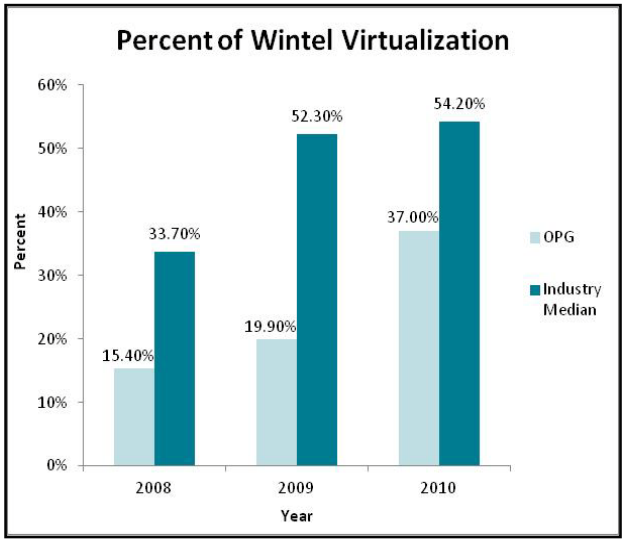
Ranking Analysis

- IT Spend per Employee metric measures the amount of IT support the workforce is receiving
- OPG's performance in this metric signals that relative to the number of employees IT spending is being used efficiently
- From 2008 to 2010, OPG's IT Spend per employee has been below the industry median
- Since 2008 the gap in performance has been closing as the industry median has been on a slower growth rate as compared to the growth rate of OPG's IT Spend per Employee
- Since 2008 OPG's IT Spend per Employee has increased by 5.6%
- The industry median has increased at a slower rate of 1.4% as compared to OPG from 2008 to 2010
- In 2008, OPG outperformed the industry median by 26.9%, however, this advantage shrank to only 23.9% by 2010
- Since 2008 OPG's IT Spend per Employee has been in the 2nd quartile

IT: Final OPG IT Cost Benchmark Analysis – 2010 Report

Ranking Analysis – Percent of Server Virtualization





Ranking Analysis

Percent of Unix Virtualization

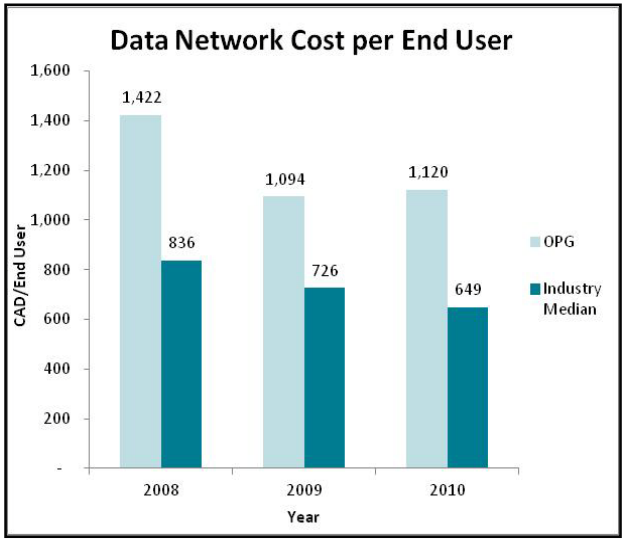
- Percent of Unix Virtualization is a good indicator of efficient server utilization and cost for Unix-based servers
- From 2008 to 2010, OPG has consistently underperformed compared to the industry median. This means that OPG's unit cost for Unix computing services was higher than the industry due to the under utilization of physical servers.
- OPG more than doubled its Unix Virtualization from 2008 to 2010 while the industry median increased by less than half
- However OPG still lags the industry in Unix Virtualization operating at slightly more than half the level of the industry median

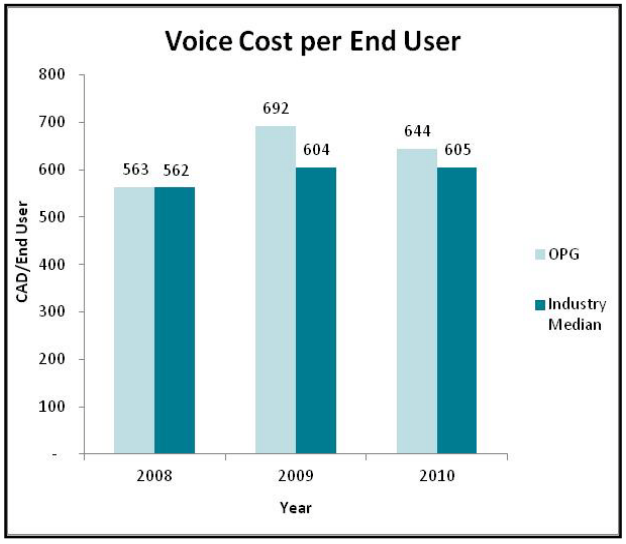
Percent of Wintel Virtualization

- Percent of Wintel Virtualization is a good indicator of efficient server utilization and cost for windows based servers
- From 2008 to 2010, OPG has consistently underperformed compared to the industry median. This means that OPG's unit cost for Wintel computing services was higher than the industry due to the under utilization of physical servers
- In 2008, OPG's Percent of Wintel Virtualization lagged the industry median by more than half. However, in 2010 this performance had decreased to a third
- OPG increased its Percent of Wintel Virtualization by more than 140% from 2008 to 2010 while the industry median increased by 61%

IT: Final OPG IT Cost Benchmark Analysis – 2010 Report

Ranking Analysis – Data/Voice Cost per End User





Ranking Analysis

Data Network Cost per End User

- From 2008 to 2010, OPG's Data Network Cost per End User has consistently been higher than the industry median
- The difference has been significant, ranging from 50% to 70% higher than the industry median during this time period
- Although OPG reduced its Data Network Cost per End User by 21%from 2008 to 2010, the industry median declined by 22% during the same time period

Voice Cost per End User

- Voice Cost includes all costs associated with providing telecommunication services. e.g. long distance charges
- From 2008 to 2010, OPG has underperformed in the Voice Cost per End User metric compared to the industry median
- In 2008, OPG's Voice Cost per End User was virtually the same as the industry median
- However voice costs have increased at a rate higher than the industry median and as of 2010 OPG's Voice Costs were higher than the median

Analysis

Human Resources (HR)

HR- Summary

HR Benchmark Report Summary			
Report	**Methodology Appropriateness**	**Metrics**	**Trend Analysis**
Ontario Power Generation HR Metrics Analysis & Benchmarking of Human resources Function Metrics : 2005-2008, 2009-2010 **Author: ScottMadden**	■ Methodology used was not appropriate ■ Comparison of EU-HRMG metrics ■ The peer group is not a reflective comparator for OPG. When considering only very large employers, all the comparators, except 1 are US companies ■ The 'Employment at Will' and publically funded healthcare differences significantly impact both the number of required HR team members and employment costs ■ Study comparisons were conducted in US dollars with no normalization for the large currency rate changes that occurred during the study period.	■ Nine efficiency/productivity metrics were provided ■ Three of nine metrics were evaluated as appropriate ■ Comparison by job type and level would allow for better comparison of specific roles	■ Year over year indicates that OPG has more HR staff per employee than the industry mean – *however since the methodology in this study was deemed not to be appropriate, these results would need to be verified.*

HR: Ontario Power Generation HR Metrics Analysis & Benchmarking of Human resources Function Metrics

Methodology Review

Benchmarking of Human Resources Function Metrics			
Study Author	Scott Madden	**Benchmark Types**	Productivity/Efficiency
Area of Study	Human Resources	**Date Published**	September 2008 and September 2011
Survey Period	2005-2008, 2009-2010		

Appropriateness of Methodology	**Objective** • The objective of the 2005-2008 report was to develop a custom assessment of OPG's HR department using benchmarks from EU-HRMG. The 2009-2010 report is a follow-up study. **Data Collection** • The data collection method used for the study is not described in detail • There is no explanation of why the sub-set of metrics reviewed were selected **Peer Group** *2005-2008 Report* • The peer group is not a reflective comparator for OPG. When considering only Very Large employers, all the comparators, except 1 are US companies. The 'Employment at Will' and publically funded healthcare differences significantly impact both the number of required HR team members and employment costs. • Further reducing the validity, in the very large company comparator segment there is only one other Canadian company (Progress Energy, a Canadian natural gas producer). As a result, the sample size does not provide a robust comparison. *2009-2010 Follow-up Report* • The peer group is not a reflective comparator for OPG. When considering only Very Large employers, all the comparators are American. The 'Employment at Will' and publically funded healthcare differences between the two countries significantly impact both the number of required HR team members and employment costs. • In this study, the sample size has increased to 42 North American Utilities. There are only 3 Canadian utilities included (OPG, NB Power and Bruce Power). However, neither Bruce Power (3000 employees) nor NB Power (2699 employees) are comparables to OPG in terms of number of employees. • Further reducing the validity, in the very large company comparator segment there is only one other Canadian company (Progress energy, a Canadian natural gas producer). As a result, the sample size is insufficient for a robust comparison[1]. 1. This iteration of the study does not clearly mention the utilities making up the demographic classifications. It is assumed that the very large demographic sample has remained the same as 2009 version of the study.

HR: Ontario Power Generation HR Metrics Analysis & Benchmarking of Human resources Function Metrics

Methodology Review

Benchmarking of Human Resources Function Metrics			
Study Author	Scott Madden	**Benchmark Types**	Productivity/Efficiency
Area of Study	Human Resources	**Date Published**	September 2011
Survey Period	2005-2008, 2009-2010		

Appropriateness of Methodology (cont'd)	**Constraints/Limitations** *2005-2008 Report* • The study methodology only counts employees and does not include contractors or temporary employees (flexible workforce). Given that Human Resource employees are typically highly involved in the sourcing, contract management, selection, training and managing of the flexible workforce and that the utilization of a flexible workforce can vary greatly from organization to organization the exclusion of this group from the study may significantly misrepresent the requirements of the HR team at OPG or the comparators. • The study is done in US dollars, with no normalization for currency changes cited. Currency exchange rates in this period ranged from a low of $0.7699 to a high of $0.9438 (CAD/USD) [2]. Given this currency fluctuations, any changes tracked on a year over year basis may only be the result of currency valuation, versus any positive or negative action by OPG. *2009-2010 Follow-up Report* • The study methodology again only counts employees and does not include contractors or temporary employees (flexible workforce). Given that Human Resource employees are typically highly involved in the sourcing, contract management, selection, training and managing of the flexible workforce and that the utilization of a flexible workforce can vary greatly from organization to organization the exclusion of this group from the study may significantly misrepresent the requirements of the HR team at OPG or the comparators. • The study, again, is done in US dollars, with no normalization for currency changes cited. Currency exchange rates in this period ranged from a low of 0.7785 to a high of 0.9957 (CAD/USD)[2]. Given this currency fluctuations, any changes tracked on a year over year basis may only be the result of currency valuation, versus any positive or negative action by OPG. *The methodology is not appropriate for this report.* 2. Source, Oanda, Historical Exchange Currency Conversions

HR: Ontario Power Generation HR Metrics Analysis & Benchmarking of Human resources Function Metrics

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
HR Management	*HR Expense Factor*	**Not Appropriate**	• The metric measures cost of the HR function per HR FTE • Measuring HR performance in this way is not effective as it does not measure relative to HR effectiveness • Under/Over performance on this metric does not provide an indication of whether HR is effective or efficient • Also, given that the report precludes Payroll, Health & Safety and Safety & Technical Training, the effectiveness of the metric is further limited
	HR Expense Percent	**Appropriate**	• This metric compares the overall cost of HR relative to overall operating expenses • This is an appropriate metric, however, given the concerns mentioned in the methodology section, the appropriateness of this metric is negated • In addition, there is limited mapping in the survey to ensure cross comparability of HR services and deliverables, which significantly impact the cost structure of HR
	HR FTE Ratio	**Appropriate**	• This is a standard HR efficiency metric • It is broadly used by organizations as a high level assessment of size of HR team • Limitation is that it only accounts for regular employees and can be misleading for organizations with a significant flexible workforce • Also, given the metric's high level perspective it is not designed to provide actionable information
	Management Span of Control (management to employee ratio)	**Not Appropriate**	• The baseline assumption for this metric is that a higher management span of control drives higher need for HR support and services, as HR team members step into Operational Management issues. As a result, a higher management span of control would result in higher HR headcount and costs. • The challenge is that this baseline assumption has not been tested in the methodology presented in this report, thereby negating the metric

HR: Ontario Power Generation HR Metrics Analysis & Benchmarking of Human resources Function Metrics

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Staffing	*Separation Rate, all ranges*	**Not Appropriate**	• Separation rates are important to track but are often lagging indicators • The appropriateness of this metric is reduced due to the inclusion of retirements and involuntary terminations, and thus does not provide an understanding of causes of separations (i.e. Employee concerns, mis-hires, etc.) • Most organizations track 30/60/90 day hires to assess recruitment effectiveness. This study's lowest tracking is 0-3 years separation, which negates the understanding of hiring effectiveness in light of turnover.
	External Hire Rate	**Not Appropriate**	• This metric is often used to demonstrate the volume of talent being "bought" on the market versus "built" internally. To meet this objective it needs to be represented by job classification and job level. (i.e.an increase in the number of management roles filled externally points to a potential need for an internal management development program). • Given that this report looks at the data in aggregate it does not inform any decision making
	Total Hire Rate	**Not Appropriate**	• Similar to the External Hire metric, the aggregate nature of the data reduces the metric appropriateness. The data needs be combined with other data, such as hire rate by number of recruiters to become informative. • Also, lack of comparability limits deduction of actionable insight
	Hire Cycle Time	**Appropriate**	• This is typically an appropriate and very useful metric • However, the issue of hiring data validity highlighted by the report does not allow for confident analysis
Union	*Workforce Represented (Union)*	**Not Appropriate**	• Given the comparison issues this number is interesting, however, does not speak directly to the impact on the HR team. • Tracking grievance rates and/or labour disruption rates relative to costs of labour relations would provide information as to the effectiveness of labour relations

HR: Ontario Power Generation HR Metrics Analysis & Benchmarking of Human resources Function Metrics

Metric Gap Analysis

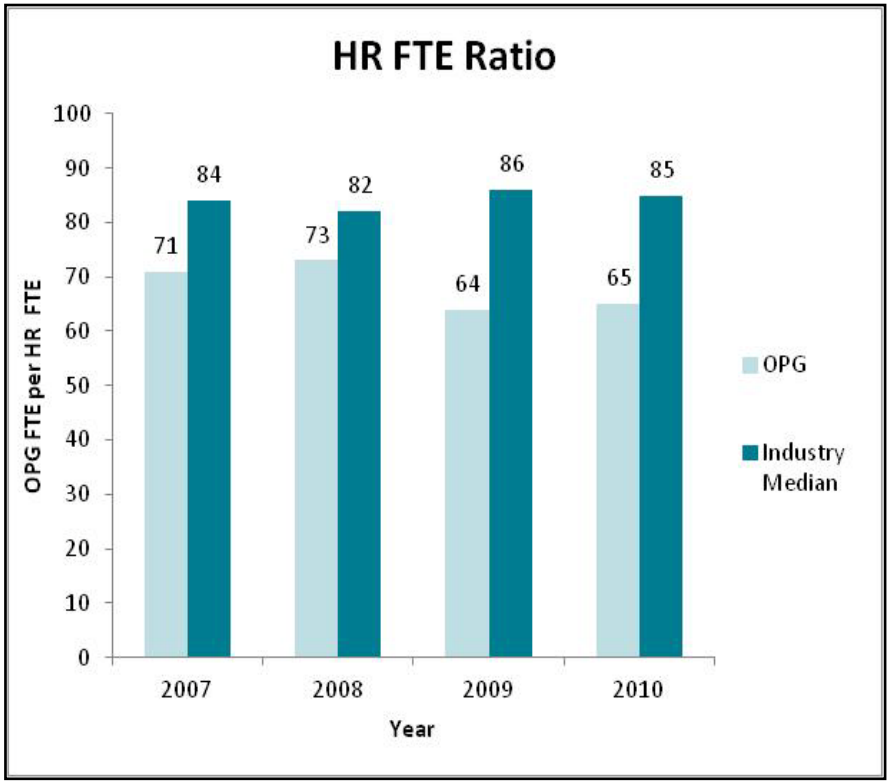
Based on our review of the report, the following metric gaps were identified as an important area to consider in measuring performance at OPG. The additional metrics are recommended to better understand drivers of HR efficiency and effectiveness.

Functional Area	Metric Gap	Recommended Metric to Close Gap
Human Resources Management	**HR Department Productivity** • Insight into the productivity level of the HR function employees as it relates to the size of the organization's workforce	**Number of Employees Serviced by HR Function FTEs**
	HR Process Efficiency - Employees • Insight into the systems in place for employee self-service	**Percentage of Employees with Access to Employee Self-Service (ESS) System**
	HR Process Efficiency - Managers • Insight into the systems in place for manager self-service	**Percentage of Managers with Access to Manager Self-Service (MSS) System**
	Retaining Employees • Provides important indicators regarding organizational capability and health. Voluntary and Total Turnover should be reported for the organization as a whole, and for each job category	**Voluntary Turnover Rate[1]** **Total Turnover Rate[1]**
	Leadership Depth • Evaluate an organization's preparation for and success at managing both planned and unplanned leadership succession	**Percent of Defined Positions with one or more Successors[1]** **Percent of Defined Positions Filled Internally During Fiscal Period[1]**
	Employee Engagement • Gain insight into whether employees are engaged in their work	**Employee Engagement Index[1]**

1. The standard definition for metric is determined by the American National Standard Institute, Inc.'s "Guidelines for Reporting Human Capital Metrics to Investors"

HR: Ontario Power Generation HR Metrics Analysis & Benchmarking of Human resources Function Metrics

Ranking Analysis



Ranking Analysis

- *Direct comparison between OPG, competitors and the industry median is deceptive since FTE count is not standardized between organizations sampled* – the utilization of flexible workforce by each organization can significantly affect the metric results
- Year over year analysis indicates that the gap in performance between OPG and the industry median has widened during the past 4 years
- As per the Scott Madden report, this underperformance relative to the industry median may be due to:
  - OPG's geographically dispersed employee
  - Exclusion of contract and temporary workers in OPG's FTE count

Analysis

Compensation

Compensation - Summary

Compensation Benchmark Report Summary			
Report	**Methodology Appropriateness**	**Metrics**	**Trend Analysis**
Ontario Power Generation HR Metrics Analysis: 2007/08 **Author: ScottMadden**	■ Methodology used was appropriate ■ Compared against 40 Utilities ■ Comparison of EU-HRMG metrics	■ Three compensation related metrics were provided ■ Two of three metrics were evaluated as appropriate ■ Comparison by job type and level would allow for a better comparison of specific roles	■ Year over year analysis indicates that OPG's variable compensation is lower as a percent than the industry median in both 2007 and 2008
Benchmarking of HR Function Metrics at OPG with Other Electric Utilities: 2009/10 **Author: ScottMadden**	■ Methodology used was appropriate ■ Compared against 42 Utilities ■ Comparison of EU-HRMG metrics	■ Four metrics provided in report ■ All metrics were evaluated as appropriate ■ Comparison by level and job type would allow for a better comparison of specific roles	■ Year over year analysis indicates that OPG spends a greater percentage of its labour expenses on overtime costs than peers
Report Name: Market Total Compensation Review (OPG): 2010 **Author: Mercer**	■ Methodology used was appropriate ■ Compared against 12 private sector and 12 public sector organizations ■ Collected data using a custom survey and combined with data from Mercer's Benchmark Database	■ Six metrics provided in report ■ All metrics were evaluated as appropriate ■ Comparison by job type would allow for a better comparison of specific roles	■ Year over year data was not provided

Compensation: Ontario Power Generation HR Metrics Analysis

Methodology Review

Report Name: Ontario Power Generation HR Metrics Analysis			
Study Author	ScottMadden	**Benchmark Types**	Compensation
Area of Study	Human Resources Metrics (compensation portion)	**Date Published**	September 2009
Survey Period	2006-2008		

Appropriateness of Methodology	**Objective** • There is a clear objective, which is to use EU-HRMG metrics to track OPG's standing **Data Collection Method** • The data collection is from the Electric Utility HR Metrics Group (EU-HRMG) **Peer Group** • Peer group includes utilities of different sizes included 10 large companies most comparable to OPG • 40 member utilities provides a large enough sample size **Constraints or Limitations** • The report acknowledges the Canadian vs. US context and how that impacts laws, pension, retirement and healthcare needs *The approach and methodology are appropriate for the purpose of the report which was to collect data and compare against industry benchmark performance.*

Compensation: Ontario Power Generation HR Metrics Analysis

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Compensation	*Variable Compensation Ratio*	**Appropriate**	• This shows the average bonus that is received by employees • Would be most effective to show the bonus distribution by group, namely in an organization as big as OPG • Also would be helpful to know the standard deviation of bonus or have a median comparable
	Loading Factor (Total comp + Benefit costs / Regular labour costs (base pay)	**Appropriate**	• Shows what percent of compensation is outside of base salary including bonus and benefits • There are better metrics to use to show this – but it shows how much other compensation exists • Important to recognize the locale in which the individual is being paid (i.e. US, Canada etc.) as importance of benefits might differ
	Percent of Workforce Eligible for Incentive Pay	**Not Appropriate**	• This metric is not reflective of the company's effectiveness in compensation as eligibility is not telling • A better metric would be how many employees received incentive pay or what the average percentage of total compensation was incentive based

Compensation: Ontario Power Generation HR Metrics Analysis

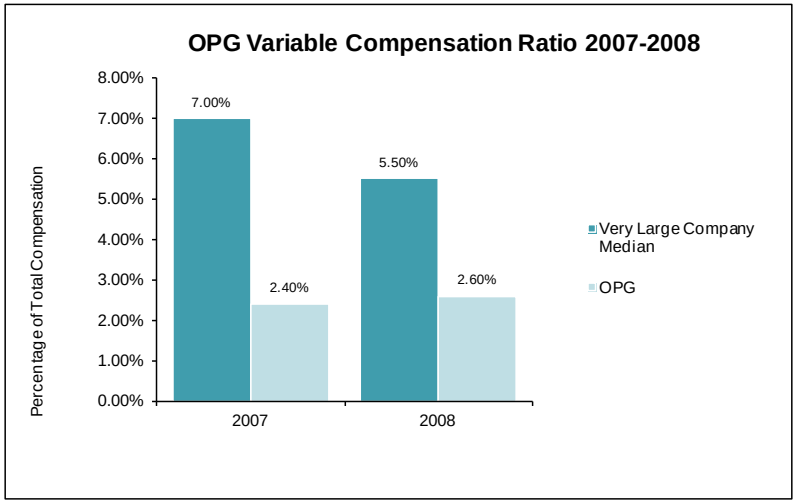
Metric Gap Analysis

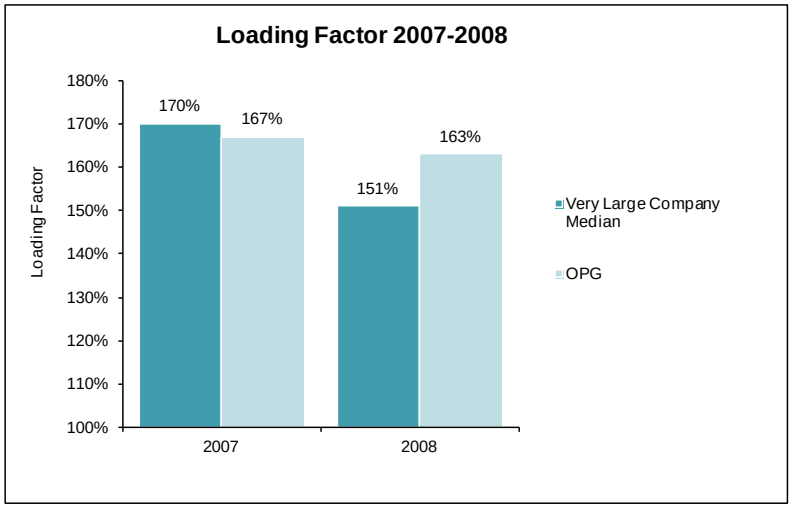
Based on our review of the report, the following metric gaps were identified as an important area to consider in measuring compensation at OPG. The additional metrics are recommended to provide better granularity in comparing roles across the industry.

Functional Area	Metric Gap	Recommended Metric to Close Gap
Compensation	**Base salary by Job Type and Level** • Important to view what you are paying different levels and types of employees in comparison with industry peers so to ensure you are adequately paying employees and also not overpaying certain employees	**Base Salary by Job Type and Level**
	Base salary plus Bonus Target by Job Type and Level • Important to view how different levels and types of employees are compensated in base and by bonus with industry peers so to ensure you are adequately paying employees and also not overpaying certain employees	**Target Total Cash by Job Type and Level** *(Base Salary plus Bonus Target)*
	Base salary plus Bonus plus long term incentives by Job Type and Level • Important to view how you are incorporating long-term benefits and incentives to retain different employees and what is needed based on industry peers (also important to use peers from similar locals in terms of benefits expectations)	**Target Total Direct by Job Type and Level** *(Target Total Cash plus long term incentives)*
	Total Target Remuneration by Job Type or Level • Important to view the total remuneration of different levels and types of employees with industry peers	**Target Total Remuneration by Job Type and Level** *(Target Total Direct plus Non-Cash)*
	Overtime Expense • Highlights how much of the total labour expense is made up of overtime dollars	**Overtime Expense Ratio**

Compensation: Ontario Power Generation HR Metrics Analysis

Ranking Analysis – OPG Variable Compensation Ratio





Ranking Analysis

- Year over year analysis indicates that OPG's variable compensation is lower as a percent than the industry median in both 2007 and 2008
- Also, although OPG's loading factor declined between 2007 and 2008, the median loading factor for very large companies declined at a faster rate and consequently moved OPG to the bottom half of comparison companies

Loading Factor = Total Comp + Benefit Costs/ Regular Labour Costs (Base Pay)

Compensation: Benchmarking of HR Function Metrics at OPG with Other Electric Utilities

Methodology Review

Report Name: Benchmarking of Human Resources Function Metrics at OPG with Other Electric Utilities			
Study Author	ScottMadden	**Benchmark Types**	Compensation
Area of Study	Human Resources Metrics (compensation portion)	**Date Published**	September 2011
Survey Period	Results from 2003 to 2010		

Appropriateness of Methodology	**Objective** • There is a clear objective, which is to compare to the top/median performance of 42 other electric utilities and outlines key areas for improvement **Data Collection Method** • The data collection is from EU-HRMG collected annually for benchmarking purposes **Peer Group** • Peer group includes utilities of different sizes including 10 large companies most comparable to OPG • 42 member utilities provide a large enough sample size **Constraints or Limitations** • Metrics are based on an adjusted Human Resources definition which reflects 52% of the organization. • Acknowledges that benefit costs differ due to location of peers The approach and methodology are appropriate for the purpose of the report which was to collect data and compare against industry benchmark performance.

Compensation: Benchmarking of HR Function Metrics at OPG with Other Electric Utilities

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Compensation	*Overtime Expense*	**Appropriate**	• This metric is appropriate to compare cost of overtime • This metric can be an indictor of workforce planning efficiency • Major external events (e.g. unplanned outages) can have a large impact on this value and therefore this value is not entirely controllable • This metric is driven by workforce planning more than compensation policy
	Total Compensation Costs per Employee	**Appropriate**	• This shows the total compensation received per employee • This is a useful metric as it compares all components of employee compensation beyond base salary
	Benefit Costs per Employee	**Appropriate**	• This shows the average benefits received per employee • Mix of benefits also relevant, which is different from size of benefits • For this metric, the peer group needs to be geographically close (e.g. AL, BC, QC)
	Variable Compensation Ratio	**Appropriate**	• This shows the average bonus that is received by employees • Would be most effective to show the bonus distribution by group, namely in an organization as big as OPG • Also would be helpful to know the standard deviation of bonus or have a median comparable

Compensation: Benchmarking of HR Function Metrics at OPG with Other Electric Utilities

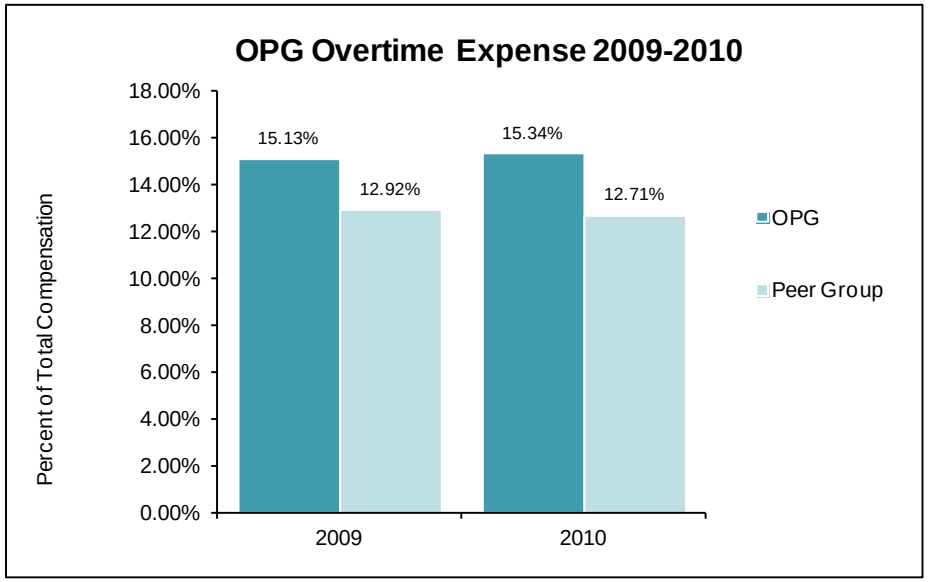
Metric Gap Analysis

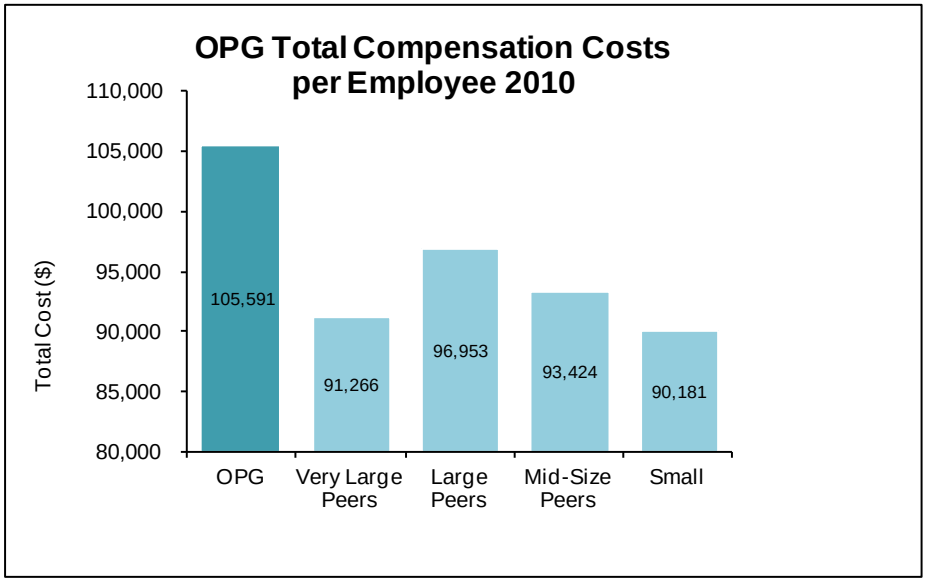
Based on our review of the report, the following metric gaps were identified as an important area to consider in measuring compensation at OPG. The additional metrics are recommended to provide better granularity in comparing roles across the industry.

Functional Area	Metric Gap	Recommended Metric to Close Gap
Compensation	**Base salary by Job Type and Level** • Important to view what you are paying different levels and types of employees in comparison with industry peers so to ensure you are adequately paying employees and also not overpaying certain employees	**Base Salary by Job Type and Level**
	Base salary plus Bonus Target by Job Type and Level • Important to view how different levels and types of employees are compensated in base and by bonus with industry peers so to ensure you are adequately paying employees and also not overpaying certain employees	**Target Total Cash by Job Type and Level** *(Base Salary plus Bonus Target)*
	Base salary plus Bonus plus long term incentives by Job Type and Level • Important to view how you are incorporating long-term benefits and incentives to retain different employees and what is needed based on industry peers (also important to use peers from similar locals in terms of benefits expectations)	**Target Total Direct by Job Type and Level** *(Target Total Cash plus long term incentives)*
	Total Target Remuneration by Job Type and Level • Important to view the total remuneration of different levels and types of employees with industry peers	**Target Total Remuneration by Job Type and Level** *(Target Total Direct plus Non-Cash)*

Compensation: Benchmarking of HR Function Metrics at OPG with Other Electric Utilities

Ranking Analysis – OPG Variable Compensation Ratio





Ranking Analysis

- Year over year analysis indicates that OPG spends a greater percentage of its labour expenses on overtime costs
- In 2010, OPG's labour costs are greater per employee than all of its peers (of all sizes)

Compensation: Market Total Compensation Review (OPG)

Methodology Review

Report Name: Market Total Compensation Review (OPG)			
Study Author	Mercer	**Benchmark Types**	Compensation
Area of Study	Human Resources Metrics (compensation portion)	**Date Published**	July 21, 2010
Survey Period	2010		

Appropriateness of Methodology	**Objective** • There is a clear objective, which is to prepare a total compensation review for the non-unionized employee populations Bands A to L **Data Collection Method** • The data collection is from a survey of panel advisory peers and using Mercer Benchmark data **Peer Group** • Peer group includes utilities of different sizes including 10 large companies most comparable to OPG – notably TVA • 42 member utilities provide a large enough sample size **Constraints or Limitations** • Explained the limitations of the data, how the peers report and what data was excluded • Unionized workers and non-pension workers were not included The approach and methodology are appropriate for the purpose of the report which was to collect data and compare against industry benchmark performance.

Compensation: Market Total Compensation Review (OPG)

Metric Review

Functional Area	Metrics	Appropriateness	Evaluation of Metric
Compensation	*Base Salary by Band Relative to Market P50**	**Appropriate**	• Appropriate metric to evaluate how base compensation compares relative to the median of the companies sampled
	*Annual incentive by Band Relative to P50**	**Appropriate**	• Appropriate metric to evaluate how annual incentive pay compares relative to the median of the companies sampled
	*Total Target Compensation by Band Relative to Market P50**	**Appropriate**	• Appropriate metric to evaluate how total target compensation compares relative to the median of the companies sampled
	*Total Direct Compensation by Band Relative to Market P50**	**Appropriate**	• Appropriate metric to evaluate how direct i.e. non-benefits compensation compares relative to the median of the companies sampled
	*Total Non-cash Compensation by Pay Band Relative to Market P50**	**Appropriate**	• Appropriate metric to evaluate how non-cash i.e. benefits compensation compares relative to the median of the companies sampled
	*Total Remuneration by Pay Band Relative to Market P50**	**Appropriate**	• Appropriate metric to evaluate the total compensation relative to the median of the companies sampled

**P50 represents the median value, i.e. 50th percentile, of the 42 companies sampled*

Compensation: Market Total Compensation Review (OPG)

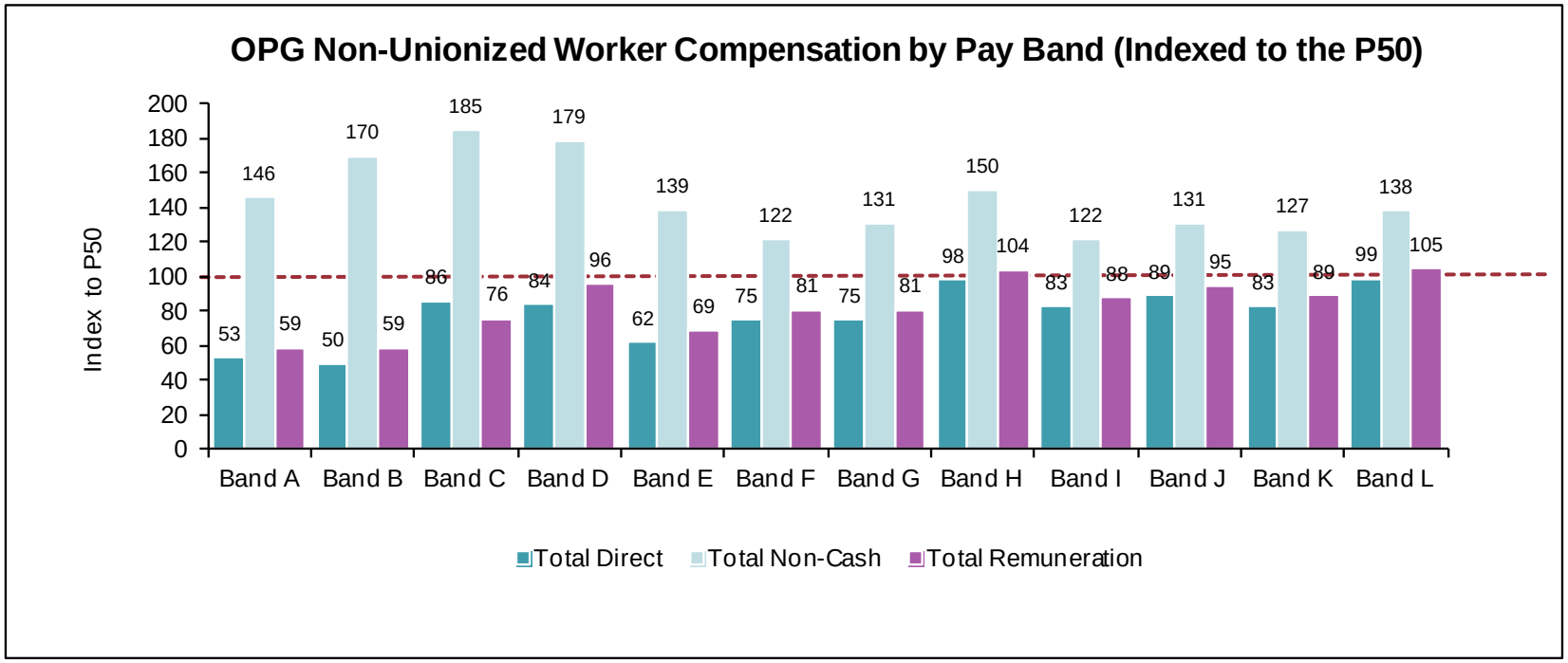
Metric Gap Analysis

Based on our review of the report, the following metric gaps were identified as an important area to consider in measuring compensation at OPG. The additional metrics are recommended to provide better granularity in comparing roles across the industry.

Functional Area	Metric Gap	Recommended Metric to Close Gap
Compensation	**Base salary by Job Type** • Important to view what you are paying different types of employees in comparison with industry peers so to ensure you are adequately paying employees and also not overpaying certain employees	**Base Salary by Job Type**
	Base salary plus Bonus Target by Job Type • Important to view how different types of employees are compensated in base and by bonus with industry peers so to ensure you are adequately paying employees and also not overpaying certain employees	**Target Total Cash by Job Type** *(Base Salary plus Bonus Target)*
	Base salary plus Bonus plus long term incentives by Job Type • Important to view how you are incorporating long-term benefits and incentives to retain different types of employees and what is needed based on industry peers (also important to use peers from similar locals in terms of benefits expectations)	**Target Total Direct by Job** *(Target Total Cash plus long term incentives)*
	Total Target Remuneration by Job Type • Important to view the total remuneration of different types of employees with industry peers	**Target Total Remuneration by Job Type** *(Target Total Direct plus Non-Cash)*
	Overtime Expense • Highlights how much of the total labour expense is made up of overtime dollars	**Overtime Expense Ratio**

Compensation: Market Total Compensation Review (OPG)

Ranking Analysis – OPG Employee Types Indexed to the Median



Analysis
• Year over year data was not provided – this is an analysis of the data provided for 2010
• OPG compensates its non-unionized workforce less than the industry median in total direct and total remuneration
• Annual incentives and non cash compensation is higher than the industry median