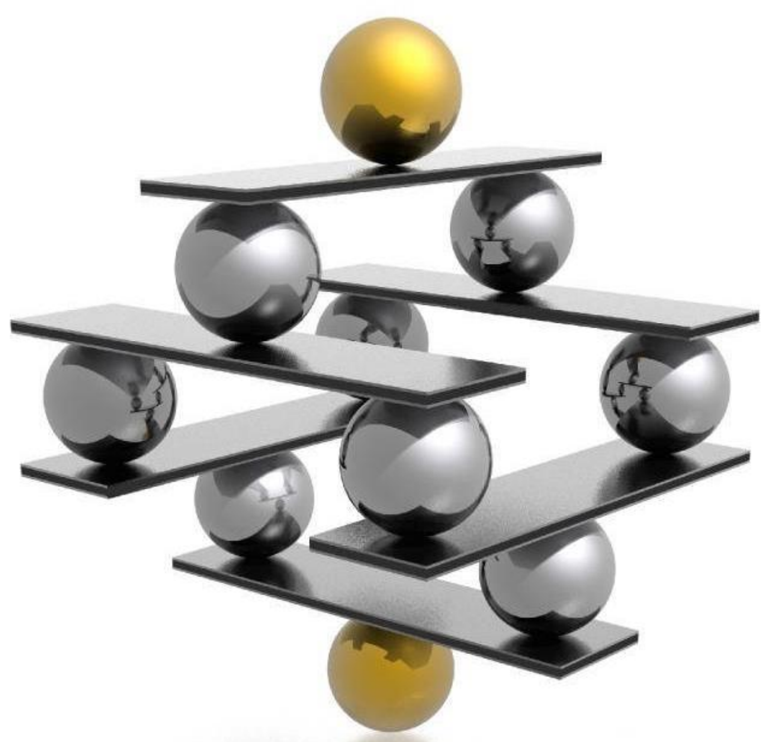
Actuarial Valuation as at January 1, 2014

Ontario Power Generation Inc. Pension Plan

Regulatory Registration Number: 1059120

June 2014



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Executive Summary

An actuarial valuation has been prepared for the Ontario Power Generation Inc. Pension Plan (the "Plan") as at January 1, 2014 for the primary purpose of establishing a funding range in accordance with legislative requirements for the Plan until the next actuarial valuation is performed. This section provides an overview of the important results and the key valuation assumptions which have had a bearing on these results. The next actuarial valuation for the purposes of developing funding requirements should be performed no later than as at January 1, 2017.

All figures in this report are expressed in thousands of dollars unless otherwise stated.

Summary of Principal Results

Financial Position[1]

	January 1, 2014			January 1, 2011		
($000's)	**Going Concern**	**Solvency**	**Hypothetical Wind Up**	**Going Concern**	**Solvency**	**Hypothetical Wind Up**
Assets	$ 10,908,000	$10,834,700	$ 10,834,700	$ 9,638,289	$ 9,282,952	$ 9,001,225
Liabilities	12,050,676	11,008,169	17,869,171	10,193,314	9,279,659	14,664,485
Surplus/(Deficit)	**$ (1,142,676)**	**$ (173,469)**	**$ (7,034,471)**	**$ (555,025)**	**$ 3,293**	**$ (5,663,260)**

Legislative Ratios

	January 1, 2014	January 1, 2011
Solvency Ratio[2]	0.99	0.95
Transfer Ratio[2]	0.61	0.61

[1] Net of all smoothing adjustments and estimated wind up expenses, where applicable.
[2] See page 12 for a detailed calculation of the Solvency Ratio and page 16 for a detailed calculation of the Transfer Ratio.

Contribution Requirements

Considering the funding and solvency status of the Plan, the Company contributions with effect for the first plan year following January 1, 2014, and those at January 1, 2011, both of which are within the range outlined in Section 5 and in accordance with legislative requirements, are as follows:

($000's)	January 1, 2014	January 1, 2011
Company normal cost	$ 227,389	$ 217,621
Special payments	130,848	64,837
Total Company Contribution	**$ 358,237**	**$ 282,458**

Key Assumptions

The principal assumptions to which the valuation results are most sensitive are outlined in the following table.

Going Concern Assumptions	January 1, 2014	January 1, 2011
Discount rate	5.60% per year	6.30% per year
Inflation rate	2.00% per year	2.50% per year
Increase in pensionable earnings (Active members)	2.50% per year for 3 years, 3.00% per year thereafter; plus promotional scale	3.50% per year, plus promotional scale
Increase in pensionable earnings (Disabled members)	2.00% per year	2.50% per year
Increase in year's maximum pensionable earnings ("YMPE")	2.50% per year for 3 years, 3.00% per year thereafter	3.50% per year
Increase in *Income Tax Act* maximum pension	2.50% per years for 3 years, 3.00% per year thereafter	3.50% per year
Mortality table	OPG-specific mortality table and mortality improvements based on Canadian Pensioner Mortality Improvement Scale CPM-B Table B in Appendix D	85% of 1994 Uninsured Pensioner Mortality table with fully generational mortality improvements at Scale AA
Promotional increases	Table A in Appendix D	Table A in Appendix D
Retirement rates	Table C in Appendix D	Table C in Appendix D
Withdrawal rates	Table D in Appendix D	Table D in Appendix D

Section 1: Introduction

Purpose and Terms of Engagement

We have been engaged by Ontario Power Generation Inc., and hereafter referred to as the "Company", to conduct an actuarial valuation of the Plan as at January 1, 2014 for the general purpose of determining the minimum and maximum funding contributions required by pension standards, based on the actuarial assumptions and methods summarized herein. More specifically, the purposes of the valuation are to:

- Determine the financial position of the Plan on a going concern basis as at January 1, 2014;
- Determine the financial position of the Plan on a solvency and hypothetical wind up basis as at January 1, 2014;
- Determine the funding requirements of the Plan as at January 1, 2014; and
- Provide the necessary actuarial certification required under the *Pension Benefits Act* (Ontario) and the *Income Tax Act.*

The results of this report may not be appropriate for accounting purposes or any other purposes not listed above.

The next required actuarial valuation will be as at January 1, 2017.

Summary of Changes Since the Last Valuation

The last such actuarial valuation in respect of the Plan was performed as at January 1, 2011. Since the time of the last valuation, we note that the following events have occurred:

- The Canadian Institute of Actuaries ("CIA") issued new standards of practice for "Pension Commuted Values" for calculation dates on or after February 1, 2011. These new standards have been reflected in the determination of the solvency and hypothetical wind up valuations in this report.
- The CIA made revisions to the guidance for assumptions for solvency and hypothetical wind up valuations effective June 30, 2013. The key change to the guidance is that the cost to purchase annuities that are fully indexed to Consumer Price Index increases is estimated using a discount rate less than the yield on Government of Canada real-return long-term bonds.
- Aon Hewitt undertook a mortality experience study of the Plan. The results of this study were used to develop an OPG-specific base mortality table. The mortality table reflects OPG's actual experience derived from OPG pensioner data for the period from 2005 to 2012.

  The Canadian Pensioner Mortality Improvement Scale B (CPM-B) is applied to the base mortality table rates. The improvement scale was developed by the CIA for use by Canadian pension plans and is based on a comprehensive study of observed Canadian pensioner experience.

  This OPG-specific mortality table together with improvement scale CPM-B have been used in the going concern valuation as at January 1, 2014.

- As part of this valuation, a full review of all assumptions and methods was performed.
- Effective with this valuation, a number of changes have been made to the going concern assumptions including:
  - Lowering of key economic assumptions (e.g. discount rate, inflation, etc.);
  - Adoption of a new base mortality table and improvement scale as described above; and
  - Changes to certain demographic assumptions (e.g. spouse age difference) to better reflect observed data.
- In conjunction with the adoption of the changes in assumptions, the actuarial value of assets has been reset to market value at January 1, 2014. This change results in the immediate recognition of deferred equity gains which serves as an offset to the increase in liability resulting from the changes in assumptions described above.
- The smoothing adjustment applied to solvency assets and liabilities for the purpose of determining the solvency special payments has been removed effective January 1, 2014.

Company Information and Inputs

In order to prepare our valuation, we have relied upon the following information:

- A copy of the previous valuation report prepared by Mercer (Canada) Limited as at January 1, 2011;
- Membership data compiled as at January 1, 2014 by the Company;
- Asset data taken from the Plan's audited financial statements; and
- A copy of the latest plan text and amendments up to and including December 31, 2013.

Furthermore, our actuarial assumptions and methods have been chosen with due respect to accepted actuarial practice and regulatory constraints.

The Company has not elected to defer the commencement of new Special Payments by 12 months as permitted by the *Pension Benefits Act* (Ontario).

Subsequent Events

As of the date of this report, we have not been made aware of any subsequent events which would have an effect on the results of this valuation. However, the following points should be noted in this regard:

- The CIA has completed a study of Canadian pensioner mortality levels and trends which was released on February 13, 2014. Some conclusions of the study are:
  - the 1994 Uninsured Pensioner (UP94) mortality table together with generational improvements using Scale AA overstates average Canadian pensioner mortality rates, and therefore understates expected future pension payments for many plans; and
  - more rapid improvements in longevity have been observed than suggested by Improvement Scale AA.

  The results of the CIA pensioner mortality study do not yet have an impact on the solvency or hypothetical wind up valuation results. We expect that the solvency liabilities and hypothetical wind up liabilities will increase in the future once a new mortality table is promulgated by the Actuarial Standards Board. The expected date for this promulgation is not yet known.

- The Company has announced that effective July 1, 2014, the Plan will be amended as follows:
  - The "Rule of 84" will not apply to new Management Group employees hired on or after July 1, 2014; employees hired on or after this date will be eligible for an unreduced pension at the earlier of age 60 with 25 years of continuous service, 35 years of continuous service, and 90 age-plus-continuous service points; and
  - New Management Group employees hired on and after July 1, 2014 will contribute to the Plan at 7.60% of pensionable earnings up to the YMPE plus 9.50% of pensionable earnings in excess of the YMPE.
- Actual experience deviating from expected after January 1, 2014 will result in gains or losses which will be reflected in the next actuarial valuation report; and
- To the best of our knowledge, the results contained in this report are based on the regulatory and legal environment in effect at the date of this report and do not take into consideration any potential changes that may be currently under review. To the extent that actual changes in the regulatory and legal environment transpire, any financial impact on the Plan as a result of such changes will be reflected in future valuations.

Section 2: Going Concern Valuation Results

Going Concern Financial Position of the Plan

The going concern valuation provides an assessment of the Plan's financial position at the valuation date on the premise that the Plan continues indefinitely into the future.

The selection of the applicable actuarial assumptions and methods reflect actuarial standards of practice, and pension standards.

On the basis of the plan provisions, membership data, going concern assumptions and methods, and asset information described in the Appendices, the going concern financial position of the Plan as at January 1, 2014 is shown in the following table. The results as at January 1, 2011 are also shown for comparison purposes.

Going Concern Financial Position

($000's)	**January 1, 2014**	**January 1, 2011**
Assets		
Market value of assets	$ 10,908,000	$ 9,074,525
Asset smoothing adjustment	0	563,764
Actuarial Value of Assets	**$ 10,908,000**	**$ 9,638,289**
Going Concern Liabilities		
Active members and disabled members	$ 5,426,807	$ 5,527,884
Deferred vested members	106,554	113,319
Retired members and beneficiaries	6,517,237	4,552,033
Voluntary contributions with interest	78	78
Total Liabilities	**$ 12,050,676**	**$ 10,193,314**
Surplus (Unfunded Liability)	**$ (1,142,676)**	**$ (555,025)**
Funded Ratio	**90.5%**	**94.6%**

On the basis of the plan provisions, membership data, going concern assumptions and methods and asset information described in the Appendices, the going concern normal cost of the Plan as at January 1, 2014 is shown in the following table. The normal cost as at January 1, 2011 is also shown for comparison purposes.

Going Concern Normal Cost

($000's)	**January 1, 2014**	**January 1, 2011**
Normal Cost		
Total normal cost	$ 300,085	$ 294,417
Required member contributions	(72,696)	(76,796)
Company Normal Cost	**$ 227,389**	**$ 217,621**
Valuation compensation (in year following valuation date, excluding disabled members)	$ 1,129,462	$ 1,203,279
Company Normal Cost		
As a % of total valuation compensation	20.1%	18.1%

Change in Financial Position

During the period from January 1, 2011 to January 1, 2014, the going concern financial position of the Plan changed from an unfunded liability of $555,025 to an unfunded liability of $1,142,676. The major components of this change are summarized in the following table.

Reconciliation of the Going Concern Financial Position for the Period from January 1, 2011 to January 1, 2014

($000's)

Surplus/(Unfunded Liability) as at January 1, 2011	**$**	**(555,025)**
Minimum company contributions during inter-valuation period		871,000
Actual employee contributions during inter-valuation period		219,712
Total current service costs during inter-valuation period		(770,372)
Expected recognition of deferred asset (loss)/gain from asset smoothing		(749,103)
Interest at 6.30% per year		(138,890)
Expected Surplus/(Unfunded Liability) as at January 1, 2014	**$**	**(1,122,678)**
Change in liabilities due to experience gains/(losses)		
Additional company contributions above minimum requirement		99,000
Investment return on smoothed assets since last valuation		(236,834)
Salary increases less than expected		127,877
YMPE increases less than expected		(8,016)
Change in ITA maximum pension less than expected		14,321
Indexation less than expected		83,143
Retirement experience		(122,487)
Disability experience		(23,945)
Turnover experience		(98,352)
Mortality experience		(28,562)
Change due to pensioner spousal data update		18,774
Net gain/(loss) due to other experience and miscellaneous items		(11,627)
Surplus/(Unfunded Liability) after experience gains/(losses) as at January 1, 2014	**$**	**(1,309,386)**
Change in mortality assumptions		(429,750)
Change in other demographic assumptions		(75,126)
Change in economic assumptions		(220,044)
Reset of actuarial value of assets to market value of assets		891,630
Surplus/(Unfunded Liability) as at January 1, 2014	**$**	**(1,142,676)**

Discussion of Changes in Assumptions and Methods

Effective January 1, 2014, the following assumptions and methods have been changed (all figures in $000's):

Economic Assumptions

- The assumed increase in Consumer Price Index has been changed from 2.50% per year to 2.00% per year.
- The nominal discount rate has been changed from 6.30% per year to 5.60% per year.
- The net impact of the change in the assumed inflation rate and the nominal discount rate is a change in the real discount rate from 3.80% per year to 3.60% per year.
- The assumed increase in pensionable earnings for active members has been changed from 3.50% per year plus promotional scale to 2.50% per year for three years, 3.00% per year thereafter, plus promotional scale. The assumed increase in pensionable earnings for disabled members has been changed from 2.50% per year to 2.00% per year.
- The assumed increase in the YMPE and in the maximum pension under the *Income Tax Act* has been changed from 3.50% per year to 2.50% for three years, 3.00% per year thereafter.

In combination, these changes in assumptions increased the going concern liabilities by $220,044 and the total normal cost by $6,564.

Demographic Assumptions

- The mortality rates have been changed from 85% of 1994 Uninsured Pensioner Mortality Table with fully generational mortality improvements at Scale AA to an OPG-Specific Mortality Table with future mortality improvements at Scale CPM-B.
- The assumed spousal age difference has been changed from a male assumed to be four years older than a female spouse, to a male assumed to be three years older than a female spouse.
- A margin of $100 million has been added to the liability in anticipation of higher than expected retirements in the short-term before the next valuation.

In combination, these changes in assumptions increased the going concern liabilities by $504,876 and the total normal cost by $8,914.

Asset Valuation Method

- The actuarial value of assets has been reset to equal the market value of assets at January 1, 2014. This reset results in the recognition of $891,630 in asset gains which would otherwise have been deferred.
- The resetting of the actuarial value of assets has been done at this time to offset the impact of the adoption of certain changes in economic and demographic assumptions which had a significant increase in the liability. It is expected that an asset smoothing approach will continue to be used in the future although alternate smoothing approaches will be examined.

Going Concern Valuation Sensitivity Results

In accordance with the Canadian Institute of Actuaries Standards of Practice, the table below presents the sensitivity of the going concern liabilities and the total normal cost to using a discount rate 1% lower than that used for the going concern valuation.

($000's)	Valuation Basis January 1, 2014	Based on Rate of 1% Lower	Effect $	Effect %
Going concern liabilities	$ 12,050,676	$ 14,053,945	$ 2,003,269	16.6%
Total normal cost	$ 300,085	$ 383,506	$ 83,421	27.8%

Section 3: Solvency Valuation Results

Solvency Financial Position of the Plan

The solvency valuation is a financial assessment of the Plan that is required by the *Pension Benefits Act* (Ontario) and is performed in accordance with requirements prescribed by that legislation. It is intended to provide an assessment of the Plan's financial position at the valuation date on the premise that certain obligations as prescribed by the *Pension Benefits Act* (Ontario) are settled on the valuation date for all members.

On the basis of the plan provisions, membership data, solvency assumptions and methods, and asset information described in the Appendices, as well as the requirements of the *Pension Benefits Act* (Ontario), the solvency financial position of the Plan as at January 1, 2014 is shown in the following table. The solvency financial position of the Plan as at January 1, 2011 is shown for comparison purposes.

Solvency Financial Position

($000's)	January 1, 2014	January 1, 2011
Assets		
Solvency assets	$ 10,908,000	$ 9,074,525
Estimated wind up expenses	(73,300)	(73,300)
Total Assets	**$ 10,834,700**	**$ 9,001,225**
Solvency Liabilities		
Active and disabled members	$ 8,650,749	$ 8,582,248
Deferred vested members	172,438	163,850
Retired members and beneficiaries	9,045,906	5,918,309
Voluntary contributions with interest	78	78
Value of excluded benefits[1]	(6,861,002)	(5,203,066)
Total Liabilities	**$ 11,008,169**	**$ 9,461,419**
Solvency Position	**$ (173,469)**	**$ (460,194)**
Solvency asset adjustment		
Present value of special payments	173,469[2]	0[2]
Solvency asset smoothing	0	281,727
Solvency liability adjustment	0	181,760
Solvency Surplus/(Deficiency)	**$ 0**	**$ 3,293**
Solvency Ratio (Solvency Assets/Total Liabilities	0.99	0.95

[1]Future escalated adustments (indexation) are excluded from solvency liabilities as provided for by the *Pension Benefits Act* (Ontario)

[2] Limited to amount required to eliminate the deficit

Solvency Concerns

A report indicates solvency concerns under the *Pension Benefits Act* (Ontario) if the ratio of the solvency assets to solvency liabilities is less than 0.85.

Where a report indicates solvency concerns, the effective date of the next valuation that needs to be filed under the *Pension Benefits Act* (Ontario) is one year from the valuation date of the valuation that gave rise to the solvency concerns.

Since the ratio of solvency assets to solvency liabilities is equal to 0.99, this report does not indicate solvency concerns.

Solvency Asset Adjustment

The present value of scheduled special payments for solvency valuation purposes has been calculated by discounting the annual special payments to be remitted up to the end of their amortization period (to a maximum of five years), at the blended solvency discount rate of 3.80% per year compounded monthly in arrears determined proportionately by the solvency discount rates used to settle the solvency liabilities.

($000's)

Nature of Deficiency	Effective Date	End Date	Annual Special Payment	Present Value as of January 1, 2014
Going concern	January 1, 2005	December 31, 2019	$ 27,726	$ 126,248
Going concern	January 1, 2011	December 31, 2025	37,111	169,041
Going concern	January 1, 2014	December 31, 2028	66,011	300,645
Present Value of Special Payments				**$ 595,934**

The solvency asset adjustment is limited to $173,469 which is the amount required to eliminate the difference between the solvency assets (net of estimated wind up expenses) and liabilities.

Solvency Valuation Sensitivity Results

($000's)	Valuation Basis January 1, 2014	Based on Rate of 1% Lower	Effect $	Effect %
Solvency liabilities	$ 11,008,169	$ 12,531,331	$ 1,523,162	13.8%

Smoothing Adjustment

Smoothing adjustments have not been applied to the solvency assets or liabilities.

Pension Benefits Guarantee Fund ("PBGF")

The development of the PBGF Assessment Base is as follows:

(to the nearest dollar)

PBGF Assessment Base		**January 1, 2014**
(1) Solvency assets	$	10,908,000,000
(2) PBGF liabilities	$	11,008,169,000
(3) Solvency liabilities	$	11,008,169,000
(4) Ontario asset ratio: [(2) divided by (3)]		1.000
(5) Ontario portion of fund: [(1) multiplied by the ratio in (4)]	$	10,908,000,000
PBGF assessment base: [(2) subtract (5); if negative, enter zero]	$	100,169,000

The calculation of the PBGF Assessment is as follows:

PBGF Assessment			
0.5% of any portion of the applicable PBGF assessment base that is less than 10% of the PBGF liabilities		$	500,845
1.0% of any portion of the applicable PBGF assessment base that is 10% or more but less than 20% of the PBGF liabilities			0
1.5% of any portion of the applicable PBGF assessment base that is 20% or more of the PBGF liabilities			0
(1) Total		**$**	**500,845**
Number of Ontario plan members, former members and other beneficiaries			22,093
(2) $5.00 x Number of Ontario Plan Members, Former Members and Other Beneficiaries		**$**	**110,465**
(3) $300.00 x Number of Ontario Plan Members, Former Members and Other Beneficiaries		**$**	**6,627,900**
Total Guarantee Fund Assessment	Lesser of [(1)+(2)] and (3)	**$**	**611,310**[1]

The Guarantee Fund Assessment may be adjusted to the extent that contributions during a plan year are in excess of the minimum required company contributions.

[1] Does not include retail sales tax

Section 4: Hypothetical Wind Up Valuation Results

Hypothetical Wind Up Financial Position of the Plan

A hypothetical wind up valuation is performed to determine the financial position of the Plan as at the valuation date on a wind up basis, reflecting market settlement rates as of the valuation date. Unlike the solvency valuation, all benefits are included that would be payable under the postulated scenario that would maximize benefits. The hypothetical wind up valuation is determined using benefit entitlements on the assumption that the Plan has neither a surplus nor a deficit, and that a competitive market for inflation-indexed annuities exists. Contingent benefits are included in the liabilities that would be payable under the postulated scenario. Assets are set equal to market value net of estimated wind up expenses. All assumptions for the hypothetical wind up valuation are listed in Appendix E of the report.

On the basis of plan provisions, membership data, hypothetical wind up assumptions and methods, and asset information described in the Appendices, as well as the requirements of the *Pension Benefits Act* (Ontario), the hypothetical wind up financial position of the Plan as at January 1, 2014 is shown in the following table. The hypothetical wind up financial position of the Plan as at January 1, 2011 is shown for comparison purposes.

Hypothetical Wind Up Financial Position

($000's)	**January 1, 2014**	**January 1, 2011**
Assets		
Hypothetical wind up assets	$ 10,908,000	$ 9,074,525
Estimated wind up expenses	(73,300)	(73,300)
Total Assets	**$ 10,834,700**	**$ 9,001,225**
Hypothetical Wind Up Liabilities		
Active and disabled members	$ 8,650,749	$ 8,582,248
Deferred vested members	172,438	163,850
Retired members and beneficiaries	9,045,906	5,918,309
Voluntary contributions with interest	78	78
Total Liabilities	**$ 17,869,171**	**$ 14,664,485**
Hypothetical Wind Up Surplus/(Deficiency)	**$ (7,034,471)**	**$ (5,663,260)**

Hypothetical Wind Up Valuation Sensitivity Results

In accordance with the Canadian Institute of Actuaries Standards of Practice, the table below presents the sensitivity of the hypothetical wind up liabilities to using a discount rate of 1.00% lower than that used for the hypothetical wind up valuation.

($000's)	Valuation Basis January 1, 2014	Based on Rate of 1% Lower	Effect $	Effect %
Hypothetical wind up liabilities	$ 17,869,171	$ 21,181,062	$ 3,311,891	18.5%

Incremental Cost on a Hypothetical Wind Up Basis

The incremental cost on a hypothetical wind up basis represents the present value at January 1, 2014 of the expected aggregate change in the hypothetical wind up liabilities between January 1, 2014 and the next calculation date, that is January 1, 2017. Appendix E gives more details on the calculation methodology and on assumptions.

Based on this methodology and on these assumptions, the incremental cost on a hypothetical wind up basis for the period from January 1, 2014 to January 1, 2017 is $2,378,196.

($000's)	2014	2015	2016
Incremental cost on a hypothetical wind up basis	$ 702,499	$ 783,800	$ 891,897

Transfer Ratio

The transfer ratio is determined as follows:

($000's)		January 1, 2014
(1) Hypothetical wind up assets		$ 10,908,000
Prior year credit balance	(A)	$ 0
Total company normal cost and required special payments until next mandated valuation	(B)	$ 1,091,907
(2) Asset adjustment	Lesser of (A) and (B)	$ 0
(3) Hypothetical wind up liabilities		$ 17,869,171
Transfer Ratio [(1)-(2)] / (3)		**0.61**

Section 5: Contribution Requirements

Contribution Requirements in Respect of the Normal Cost

The annual going concern cost of benefits in respect of service accruing after the valuation date is known as the normal cost. The following table sets out:

- The development of the rule to determine the normal cost until the next actuarial funding range in accordance with legislative requirements is certified;
- An estimate of the normal cost for the three years following the valuation date; and
- The portion of the going concern normal cost that is to be paid by the members.

($000's)		**2014**		**2015**		**2016**
Normal Cost						
Total normal cost	$	300,085	$	307,587	$	315,276
Required member contributions		(72,696)		(74,513)		(76,376)
Company Normal Cost	**$**	**227,389**	**$**	**233,074**	**$**	**238,900**
Valuation compensation (in year following valuation date excluding disabled members)[1]	$	1,129,462	$	1,157,698	$	1,186,641
Company Normal Cost						
As a % of valuation compensation		20.1%		20.1%		20.1%

In the event an updated funding range in accordance with legislative requirements is not certified before January 1, 2017, the rule for determining the company normal cost contributions outlined in the above table will continue to be appropriate for the plan year commencing on the next valuation date of January 1, 2017. Adjustment to the company contributions may be required once the next actuarial funding range in accordance with legislative requirements is certified.

[1] Valuation compensation in 2015 and 2016 is projected from 2014 at the assumed increase in pensionable earnings (2.5% per year) based on headcount at January 1, 2014.

Development of Special Payments

The following table summarizes the amortization schedules of special payments after adjustment to reflect any gains or losses due to the going concern and solvency valuation results.

($000's)

				Present Value as of January 1, 2014	
Nature of Deficiency	**Effective Date**	**End Date**	**Annual Special Payment**	**For Going Concern Valuation[1]**	**For Solvency Valuation[2]**
Going concern	January 1, 2005	December 31, 2019	$ 27,726	$ 141,577	$ 126,248
Going concern	January 1, 2011	December 31, 2025	37,111	326,154	169,041
Going concern	January 1, 2014	December 31, 2028	66,011	674,945	300,645
			$ 130,848	$ 1,142,676	$ 595,934

Prior Year Credit Balance ("PYCB")

There is no PYCB as at January 1, 2014.

Excess Surplus

The *Income Tax Act* requires that any excess surplus first be applied to reduce or eliminate the company contribution requirements. Excess surplus is defined in Section 147.2(2)(d) of the *Income Tax Act* as the portion of surplus (if any) that exceeds 25% of the going concern liabilities.

Since the plan has an unfunded liability and hypothetical wind up deficiency, there is no excess surplus and therefore it does not impact the development of the company contribution requirements.

[1] The values in the table were developed using the going concern interest rate of 5.60% per year compounded monthly in arrears.
[2] The values in the table were developed using the weighted average solvency interest rate of 3.80% per year compounded monthly in arrears with a maximum of five years of such payments included in the calculation.

Development of Minimum Required Company Contribution

The table below presents the development of the minimum required company contribution for each of the plan years covered by this report.

While we have shown a fixed company normal cost in the table below, the Company may fund the normal cost as a percentage of projected pensionable earnings.

($000's)	**2014**	**2015**	**2016**
Company normal cost	$ 227,389	$ 233,074	$ 238,900
Special payments toward amortizing unfunded liability	130,848	130,848	130,848
Special payments toward amortizing solvency deficiency	0	0	0
Required application of excess surplus	0	0	0
Permitted application of surplus	0	0	0
Permitted application of PYCB	0	0	0
Minimum Required Company Contribution	**$ 358,237**	**$ 363,922**	**$ 369,748**

Development of Maximum Deductible Company Contribution

The table below presents the development of the maximum deductible company contribution for each of the plan years covered by this report.

The maximum deductible company contribution presented in the table below for a given plan year is calculated assuming that the Company makes the maximum deductible company contribution in the first plan year covered by this report.

While we have shown a fixed company normal cost in the table below, the Company may fund the normal cost as a percentage of projected pensionable earnings.

($000s)	**2014**	**2015**	**2016**
Company normal cost	$ 227,389	$ 233,074	$ 238,900
Greater of the unfunded liability and the hypothetical wind up deficiency	7,034,471	0	0
Required application of excess surplus	0	0	0
Maximum Deductible Company Contribution	**$ 7,261,860**	**$ 233,074**	**$ 238,900**

If the Company wishes to make the maximum deductible company contribution, it is advisable to contact the Plan actuary before making such contribution to ensure that the contribution will be permissible and deductible and that any regulatory requirements are considered.

Section 6: Actuarial Certificate

Actuarial Opinion, Advice and Certification for the Ontario Power Generation Inc. Pension Plan

Financial Services Commission of Ontario Registration Number: 1059120
Canada Revenue Agency Registration Number: 1059120

Opinion

This actuarial certification forms an integral part of the actuarial valuation report for the Plan as at January 1, 2014. I confirm that I have prepared an actuarial valuation of the Plan as at January 1, 2014 for the purposes outlined in the Introduction section to this report and consequently:

My advice on funding is the following:

- The Company should contribute the amounts within the range outlined in Section 5 of this report, in accordance with legislative requirements.
- The next actuarial valuation for the purpose of developing funding requirements should be performed no later than as at January 1, 2017.

I hereby certify that, in my opinion:

- With respect to the purpose of determining the Plan's financial position on a going concern basis as at January 1, 2014 (all figures in $000's):
  - The Plan has a going concern unfunded liability of $1,142,676 as at January 1, 2014, based on going concern assets of $10,908,000 less going concern liabilities of $12,050,676.
  - There is no excess surplus as defined by Section 147.2(2) of the *Income Tax Act* in the Plan at January 1, 2014.
  - The pre-1990 maximum pension restrictions in Subsection 8504(6) of the Regulations to the *Income Tax Act* do not apply to any members of the Plan.

- With respect to the purpose of determining the Plan's financial position on a solvency basis and hypothetical wind up basis (all figures in $000's):
  - The Plan has a solvency deficit (before solvency asset adjustment) of $173,469 as at January 1, 2014, determined as solvency assets of $10,834,700 (after deducting estimated wind up expenses of $73,300) less solvency liabilities of $11,008,169. After reflecting the solvency asset adjustment the solvency deficiency is $0.
  - The solvency ratio is 0.99 as at January 1, 2014.
  - The transfer ratio is 0.61 as at January 1, 2014.
  - The Plan's liabilities would exceed the Plan's assets, net of estimated wind up expenses, by $7,034,471 if the Plan was terminated and wound up as at January 1, 2014.
  - A PBGF assessment is required to be paid where the PBGF assessment base is equal to $100,169 and the PBGF liabilities are $11,008,169.

- With respect to determining the funding requirements of the Plan:
  - The rule for determining the company's normal cost is 20.1% of projected valuation compensation.
  - The estimated total normal cost for the three years following the valuation date, including the portions of the normal cost attributed to members and the employer are as follows:

($000's)	2014	2015	2016
Normal Cost			
Total normal cost	$ 300,085	$ 307,587	$ 315,276
Required member contributions	(72,696)	(74,513)	(76,376)
Company Normal Cost	**$ 227,389**	**$ 233,074**	**$ 238,900**
Valuation compensation (in the following years, excluding disabled members)	$ 1,129,462	$ 1,157,698	$ 1,186,641
Company Normal Cost			
As a % of valuation compensation	20.1%	20.1%	20.1%

  - The special payments required to fund the going concern unfunded liability and the solvency deficiency are as summarized in the following table:

($000's)

Nature of Deficiency	Effective Date	End Date	Annual Payment
Going concern	January 1, 2005	December 31, 2019	$ 27,726
Going concern	January 1, 2011	December 31, 2025	37,111
Going concern	January 1, 2014	December 31, 2028	66,011
			$ 130,848

- The prior year credit balance is $0 as at January 1, 2014.
- The contribution range as outlined in this report is expected to be sufficient to satisfy the Plan's funding requirements.
- The company contribution range outlined in this report qualifies as eligible contributions under Section 147.2(2) of the *Income Tax Act.*

▪ For the purposes of the valuation:
  - The data on which this valuation is based are sufficient and reliable;
  - The assumptions used are appropriate; and
  - The actuarial cost methods and the asset valuation methods used are appropriate.

▪ This report and its associated work have been prepared, and my opinion given, in accordance with accepted actuarial practice in Canada and in compliance with the requirements outlined in subparagraphs 147.2(2)(a)(iii) and (iv) of the *Income Tax Act.*

▪ Notwithstanding the above certifications, emerging experience differing from the assumptions will result in gains or losses that will be revealed in subsequent valuations.

Linda M. Byron, FCIA, FSA

Partner

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Senior Consultant

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June 2014

Appendix A: Glossary of Terms

- The **actuarial value of assets** is the asset value used for going concern valuation purposes. Smoothing methods are sometimes used to smooth investment gains and losses over a certain period.

- The **estimated wind up expenses** is an estimate of the administrative and other expenses expected to be charged against the pension fund if the Plan were to terminate on the valuation date.

- The **going concern liabilities** are the actuarial present value of benefits earned in respect of service prior to the valuation date. The actuary may choose to omit indexing liabilities (i.e., “escalated adjustments”) from the going concern liabilities as per Section 11(1) of the *Pension Benefits Act*. However, if escalated adjustments are omitted from the going concern liabilities, the amount of payment of an escalated adjustment that is made from the pension fund, to the extent that it has not been funded, must be included in the normal cost pursuant to Section 11(2) of the Regulation to the *Pension Benefits Act*. The going concern liabilities are calculated using the going concern assumptions and methods summarized in Appendix D of this report.

- The **going concern position** is the difference between the actuarial value of assets and the going concern liabilities. Escalated adjustments may be omitted from the determination of the surplus/(unfunded liability) pursuant to Section 11(3) of the Regulation to the *Pension Benefits Act*.

- The **maximum deductible company contribution** refers to an eligible contribution pursuant to Section 147.2(2) of the *Income Tax Act*. Under Subsection 8502(b) of the Regulations to the *Income Tax Act*, each Company contribution made after January 1, 1991 in respect of a defined benefit provision of a registered pension plan must be such eligible contribution.

  In a company’s fiscal year, the following contributions are eligible under Section 147.2(2) of the *Income Tax Act*.

  - The company normal cost, eligible under Section 147.2(2) subject to certification by the actuary and approval by the Canada Revenue Agency; plus
  - Special payments eligible under Section 147.2(2) up to the amount of the unfunded liability, the solvency deficiency, or the hypothetical wind up deficiency, whichever is greater, subject to certification by the actuary and approval by the Canada Revenue Agency; less
  - Required application of excess surplus.

  The company normal cost and special payments for this Plan will be deductible under Section 147.2(2) of the *Income Tax Act*, subject to the approval of the Canada Revenue Agency.

  Note that contributions to a Plan are still permissible and deductible if there is an excess surplus, providing there is simultaneously a solvency or hypothetical wind up deficiency in the Plan or the contributions are required as minimum contributions under the *Pension Benefits Act* (Ontario), pursuant to Subsections 8516(2) and (3) of the Regulations to the *Income Tax Act*.

One restriction under the *Income Tax Act* is that if there is an excess surplus, and a solvency or hypothetical wind up deficiency, the maximum deductible contribution is restricted to the full amount of the deficiency without allowance for interest or any other contributions such as company normal cost and/or transfer deficiency payments.

In order to be deductible in a given fiscal year, company contributions must be made not later than 120 days after the end of the fiscal year.

- The **minimum required company** contribution for each plan year is equal to:
  - The company normal cost; plus
  - Special payments toward amortizing any unfunded liability over 15 years beginning no later than 12 months from the date on which the unfunded liability was established; plus
  - Special payments toward amortizing any solvency deficiency over five (5) years beginning no later than 12 months from the date on which the solvency deficiency was established (this period of years may be longer if the Company has elected temporary funding relief options 3 and/or 5); less
  - Required application of excess surplus; less
  - Permitted application of surplus; less
  - Permitted application of prior year credit balance.

  In order to satisfy the requirements of the *Pension Benefits Act* and its Regulations, contributions to the fund must be made in accordance with the following rules:

  - Required member contributions (if any) must be remitted to the pension fund within 30 days following the month in which the contributions were received from the member or deducted from his or her remuneration.
  - Company normal cost contributions must be remitted to the pension fund within 30 days after the end of the month for which the contributions are payable.
  - Special payments must be remitted to the pension fund in the month for which they are payable.

- The **prior year credit balance** is
  - The prior year credit balance stated in the last report in respect of the Plan under the Regulation; plus
  - The total amount of contributions made to the Plan by the Company after the valuation date of the last report in respect of the Plan and before the valuation date for the report being prepared; less
  - The total minimum amount of contributions required to have been made after the valuation date of the last report in respect of the Plan and before the valuation date for the report being prepared, if the contributions had been calculated without reference to any prior year credit balance.

  The Company may choose to set the prior year credit balance between nil and the amount as calculated above, but may not recapture the amount forfeited at any time.

- **Solvency/Hypothetical wind up assets** are the market value of pension fund assets adjusted to reflect contributions, benefit payments, transfers and fees/expenses in-transit at the valuation date.

- **T**he **solvency asset adjustment** is an adjustment that may be made to the solvency assets to reflect:

  - The impact of using an averaging method that stabilizes short-term fluctuations in the market value of the plan assets calculated over a period of not more than five years; plus
  - The present value of any remaining special payments required to liquidate any unfunded liability (for service not previously recognized for benefit determination purposes) established after December 31, 1987; plus
  - The present value of any remaining special payments other than those above that are scheduled for payment within six years after the valuation date. This period of years may be longer if the Company has elected temporary funding relief options 3 and/or 5.

- The **solvency liabilities** are the actuarial present value of benefits earned in respect of service prior to the valuation date determined as if the Plan were wound up on the valuation date and taking into account Section 74 of the *Pension Benefits Act* (i.e., grow-in). In calculating the solvency liabilities, which includes plant closure benefits or permanent layoff benefits that would be immediately payable if the plan sponsor's business was discontinued on the valuation date, the *Pension Benefits Act* and its Regulations permit the exclusion of the following benefits:

  - Any escalated adjustments;
  - "Excluded plant closure benefits" that the Company elected on November 26, 1992 to exclude;
  - "Excluded permanent layoff benefits" that the Company elected on November 26, 1992 to exclude;
  - Special allowances other than those where the member has met all age and service eligibility requirements;
  - Consent benefits other than those where the member has met all eligibility requirements except the consent of the employer, or in the case of a jointly sponsored pension plan, the consent of the employer or the administrator;
  - Prospective benefit increases;
  - Potential early retirement window benefit values; and
  - Pension and ancillary benefits payable under a qualifying annuity contract.

  The solvency liabilities are determined using benefit entitlements on the assumption that the Plan has neither a surplus nor a deficit. The solvency liabilities are calculated using the solvency valuation assumptions summarized in Appendix E of this report.

- The **solvency liability adjustment** is an adjustment that may be made to the solvency liabilities to reflect the impact of using a solvency valuation discount rate for discounting the liability that is the average of market discount rates calculated over the same period of time as that used in the calculation of the solvency asset adjustment.

- The **solvency position** is the difference between the solvency assets (net of estimated wind up expenses) and the solvency liabilities.

- The **solvency ratio** compares the solvency assets to the solvency liabilities for purposes of Subsections 14(2) and (3) of the Regulations of the *Pension Benefits Act* to determine the latest effective date of the next required valuation.

- The **solvency surplus/(deficiency)** is the solvency position, increased by the solvency asset adjustment and the solvency liability adjustment, then decreased by the prior year credit balance.

- The **special payments** are payments required to liquidate the unfunded liability and/or solvency deficiency:

  - The going concern special payments are payments required to liquidate the unfunded liability, with interest at the going concern valuation discount rate, by equal monthly instalments over a period of 15 years beginning no later than 12 months from the valuation date of the report in which the going concern unfunded liability was determined;

  - The solvency special payments are payments required to liquidate the solvency deficiency, with interest at the solvency valuation discount rate, by equal monthly instalments over a period of five years beginning no later than 12 months from the valuation date of the report in which the solvency deficiency was determined.

- The **surplus/(unfunded liability)** is the difference between the actuarial value of assets and the sum of the going concern liabilities and the prior year credit balance.

- The **total normal cost** is the actuarial present value of benefits expected to be earned in respect of service for each year starting on the valuation date. Required member contributions (if any) are deducted from the total normal cost to determine the company normal cost. The total normal cost is calculated using the going concern valuation assumptions and methods summarized in Appendix D of this report.

- The **transfer ratio** compares the solvency assets, minus the lesser of the prior year credit balance and the required company contributions until the next required valuation (before application of the prior year credit balance), to the solvency liabilities plus the liability of any excluded benefits (except for pension benefits and ancillary benefits payable under a qualifying annuity contract). If the transfer ratio is less than 1.00, lump-sum transfers from the pension fund under Section 42 of the *Pension Benefits Act* are limited to the commuted value of the member's pension multiplied by the transfer ratio. The administrator may transfer the entire commuted value if:

  - The administrator is satisfied that an amount equal to the transfer deficiency has been remitted to the pension fund; or

  - The aggregate of transfer deficiencies for all transfers made since the last valuation date does not exceed 5% of the plan assets at that time.

  In June 2009, subsection 19 of the Regulations of the *Pension Benefits Act* was amended and Policy T800-402 was released. The Policy imposes additional restrictions for payment of commuted values under certain circumstances.

Appendix B: Assets

Asset Data

The Plan assets are held by CIBC Mellon Trust Company. The asset information presented in this report is based on the audited financial statements of the pension fund for 2011, 2012, and 2013.

Tests of the sufficiency and reliability of the asset data were performed and the results were satisfactory. The tests included:

- A reconciliation of actual cash flow with expected cash flow from the previous actuarial report; and
- A reconciliation of any anticipated benefit payments in 2011, 2012, and 2013 (for retirees, terminated or deceased employees) against the financial statements of the pension fund for confirmation of payments.

Market Value of Assets

The following is a summary of the composition of the Plan's assets by asset type as reported by OPG as at January 1, 2014. For comparison purposes, the composition at the previous valuation date of January 1, 2011 is also shown.

($000's)	January 1, 2014	January 1, 2011
Cash and short term	1.4%	3.0%
Nominal fixed-income	19.2%	18.5%
Real return bonds	15.1%	16.8%
Canadian equities	19.8%	23.5%
U.S. equities	13.9%	15.9%
International equities	13.8%	20.1%
Global equities	13.9%	n/a
Real estate	1.9%	0.1%
Global infrastructure	1.9%	0.4%
Currency/Fixed income overlay	(0.9%)	0.0%
Hedge funds	0.0%	1.7%
Total Invested Assets	**100.00%**	**100.00%**

Target Asset Mix

The target asset mix of the Plan is contained in the Plan's Statement of Investment Policies and Procedures ("SIPP") adopted by the Company on May 15, 2013 and is as follows:

	Minimum	**Target**	**Maximum**
Cash and short term	0.0%	1.0%	5.0%
Canadian structured fixed income	13.0%	15.0%	22.0%
Corporate fixed income	0.0%	3.0%	6.0%
Real return bonds	10.0%	15.0%	25.0%
Canadian equities	14.0%	18.0%	22.0%
U.S. equities	8.0%	12.0%	18.0%
Global equities	8.0%	12.0%	18.0%
International equities	8.0%	12.0%	18.0%
Canadian real estate	0.0%	6.0%	10.0%
Global infrastructure	0.0%	6.0%	10.0%
		100.0%	

Reconciliation of Changes in Market Value of Assets

The table below reconciles changes in the market value of assets between January 1, 2011 and January 1, 2014.

($000's)		**2011**		**2012**		**2013**
Market Value of Assets, Beginning of Plan Year	$	9,074,525	$	9,564,000	$	10,282,000
Contributions During Plan Year						
Member	$	74,000	$	73,000	$	72,000
Company normal cost		218,000		225,000		233,000
Company special payments		65,000		65,000		65,000
Company transfer deficiency payments		17,000		80,000		2,000
Purchases of service/transfer in		6,000		2,000		1,000
Total	**$**	**380,000**	**$**	**445,000**	**$**	**373,000**
Benefit Payments During Plan Year						
Non-retired members[1]	$	(95,000)	$	(161,000)	$	(214,000)
Retired members		(387,000)		(420,000)		(448,000)
Pending transfer		(3,000)		(3,000)		(6,000)
Total	**$**	**(485,000)**	**$**	**(584,000)**	**$**	**(668,000)**
Transfers During Plan Year						
Into plan	$	0	$	0	$	0
Out of plan		(2,000)		(2,000)		(1,000)
Total	**$**	**(2,000)**	**$**	**(2,000)**	**$**	**(1,000)**
Fees/Expenses						
Investment fees/expenses	$	(23,000)	$	(25,000)	$	(24,000)
Non-investment fees/expenses		(13,000)		(10,000)		(12,000)
Total	**$**	**(36,000)**	**$**	**(35,000)**	**$**	**(36,000)**
Investment Income	$	632,475	$	894,000	$	958,000
Market Value of Assets, End of Plan Year	**$**	**9,564,000**	**$**	**10,282,000**	**$**	**10,908,000**

[1] Includes members who have terminated employment or died.

Appendix C: Member Data

Source of Data

This funding valuation was based on member data provided by the Company as of January 1, 2014. The previous valuation at January 1, 2011 was based on January 1, 2010 data rolled forward one year. Tests of the sufficiency and reliability of the member data were performed and the results were satisfactory. The tests included:

- A reconciliation of membership status against the membership status at the last valuation. This test was performed to ensure that all members were accounted for. A summary of this reconciliation follows on the next page;
- A reconciliation of birth, hire, and participation dates against the corresponding dates provided for the last valuation to ensure consistency of data;
- A reconciliation of credited service against the corresponding amount provided for the last valuation to ensure that no member accrued more than four years of credited service from January 1, 2010, except for those who transferred service from their previous employer. This test also revealed any members who accrued less than four years of credited service;
- A reconciliation of pensionable earnings against the corresponding amounts provided for the last valuation to identify any unusual increases or decreases;
- A reconciliation of accrued benefits against the corresponding amounts provided for the last valuation to identify any unusual benefit accruals;
- A reconciliation of any stated benefit payments in 2010, 2011, 2012 and 2013 (for retired, terminated or deceased employees) against the financial statements of the pension fund for confirmation of the payments; and
- A reconciliation of inactive member benefit amounts against the corresponding amounts provided for the last valuation to ensure consistency of data.

A copy of the administrator certification certifying the accuracy and completeness of the member data (and the plan provisions summarized in this report) is included in Appendix G of this report.

Membership Summary

The table below reconciles the number of members as of January 1, 2014 with the number of members as of January 1, 2010 and the changes due to experience in the period.

	Actives	Disabled	Deferred Vested	Pensioners	Survivors	Total
Members, January 1, 2010[1]	**11,990**	**416**	**854**	**7,315**	**1,929**	**22,504**
Changes due to:						
New entrants	658	-	-	-	-	658
Rehired members	80	-	(80)	-	-	-
Returned from LTD	52	(52)	-	-	-	-
Terminations						
Deferred vested pension	(247)	(9)	256	-	-	-
Lump sum payment	(330)	(6)	(123)	-	-	(459)
Retirements	(1,735)	(105)	(133)	1,973	-	-
Disability	(153)	153	-	-	-	-
Deaths						
No further benefits	-	-	-	(254)	(356)	(610)
Lump sum	(20)	(17)	(10)	(8)	-	(55)
Surviving beneficiary	(23)	(7)	(4)	(426)	-	(460)
New Survivors	-	-	-	-	460	460
Non-Member Former Spouses	(1)	-	-	-	12	11
Data corrections	-	-	44	-	-	45
Members, January 1, 2014	**10,271**	**373**	**804**	**8,600**	**2,045**	**22,093**

[1] Previous valuation at January 1, 2011 was based on data at January 1, 2010 rolled forward one year.

Membership Summary (to the nearest dollar)

Active Members

	January 1, 2014	January 1, 2010
Number	10,271	11,990
Average age (years)	46.8	45.6
Average credited service (years)	15.9	14.8
Average pensionable earnings for the following year	$ 105,909	$ 97,366
Accumulated contributions with interest	$ 874,907,417	$ 848,294,113
Proportion of female	23.2%	22.7%

Members on Long Term Disability

	January 1, 2014	January 1, 2010
Number	373	416
Average age (years)	54.5	54.2
Average credited service (years)	23.9	23.6
Average pensionable earnings for the following year	$ 82,113	$ 73,225
Accumulated contributions with interest	$ 23,061,938	$ 24,902,540
Proportion of female	41.6%	38.2%

Deferred Vested Members

	January 1, 2014	January 1, 2010
Number	804	854
Average age (years)	52.4	51.0
Average annual lifetime pension	$ 9,796	$ 9,218
Proportion of female	18.9%	18.3%

Retired Members

	January 1, 2014	January 1, 2010
Number	8,600	7,315
Average age (years)	69.4	69.0
Average annual lifetime pension	$ 43,117	$ 37,594
Total annual bridge pension[1]	$ 49,515,891	$ 37,969,432
Proportion of female	15.1%	13.4%

Survivors (excluding children)

	January 1, 2014	January 1, 2010
Number	2,027	1,899
Average age (years)	77.2	75.7
Average annual pension	$ 22,952	$ 19,835
Proportion of female	95.6%	95.5%

Children

	January 1, 2014	January 1, 2010
Number	18	30
Average age (years)	23.0	24.1
Total annual temporary pension	$ 262,480	$ 379,117

[1] As at January 1,2014, there were 2,855 retired members with an average age of 60.3 receiving a bridge benefit

Active/Disabled Membership Distribution

The following table provides a detailed summary of the active/disabled membership at the valuation date by years of credited service and by age group.

Age		< 5	5–10	10–15	15–20	20–25	25–30	>=30	Total
< 30	Count	368	267						635
	Average Earnings[1]	$ 75,538	$ 89,547						$ 81,428
30–35	Count	229	720	153					1,102
	Average Earnings	$ 81,496	$ 95,423	$101,168					$ 93,326
35–40	Count	131	433	463	11				1,038
	Average Earnings	$ 88,895	$ 99,283	$107,101	$118,894				$101,667
40–45	Count	125	415	358	62	155	5		1,120
	Average Earnings	$ 89,965	$104,087	$105,677	$107,620	$112,786	$102,980		$104,414
45–50	Count	87	395	361	85	701	311	4	1,944
	Average Earnings	$103,901	$101,160	$107,201	$115,239	$115,641	$109,276	$129,292	$109,598
50–55	Count	81	296	363	63	650	540	330	2,323
	Average Earnings	$107,068	$ 97,532	$103,221	$113,024	$113,407	$115,262	$118,726	$110,748
55-60	Count	45	168	231	47	408	212	431	1,542
	Average Earnings	$110,692	$103,061	$104,877	$104,607	$109,498	$106,004	$122,521	$111,150
60-65	Count	10	60	138	38	214	103	217	780
	Average Earnings	$101,694	$ 97,117	$104,066	$104,732	$105,031	$100,029	$113,057	$105,770
>=65	Count	1	15	29	6	50	16	43	160
	Average Earnings	*	$111,444	$104,336	$116,851	$106,445	$101,791	$110,342	$107,341
Total									
Count		1,077	2,769	2,096	312	2,178	1,187	1,025	10,644
Average Earnings		$ 86,485	$ 98,389	$105,287	$110,556	$112,367	$110,485	$118,811	$105,075

* Due to confidentiality

[1] Pensionable earnings as defined in plan documents.

Retired/Deferred Vested Membership Distribution

The following table provides a detailed summary of the retired/deferred vested membership at the valuation date by age group.

Age		**Retired Members and Beneficiaries**	**Deferred Vested Members**	**Total**
< 50	Count	38	251	289
	Average lifetime pension	$ 12,914 per year	$ 6,919 per year	$ 7,707 per year
	Average bridge pension	-	$ 1,686 per year	$ 1,686 per year
50–55	Count	259	203	462
	Average lifetime pension	$ 47,483 per year	$ 9,302 per year	$ 30,707 per year
	Average bridge pension	$ 14,095 per year	$ 1,916 per year	$ 8,744 per year
55–60	Count	1,076	195	1,271
	Average lifetime pension	$ 51,050 per year	$ 11,353 per year	$ 44,960 per year
	Average bridge pension	$ 14,850 per year	$ 2,142 per year	$ 12,900 per year
60–65	Count	1,828	140	1,968
	Average lifetime pension	$ 47,466 per year	$ 13,376 per year	$ 45,041 per year
	Average bridge pension	$ 13,980 per year	$ 2,529 per year	$ 13,165 per year
65[1]–70	Count	2,412	15	2,427
	Average lifetime pension	$ 41,370 per year	$ 10,954 per year	$ 41,182 per year
	Average bridge pension	-	-	
70–75	Count	1,675		1,675
	Average lifetime pension	$ 36,695 per year		$ 36,695 per year
	Average bridge pension	-		-
75–80	Count	1,215		1,215
	Average lifetime pension	$ 32,497 per year		$ 32,497 per year
	Average bridge pension	-		-
>=80	Count	2,142		2,142
	Average lifetime pension	$ 29,092 per year		$ 29,092 per year
	Average bridge pension	-		-
Total				
Count		10,645	804	11,449
Average lifetime pension		$ 39,228 per year	$ 9,796 per year	$ 37,161 per year
Average bridge pension		$ 4,262 per year	$ 1,970 per year	$ 4,101 per year

[1] Includes all Deferred Vested Members over age 65

Appendix D: Going Concern Assumptions and Methods

Assumptions and Methods

A member's entitlements under a pension plan are generally funded during the period over which service is accrued by the member. The cost of each member's benefits is allocated in some fashion over the member's service. An actuarial valuation provides an assessment of the extent to which allocations relating to periods prior to a valuation date (often referred to as the actuarial liabilities) are covered by the Plan's assets.

The going concern valuation provides an assessment of a pension plan on the premise that the Plan continues on into the future indefinitely based on assumptions in respect of future events upon which a plan's benefits are contingent and methods that effectively determine the way in which a plan's costs will be allocated over the members' service. The true cost of a plan, however, will emerge only as experience develops, investment earnings are received, and benefit payments are made.

This appendix summarizes the going concern assumptions and methods that have been used for the going concern valuation of the Plan at the valuation date. The going concern assumptions and methods have been chosen with due respect to accepted actuarial practice and regulatory constraints. For purposes of this valuation, the going concern methods and assumptions were reviewed and changes as indicated were made.

Assumptions and Methods

The actuarial assumptions and methods used in the current and previous valuations are summarized below and described on the following pages.

	January 1, 2014	January 1, 2011
Economic Assumptions		
Discount rate	5.60% per year	6.30% per year
Inflation rate	2.00% per year	2.50% per year
Real discount rate	3.60% per year	3.80% per year
Increases in pensionable earnings		
Active	2.50% per year for 3 years, 3.00% per year thereafter; plus promotional scale (Table A following)	3.50% per year; plus promotional scale (Table A following)
Disabled	2.00% per year	2.50% per year
Increases in YMPE	2.50% per year for 3 years, 3.00% per year thereafter	3.50% per year
Increases in *Income Tax Act* maximum pension limit	2.50% per year for 3 years, 3.00% per year thereafter	3.50% per year
Interest on member contributions	4.60% per year	5.30% per year
Investment and non-investment expenses	Implicit in discount rate	Implicit in discount rate
Demographic Assumptions		
Mortality	OPG-specific mortality table and mortality improvements based on Canadian Pensioner Mortality Improvement Scale CPM-B (Table B following)	85% of 1994 Uninsured Pensioner Mortality table with fully generational mortality improvements at Scale AA
Retirement		
Active Participants	Variable by age (Table C following)	Same
Disabled Participants	Age 65	Same
Deferred Vested Participants	Age 65	Same
Margin	$100 million provision for retirements higher than assumed in short-term inter-valuation period	None
Termination of employment	Variable by age (Table D following)	Same
Disability	Variable by age (Table E following)	Same

	January 1, 2014	January 1, 2011
Proportion married		
Non-retired proportion with spouse	90%	Same
Non-retired spousal age differential	Male spouse is three years older than a female spouse	Male spouse is four years older than a female spouse
Retired members	Actual marital status and spousal age used where known; otherwise male spouse is assumed to be three years older than a female spouse	Actual marital status and spousal age used where known; otherwise male spouse is assumed to be four years older than a female spouse

Methods		
Actuarial cost method	Projected unit credit cost method and prorated on credited service	Same
Asset valuation method	Smoothed value of assets with gains/losses deferred and amortized. Assets have been reset to equal the market value at January 1, 2014. It is expected that an asset smoothing approach will continue to be used in the future although alternate smoothing approaches will be examined	Smoothed value of assets with equity gains and losses deferred and amortized over 5 years

Table A—Promotional Scale (Includes Promotion, Progression and Merit)

Age	First Four Years of Employment	Subsequent Years of Employment
Under 25	9.00%	2.50%
25 to 29	6.50%	2.50%
30 to 34	5.00%	2.00%
35 to 39	4.50%	1.50%
40 to 44	4.00%	1.00%
45 to 49	3.00%	1.00%
50 to 54	2.00%	1.00%
55 to 59	2.00%	0.60%
60+	1.50%	0.60%

Table B

Mortality rates per 1,000 lives at selected ages are summarized in the table below:

Age in 2014	OPG Specific Mortality Table using Scale CPM-B	
	Male	Female
20	0.414	0.288
25	0.473	0.246
30	0.595	0.310
35	0.624	0.411
40	0.769	0.573
45	1.095	0.787
50	1.699	1.141
55	2.796	2.059
60	2.976	4.311
65	6.137	7.778
70	10.841	11.829
75	18.971	17.926
80	37.568	29.904
85	70.988	49.457
90	134.606	87.321

Table C— Retirement Rates

Age based retirement rates are in accordance with the following table:

	Eligible for Reduced Pension		Eligible for Unreduced Pension
Age	**Male**	**Female**	**Male and Female**
20	0.00%	0.00%	n/a
25	0.00%	0.00%	n/a
30	0.00%	0.00%	n/a
35	0.00%	0.00%	n/a
40	0.00%	0.00%	n/a
45	0.00%	0.00%	n/a
50	0.00%	0.00%	20.00%
55	2.00%	5.00%	20.00%
56	2.00%	5.00%	20.00%
57	2.00%	5.00%	20.00%
58	2.00%	5.00%	20.00%
59	2.00%	5.00%	20.00%
60	2.00%	5.00%	20.00%
61	7.00%	10.00%	25.00%
62	7.00%	10.00%	25.00%
63	7.00%	10.00%	25.00%
64	7.00%	10.00%	25.00%
65	100.00%	100.00%	100.00%

Table D—Termination Rates

Sample rates used in this valuation are shown in the following table:

Age	Male	Female
20	2.90%	4.40%
25	2.20%	3.30%
30	1.60%	2.40%
35	1.10%	1.70%
40	0.80%	1.20%
45	0.70%	1.10%
50	0.70%	1.10%
55	0.00%	0.00%
56	0.00%	0.00%
57	0.00%	0.00%
58	0.00%	0.00%
59	0.00%	0.00%
60	0.00%	0.00%
61	0.00%	0.00%
62	0.00%	0.00%
63	0.00%	0.00%
64	0.00%	0.00%
65	0.00%	0.00%

Table E—Disability Rate

Sample rates used in this valuation are shown as rates per 1,000 lives in the following table:

Age	
20	1.00
25	1.00
30	1.05
35	1.10
40	1.15
45	1.20
50	2.95
55	10.00
56	12.00
57	13.00
58	14.75
59	16.37
60	18.78
61	21.14
62	24.70
63	28.40
64	30.62
65	0.00

Justification of Actuarial Assumptions and Methods

Economic Assumptions

Discount Rate

We have used a discount rate of 5.60% per year developed as follows:

Development of Discount Rate				
Overall expected return				6.40%
Non-investment expenses				(0.20)%
Investment expenses				
Passive	(1)	(0.16)%		
Actively managed	(2)	0.00%		
			(1)+(2)	(0.16)%
Additional returns due to active management				0.00%
Margin for adverse deviations				(0.44)%
Discount Rate				**5.60%**

The overall expected return ("best-estimate") is 6.40% per year, which is based on an inflation rate of 2.00% per year, yielding an expected real rate of return on the pension fund assets of 4.40% per year. This overall expected return was developed using best-estimate returns for each major asset class in which the pension fund is invested. A Monte Carlo simulation is performed over 30 years where the portfolio returns are projected assuming annual rebalancing. The average of the 30-year geometric return is used to develop an overall best estimate rate of return for the entire pension fund. Gains from rebalancing and diversification are implicit in this return.

The above determined rate of return has been established based on the Company's investment policy. There may be some barriers to achieving this return such as inflation higher than expected, asset returns lower than expected, and assets and liabilities that are mismatched. We have derived a going concern discount rate which reflects the Company's investment policy combined with a margin for adverse deviation so as to account for the variables mentioned above.

Inflation Rate

The assumption reflects a rate of approximately 2.00% implicit in the market yields of Government of Canada real return and nominal return bonds as at the valuation date and the 1% to 3% band that Bank of Canada has set for inflation, with monetary policy aimed at a 2% target midpoint.

Increases in Pensionable Earnings

We have assumed future salary increases will be 2.50% per year for three years and 3.00% per year thereafter, plus promotional scale. The assumption reflects an assumed rate of inflation of 2.00% per year plus a long-term allowance of 1.00% per year for the effect of productivity growth. In the short-term, we have assumed salary increases will be lower due to current wage pressures. In addition to the base rate, we assume rates of increase as a result of individual employee merit and promotion based on a scale which varies by age and service as shown in Table A.

Increases in Year's Maximum Pensionable Earnings

As the benefits paid to a member from the Plan are dependent on the future YMPE, it is necessary to make an assumption regarding the future increases in the YMPE.

The YMPE is assumed to increase up until the time the member retires, dies or terminates from active employment at 3.00% per year (2.50% in the three year inter-valuation period). This is comprised of an annual increase of 2.00% on account of inflation, plus 1.00% in the long-term (0.50% in the short-term) on account of productivity growth, which is consistent with historical real economic growth.

Increases in the Maximum Pension Limit

Pensions are limited to the maximum limits under the *Income Tax Act*. The maximum lifetime annual pension per year of pensionable service payable under the *Income Tax Act* is $2,770.00 in 2014. It is assumed that the maximum limit will increase at 2.50% per year for three years and 3.00% per year thereafter. This is comprised of an annual increase of 2.00% on account of inflation, plus 1.00% on account of productivity growth (0.50% in the short-term), which is consistent with historical real economic growth.

Interest on Member Contributions

Interest is credited on member contributions at 4.60% per year.

Expenses

Since the discount rate has been established net of all expenses, no explicit assumption is required for expenses.

Economic Margins for Adverse Deviations

Margins for conservatism or provisions for adverse deviation have been built into the going concern assumptions where appropriate.

The margins have been chosen so as to balance the need for financial security for existing Plan members against overly conservative contribution requirements that potentially result in intergenerational inequity among members and unnecessary financial strain on the Plan sponsor.

A margin for adverse deviations of 0.44% has been reflected in the interest rate assumption.

The actuary has discussed the Plan's experience with the Company and compared it to the expected experience. The margins for adverse deviations incorporated in the assumptions reflect this review.

Demographic Assumptions

Mortality

During 2013, Aon Hewitt undertook a study of the mortality experience of OPG's pensioners. Aon Hewitt developed an OPG-specific base mortality table, which has been used for this valuation that reflects the experience of OPG's pensioners over the period from 2005 to 2012. Future mortality improvements are assumed in accordance with improvement scale CPM-B and are applied to the base mortality rates from 2009 onward (the mid-point of the study). This improvement scale was developed by the Canadian Institute of Actuaries and reflects expected improvements in mortality for Canadian pensioners.

Retirement

The rates of retirement have been developed as our expectation of the best-estimate rates of retirement based on the plan provisions and the historical retirement experience of the Plan. In the most recent years, retirement rates have been influenced by business conditions. This appears to be a temporary deviation from the long-term normative experience. We continue to believe the assumed retirement rates reflect the long term anticipated retirement pattern in the plan. To account for potential higher retirement rates in the short term, we have built in a margin for conservatism of $100 million to the liabilities.

Disabled members are assumed to retire at age 65, since their company-provided disability benefits are assumed to continue to that age, and earlier retirement election could jeopardize those disability benefits.

Termination of Employment

A member's benefit entitlement under the Plan is affected by whether the member terminates employment prior to retirement for reasons other than death. In order to account for this in the calculation of the actuarial liability, an assumption regarding the probability that a member will terminate employment for reasons other than death has been made.

The termination rates were developed based on a prior review of Plan experience. Subsequent actuarial valuations indicate that these rates remain appropriate. Consequently, the termination rates are considered to be best estimate.

Option Elections on Termination

We have assumed 100% of members will elect a deferred annuity on termination.

Disability

If an active Plan member becomes disabled, service continues to accrue until pension commencement age, but employee contributions are waived. Disabled members are assumed to stay disabled until the age 65. Based on the experience of the Plan, only a few recoveries have been recorded. The disability assumption is reasonable as our expectations of the best-estimate rates of disability based on plan provisions and our experience with other similar plans.

Proportion of Members with Spouses and Spousal Age Differential

These assumptions are relevant to the valuation of benefits since there is a subsidized joint and survivor benefit available for members with a spouse. The spousal age differential was updated from the last valuation based on an analysis of pensioner data. The proportion of members who are assumed to have a spouse at retirement is consistent with observed plan experience.

Other

Actuarial Cost Method

An actuarial cost method is a technique used to allocate in a systematic and consistent manner the expected cost of a pension plan over the years of service during which plan members earn benefits under the Plan. By funding the cost of a pension plan in an orderly and rational manner, the security of benefits provided under the terms of the plan in respect of service that has already been rendered is significantly enhanced.

The projected unit credit actuarial cost method (prorated on credited service) has been used for this valuation. Under this method, the actuarial present value of benefits in respect of service prior to the valuation date, but based on pensionable earnings projected to retirement, is compared with the actuarial asset value, revealing either a surplus or an unfunded actuarial liability.

With respect to service after the valuation date, the expected value of benefits for service in the year following the valuation date (i.e., the normal cost) net of any required employee contributions is expressed as a percentage of the expected value of participating payroll for that year. The employer normal cost contributions are determined each year by applying this percentage to the actual participating payroll for the year.

When calculating the actuarial present value of benefits at the valuation date, the present value of all retirement, withdrawal and preretirement death benefits are included. For each member, the retirement, withdrawal and preretirement death benefits for a particular period of service are first projected each year into the future taking into account future vesting, early retirement entitlements and minimum pension/value entitlements. These projected benefits for each future year are then capitalized, multiplied by the probability of the member leaving the Plan in that year and discounted with interest and survivorship to the valuation date. The actuarial present value of benefits for the particular period of service is then determined by summing the present values of these projected benefits.

The pattern of future contributions necessary to pre fund future benefit accruals for any one particular individual will increase gradually as a percentage of their pensionable earnings as the individual approaches retirement. For a stable population (i.e., one where the demographics of the group remain constant from year to year), the normal cost will remain relatively level as a percentage of payroll. The projected unit credit actuarial cost method therefore allocates contributions among different periods in an orderly and rational manner for a stable population group.

In the event of future adverse experience, contributions in addition to the normal cost calculated under the projected unit credit actuarial cost method may be required to ensure that the Plan assets are adequate to provide the benefits. Conversely, favourable experience may generate surplus which may serve to reduce future contribution requirements.

Asset Valuation Method

The Company normally uses asset-smoothing which can reduce the volatility in the Company's contribution requirements. With this valuation, the actuarial value of assets has been reset to market value. This resetting is done coincident with the adoption of economic and demographic assumptions changes, the impact of which cannot be smoothed. It is expected that an asset-smoothing method will continue to be used in future valuations although alternate smoothing approaches may be examined.

Appendix E: Solvency and Hypothetical Wind Up Assumptions and Methods

Valuation Assumptions

	January 1, 2014	January 1, 2011
Economic Assumptions		
Discount Rate		
— *Hypothetical wind up (includes indexation)*		
Benefits assumed to be settled by commuted value	1.70% per year for 10 years; 2.30% per year thereafter	1.90% per year for 10 years; 2.40% per year thereafter
Benefits assumed to be settled by annuity purchase	0.15% per year	1.10% per year
— *Unsmoothed solvency (excludes indexation)*		
Benefits assumed to be settled by commuted value	3.10% per year for 10 years; 4.60% per year thereafter	3.70% per year for 10 years; 5.00% per year thereafter
Benefits assumed to be settled by annuity purchase	3.92% per year	4.50% per year
— *Smoothed solvency (excludes indexation)*		
Benefits assumed to be settled by commuted value	Not applicable	4.18% per year for 10 years; 5.22% per year thereafter
Benefits assumed to be settled by annuity purchase	Not applicable	4.59% per year

	January 1, 2014	January 1, 2011
Demographic Assumptions		
Mortality rates	1994 Uninsured Pensioner Mortality Table with fully generational improvements using Scale AA	1994 Uninsured Pensioner Mortality Table with improvements to 2020 using Scale AA
Withdrawal rates	Not applicable	Same
Retirement age		
Active and disabled members		
With 55 or more age-plus-service points as of valuation date	Age that produces the highest lump sum value	Same
Other members	Age 65 or current age if older	Same
Deferred vested members	Age that produces the highest lump sum value	Same
Retired members and beneficiaries	Not applicable	Same
Termination of employment	Terminate with full vesting	Same
Marital status		
Non-retired members	90% assumed to have a spouse at retirement	Same
Non-retired spousal age differential	Male spouse is assumed to be three years older than a female spouse	Male spouse is assumed to be four years older than a female spouse
Retired members	Actual marital status and ages are used where known; if not known, a male spouse is assumed to be three years older than a female spouse	Actual marital status and ages are used where known; if not known, a male spouse is assumed to be four years older than a female spouse
Other		
Wind up expenses	$73.3 million	Same
Actuarial cost method	Unit credit	Same
Asset valuation method	Market value of assets adjusted to reflect contributions, benefit payments, transfers and fees/expenses in transit as of the valuation date	Smoothed value of assets, adjusted to reflect contributions, benefit payments, transfers and fees/expenses in transit as of the valuation date
Asset/liability smoothing adjustments	Not used	Used

	January 1, 2014	January 1, 2011
Hypothetical Wind Up Incremental Normal Cost		
Increases in pensionable earnings		
Active	2.50% per year, plus promotional scale Table A	3.50% per year, plus promotional scale Table A
Disabled	2.00% per year	2.50% per year
Increases in YMPE	2.50% per year	3.50% per year
Increases in maximum pension limit	2.50% per year	3.50% per year
Inflation Rate	2.00% per year	2.50% per year

Based on the CIA's Guidance and information such as pension legislation, plan provisions and plan experience, we have made the following assumptions regarding how the Plan's benefits would be settled on Plan wind up:

	January 1, 2014 Valuation	January 1, 2011 Valuation
Members Electing a Lump Sum		
Retirement eligible (Active, Disabled and Deferred)	20.00%	20.00%
Not retirement eligible (Active, Disabled and Deferred)	60.00%	50.00%
Members Electing Annuity Purchase		
Retirement eligible (Active, Disabled and Deferred)	80.00%	80.00%
Not retirement eligible (Active, Disabled and Deferred)	40.00%	50.00%
Pensioners	100.00%	100.00%

Benefits Valued

	Solvency Valuation	Hypothetical Wind Up Valuation
Vesting	We have treated all accrued benefits as vested on Plan wind up.	We have treated all accrued benefits as vested on Plan wind up.
Grow-In benefits	Active members employed in Ontario with at least 55 age-plus-service points are eligible to receive grow-in benefits.	Active members employed in Ontario with at least 55 age-plus-service points are eligible to receive grow-in benefits.
Indexing	Not included in the valuation	Included in the valuation

Justification for Valuation Assumptions

Development of Discount Rates

The development of the discount rates is shown below:

Solvency lump-sum discount rate for 10 years	= V122542[1] + 90 bps
	= 2.17% + 0.90%
	= 3.07% (rounded to 3.10%) per year
Solvency lump-sum discount rate thereafter	= V122544[1] + 0.5 x (V122544[1] – V122542[1]) + 90 bps
	= 3.20% + 0.5 x (3.20% – 2.17%) + 0.90%
	= 4.62% (rounded to 4.60) per year
Solvency annuity purchase discount rate	= V39062 + Duration Adjustment
	= 3.13% + 0.79%
	= 3.92% per year

We have set the aforementioned assumptions based on guidance prepared by the Canadian Institute of Actuaries Committee on Pension Plan Financial Reporting ("PPFRC") in the Educational Note Assumptions for Hypothetical Wind Up and Solvency Valuations with Effective Dates Between December 31, 2013 and December 30, 2014 ("CIA Guidance") released on January 24, 2014.

The CIA Guidance indicates that the cost of purchasing non-indexed annuities would be estimated based on the duration of the liabilities expected to be settled through annuity purchase. The duration of this Plan was estimated to be 11.72 and the resulting duration adjustment to the unadjusted CANSIM series V39062 interest rate is 0.79%.

For benefit entitlements that are expected to be settled by purchase of annuities, we based the assumptions on information compiled by the PPFRC from insurance companies active in the group annuity market.

For benefit entitlements that are expected to be settled by lump-sum transfer, we based the assumptions on the Canadian Institute of Actuaries Standards of Practice for Pension Commuted Values, effective April 1, 2009, using rates corresponding to a valuation date of January 1, 2014.

Pensionable Earnings

To estimate active and disabled members' highest average earnings, we used actual historical member earnings.

[1] CANSIM Series (annualized)

Preretirement Mortality

We have made no allowance for preretirement mortality. The impact of including such an assumption would not have a material impact on the valuation, since the value of the death benefit is approximately equal to the value of the accrued pension.

Assumptions Not Needed

The following are not relevant to the solvency valuation:

- Increases in pensionable earnings;
- Increases in YMPE (we used the January 1, 2014 rate);
- Increases in *Income Tax Act* maximum pension limit (we used the 2014 maximum);
- Termination of employment rates; and
- Disability rates.

Estimated Wind Up Expenses

Plan wind up expenses would normally include such items as fees related to preparation of the actuarial wind up report, fees imposed by a pension supervisory authority, legal fees, administration, custodial and investment management expenses. We have assumed these fees would be $73.3 million.

Calculation of Special Solvency Payments

We used a discount rate of 3.80% per year to calculate the special payments necessary to liquidate the solvency deficiency. This rate is a weighted average based on the relative proportions of benefit entitlements that are expected to be settled by purchase of annuities and lump-sum transfer.

Actuarial Cost Methods

Unit credit (accrued benefit) cost method as prescribed.

Asset Valuation Method Considerations

Assets for solvency purposes have been determined using market value.

Incremental Cost on a Hypothetical Wind Up Basis

The incremental cost on a Hypothetical Wind Up basis represents the present value, at the calculation date (time 0), of the expected aggregate change in the Hypothetical Wind Up liabilities between time 0 and the next calculation date (time t), adjusted upwards for expected benefit payments between time 0 and time t.

An educational note was published in December 2010 by the Canadian Institute of Actuaries' Committee on Pension Plan Financial Reporting to provide guidance for actuaries on the calculation of this new information.

The calculation methodology can be summarized as follows:

- The present value at time 0 of expected benefit payments between time 0 and time t, discounted to time 0,

  plus

- Projected Hypothetical Wind Up liabilities at time t, discounted to time 0, allowing for, if applicable to the pension plan being valued:
  - expected decrements and related changes in membership status between time 0 and time t,
  - accrual of service to time t,
  - expected changes in benefits to time t,
  - a projection of pensionable earnings to time t,

  minus

- The Hypothetical Wind Up liabilities at time 0.

The projection calculations take into account the following assumptions and additional considerations:

- The assumptions for the expected benefit payments and decrement probabilities, service accruals, and projected changes in benefits and/or pensionable earnings would be consistent with the assumptions used in the pension plan's going concern valuation.
- The assumptions used to calculate the projected liability at time t are consistent with the assumptions for the Hypothetical Wind Up liabilities at time 0, assuming that interest rates remain at the levels applicable at time 0, that the select period is reset at time t for interest rate assumptions that are select and ultimate and that the Standards of Practice for the calculation of commuted values and the guidance for estimated annuity purchase costs in effect at time 0 remain in effect at time t.
  - Active and inactive plan members as of time 0 are considered in calculating the incremental cost.

Appendix F: Summary of Plan Provisions

This funding valuation was based on plan design information provided by the Company as of January 1, 2014. The following is a summary of the main provisions of the Plan. The provisions listed below are not intended to be exhaustive. Certain provisions have been excluded from the summary below due to materiality.

Plan Provisions

Effective Date	January 1, 2000.
Jurisdiction of Registration	Ontario.
Eligibility for Membership	
Regular Employees	(a) All regular and probationary employees join the Plan on the date of hire; (b) Employees for whom the Office and Professional Employees International Union was the bargaining agent prior to July 30, 1982 joined the Plan in accordance with the Plan rules at the time of hire; and, (c) Employees who became continuing construction clerical employees after July 29, 1982 and before August 8, 1984 joined the Plan in accordance with the Plan rules at the time of hire.
Other Employees	Other employees, with the exception of construction trades, machinists, hotel and restaurant employees, and temporary Management Group employees who were not eligible to join on July 1, 2014 may join the Plan after completion of 24 months of continuous service, and either (a) earning 35% of the YMPE; or (b) having 700 hours of employment in each of the two preceding calendar years.

Normal Retirement

Eligibility	The attainment of age 65 (Age 60 for female employees hired before January 1, 1976 or any subsequent day when she in fact retires which is not later than her sixty-fifth birthday).
Benefit	Annual benefit equal to (a) minus (b) below: (a) 2.0% of Highest Three-Year Average Earnings times Credited Service, maximum 35 years (unless employee elects to contribute beyond 35 years and earn Credited Service). (b) 0.5% of Highest Five-Year Average Earnings up to the Average YMPE times Credited Service after December 31, 1965.

Early Retirement

Eligibility	(a) Attainment of 82 age-plus-continuous service points for Society and PWU represented employees or attainment of 84 age-plus-continuous service points for Management Group employees hired before July 1, 2014 or attainment of 90 age-plus-continuous service points for Management Group employees hired on or after July 1, 2014. (b) Age 55 with 25 years of continuous service. (c) A female employee whose continuous employment commenced prior to 1976 with age 50 and at least 15 years of continuous service or any other employee with age 55 and 15 years of continuous service, but less than 25 years of continuous service. (d) Age 55.

Early Retirement (continued)

Benefit

(a) Normal retirement benefit earned to early retirement date, unreduced for early commencement.

(b) Normal retirement benefit earned to early retirement date, reduced by 3% for each year that early retirement date precedes age 60.

(c) Normal retirement benefit earned to early retirement date, reduced by 2% for each year up to five years and 3% for each additional year that early retirement date precedes age 65 (age 60 for females hired prior to 1976).

(d) Normal retirement benefit earned to early retirement date, actuarially reduced for early commencement.

Supplement (Bridge Pension)

Eligibility

(a), (b), (c) and (d) as described under Early Retirement.

Benefit

0.625% of Highest Five-Year Average Earnings up to the Average YMPE times Credited Service (maximum 30 years), multiplied by the ratio 35/30 plus the number of years that the member contributed beyond 35 years, payable from early retirement date to age 65.

The supplement is subject to the same early retirement reductions as the lifetime pension.

Under (d), the lifetime pension plus the supplement are the actuarial equivalent of the defined benefit lifetime pension payable at age 65.

Disability Benefit

Eligibility	Qualification for benefits from an income replacement plan.
Benefit	Credited Service continues to accrue. Member required contributions cease. Base Annual Earnings prior to disability is indexed on an annual basis by 100% of the increase in CPI (Ontario) for the 12 month period ending on the preceding June 30th, subject to a maximum increase of 8% with carry forward provisions. Actual YMPE at retirement date is used (subject to maximum indexation provisions).

Termination of Employment

Eligibility	(a) Less than 25 years of continuous service and not a Management Group employee hired on or after July 1, 2014. (b) Management Group employee hired on or after July 1, 2014 with less than 25 years of continuous service. (c) Twenty-five or more years of continuous service.
Benefit	(a) Accrued Normal Retirement Benefit payable on an unreduced basis at the earlier of age 65, or the date the member attains 82 age-plus-service points (84 age-plus-service points for Management Group) holding service constant at termination, or as early as age 55 on an actuarially reduced basis or on some other date as determined in accordance with the rules pertaining to terminated members in effect upon termination of employment. (b) Accrued Normal Retirement Benefit payable at age 65, or as early as age 55 on an actuarially reduced basis. (c) Accrued Normal Retirement Benefit payable at age 65, or as early as age 55. The pension is reduced 0.25% for each month that Early Retirement Date precedes age 60.

Termination of Employment (continued)

For members other than Management Group employees hired on or after July 1, 2014, the pension is payable on an unreduced basis if the member has 82 age-plus-service points (84 age-plus-service points for Management Group hired before July 1, 2014) using age at retirement and service at termination.

In lieu of the deferred pension described in (a), (b) and (c) above, the member may be eligible to transfer the commuted value of the deferred pension to a locked-in RRSP or other retirement vehicle or be entitled to a refund of contributions.

Portions of the pre-1987 benefit may be taken as a cash payment by members.

Preretirement Survivor Benefit

Eligibility

(a) Less than 10 years of continuous service.

(b) Ten or more years of continuous service.

Benefit

(a) Commuted value of accrued Normal Retirement Pension.

(b) (i) Member with a Spouse

Greater of an immediate pension of 66-2/3% of accrued Normal Retirement Benefit, (with no early retirement reductions) or an immediate pension equivalent in value to the commuted value of the member's accrued Normal Retirement Pension.

In lieu of (i) the surviving spouse may elect a deferred pension equivalent in value to the commuted value of the member's accrued pension at the date of death or may elect to receive the commuted value of the accrued Normal Retirement Pension.

Preretirement Survivor Benefit (continued)

(ii) Member with Eligible Children but no Spouse.

Immediate pension of 66-2/3% of accrued Normal Retirement Benefit paid to the children until age 18 (longer if in school or disabled).

(iii) Member without a Spouse or Eligible Children.

Commuted value of accrued Normal Retirement Benefit.

Required Member Contributions

(a) For PWU represented employees: 5.0% of Base Annual Earnings up to the YMPE, and 7.0% of Base Annual Earnings in excess of the YMPE.

(b) For all Society employees and Management Group employees hired before July 1, 2014: 7.0% of Base Annual Earnings.

(c) For Management Group employees hired on or after July 1, 2014:

7.6% of Base Annual Earnings up to the YMPE and 9.5% of Base Annual Earnings in excess of the YMPE.

Maximum Pension

The benefits in respect of continuous employment after 1991 are limited to the maximum allowable under the *Income Tax Act*.

Excess Contributions

On retirement, death, or termination, the required member contributions made since January 1, 1987 with interest cannot provide more than 50% of the commuted value of the benefit earned for Credited Service after January 1, 1987.

In the event the required member contributions with interest provide more than 50% of the benefit, the excess will be refunded to the member or beneficiary.

Excess Contributions (continued)

On retirement, death, or termination of a member who was not represented by the PWU, the required member contributions made prior to December 31, 1986 with interest cannot exceed the commuted value of the benefits earned for Credited Service prior to December 31, 1986. The excess is refunded to the member (to the spouse, beneficiary or estate in the case of death).

Normal Form of Payment

Member without a Spouse or Dependent Children at Retirement	Life annuity with a guarantee of at least 60 monthly payments.
Member With a Spouse or Dependent Children at Retirement	Joint and 66-2/3% survivor annuity (no reduction for survivor benefit).

Indexation

Pensions to retired and deferred vested members (and their survivors) are increased each January 1st (while in payment or during the deferral period) by 100% of the increase in CPI (Ontario) for the 12 month period ending on the preceding June 30th, subject to a maximum increase of 8% with carry forward provisions.

Definitions

Base Annual Earnings	Member's Base Annual Earnings include Bonuses up to: ▪ a maximum of 5% of a member's base annual earnings for Management Group employees in Bands A to M; ▪ a maximum of 28% of a member's base annual earnings for Authorized Nuclear Operators; ▪ a maximum of 25.2% of a member's base annual earnings for Certified Unit 0 Control Room Operators; ▪ a monthly maximum of 28% of a member's base annual earnings divided by 12 for Society-represented control Room Shift Supervisors and Control Room Shift Operating Supervisors; ▪ a maximum of 21% of a member's base annual earnings for Society-represented Authorization Training Supervisors; and ▪ a maximum of 18.9% of a member's base annual earnings for Unit 0 Training Specialists who were formerly certified Unit 0 control Room Operators.
Highest Three-Year Average Earnings	The average of a member's Base Annual Earnings during the 36 consecutive months which gives the highest amount, up to the date of retirement, termination, or death.
Highest Five-Year Average Earnings	The average of a member's Base Annual Earnings during the 60 consecutive months which gives the highest amount, up to the date of retirement, termination, or death.

Definitions (continued)

Credited Interest	Average yield of five-year personal fixed term chartered bank deposits as determined under CANSIM B 14045 for the 12-month period ending June 30th.
Credited/Established Service	Credited service under the Prior Plan plus credited service while a member of the Plan on and after January 1, 2000, to a maximum of 35 years of credited service. Members may elect to contribute beyond 35 years and receive credited service.
Average YMPE	The Average YMPE (i.e., Year's Maximum Pensionable Earnings under the Canada/Quebec Pension Plan) during the 60 consecutive months when Base Annual Earnings were highest.

A copy of theletter from the Company certifying the accuracy and completeness of the plan provisions summarized in this report is included in Appendix G of this report.

Appendix G: Administrator Certification

With respect to the Ontario Power Generation Inc. Pension Plan, forming part of the actuarial report as at January 1, 2014, I hereby certify that, to the best of my knowledge and belief:

- The asset data provided or made available to the actuary is complete and accurate;
- The membership data and subsequent query answers provided or made available to the actuary are complete and accurate for all persons who are entitled to benefits under the terms of the Plan in respect of service up to the date of the valuation;
- The plan provisions provided or made available to the actuary are complete and accurate up to and including Amendment; and
- The actuary has been notified of all relevant events subsequent to the valuation measurement date.

Craig Halket
Name (print) of Authorized Signatory

V.P. - Total Rewards + Solutions Centre
Title

Signature

May 26, 2017
Date