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Frank D'Andrea
Vice President, Regulatory Affairs & Chief Risk Officer

BY RESS, EMAIL AND COURIER

October 17, 2019

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON M4P 1E4

Dear Ms. Walli,

EB-2019-0082 – Application for Transmission Revenue Requirement for 2020-2022 – Updated Interrogatory and Undertaking Responses

Hydro One Networks Inc. ("Hydro One") is filing updated undertaking responses and one updated interrogatory response for its application for transmission revenue requirement for 2020 to 2022.

Hydro One has filed an updated pension valuation as of December 31, 2018. The following interrogatory and undertakings have been updated as a result and are enclosed : JT-2.09, JT-2.31, JT-2.31-01, JT-2.32 and I-07-SEC-055. The updated pension valuation is provided as an attachment to JT-2.31.

Moreover, an updated JT1.14 is also enclosed which provides the 2018 NATF transmission reliability data.

This filing has been submitted electronically using the OEB's Regulatory Electronic Submission System and two (2) copies will be sent via courier.

Sincerely,

ORIGINAL SIGNED BY KATHLEEN BURKE ON BEHALF OF

Frank D'Andrea
Encls.
cc. EB-2019-0082 parties (electronic)

UNDERTAKING - JT 2.9

Reference:
I-07-SEC-055, part a)

Undertaking:
To produce a table similar to the one at SEC IR No. 55(a) to show capital reductions.

Response:
The following table outlines the capital reductions related to the Net Mercer Median table and is consistent with how the OM&A table was produced in SEC IR No. 55 (a).

Net Mercer Median Reductions Allocated to Capital ($M)	**2020**
Mercer Median - Tx Capital	28.5
Pension Reduction Capital	(3.0)
OPEB Increase Capital	1.7
Executive Comp. Reduction	(2.6)
The Directive	(0.3)
Total Net Mercer Capital Reductions	**24.3**
Updated Valuation Pension Reduction Capital	(4.2)
Updated Total Net Mercer Capital Reductions	**20.1**

- Mercer Median (+$28.5 million) is the Capital component of the transmission allocated portion of $38.6 million as stated above;

- The current revenue requirement reflects the reduced pension capital costs (-$3.0 million) due to the actuarial valuation of pension expenses completed by Willis Towers Watson (Exhibit F, Tab 5, Schedule 1 Attachment 1);

- The current revenue requirement reflects the updated OPEB capital costs, the allocation to Tx Capital results in an increase of (+$1.7 million) as a result of the latest valuation which is provided in Exhibit I, Tab 1, Schedule OEB-205;

- The current revenue requirement reflects the reduced executive compensation capital costs (-$2.6 million) identified in EB-2018-0130, Exhibit I, tab 7, schedule 3, page 2 to be in compliance with Bill 2; and

- As part of the blue-page update Hydro One further reduced its capital (-$0.3 million) by factoring the Ontario Government Directive issued on February 21, 2019 (“the Directive”), as discussed in Exhibit F, Tab 4, Schedule 1, page 35 and also identified in Exhibit F, Tab 1, Schedule 1, page 3.

- As a result of the updated pension valuation as of December 31, 2018, which Hydro One provided in the updated response to JT 2.31, pension capital costs are further reduced by (-$4.2 million).

UNDERTAKING - JT 2.31

Reference:

I-02-EnergyProbe-020
F-04-01, Appendix A

Undertaking:

To consider whether Hydro One can reasonably provide responsive information that's relevant in respect of the amount of the service cost ratio that Hydro One is contributing to the pension plan, to provide such further information, or if no such information exists, to advise.

Response:

The following is the difference between a 1:1 service cost ratio and the current (as per the updated valuation) service cost ratio for the period of 2020 – 2022 for the PWU plan.

	2020	2021	2022
PWU Difference between 1:1 and current Service Cost Ratio	$ 4.70M	$ 5.05M	$ 5.00M

Hydro One's significant gains in reducing pension costs are set out in Exhibit F, Tab 4, Schedule 1 pages 38 – 39.

Based on a market scan, Hydro One contribution costs are lower relative to other utilities. Hydro One filed an updated pension valuation report as of December 31, 2018 with FSRA on September 30, 2019 which is provided as Attachment 1 to this undertaking.

Hydro One intends to reflect the impact on revenue requirement as a result of the updated pension valuation.

Hydro One has updated the following evidence based on the updated pension valuation.

- Exhibit I, Tab 07, Schedule SEC-55
- Exhibit JT 2.9

HYDRO ONE INC.

HYDRO ONE PENSION PLAN

Actuarial Valuation as at December 31, 2018

September 19, 2019

Registration Number: 1059104

WillisTowersWatson

DISCLAIMERS

This document is an actuarial valuation report of a pension plan. It is technical in nature and the reader should seek expert advice to fully understand it. The actuarial results presented here are based on numerous economic and demographic assumptions as to future events. Emerging experience, differing from the assumptions, will result in gains or losses that will be revealed in future actuarial valuations.

This report is based on the terms of engagement listed in Appendix A.

This report is based on the premise that all the plan's assets, including any letters of credit, are available to meet the plan's liabilities included in this valuation.

This report is based on the premise that the plan remains a going concern. This report does not address the disposition of any surplus assets remaining in the event of plan windup. If an applicable pension regulator or other entity with jurisdiction directs otherwise, certain financial measures contained in this report, including contribution requirements, may be affected.

The results presented in this report have been developed using a particular set of actuarial assumptions. Other results could have been developed by selecting different actuarial assumptions. The results presented in this report are reasonable actuarial results based on actuarial assumptions reflecting our expectation of future events.

Future contribution levels may change as a result of future changes in the actuarial methods and assumptions, the membership data, the plan provisions and the legislative rules, or as a result of future experience gains or losses, none of which have been anticipated at this time.

The results were developed with various data as at the valuation date that were provided to us: plan membership data, plan assets data, plan provisions and statement of investment policy. Towers Watson Canada Inc. (“Willis Towers Watson”) has relied on these data after verifying them and assessing their reasonableness. However, Willis Towers Watson has not independently audited these data.

The information contained in this report was prepared for Hydro One Inc., for its internal use and for filing with the Pension Authorities, in connection with the actuarial valuation of the plan prepared by Willis Towers Watson. This report is not intended, nor necessarily suitable, for other parties or for other purposes. Furthermore, some results in this report are based on assumptions mandated by legislation. These results may not be appropriate for purposes other than those for which they were prepared. Willis Towers Watson is available to provide additional information with respect to this report to the above-mentioned intended users upon request.

The numbers in this report are not rounded. The fact that numbers are not rounded does not imply a greater level of precision than if the numbers had been rounded.

Definitions:

Pension Authorities means the Financial Services Commission of Ontario and the Canada Revenue Agency ("CRA").

Pension Legislation means the *Pension Benefits Act (Ontario)* and Regulation thereto and the *Income Tax Act (Canada)* and Regulations thereto ("ITA").

Table of Contents

Introduction

Purpose

This report with respect to the Hydro One Pension Plan has been prepared for Hydro One Inc., the plan administrator, and presents the results of the actuarial valuation of the plan as at December 31, 2018.

The principal purposes of the report are:

- to present information on the financial position of the plan on going concern, solvency and hypothetical windup bases;
- to provide the basis for employer contributions.

Significant Events since Previous Actuarial Valuation (December 31, 2017)

Effective May 14, 2018, a new policy asset mix was adopted by Hydro One. This policy will be implemented over the next several years, when the appropriate investment opportunities are available. Notably this includes a shift towards real-estate and infrastructure and the removal of specific regional equity and fixed income mandates. This report reflects the new policy asset mix.

In November 2018, an asset transfer application in respect of Customer Service Operations (CSO) employees who transferred from Inergi LP to Hydro One was filed with the Pension Authorities. At the time this report is being prepared, the application has not yet been approved by the Pension Authorities and therefore, the impact of the past service transfer of assets and liabilities has not been reflected in this report. A financial update as of December 31, 2018 in respect of the asset transfer, as required under section 12 of the Ontario Regulation 310/13, is included as an Addendum to this report.

There have been no changes to the plan provisions and actuarial standards having an impact on the valuation results. Changes to the going concern basis are described in Appendix C. Changes to the solvency basis are described in Appendix D.

Subsequent Events

We completed this actuarial valuation on July 30, 2019.

On May 21, 2019, amendments to the Pension legislation were released. These amendments are intended to clarify certain details related to the new funding framework that took effect on May 1, 2018. The impact of these amendments, notably as it relates to the definition of “open” plan in the calculation of the Provision for Adverse Deviations, has been reflected in this report.

In June 2019, a cost certificate effective January 1, 2019 was filed with the Financial Services Regulatory Authority of Ontario. The present report takes precedence over the January 1, 2019 cost certificate.

Except as noted above, to the best of our knowledge and on the basis of our discussions with Hydro One Inc., no events which would have a material financial effect on the actuarial valuation occurred between the actuarial valuation date and the date this actuarial valuation was completed.

Next Valuation

The next actuarial valuation of the plan must be performed with an effective date not later than December 31, 2021.

Section 1: Going Concern Financial Position

1.1 Statement of Financial Position

	December 31, 2018		December 31, 2017	
Going Concern Value of Assets	$	7,202,478,000	$	6,932,459,000
Actuarial Liability				
Active and disabled members	$	1,662,138,096	$	1,894,495,063
Retired members and beneficiaries		4,083,736,181		4,188,945,730
Terminated vested members		31,732,267		37,189,476
Total actuarial liability	$	5,777,606,544	$	6,120,630,269
Actuarial Surplus (Unfunded Actuarial Liability)	$	1,424,871,456	$	811,828,731
Prior Year Credit Balance		(48,000,000)		(48,000,000)
Actuarial Surplus (Unfunded Actuarial Liability) After Prior Year Credit Balance	$	1,376,871,456	$	763,828,731
Funded Ratio[1]		124%		112%
Provision for Adverse Deviations (PfAD)	$	350,805,224		N/A
Actuarial Surplus (Unfunded Actuarial Liability) After Prior Year Credit Balance and PfAD	$	1,026,066,232		763,828,731
Excess Actuarial Surplus[2]	$	0	$	0

Notes:

[1] After reflecting prior year credit balance.
[2] Considered to be nil if there is a hypothetical windup or solvency deficit.

Comment:

- The prior year credit balance is employer contributions made prior to the actuarial valuation date that are in excess of the minimum required and are set aside as a reserve for application towards future contribution requirements.

1.2 Reconciliation of Financial Position

Actuarial surplus (unfunded actuarial liability) as at December 31, 2017 before reflecting the Prior Year Credit Balance			$	811,828,731
Net special payments				0
Application of:				
■ Actuarial surplus	$	0		
■ Prior year credit balance		0		0
Expected interest on:				
■ Actuarial surplus (unfunded actuarial liability)	$	43,838,751		
■ Net special payments		0		
■ Application of actuarial surplus		0		
■ Application of prior year credit balance		0		43,838,751
Plan experience:				
■ Investment gains (losses)	$	132,768,855		
■ Salary and YMPE gains (losses)		9,968,737		
■ Retirement gains (losses)		(14,059,141)		
■ Withdrawal gains (losses)		(6,623,303)		
■ Mortality gains (losses)		(7,702,027)		
■ Gains (losses) from contractual pension increases		(16,001,483)		
■ Miscellaneous liability gains (losses)		(14,211,650)		84,139,988
Change in actuarial basis				485,063,986
Actuarial surplus (unfunded actuarial liability) as at December 31, 2018 before reflecting the Prior Year Credit Balance and PfAD			$	1,424,871,456

1.3 Contributions (Ensuing Year)

	December 31, 2018	December 31, 2017
Employer Normal Actuarial Cost		
Normal actuarial cost in respect of benefits	$ 113,346,619	$ 120,445,195
Provision for Adverse Deviations (PfAD)	6,671,594	N/A
Estimated member contributions	(53,554,752)	(49,552,747)
Employer normal actuarial cost	$ 66,463,461	$ 70,892,448
Estimated payroll	584,820,060	533,584,509
Employer normal actuarial cost as % of payroll	11.4%	13.3%

Reconciliation of Employer Normal Actuarial Cost Rule

Employer normal actuarial cost as a % of payroll at December 31, 2017	13.3 %
■ Changes in membership profile	(0.1)%
■ Changes in actuarial basis	(3.0)%
■ Change in the PfAD level	1.2 %
Employer normal actuarial cost as a % of payroll at December 31, 2018	11.4 %

1.4 Reconciliation of Prior Year Credit Balance (cash basis)

Prior year credit balance as at December 31, 2017		$ 48,000,000
Actual employer contributions:		
■ Employer normal actuarial cost	$ 75,042,000	
■ Going concern amortization payments	0	
■ Solvency amortization payments	0	
■ Transfer deficiency payments	0	
■ Prior year credit balance	0	
■ Other contributions	0	75,042,000
Minimum employer contributions required:		
■ Employer normal actuarial cost	$ (75,042,000)	
■ Going concern amortization payments	0	
■ Solvency amortization payments	0	
■ Transfer deficiency payments	0	
■ Other contributions	0	(75,042,000)
Application against unfunded actuarial liability		0
Prior year credit balance as at December 31, 2018		$ 48,000,000

Section 2: Solvency and Hypothetical Windup Financial Position

2.1 Statement of Solvency and Hypothetical Windup Financial Position

	December 31, 2018	December 31, 2017
Solvency Value of Assets		
Market value of assets	$ 7,208,634,000	$ 7,305,522,000
Provision for plan windup expenses	(7,000,000)	(7,000,000)
Total solvency value of assets	$ 7,201,634,000	$ 7,298,522,000
Solvency Liability		
Active and disabled members	$ 2,068,058,939	$ 2,172,760,741
Retired members and beneficiaries	4,433,823,741	4,334,621,102
Terminated vested members	37,708,259	40,324,067
Total solvency liability	$ 6,539,590,939	$ 6,547,705,910
Solvency Surplus (Unfunded Solvency Liability)	$ 662,043,061	$ 750,816,090
Prior Year Credit Balance	$ 48,000,000	$ 48,000,000
Solvency ratio	Not less than 100%	Not less than 100%
Value of excluded benefits	$ 3,256,931,443	$ 3,482,126,137
Total hypothetical windup liability	9,796,522,382	10,029,832,047
Hypothetical Windup Surplus (Unfunded Hypothetical Windup Liability)	$ (2,594,888,382)	$ (2,731,331,047)
Lesser of estimated employer contributions for the period until the next actuarial valuation and the prior year credit balance	48,000,000	48,000,000
Transfer ratio	73%	73%

	December 31, 2018	December 31, 2017
PBGF Information		
Ontario PBGF liability	$ 6,539,590,939	$ 6,547,705,910
Ontario asset ratio	Not less than 100%	Not less than 100%
Ontario portion of the fund	$ 7,208,634,000	$ 7,305,522,000
PBGF assessment base	$ 0	$ 0
Ontario additional PBGF liability	$ 0	$ 0

Comments:

- The solvency actuarial valuation results presented in this report are determined under a scenario where, following a plan windup, the employer continues its operations.
- The hypothetical windup valuation results presented in this report are determined under a scenario where, following a plan windup, the employer continues its operations.
- As the transfer ratio is less than 1.00, transfer deficiencies must be paid over a maximum period of five years unless the cumulative transfer deficiencies are within the limits prescribed by the Pension Legislation or the employer remits additional contributions in respect of the transfer deficiencies. Pursuant to Regulations 19(4) or 19(5) to the Pension Legislation, approval of the Chief Executive Officer will be required to make commuted value transfers if there has been a significant decline in the transfer ratio after the actuarial valuation date.

2.2 Determination of the Statutory Solvency Excess (Deficiency)

In calculating the statutory solvency excess (deficiency), various adjustments can be made to the solvency financial position.

	December 31, 2018	December 31, 2017
Solvency surplus (unfunded solvency liability)	$ 662,043,061	$ 750,816,090
Adjustments to solvency position:		
■ Present value of existing amortization payments	$ 0	$ 0
■ Smoothing of asset value	(6,156,000)	(373,063,000)
■ Adjustment to reflect reduced solvency deficiency[1]	991,252,410	N/A
■ Averaging of liability discount rate	(68,758,462)	201,718,938
■ Prior year credit balance	(48,000,000)	(48,000,000)
■ Total	$ 868,337,948	$ (219,344,062)
Statutory solvency excess (deficiency)	$ 1,530,381,009	$ 531,472,028

Note:

[1] Reflects 15% of the solvency liabilities based on the discount rates after averaging.

Section 3: Contributions

3.1 Estimated Minimum Employer Contribution (Ensuing Years)

Year	2019	2020	2021
Employer Normal Actuarial Cost (including the PfAD)	$ 66,463,461	$ 65,993,735	$ 65,248,200
Amortization Payments			
▪ Going concern	0	0	0
▪ Solvency	0	0	0
▪ Sub-total	$ 0	$ 0	$ 0
Application of Prior Year Credit Balance [1]	0	0	0
Application of available actuarial surplus	0	0	0
Estimated Minimum Employer Contribution	$ 66,463,461	$ 65,993,735	$ 65,248,200

Note:

1 As at the actuarial valuation date a $48,000,000 Prior Year Credit Balance exists, which may be applied to reduce Employer contributions in 2019, 2020 or 2021.

3.2 Estimated Maximum Employer Contribution (Ensuing Year)

	December 31, 2018
Employer Normal Actuarial Cost	$ 66,463,461
Greater of the Unfunded Actuarial Liability and the Unfunded Hypothetical Windup Liability	2,594,888,382
Estimated Maximum Employer Contribution	$ 2,661,351,843

3.3 Timing of Contributions

Employer normal cost and member contributions: monthly and within 30 days of the month to which they pertain.

Amortization payments: monthly before the end of the month to which they pertain (or replaced by an equivalent letter of credit), if applicable.

Adjustment to contributions made since the valuation date: within 60 days from the date that this report is filed with the Pension Authorities.

Section 4: Actuarial Opinion

In our opinion, for the purposes of the going concern, solvency and hypothetical windup valuations:

- the membership data on which the actuarial valuations are based are sufficient and reliable,
- the assumptions are appropriate, and
- the methods employed in the actuarial valuations are appropriate.

This report has been prepared, and our opinion has been given, in accordance with accepted actuarial practice in Canada. The actuarial valuations have been conducted in accordance with our understanding of the funding and solvency standards prescribed by the Pension Legislation.

Towers Watson Canada Inc.

Davis Gonsalves | Suzanne Jacques

Davis Gonsalves
Fellow of the Canadian Institute of Actuaries

Suzanne Jacques
Fellow of the Canadian Institute of Actuaries

Toronto, Ontario
September 19, 2019

Appendix A: Significant Terms of Engagement and Certificate of the Plan Administrator

A.1 Significant Terms of Engagement

For purposes of preparing this actuarial valuation report, the plan administrator has directed that:

- The actuarial valuation is to be prepared as at December 31, 2018.
- No margins for adverse deviations are to be used.
- For the purpose of determining the going concern discount rate, the investment policy dated May 14, 2018, which is the most up-to-date version, should be considered. There are no expectations that the target asset class distribution will be modified in the future.
- For purposes of determining the Provision for Adverse Deviations level as at December 31, 2018, the actual asset allocation based on the December 31, 2018 audited financial statements and additional information related to the investment categories provided directly by the plan administrator should be used.
- For purposes of determining the Provision for Adverse Deviations level, the plan is to be considered open to new entrants, as defined in the Pension legislation.
- The going concern value of assets is to be determined using the averaging technique described in the Asset Valuation Method section in Appendix C.
- The going concern valuation should use the projected unit credit actuarial cost method.
- For purposes of determining the solvency liabilities of the plan, certain benefits are to be excluded without requiring an election from the employer.
- The solvency and hypothetical windup valuation results are to be determined under a scenario where the employer continues to operate and certain expenses are paid from the pension fund (consistent with past practice) while the employer pays other plan expenses.
- This report is to be prepared on the basis that the employer is entitled to apply the available actuarial surplus, if any, to meet its contribution requirements under the plan.

Should these directions from the plan administrator be amended or withdrawn, Willis Towers Watson reserves the right to amend or withdraw this report.

A.2 Certificate of the Plan Administrator

I hereby certify that to the best of my knowledge and belief:

- the significant terms of engagement contained in Appendix A of this report are accurate and reflect the plan administrator's judgement of the plan provisions and/or an appropriate basis for the actuarial valuation of the plan;
- the information on plan assets, including the information on the investment policy and intended changes to the asset mix distribution after the valuation date, if any, forwarded to Towers Watson Canada Inc. and summarized in Appendix B of this report is complete and accurate;
- the data forwarded to Towers Watson Canada Inc. and summarized in Appendix E of this report are a complete and accurate description of all persons who are members of the plan, including beneficiaries who are in receipt of a retirement income, in respect of service up to the date of the actuarial valuation;
- the summary of plan provisions contained in Appendix F of this report is accurate;
- for purposes of determining the Provision for Adverse Deviations level, the fixed income allocation for each asset class shown in Appendix G is appropriate; and
- except as noted in the Introduction of the report, there have been no events which occurred between the actuarial valuation date and the date this actuarial valuation was completed that may have a material financial effect on the actuarial valuation.

[signature]	September 24, 2019
Signature	Date
Robert Cultraro	SVP, Chief Investment and Pension Officer
Name	Title

Appendix B: Assets

B.1 Statement of Market Value

	December 31, 2018	December 31, 2017
■ Total invested assets	$ 7,208,634,000	$ 7,305,522,000
Net outstanding amounts:		
■ Contributions receivable		
- Employer normal cost	$ 0	$ 0
- Members contributions	0	0
- Amortization payments	0	0
- Others	0	0
■ Benefits payable	0	0
■ Expenses and other payables	0	0
■ Total net outstanding amounts	$ 0	$ 0
Total Assets	$ 7,208,634,000	$ 7,305,522,000

Comment:

- The data relating to the invested assets are based on the financial statements issued by KPMG. The data relating to net outstanding amounts were furnished by Hydro One Inc.

B.2 Asset Class Distribution

The following table shows the target asset allocation stipulated by the plan's investment policy in respect of major asset classes and the actual asset allocation as at December 31, 2018.

	Target asset allocation	Actual asset allocation as at December 31, 2018
Global equities	40.0%	47.8%
Private equities	5.0%	2.7%
Real estate and infrastructure	20.0%	9.2%
Bonds and debentures	33.0%	38.3%
Cash and short-term investments	2.0%	2.0%
Total	100.0%	100.0%

B.3 Reconciliation of Invested Assets (Market Value)

Assets as at January 1, 2018			$ 7,305,522,000
Receipts:			
■ Contributions:			
- Employer normal actuarial cost	$ 75,042,000		
- Employer amortization payments	0		
- Member required contributions	52,525,000		
- Past service contributions	451,000		
- Provision for non-investment expenses	0		$ 128,018,000
■ Investment return, net of investment expenses			161,011,000
■ Total receipts			$ 289,029,000
Disbursements:			
■ Benefit payments:			
- Pension payments	$ (324,564,000)		
- Lump sum settlements	(34,403,000)		
- Other benefit payments	0		$ (358,967,000)
■ Non-investment expenses			(26,950,000)
■ Total disbursements			$ (385,917,000)
Assets as at December 31, 2018			$ 7,208,634,000

Comments:

- This reconciliation is based on the financial statements issued by KPMG.
- The rate of return earned on the market value of assets, net of all expenses, from December 31, 2017 to December 31, 2018 is approximately 1.9% per annum.

B.4 Development of the Going Concern Value of Assets

	Adjusted Market Value Beginning from:				
	December 31, 2014	**December 31, 2015**	**December 31, 2016**	**December 31, 2017**	**December 31, 2018**
Adjusted market value as at December 31, 2014	$ 6,311,204,000				
Net cash flow for 2015	(117,373,000)				
Assumed investment return	362,695,000				
Adjusted market value as at December 31, 2015	6,556,526,000	$ 6,745,869,000			
Net cash flow for 2016	(182,014,000)	(182,014,000)			
Assumed investment return	349,203,000	359,427,000			
Adjusted market value as at December 31, 2016	6,723,715,000	6,923,282,000	$ 6,909,437,000		
Net cash flow for 2017	(235,047,000)	(235,047,000)	(235,047,000)		
Assumed investment return	350,209,000	360,786,000	360,052,000		
Adjusted market value as at December 31, 2017	6,838,877,000	7,049,021,000	7,034,442,000	$ 7,305,522,000	
Net cash flow for 2018	(230,949,000)	(230,949,000)	(230,949,000)	(230,949,000)	
Assumed investment return	363,146,000	374,493,000	373,706,000	388,345,000	
Adjusted market value as at December 31, 2018	$ 6,971,074,000	$ 7,192,565,000	$ 7,177,199,000	$ 7,462,918,000	$ 7,208,634,000
Going Concern Value of Assets					
Average of the five adjusted market values as at December 31, 2018					$ 7,202,478,000
Net outstanding amounts					0
Going concern value of assets as at December 31, 2018					$ 7,202,478,000

Comment:

- The rate of return earned on the going concern value of assets, net of all expenses, from December 31, 2017 to December 31, 2018 is approximately 7.4% per annum.

Appendix C: Actuarial Basis - Going Concern Valuation

C.1 Methods

Asset Valuation Method

The going concern value of assets was calculated as the average of the market value of invested assets at the valuation date and the four previous years' adjusted market values. The market values at December 31 of each of the four preceding years were accumulated to the valuation date with net cash flow (i.e., contributions less benefit payments) and assumed investment return. Net cash flow was assumed to occur uniformly throughout each year. Assumed investment return for a year was calculated assuming that each year, the assets earned interest at the going concern discount rate in effect for that year. Finally, this 5-year average of adjusted market values was then adjusted for net outstanding amounts.

The objective of the asset valuation method is to produce a smoother pattern of going-concern surplus (deficit) and hence a smoother pattern of contributions, consistent with the long-term nature of a going concern valuation.

Such smoothing is achieved by use of an averaging process which systematically recognizes investment returns different from expectations over a 5-year period, with 20% recognized at the valuation date and the remainder at a rate of 20% per year. This method will be expected to average periods of outperformance with periods of underperformance.

The expected return of the going concern discount rate has been selected to equal the expected return on the assets over long periods of time, with a margin for adverse deviations. As such, it is anticipated that, on average, the asset valuation method will tend to produce a result that is somewhat less than the market value of assets.

Actuarial Cost Method

The actuarial liability and the normal actuarial cost were calculated using the projected unit credit cost method (benefit accrual).

C.2 Actuarial Assumptions

	December 31, 2018	December 31, 2017
Economic Assumptions (per annum)		
Liability discount rate	6.00%	5.40%
Rate of inflation	2.00%	Same
Rate of salary increase	2.50% plus Merit and Promotion (see Table 1)[1]	2.50% plus Merit and Promotion (see Table 1)[2]
Escalation of YMPE under Canada/Québec Pension Plan[3]	3.00%	Same
Escalation of *Income Tax Act (Canada)* maximum pension limit[4]	3.00%	Same
Interest on members' contributions	2.00%	Same
Demographic Assumptions		
Mortality	95% of the 2014 Private Sector Canadian Pensioners' Mortality Table, projected generationally using Scale CPM-B	Same
Retirement from active membership	Age and service related rates (see Table 2)	Same
Pension commencement after termination of employment	Age 65	Same
Withdrawal	Age-related rates (see Table 3)	Same
Disability incidence/recovery	Age-related rates (see Table 4)	Same
Other		
Percentage of members with an eligible spouse at pension commencement and electing joint and survivor pension form	90%	Same
Years male spouse older than female spouse	3	Same
Provision for non-investment expenses	None; return on plan assets is net of all expenses	Same

Notes:

[1] For PWU members for 2019 and 2020, 1.5% p.a. increase plus merit and promotion (per applicable collective bargaining agreement).

[2] For Society for 2018, 0.5% increase plus merit and promotion (per applicable collective bargaining agreement).

[3] The YMPE of $57,400 for 2019 is the starting value for the YMPE projection as at the current actuarial valuation and is indexed starting in 2020.

[4] The *Income Tax Act (Canada)* maximum pension limit of $3,025.56 per year of service in 2019 is the starting value for maximum pension limit projection as at the current valuation and is indexed starting in 2020.

Table 1 — Merit and Promotion Scale

Age	First 4 Years of Employment	Subsequent Years
Under 25	7.5%	2.0%
25 - 29	5.5%	2.0%
30 - 34	3.5%	2.0%
35 - 39	3.5%	1.5%
40 – 44	3.5%	1.5%
45 - 49	2.0%	1.0%
50 - 54	2.0%	1.0%
55 - 59	1.0%	0.5%
60 & over	1.0%	0.0%

Table 2 — Retirement Rates

	Eligible for Unreduced Retirement		
Age	Based on points (82 or 85)	35 years of service and over	Not Eligible for Unreduced Retirement
Under 55	10%	30%	0%
55 to 59	15%	30%	5%
60 to 64	12%	30%	7%
65	50%	30%	20%
66 to 69	25%	30%	15%
70 and over	100%	100%	100%

Table 3 — Withdrawal Rates

Service (years)	Male & Female
Under 20	1%
20 and over	0%

Table 4 — Sample Disability Rates

Age	Male & Female
Under 25	0.100%
25	0.100%
30	0.105%
35	0.110%
40	0.115%
45	0.120%
50	0.295%
55	1.000%
60 and above	1.878%

C.3 Rationale for Actuarial Assumptions

The rationale for the material actuarial assumptions used in the going concern valuation is summarized below.

The going concern assumptions do not include margins for adverse deviations as a separate Provision for Adverse Deviations has been applied to the actuarial liability and normal actuarial cost.

Liability discount rate

The assumption is an estimate of the expected long-term return on plan assets adjusted as follows:

■ Expected long-term return on plan assets before adjustments	6.06 %
■ Investment management fees	(0.04)%
■ Adjustment for non-investment expenses paid by the plan	(0.07)%
■ Rounding effect	0.05 %
■ Expected long-term return on plan assets after adjustments and margin	6.00 %

Rate of inflation

Estimate of future rates of inflation considering economic and financial market conditions at the valuation date.

Rate of salary increase

■ Assumed rate of inflation per annum	2.00%
■ Effect of real economic growth and productivity gains in the economy	0.50%
■ Individual employee merit and promotion based on a scale which varies by age and service	
■ Total rate of salary increase	2.50% plus Merit and Promotion (see Table 1)

Escalation of YMPE under C/QPP and ITA limit

Indexed annually based on increases in the Industrial Aggregate Wage index for Canada, assumed to be a rate of inflation of 2.00% per annum, plus 1.00% per annum for the effect of real economic growth and productivity gains in the economy.

Mortality

Base mortality rates from the CPM2014Priv table, with a multiplier of 95% based on a review of the experience of the plan's actual mortality experience over the period 2007-2015 are considered reasonable for the actuarial valuation. Applying improvement scale CPM-B generationally provides allowance for improvements in mortality after 2014 and is considered reasonable for projecting mortality experience into the future.

Retirement from active membership

The rates of retirement were developed based on a review of plan experience for the years 2007 to 2015 and an assessment of future expectations. All members are assumed to commence their pension at retirement date.

Pension commencement after termination of employment

All terminated members are assumed to commence their pension at the age that produces the highest liability.

Withdrawal

The rates of withdrawal were developed based on a review of plan experience for the years 2007 to 2015 and an assessment of future expectations.

Percentage of involuntary terminations of employment

No allowance has been made for involuntary terminations of employment since assuming otherwise would not have a material impact on the actuarial valuation results.

Disability incidence/recovery

The rates of disability incidence/recovery are based on a prior assessment performed by Mercer (Canada) Limited. The use of a different assumption would not have material impact on the actuarial valuation results.

Percentage of members with an eligible spouse at pension commencement and electing joint and survivor pension form

When provided, the actual data for the spouse and form of payment were used for retired members. For other members, the assumed percentage of members with a spouse is based on the percentages for the general population and an assessment of future expectations for members of the plan.

Years male spouse older than female spouse

When provided, the actual data for the spouse were used for retired members. For other members, the assumption is based on surveys of the age difference in the general population, a review of plan data for the years 2007 to 2015, and an assessment of future expectations for members of the plan.

Provision for non-investment expenses

The liability discount rate is net of all expenses. The assumed level of expenses reflected in the liability discount rate is based on recent experience of the plan and an assessment of future expectations.

Appendix D: Actuarial Basis - Solvency and Hypothetical Windup Valuations

D.1 Methods

Asset Valuation Method

The market value of assets, adjusted for net outstanding amounts, has been used for the solvency and windup valuations. The resulting value has been reduced by a provision for plan windup expenses.

The adjustment in respect of the smoothing of solvency assets for purposes of determining the statutory solvency deficiency was calculated as the difference between the going concern value of assets used for the going concern valuation and the market value of assets.

Liability Calculation Method

The solvency and hypothetical windup liabilities for members were calculated using the traditional unit credit cost method.

Other Considerations

The solvency and hypothetical windup valuations have been prepared on a hypothetical basis. In the event of an actual plan windup, the plan assets may have to be allocated between various classes of plan members or beneficiaries as required by applicable Pension Legislation. Such potential allocation has not been performed as part of these solvency and hypothetical windup valuations.

D.2 Solvency Incremental Cost Actuarial Method

To calculate the Solvency Incremental Cost ("SIC"), we used the same method as for the solvency valuation.

No new entrants have been considered on the basis that such assumptions would not have a material impact on the SIC. The benefits and members' contributions were projected using the going concern valuation assumptions and the plan provisions.

We adjusted the expected settlement method at the end of the projection period to reflect demographic evolution. Regardless of that change, we used the discount rate applicable to the settlement method at the valuation date for each member.

The liability discount rates (before averaging) are assumed to remain at their current level over the projection period.

D.3 Actuarial Assumptions

	December 31, 2018	December 31, 2017
Economic Assumptions (per annum)		
Liability discount rate		
■ Annuity purchase (non-indexed)	3.20%	3.10%
■ Annuity purchase (fully-indexed)	0.08%	-0.13%
■ Annuity purchase (partially-indexed)[1]	0.85%	0.68%
■ Commuted value transfer (non-indexed)	3.20% for 10 years, 3.40% thereafter	2.60% for 10 years, 3.40% thereafter
■ Commuted value transfer (fully-indexed)	1.70% for 10 years, 1.80% thereafter	1.40% for 10 years, 1.60% thereafter
■ Commuted value transfer (partially-indexed)[1]	2.07% for 10 years, 2.17% thereafter	1.70% for 10 years, 2.00% thereafter
Liability discount rate (after averaging for solvency)		
■ Annuity purchase	3.14%	3.37%
■ Commuted value transfer	2.52% for 10 years, 3.56% thereafter	2.48% for 10 years, 3.80% thereafter
Discount rate for determining amortization payments	N/A	Same
Escalation of *Income Tax Act* (Canada) maximum pension limitation [2]	1.14% for 10 years, 1.91% thereafter	1.10% for 10 years, 2.04% thereafter
Demographic Assumptions		
Mortality	CPM2014 Canadian Pensioners' Mortality Table, projected generationally using Scale CPM-B	Same
Retirement/pension commencement	Described in section D.4	Same

	December 31, 2018	**December 31, 2017**
Other		
Percentage of members with an eligible spouse at pension commencement and electing joint and survivor pension form	90%	Same
Years male spouse older than female spouse	3	Same
Percentage of members receiving settlement by commuted value transfer [3]	Retired members and beneficiaries: 0% Other members: ■ Not eligible for retirement: 60% ■ Eligible for retirement: 20%	Same
Provision for expenses		
■ Solvency and Hypothetical windup	$7,000,000	Same

Notes:

1 Applicable to New Society and New Management members only.

2 The *Income Tax Act (Canada)* maximum pension limit is $3,025.56 per year of service in 2019 and is indexed starting in 2020.

3 The balance are assumed to receive settlement by annuity purchase.

D.4 Rationale for Actuarial Assumptions

The rationale for the material actuarial assumptions used in the solvency and hypothetical windup valuations is summarized below.

The actuarial assumptions used in the solvency and hypothetical windup valuations do not include margins for adverse deviations.

Liability discount rate

Portion of the solvency and hypothetical windup liabilities expected to be settled by a group annuity purchase: based on the CIA annuity purchase guidance applicable at the valuation date which corresponds to an approximation of the annuity purchase rate. The duration of the liabilities assumed to be settled through the purchase of non-indexed annuities is 11.9.

Portion of the solvency and hypothetical windup liabilities expected to be settled by commuted value transfer: determined in accordance with the *Standards of Practice for Pension Commuted Values* in effect at the valuation date.

Liability discount rate for solvency (after averaging)

The average discount rates for calculation of the statutory solvency deficiency are based on the following:

- Benefits that are expected to be settled by a group annuity purchase, the average of the annualized approximate annuity purchase rates at December 31, 2018 and the four previous year-ends[1], determined as follows:

December 31, 2014	3.18%
December 31, 2015	3.10%
December 31, 2016	3.10%
December 31, 2017	3.10%
December 31, 2018	3.20%
Average	3.14%

Note:

[1] The approximate annuity purchase interest rates prior to October 1, 2015 have been adjusted to reflect the change in the mortality table assumption applicable to the determination of liabilities settled by group annuity purchase.

- Benefits that are expected to be settled by commuted value transfers, the average of the interest rates determined under the *Standards of Practice for Pension Commuted Values,* published by the Canadian Institute of Actuaries, at December 31, 2018 and the four previous year-ends[1], determined as follows:

	Rate for 10 years	Rate after 10 years
December 31, 2014	2.50%	3.80%
December 31, 2015	2.10%	3.70%
December 31, 2016	2.20%	3.50%
December 31, 2017	2.60%	3.40%
December 31, 2018	3.20%	3.40%
Average	2.52%	3.56%

Note:

[1] The *Standards of Practice for Pension Commuted Values* effective on December 31, 2018 are assumed to have always been in effect when determining the interest rates prior to October 1, 2015.

Escalation of *Income Tax Act (Canada)* maximum pension limitation

The maximum pension limitation under the Income Tax Act (Canada) is scheduled to be indexed annually based on assumed increases in the Industrial Aggregate Wage index. This assumption has been determined as the underlying inflation rates from the rates applicable to benefits expected to be settled by commuted value transfers (after averaging for solvency). For simplicity, this assumption has also been used for the benefits that are expected to be settled by a group annuity purchase.

Pre-retirement and Post-retirement pension increases

For the solvency valuation, as permitted under the Pension Legislation, post-retirement pension increases are assumed to be nil. For the hypothetical windup valuation, the assumption has been determined by applying the post-retirement increase provision specified in the plan to the inflation assumption.

Mortality

For the benefits that are expected to be settled by a group annuity purchase: based on CIA annuity purchase guidance.

For benefits that are expected to be settled by commuted value transfer: prescribed table. No pre-retirement mortality has been assumed in order to approximate the value of pre-retirement death benefits.

Retirement/pension commencement

For active and disabled members:

- Members eligible to retire: pension commences at the age that produces the highest actuarial value (including statutory grow-in rights).
- Members with age plus continuous service greater than or equal to 55 years: pension commences at the age that produces the highest actuarial value of pension (including statutory grow-in rights).
- Other members: age that produces the highest actuarial value.

For deferred vested members:

- Members are assumed to retire at the earliest age at which they qualify for an unreduced pension.

For the benefits that are expected to be settled by a group annuity purchase, this is consistent with the expected assumption that will be used by insurers to price the group annuity. For benefits that are expected to be settled by commuted value transfers, this assumption is in accordance with the Canadian Institute of Actuaries' Standards of Practice for Pension Commuted Values.

Percentage of members with an eligible spouse at pension commencement and electing joint and survivor pension form

See rationale for going concern assumptions in Appendix C.

Years male spouse older than female spouse

See rationale for going concern assumptions in Appendix C.

Percentage of members receiving settlement by commuted value transfer

This assumption has been determined by considering the benefit provisions of the plan, legislative requirements to offer specific settlement options to various classes of members, and, in particular, the options to be provided to members upon plan windup.

The assumption also reflects the expectation that members further from retirement are more likely to elect to settle their pension benefit by a commuted value transfer, while members closer to retirement are more likely to elect to settle their pension benefit through a group annuity purchase where this option is available. In addition, the assumption reflects past plan experience for terminating and retiring members.

Provision for expenses

Allowance was made for normal administrative, actuarial, legal and other costs which would be incurred if the plan were to be wound up (excluding costs relating to the resolution of surplus or deficit issues). The actuarial valuation is premised on a scenario in which the employer continues to operate after the windup date. In establishing the allowance for plan windup costs, certain administrative costs were assumed to be paid from the pension fund (consistent with past practice) while other costs were assumed to be borne directly by the employer.

Appendix E: Membership Data

	December 31, 2018	December 31, 2017
Active members		
■ Number	5,417	5,165
■ Average age	43.8	43.7
■ Average service	11.9	12.6
■ Annual payroll	$ 573,175,762	$ 548,752,740
■ Average salary	$ 105,811	$ 106,244
■ Accumulated contributions with interest	$ 400,687,906	$ 381,013,270
Disabled members		
■ Number	182	143
■ Average age	53.3	54.2
■ Average service	18.7	22.3
■ Annual payroll	$ 16,744,522	$ 12,955,921
■ Average salary	$ 92,003	$ 90,601
■ Accumulated contributions with interest	$ 11,946,420	$ 9,899,469
Retired members		
■ Number	5,775	5,698
■ Average age	71.9	71.6
■ Total annual pension	$ 261,518,671	$ 250,806,450
■ Average annual pension[1]	$ 45,285	$ 44,017
■ Total temporary annual pension	$ 21,738,013	$ 21,816,672
Beneficiaries and Survivors		
■ Number	1,717	1,751
■ Average age	81.1	81.4
■ Total annual pension	$ 46,592,190	$ 46,336,455
■ Average annual pension[1]	$ 27,136	$ 26,463
■ Total temporary annual pension	$ 344,094	$ 351,395

		December 31, 2018		December 31, 2017
Terminated vested members				
■ Number		302		305
■ Average age		53.7		54.2
■ Total annual pension[2]	$	3,038,183	$	3,080,065
■ Average annual pension	$	10,060	$	10,099

Notes:

[1] Excluding temporary annual pension.

[2] Prior to application of Income Tax Act maximum pension limits.

The following distribution relates to active and disabled members. The following meanings have been assigned to:

- Age: Age as at December 31, 2018
- Credited Service: Credited service as at December 31, 2018
- Earnings: Pensionable earnings for the year beginning January 1, 2019

		Credited Service								
Age		*0 - 4*	*5 - 9*	*10 - 14*	*15 - 19*	*20 - 24*	*25 - 29*	*30 - 34*	*35 +*	*Total*
< 25	Number	42								42
	Average Earnings	84,431								84,431
25 - 29	Number	339	59							398
	Average Earnings	91,997	97,185							92,766
30 - 34	Number	355	561	127						1,043
	Average Earnings	91,068	104,178	109,839						100,405
35 - 39	Number	207	359	356	22					944
	Average Earnings	92,228	104,701	111,347	121,683					104,868
40 - 44	Number	151	185	213	116	1				666
	Average Earnings	86,011	111,479	109,575	116,637	*				*
45 - 49	Number	117	116	177	68	8	49	1		536
	Average Earnings	93,056	109,799	114,077	118,620	125,441	112,855	*		*
50 - 54	Number	95	94	153	91	12	210	161		816
	Average Earnings	89,642	105,980	109,810	114,431	126,092	117,518	110,849		109,964
55 - 59	Number	75	80	121	91	11	114	223	31	746
	Average Earnings	89,170	115,637	105,968	113,125	135,158	109,903	114,558	116,391	110,222
60 - 64	Number	36	39	64	44	6	43	48	47	327
	Average Earnings	90,734	108,265	107,969	110,287	*	108,463	108,201	118,425	*
65 +	Number	5	8	18	11		4	17	18	81
	Average Earnings	83,518	106,951	111,716	100,185		125,881	123,168	111,647	111,026
Total	Number	1,422	1,501	1,229	443	38	420	450	96	5,599
	Average Earnings	90,659	106,207	110,386	114,978	133,883	114,060	112,913	116,498	105,362

Average Age = 44.1 Average Credited Service = 12.1

Review of Membership Data

The membership data were supplied by Hydro One Inc's third-party administrator, Morneau Shepell, as at December 31, 2018.

Elements of the data review included the following:

- ensuring that the data were intelligible (i.e., that an appropriate number of records was obtained, that the appropriate data fields were provided and that the data fields contained valid information);
- preparation and review of membership reconciliations to ascertain whether the complete membership of the plan appeared to be accounted for;
- review of consistency of individual data items and statistical summaries between the current actuarial valuation and the previous actuarial valuation;
- review of reasonableness of individual data items, statistical summaries and changes in such information since the previous actuarial valuation date; and
- comparison of the membership data and the plan's financial statements for consistency.

However, the tests conducted as part of the membership data review may not have captured certain deficiencies in the data. We have also relied on the certification of the plan administrator as to the quality of the data.

Membership Reconciliation

	Actives	Disabled	Terminated vested	Retired	Beneficiaries and survivors	Total
As at December 31, 2017	5,165	143	305	5,698	1,751	13,062
■ New entrants (including re-employed)	299	0	0	0	0	299
■ Transfers from Inergi LP	242	30	0	0	0	272
■ From disabled	6	(6)	0	0	0	0
■ To disabled	(31)	31	0	0	0	0
■ Terminated (with lump sum payment)	(43)	0	(10)	0	0	(53)
■ Termination (with vested pension entitlement)	(32)	0	32	0	0	0
■ Retirement	(186)	(14)	(23)	223	0	0
■ Deceased (without beneficiary)	(1)	(2)	0	(57)	(132)	(192)
■ Deceased (with beneficiary)	(2)	0	(1)	(89)	92	0
■ New ex-spouse	0	0	0	0	3	3
■ Data corrections	0	0	(1)	0	3	2
■ Net change	252	39	(3)	77	(34)	331
As at December 31, 2018	5,417	182	302	5,775	1,717	13,393

Appendix F: Summary of Plan Provisions

The following is an outline of the principal features of the plan which are of financial significance to valuing the plan benefits. This summary is based on the plan document as at November 7, 2016 and amendments up to and including the valuation date, as provided by Hydro One Inc. It is not a complete description of the plan terms and should not be relied upon for administration or interpretation of benefits. For a detailed description of the benefits, please refer to the plan document.

F.1 DB Provisions

Membership

The following categories of employees are members of the Pension Plan:

a) All regular employees (see Note 1a and Note 1b);

b) Employees for whom the Office and Professional Employees International Union was the bargaining agent prior to July 30, 1982;

c) Continuing construction employees who were members admitted to the Ontario Electricity Financial Corporation Pension Plan and its predecessors;

d) Employees who became continuing construction clerical employees after July 29,1982 and before August 8, 1984;

e) Employees who have completed three months of continuous employment as a probationary employee (see Note 1a and Note 1b).

Note 1a: Management employees hired on or after January 1, 2004 and Society represented employees hired on or after November 17, 2005 are eligible after completing three months of continuous employment but are not required to join the Pension Plan.

Note 1b: Management employees who were not eligible to elect to become a member of the Pension Plan on or after September 30, 2015 are no longer eligible to join the Pension Plan.

Any other employee who has completed twenty-four months of continuous employment and who has at least 700 hours of employment or earnings of 35% of the Year's Maximum Pensionable Earnings ("YMPE"), as defined under the Canada Pension Plan in each of the two previous consecutive calendar years, may elect to become a member of the Pension Plan.

Normal Retirement Date

a) Female members whose continuous employment commenced prior to January 1, 1976: The first day of the month when she in fact retires, coincident with or next following the attainment of age 60 or any subsequent month up to the month coincident with or next following her 65th birthday.

b) All other members: The first day of the month coincident with or next following the attainment of age 65.

Amount of Accrued Pension

Life Pension

a) 2% of the member's "high three-year average" (see Note 6) for each year of credited service, subject to a maximum of 35 years (see Note 2 and Note 3).

Note 2: For Management employees hired on or after January 1, 2004, and Society represented employees hired on or after November 17, 2005 the reference to "high three-year average" is changed to "high five-year average" for pensionable service while a Management or Society-represented employee.

Note 3: For members represented by PWU and the Society, for service accrued after March 31, 2025 for current employees and new hires, the benefit calculated will be determined using "high five-year average" (updated from "high three-year average" used for service accrued until March 31, 2025) as outlined in the respective collective agreements.

LESS

b) 0.625% of the member's "high five-year average" up to the "average YMPE" (see Note 6) for each year of credited service included in (a) above subsequent to December 31, 1965, subject to a maximum of 35 years – see Note 4.

Note 4: Effective July 1, 2001, for members of the PWU, and effective January 1, 2004, for Society represented members hired before November 17, 2005; the factor is reduced from 0.625% to 0.50%.

Bridge Pension (see Note 5)

0.625% of the member's "high five-year average" up to the "average YMPE" (see Note 6) for each year of credited service included in (a) above, subject to a maximum of 30 years, multiplied by 35, and divided by 30. This is generally payable until age 65.

The bridge benefit is reduced for early retirement in accordance with the same early retirement reduction provision applicable to the early retirement life pension described below.

Note 5: For Management employees hired on or after January 1, 2004 and Society represented employees hired on or after November 17, 2005, no bridge pension is payable for pensionable service while a Management or Society-represented employee. Effective January 1, 2018, Society represented employees hired on or after November 17, 2005 will be entitled to a bridge benefit equal to 0.625% up to the average YMPE for each year of service from January 1, 2018 onward while the member is earning a benefit under the basic formula.

Note 6: "High three-year average"/ "high five-year average" is the average of the member's base annual earnings plus bonuses up to a set percentage during the 36/60 consecutive months when the base earnings were highest. For earnings after 1999, the percentage of bonus under the performance achievement plan included in pensionable earnings is 50%. The "average YMPE" is the average of the YMPE's during the 60 consecutive months when the base earnings were highest.

Early Retirement

Age Plus Service (See Note 7 and Note 8)

A member may retire prior to the normal retirement date without any reduction in the accrued pension, if the sum of the member's age and years of continuous employment is equal to or greater than 82 or the member has 35 years of continuous employment, whichever occurs first (see Note 7).

Note 7: For Management employees hired on or after January 1, 2004 and Society represented employees hired on or after November 17, 2005, retirement without reduction is available when the sum of the employee's age and years of pensionable service is equal to or greater than 85 or the employee has 35 years of pensionable service, whichever occurs first.

Note 8: For members represented by PWU, for service accrued after March 31, 2025, the early retirement criteria for an unreduced pension will be changed from the sum of the employee's age and years of pensionable service is equal to or greater than 82 to the 85 as outlined in the collective agreement.

25 or More Years of Continuous Employment (see Note 9)

A member who does not qualify for the early retirement provisions above who is at least age 55 and has 25 or more years of continuous employment may retire prior to age 60, in which case the member's accrued pension is reduced by 3% for each year by which early retirement precedes age 60. These reductions also apply to members who elected a deferred pension when they left the Pension Plan and had 25 or more years of continuous employment.

Female Members with More Than 15 Years or Other Members with 15 or More Years but Less than 25 Years of Continuous Employment (see Note 9)

A female member whose continuous employment commenced prior to 1976 with at least 15 years of continuous employment, or any other member with 15 or more years but less than 25 years of continuous employment, who does not qualify for any of the previously mentioned early retirement provisions, may retire within 10 years of normal retirement date. In such a case the member's accrued pension is reduced by 2% for each year up to five years and 3% for each additional year by which the early retirement date precedes the member's normal retirement date.

These reductions apply with respect to a female member whose employment commenced prior to 1976 and who has a deferred pension and at least 25 years of continuous employment at retirement. For any other members who have a deferred vested pension and have fewer than 25 years of continuous employment and are at least age 55 when they request that the pension payments begin, the deferred vested pension will be actuarially reduced (unless the member was eligible for an unreduced early retirement provision in effect when the member terminated active employment).

Other Members

A member, who does not qualify under any of the previously mentioned early retirement provisions, may retire within 10 years of normal retirement date. If the retirement occurred prior to July 1, 2012, the member is also required to have at least two years of Pension Plan membership. In such a case, the pension is the actuarial equivalent of the member's deferred pension provided that the reduction shall not be less than the minimum early retirement reduction required under the *Income Tax Act* (Canada).

Terminated Members with Deferred Pensions

A terminated member with a deferred pension may retire under any of the previously mentioned provisions for early retirement without reduction provided that such provision was in effect on the date of termination. In addition, if the member's employment is terminated on or after July 1, 2012, the member may be eligible for grow-in benefits under the *Pension Benefits Act* (Ontario) ("PBA"), resulting in the member being entitled to early retirement benefits under the Pension Plan that the member would not otherwise be eligible to receive on the date of termination.

Note 9: For Management employees hired on or after January 1, 2004 and Society represented employees hired on or after November 17, 2005 all references to "continuous employment" are to be replaced with "pensionable service" for service while a Management or Society-represented employee.

Postponed Retirement

Members who work past their normal retirement date shall continue to accrue benefits until December 1st of the calendar year they reach age 71 (or the Income Tax Act age limit, if different), they reach the 35 year service limit, or they terminate employment, whichever occurs first. If a member reaches 35 years of service and ceases contributions to the Pension Plan, service after 35 years is not counted in the calculation of the member's pension, but the pension is calculated using the member's base earnings up to the date of postponed retirement. If the member works past age 71, the member's pension will commence to be paid not later than December 1st of the year in which the member turns age 71.

Pension Increases

Pension increases of 100% (see Note 10) of the increase in the Consumer Product Index ("CPI") (Ontario), for the 12-month period ending in June of the previous year , will be given every January 1 to pensioners, beneficiaries and terminated employees with deferred pensions to an annual maximum of 8% each year after 1999. Any excess will be carried forward to use in future years up to the 8% limit.

Note 10: For Management employees hired on or after January 1, 2004 and Society represented employees hired on or after November 17, 2005, pension increases of 75% CPI (Ontario) for the 12-month period ending in June of the previous year will be given every January 1, to an annual maximum increase of 6%, with no carry forward.

Disability

A totally disabled employee receives benefits from an income replacement plan and ceases to contribute to the Pension Fund, but continues to accrue credited service. For this member, the base annual earnings for pension purposes are deemed to be increased by the same percentage increases described for pensions above.

Employee Contributions

Members represented by the Management hired on or after January 1, 2004 contribute at the following rates until they complete 35 years of credited service (see Note 11):

Up to and including March 31, 2018,

i. 7.75% of base annual earnings up to the YMPE; and
ii. 9.75% of base annual earnings in excess of the YMPE;

On and after April 1, 2018,

i. 8.25% of base annual earnings up to the YMPE; and
ii. 10.75% of base annual earnings in excess of the YMPE;

up to the limits established by the Income Tax Act.

Members represented by the Management hired before January 1, 2004 contribute at the following rates until they complete 35 years of credited service (see Note 11):

Up to and including March 31, 2018,

iii. 8.00% of base annual earnings up to the YMPE; and
iv. 10.00% of base annual earnings in excess of the YMPE;

On and after April 1, 2018,

iii. 8.75% of base annual earnings up to the YMPE; and
iv. 11.25% of base annual earnings in excess of the YMPE;

up to the limits established by the Income Tax Act.

Members represented by the Society hired on or after November 17, 2005 contribute at the following rates until they complete 35 years of credited service (see Note 11):

Up to and including March 31, 2018,

v. 7.75% of base annual earnings up to the YMPE; and

vi. 9.75% of base annual earnings in excess of the YMPE;

On and after April 1, 2018,

v. 8.25% of base annual earnings up to the YMPE; and

vi. 10.75% of base annual earnings in excess of the YMPE;

up to the limits established by the Income Tax Act.

Members represented by the Society hired before November 17, 2005 contribute at the following rates until they complete 35 years of credited service (see Note 11):

Up to and including March 31, 2018,

vii. 8.25% of base annual earnings up to the YMPE; and

viii. 10.25% of base annual earnings in excess of the YMPE;

On and after April 1, 2018,

vii. 8.75% of base annual earnings up to the YMPE; and

viii. 11.25% of base annual earnings in excess of the YMPE;

up to the limits established by the Income Tax Act.

Note 11: For Society represented members hired before November 17, 2005, contributions increase by 0.5% in the event that after January 1, 2004 a valuation report reveals that the solvency assets are lower than 106% of the solvency liabilities. Effective April 1, 2018 this clause is no longer applicable.

Members represented by the PWU contribute at the following rates until they complete 35 years of credited service:

On and after December 31, 2017,

ix. 8.75% of base annual earnings up to the YMPE; and

x. 11.25% of base annual earnings in excess of the YMPE;

up to the limits established by the Income Tax Act.

Death Before Retirement

No Surviving Spouse or Eligible Dependent Children

Fewer than two years of Pension Plan membership (Deaths prior to July 1, 2012)

The member’s beneficiary or estate receives a cash refund of the member’s contributions plus interest.

Two or more years of Pension Plan membership

The beneficiary or estate will receive the following:

- For pre-1987 service: a cash refund of the member's contributions plus interest.
- For post-1986 service: a lump sum equal to the commuted value of the member's pension earned since 1986, plus a refund of any excess contributions.

For deaths occurring on or after July 1, 2012, the beneficiary or estate will be entitled to the death benefits described above regardless of the member's length of service.

Surviving Spouse (see Note 12)

Fewer than two years of Pension Plan membership and less than 10 years of continuous employment

The beneficiary or estate receives a cash refund of the member's contributions plus interest.

Fewer than two years of Pension Plan membership and more than 10 years of continuous employment

The surviving spouse receives an immediate pension of 66.67% of the member's accrued pension earned to the date of death.

More than two years of Pension Plan membership, but less than 10 years of continuous employment

For pre-1987 service: The beneficiary or estate receives a cash refund of the member's contributions plus interest.

For post-1986 service:

- The beneficiary or estate receives a refund of any excess member contributions; and
- The surviving spouse chooses either:
    a. a lump-sum payment equal to the commuted value of the pension earned after 1986, or
    b. an immediate or deferred pension with a commuted value equal to pension earned after 1986.

More than two years of Pension Plan membership, and more than 10 years of continuous employment

For pre-1987 service: The surviving spouse receives an immediate pension of 66.67% of the member's accrued pension earned prior to 1987.

For post-1986 service:

- The beneficiary or estate receives a refund of any excess member contributions; and
- The surviving spouse chooses either:
- a lump-sum payment equal to the commuted value of the pension earned after 1986, or
- an immediate or deferred pension with a commuted value equal to pension earned after 1986. The immediate pension will not be less than 66.67% of the pension earned after 1986.

Note 12: For deaths occurring on or after July 1, 2012, the surviving spouse's entitlement to death benefits for post-1986 service shall be determined without reference to whether the member had more or less than two years of Pension Plan membership. In addition, for deaths occurring on or after July 1, 2012, if the surviving spouse is entitled to the death benefits in respect of the member's post-1986 service, the surviving spouse is also entitled to an amount equal to the member's contributions, with interest, in respect of pre-1987 service, rather than the designated beneficiary or estate.

Dependent Children, No Surviving Spouse

If the member completed 10 years of continuous employment, the survivor's pension is payable to the surviving spouse until death or, if there is no eligible spouse, to the dependent children until age 18 (longer if disabled or in full-time attendance at a school or university). The total benefits paid are subject to a minimum of the member's contributions with interest. A payment of the commuted value of the member's deferred pension less the commuted value of the pension payable to any dependent children is made to the beneficiary or estate.

Death After Retirement

A survivor's pension, being an amount equal to 66.67% of the pension to which the member would have been entitled, is payable on death after retirement to the surviving spouse, subject to other options chosen at the time of retirement. If the survivor spouse subsequently dies and is survived by the dependent children, or the member does not have a surviving spouse and is survived only by dependent children, the 66.67% survivor pension is split among the dependent children and is payable to age 18 (longer if disabled or in full-time attendance at a school or university).

If the member does not have a surviving spouse at retirement, the normal form of pension is a pension payable for life with a guarantee of 60 payments.

Optional forms of pension are available on an actuarially equivalent basis.

Termination of Employment (see Note 14)

Less Than One Year of Pension Plan Membership

A cash refund of the member's contributions plus interest.

More Than One Year But Fewer Than Two Years of Pension Plan Membership

The member is entitled to elect a cash refund of the member's contributions plus interest, or may leave the earned pension benefit in the Pension Plan to be paid upon retirement.

More Than Two Years but fewer than 10 Years of Pension Plan Membership and, either under Age 45, or Fewer Than 10 Years of Continuous Employment

For pre-1987 service: the member is entitled to a cash refund of the member's contributions plus interest, or may leave all of the earned pension benefit in the Pension Plan until retirement.

For post-1986 service: the member is entitled to leave all of the earned pension benefit in the Pension Plan until retirement; or to transfer (see Note 13) the commuted value of the earned pension.

More Than Two Years but fewer than 10 Years of Pension Plan Membership, and Age 45 or Older with More Than 10 Years of Continuous Employment

For pre-1987 service: the member is entitled to leave all of the earned pension benefit in the Pension Plan until retirement; or to transfer (see Note 13) 75% of the commuted value of the pension and receive a refund of 25% of the commuted value of your earned pension; or to leave 75% of the earned pension benefit in the Pension Plan until retirement, and receive a refund of 25% of the commuted value of the earned pension.

For post-1986 service: the member is entitled to leave all of the earned pension benefit in the Pension Plan until retirement; or to transfer (see Note 13) the commuted value of the earned pension.

More Than 10 Years of Pension Plan Membership, But Younger Than Age 45

For service from 1965 to 1986: the member is entitled to a cash refund of the member's contributions plus interest; or to leave all of the earned pension benefit in the Pension Plan until retirement; or to leave 75% of the earned pension benefit in the Pension Plan until retirement and receive a refund of 25% of the commuted value of the earned pension.

For post-1986 service: the member is entitled to leave all of the earned pension benefit in the Pension Plan until retirement; or to transfer (see Note 13) the commuted value of the earned pension.

More than 10 Years of Pension Plan Membership and Age 45 or Older

For pre-1965 service: the member is entitled to a cash refund of the member's contributions plus interest; or to leave all of the earned pension benefit in the Pension Plan until retirement; or to leave 75% of the earned pension benefit in the Pension Plan until retirement and receive a refund of 25% of the commuted value.

For service from 1965 to 1986: the member is entitled to leave all of the earned pension benefit in the Pension Plan until retirement; or to leave 75% of the earned pension benefit in the Pension Plan until retirement and receive a refund of 25% of the commuted value; or to transfer (see Note 13) the greater of the commuted value of 75% of the earned pension or the member's contributions with interest and receive a refund of 25% of the commuted value of the earned pension.

For post 1986 service: the member is entitled to leave all of the earned pension benefit in the Pension Plan until retirement; or to transfer the commuted value of the earned pension.

If a member is terminated on or after July 1, 2012, the member may be eligible for grow-in benefits under the PBA, which could result in the member being entitled to early retirement benefits under the Pension Plan that the member would not otherwise be eligible to receive on the date of termination. If grow-in benefits apply, this may affect the value of the benefits the member is entitled to receive on termination of employment or retirement.

Note 13: Amounts must be transferred to a pension fund related to another pension plan, a prescribed retirement savings arrangement, or a life annuity which does not commence before the earliest date on which the member would have been entitled to retire.

Note 14: In respect of terminations occurring on or after July 1, 2012, a member is entitled to the earned pension benefits for all service regardless of length of Pension Plan membership, continuous employment or age.

Excess Contributions

Upon the earliest of termination of employment, death or retirement, the amount by which the member's post-1986 contributions with interest exceed 50% of the commuted value of the vested deferred pension accrued after 1986 is refunded to the member (or to the spouse, beneficiary or estate, as applicable in the case of death before retirement).

Upon termination of employment, if a member who has attained age 45 and completed 10 or more years of continuous employment elects to fully divest the pension accrued prior to 1987, the member is entitled to receive the amount by which the contributions with interest made after 1964 but prior to 1987 exceeds the commuted value of the pension accrued after 1964 but prior to 1987. (See Note 15)

Note 15: For terminations occurring on or after July 1, 2012, entitlement to excess contributions in respect of pre-1987 service shall be determined without reference to age or years of continuous employment.

Maximum Benefits

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

Appendix G: Sensitivity Analysis and Other Disclosures

G.1 Sensitivity Information

Amounts determined with a discount rate 1% lower:

Going concern actuarial liability	$ 6,604,180,023
■ As percent increase	14.3%
Solvency actuarial liability	$ 7,463,167,347
■ As percent increase	14.1%
Total normal actuarial cost in respect of benefits	$ 148,002,361
■ As percent increase	30.6%
Employer normal actuarial cost as a percentage of payroll	16.3%

G.2 Solvency Incremental Cost

Solvency Incremental Cost (up to next valuation date)	$ 587,004,649

G.3 Provision for Adverse Deviations Level

Actual Asset Allocation for Fixed Income Assets

The information below as at December 31, 2018 has been used to determine the Provision for Adverse Deviation level.

	Actual asset allocation	Fixed income allocation	Non-fixed income allocation	Fixed income weight
Asset classes				
- Global Equities	47.78%	0%	47.78%	0%
- Private Equities	1.93%	0.965%	0.965%	50%
- Venture Capital	0.73%	0.365%	0.365%	50%
- Real estate and Infrastructure	9.23%	4.615%	4.615%	50%
- Bonds and debentures (below minimum rating)	0.01%	0.005%	0.005%	50%
- Bonds and debentures	38.31%	38.31%	0%	100%
- Cash & short-term investments	2.01%	2.01%	0%	100%
Total	100%	46.27%	53.73%	

Benchmark Discount Rate

Components	Rate
CANSIM V39056	2.18%
Risk Premium on Non-Fixed Income Assets[1]	2.69%
Risk Premium on Fixed Income Assets[2]	0.69%
Diversification Allowance	0.50%
Benchmark Discount Rate	6.06%

Note:

[1] 5.00% of the non-fixed proportion of the assets.

[2] 1.50% of the fixed proportion of the assets.

Provision for Adverse Deviations Level

Components	Provision for Adverse Deviation level
Fixed	4.00%
Asset mix based	3.37%
Benchmark discount rate based[1]	0.00%
Provision for Adverse Deviations Level[2]	7.37%

Notes:

[1] Reflects going concern discount rate less benchmark discount rate (subject to a minimum of zero), multiplied by the going concern liabilities duration (refer to sub-section G.1)

[2] The Provision for Adverse Deviations is applied to the going concern actuarial liability and total normal cost, excluding any portion for future indexation.

Hydro One Inc.
Hydro One Pension Plan
Addendum to the Actuarial Valuation as at December 31, 2018
Registration Number: 1059104

This addendum has been prepared in conjuction with the actuarial valuation of the Plan as at December 31, 2018 and is intended to satisfy the requirements of section 12 of the Ontario Regulation 310/13 to the *Pension Benefits Act (Ontario)* in connection with the application as of March 1, 2018 for the transfer of assets and liabilities of the following pension plans to the Plan:

- Inergi LP Customer Service Operations Pension Plan (“Inergi CSO Plan”), Registration Number 1285733; and
- the Vertex Customer Management (Canada) Limited Pension Plan (“Vertex Plan”), Registration Number 1099993.

As of the date of filing this valuation report regulatory approval from the Chief Executive Officer of the Financial Services Regulatory Authority of Ontario of the transfer of assets and liabilities described above is pending. As such, the purpose of this addendum is to provide a financial update of the transfer of assets and liabilities as of December 31, 2018 on a going concern and solvency valuation basis.

Methods and Assumptions

A summary of the methods and assumptions used to develop the amounts herein, can be found in Appendicies C and D of this actuarial valuation report.

Assets

Information relating to the Plan assets can be found in Appendix B of this actuarial valuation report. Information relating to the assets for the Inergi CSO Plan and Vertex Plan was provided by Aon Consulting Inc. on August 14, 2019 and August 20, 2019, respectively.

Membership Data

A summary of the data for the Plan can be found in Appendix E of this actuarial valuation report. For the Inergi CSO Plan and Vertex Plan, the data was provided by AON Consulting Inc. for the purposes of preparing the March 1, 2018 asset transfer valuation report and was adjusted to reflect known retirements and terminations between March 1, 2018 and December 31, 2018. A summary of the membership data can be found on page 3 of this addendum.

Plan Provisions

A summary of the plan provisions can be found in the March 1, 2018 asset transfer actuarial valuation report.

December 31, 2018 Financial Update

The going concern and solvency results at December 31, 2018 are provided below.

	December 31, 2018		
	Inergi CSO Plan	**Vertex Plan**	**Hydro One Pension Plan (Post Transfer)[2]**
Going Concern Position			
Going concern value of assets	$ 19,614,791	$ 85,582,264	$7,307,675,055
Going concern liability	$ 12,641,339	$ 75,483,106	$5,865,730,989
Actuarial Surplus (Unfunded Actuarial Liability)	$ 6,973,452	$ 10,099,158	$1,441,944,066
Funded Ratio	155%	113%	125%
Provison for Adverse Deviation (PfAD)	$ 737,161	$ 4,201,742	$ 355,744,127
Prior Year Credit Balance (PYCB)	0	0	(48,000,000)
Actuarial Surplus (Unfunded Actuarial Liability) After PYCB and PfAD	$ 6,236,291	$ 5,897,416	$1,038,199,940
Solvency Financial Position			
Solvency value of assets	$ 19,614,791	$ 85,582,264	$7,306,831,055[1]
Solvency liability	$ 17,136,299	$ 92,647,303	$ 6,649,374,541
Solvency Surplus (Unfunded Solvency Liability)	$ 2,478,492	$ (7,065,039)	$ 657,456,514
Prior Year Credit Balance	$ 0	$ 0	$ (48,000,000)
Solvency ratio	Not less than 100%	92%	Not less than 100%

Notes:

[1] Reflects $7,000,000 of assumed windup expenses.

[2] For convience, the going concern and solvency position of the Plan post transfer is also shown.

Summary of Membership Data

	Inergi CSO Plan	Vertex Plan
Active Members		
Number	240	223
Average Age (years)	46.3	46.7
Average Credited Service (years)	2.5	9.8
Average Salary	$ 70,526	$ 72,587
Disabled Members		
Number	23	16
Average Age (years)	54.1	54.2
Average Credited Service (years)	9.0	11.4
Average Salary	$ 72,956	$ 75,411
Deferred Vested Members		
Number	9	22
Average Age (years)	47.3	48.2
Average Annual Accrued Pension	$ 2,991	$ 7,667
Retired Members		
Number	17	49
Average Age (years)	61.2	64.3
Average Annual Pension In Pay	$ 2,894	$ 33,817
Outstanding Commuted Values		
Number	N/A	26
Total outstanding commuted values	N/A	$ 4,237,246

Actuarial Information Summary

See the instructions for completing this form. If an item does not apply, enter N/A.

Part I – Plan Information and Contributions

A. 001. Name of registered pension plan
Hydro One Pension Plan

B. 002. Registration number
Canada Revenue Agency: 1059104 Other:

C. 003. Is this plan a designated plan? ☐ Yes ☑ No

D. 004. Valuation date of report Year Month Day: 2018 12 31

E. 005. End date of period covered by report Year Month Day: 2021 12 30

F. 006. Purpose of the report (indicate all reasons for which the report was prepared)

☐ Initial report for a newly established plan
☑ Regular (triennial or annual) report for an ongoing plan
☐ Interim report in respect of an amendment to an ongoing plan
☐ Partial termination
☐ Termination
☐ Conversion
☐ Other (explain)

G. Contributions (prior to application of any credits or surplus) for covered period

Periods (see instructions)	Period 1	Period 2	Period 3	Period 4
007. Period start date (YYYY-MM-DD)	2019-01-01	2020-01-01	2021-01-01	
008. Period end date (YYYY-MM-DD)	2019-12-31	2020-12-31	2021-12-30	
Normal cost (defined benefit provision) 009. Members	53,554,752	52,850,402	51,617,771	
010. Employer	66,463,461	65,993,735	65,248,200	
010a. Explicit expense allowance included in employer normal cost above				
Normal cost (money purchase provision) 011. Members				
012. Employer				
Special payments Special payments for going-concern unfunded liability and solvency deficiency 013. Employer	0	0	0	
013a. Members	0	0	0	
Fixed contributions 014. Estimated dollar amounts of fixed employer and, if applicable, member contributions (defined benefit provision)				
014a. Estimated dollar amounts of fixed employer and, if applicable, member contributions (money purchase provision)				

Part II – Membership and Actuarial Information

H. Membership information	Number	Average age	Average pensionable service	Average salary	Average annual pension
015. Active members	5,599	44.10	12.10	105,362	N/A
016. Retired members	7,492	74.00	N/A	N/A	41,125
017. Other participants	302	53.70	N/A	N/A	10,060

I. Actuarial basis for going-concern valuation (see instructions)

020. Asset valuation method

☐ Market ☑ Smoothed Market ☐ Book ☐ Book and Market combination ☐ Other (specify)

021. Liability valuation method

☑ Accrued benefit (unit credit) ☐ Entry age normal ☐ Individual level premium ☐ Aggregate ☐ Attained Age

☐ Other (specify)

I. Actuarial basis for going-concern valuation (continued)

Selected actuarial assumptions

Where a flat rate is used, enter the rate under Ultimate rate and N/A under Initial rate and Number of years.

Valuation interest rate	Initial rate (%)	Number of years	Ultimate rate (%)
025. Active members	N/A	N/A	6.00
026. Retired members	N/A	N/A	6.00
027. Rate of indexation	N/A	N/A	2.00
028. Rate of general wage and salary increase	N/A	N/A	2.50
029. YMPE escalation rate	N/A	N/A	3.00
030. Income Tax Regulations' maximum pension limit escalation	N/A	N/A	3.00
031. Rate of CPI increase	N/A	N/A	2.00

032. Components of going-concern valuation interest rate on line **025** and/or **026**

a) Expected investment return on plan assets, excluding additional return from active investment management .... 6.06 %

b) Expected additional return from active investment management .... 0.00 %

c) Expected expenses paid from the fund for active investment management .... 0.00 %

d) Expected investment expenses other than those reported on line **032 (c)** .... -0.04 %

e) Other expected expenses including administrative expenses .... -0.07 %

f) Effect of rebalancing and diversification, if any .... 0.00 %

g) Margins for adverse deviations .... 0.00 %

h) Other components .... 0.05 %

i) Net going concern valuation interest rate .... 6.00 %

035. Year Income Tax Regulations' maximum pension limit escalation commences 2019

036. Mortality table

☐ 1994 GAM Static ☐ 1994 Group Annuity Reserving (GAR) ☐ 1994 UP ☐ 80% of 1983 GAM ☐ CPM2014

☐ CPM2014Publ ☑ CPM2014Priv ☐ Other (specify) ________

036a. Improvement scale

Has a projection of mortality improvement been made? .... ☑ Yes ☐ No

i) Has an assumption of generational mortality improvements been made? .... ☑ Yes ☐ No

ii) If applicable, what is the year in which the mortality improvements have been projected? .... ____

iii) Which scale have you used?

☐ Scale AA ☑ Scale CPM-B ☐ Scale CPM-B1D2014 ☐ Other (specify) ________

036b. Adjustment to the mortality table

i) Has an adjustment to the mortality table been made? .... ☑ Yes ☐ No

ii) If **yes**, which percentage did you apply to .... Male 0.95 Female 0.95

037. Allowance for promotion, seniority, and merit increases

☐ Included in (line **028**) above ☑ Separate scale based on age or service ☐ No allowance

038. Allowance for expenses

038a. Allowance for investment expenses

☑ Implicit ☐ Explicit ☐ Both explicit and implicit

038b. Allowance for administrative expenses

☑ Implicit ☐ Explicit ☐ Both explicit and implicit

039. If a multi-employer plan, number of hours of work per member per plan year .... ____

040. Was a withdrawal scale used? .... ☑ Yes ☐ No

041. Were variable retirement rates used? .... ☑ Yes ☐ No

042. If **no**, what is the assumed retirement age? .... ____

J. Actuarial basis for solvency valuation

Valuation interest rate	Initial rate (%)	Select period	Ultimate rate (%)
045. Benefits to be settled by lump sum transfer	3.20	10	3.40
046. Benefits to be settled by purchase of deferred annuity	N/A	N/A	3.20
047. Benefits to be settled by purchase of immediate annuity	N/A	N/A	3.20
048. Rate of indexation	N/A	N/A	N/A

049. Mortality table

Lump sum: ☐ 1994 UP Generational ☐ CPM2014Priv ☑ CPM2014 ☐ CPM2014Publ ☐ Other (specify) ______

Annuity Purchase: ☐ 1994 UP Generational ☐ CPM2014Priv ☑ CPM2014 ☐ CPM2014Publ ☐ Other (specify) ______

049a. Improvement scale used

Lump sum: ☐ Scale AA ☑ Scale CPM-B ☐ Scale CPM-B1D2014 ☐ Other (specify) ______ ☐ None

Annuity Purchase: ☐ Scale AA ☑ Scale CPM-B ☐ Scale CPM-B1D2014 ☐ Other (specify) ______ ☐ None

K. Balance sheet information (DB provisions, see instructions)

050. Market value of assets, adjusted for receivables and payables	7,208,634,000
051. Amount of contributions receivable included in market value above	0
Going-concern valuation	
052. Going-concern assets	7,202,478,000
053. Optional ancillary contributions account balance included in going-concern assets above for a flexible pension plan (if applicable)	0
Going-concern liabilities	
060. For active members	1,662,138,096
061. For retired members	4,083,736,181
062. For other participants	31,732,267
063. For optional ancillary benefits to be provided under a flexible pension plan (if applicable)	0
064. Reserves	
064a. Expenses	0
064b. Ad-hoc indexing	0
064c. Provision for adverse deviation	350,805,224
064d. Other (Specify) ______	
070. Net funded position—surplus/deficit	1,074,066,232
071. Additional voluntary contributions	0
072. Money purchase assets (if applicable)	0

Solvency valuation

Complete lines **080** to **100** only if the report contains an explicit solvency valuation

Solvency assets	
080. Solvency assets with adjustment for expense provision, if any	7,201,634,000
081. Amount of wind-up expense provision reflected in line **080**	7,000,000
082. Optional ancillary contributions account balance included in solvency assets above for a flexible pension plan (if applicable)	
Solvency liabilities	
090. For active members	2,068,058,939
091. For retired members	4,433,823,741
092. For other participants	37,708,259
093. For optional ancillary benefits to be provided under a flexible pension plan (if applicable)	0
094. Reserves	
094a. Expenses	0
094b. Other (Specify) ______	
100. Net solvency position—surplus/deficit	662,043,061
101. Incremental cost	587,004,649

If the plan provides benefit increases coming into effect during the period covered by the report but after the valuation date, have those increases been reflected in:

102. The going-concern liabilities in lines **060** to **064**? ☐ Yes ☐ No ☑ N/A

103. The solvency liabilities in lines **090** to **094**? ☐ Yes ☐ No ☑ N/A

Discount rate sensitivity

	Change in percentage using discount rate 1% lower	Change in amount using discount rate 1% lower	Change in amount using discount rate 1% higher
104. Going-concern liabilities	14.30	826,573,479	
105. Normal cost	30.60	34,655,742	
106. Solvency liabilities	14.10	923,576,408	

107. Duration of the portion of the liabilities assumed to be settled through the purchase of annuities: 11.90

L. Actuarial gains or losses

110. Was a gain/loss analysis done? ☑ Yes ☐ No

111. If line **110** is **yes**, indicate the date of the last filed funding valuation report and the net funded position as of that date: Year 2017 Month 12 Day 31 — 811,828,731

If line **110** is **yes**, indicate amount of gain or loss due to:

112. interest on surplus (unfunded liability)	43,838,751
113. special payments made	0
114. amount used for contribution holiday	0
115. change in actuarial assumptions	485,063,986
116. change in the asset valuation method	0
117. change in liability valuation method	0
118. plan amendments/changes	0
119. investment experience	132,768,855
120. retirement experience	(14,059,141)
121. mortality experience	(7,702,027)
122. withdrawal experience	(6,623,303)
123. salary increase experience	9,968,737
124. optional ancillary contributions forfeited	

Are there major contributing sources other than lines **112** to **124** above (if **yes**, specify)

125. contractual pension increases	(16,001,483)
126. Provision for Adverse Deviation	(350,805,224)
127. all other sources (combined)	(14,211,650)

M. Subsequent events

135. Are there any subsequent event(s) that have not been reflected in the valuation? (refer to SOP) ☐ Yes ☑ No

N. Statements of opinion

136. Does the report include the statements of opinion required by the SOP (data, assumptions, methods, accepted actuarial practice)? ☑ Yes ☐ No

136a. Are any of the actuary's statements of opinion qualified? ☐ Yes ☑ No

Part III – Information required by the Financial Services Commission of Ontario

O. Additional valuation information

For purposes of Part III, the Regulation refers to the Regulation 909, R.R.O. 1990, as amended except as otherwise provided.

Going-concern valuation

137. Are benefits under the pension plan provided by an annuity purchase? ☐ Yes ☑ No

138. If line **137** is **yes**,

a) Enter the total asset value of the buy-in annuities as reported in the actuarial valuation report

b) Enter the total liabilities related to the buy-in annuities as reported in the actuarial valuation report

c) Enter the total asset value of the non-discharged buy-out annuities as reported in the actuarial valuation report

d) Enter the total liabilities related to the non-discharged buy-out annuities as reported in the actuarial valuation report

e) Have any annuities been discharged under OPBA section 43.1 since last valuation date? ☐ Yes ☐ No

If yes,

i) How many annuity discharge transactions have been made since the last valuation date?

ii) Enter the total premium of the buy-out annuities if the purchase was made since the last valuation date

iii) Enter the going-concern liabilities related to the annuity discharge at the time of purchase.

iv) Enter the top-up contributions required as per section 4 of Ontario Regulation 193/18.

139.1. Is the plan required to report the amount of Available Actuarial Surplus? ☑ Yes ☐ No

i) If **yes**, enter the amount of Available Actuarial Surplus: 0

139.2. Breakdown of the total special payyments with respect to the going-concern unfunded liability and plan amendment

Special payments with respect to:	Period 1	Period 2	Period 3	Period 4	Present value of the special payments on the going-concern basis
Going-concern unfunded liability 139.2a Members	0	0	0		0
139.2b Employer	0	0	0		0
Plan amendment 139.2c Members	0	0	0		0
139.2d Employer	0	0	0		0

Provision for Adverse Deviations

139.3. Is the Provision for Adverse Deviations of the plan zero or deemed to be zero? ☐ Yes ☑ No

If **no**, complete lines **139.4** to **139.9**

139.4. Is the plan closed as determined in subsection 11.2(2) component A of the Regulation? ☐ Yes ☑ No

139.5 Combined target asset allocation for fixed income assets as determined in subsection 11.2(4) component J of the Regulation: 46.27 %

139.6 Plan's duration of going-concern liabilities in subsection 11.2(5) of the Regulation: 15.00

139.7 Total Provision for Adverse Deviation (%): 7.37 %

139.8 Amount of Provision for Adverse Deviation included normal cost (line **9**, **10** and **10a**): 6,671,594.00

139.9. a) Does the plan provide future escalated adjustments? ☑ Yes ☐ No

If **139.9(a)** is **yes,**

b) Are the future costs of escalated adjustments included in the calculation of the Provision for Adverse Deviation amounts on lines **064c** and **139.8**? ☐ Yes ☑ No

If **139.9(b)** is **no,**

c) Enter the going-concern liability related to the future escalated adjustments: ,017,698,491

d) Enter the normal cost related t o the future escalated adjustments: 22,822,962

Solvency valuation

140.1 If line **137** is **yes**,

a) Enter the total asset value of the buy-in annuities as reported in the actuarial valuation report ....

b) Enter the total liabilities related to the buy-in annuities as reported in the actuarial valuation report ....

c) Enter the total asset value of the non-discharged buy-out annuities as reported in the actuarial valuation report ....

d) Enter the total liabilities related to the non-discharged buy-out annuities as reported in the actuarial valuation report ....

e) If line **138(e)** is **yes**,
i) Enter the solvency liabilities related to the discharge at the time of purchase..........

140.2. Enter the total value of any reduced solvency deficiency payments (or solvency deficiency payments if applicable) that are guaranteed by letter(s) of credit..........

140.3 Enter the expiry date of the letter of credit, if any .... Year Month Day

140.4 Solvency asset adjustment .... -6,156,000

140.5 Solvency liability adjustment.......... -68,758,462

140.6 Reduced solvency deficiency.......... 991,252,410

140.7 Solvency ratio as per the Regulation (express in decimal format) 1.0900

140.8 Components of the solvency special payments on lines **013** and **013a**

Special payments with respect to reduced solvency deficiency	Period 1	Period 2	Period 3	Period 4	Present value of the special payments on the solvency basis
140.8a Members	0	0	0		0
140.8b Employer	0	0	0		0

141. Have any of the excludable benefits been excluded?.......... ☑ Yes ☐ No ☐ N/A

142. If line **141** is **yes**, enter the total amount of liabilities being excluded 3,256,931,443

144. (i) Has an averaging method been applied to the market value of assets in determining the solvency asset adjustment?.......... ☑ Yes ☐ No

a) If **yes**, indicate the positive or negative amount by which the solvency assets are adjusted as a result of applying the averaging method.......... (6,156,000)

(ii) Has the averaging method used in determining the solvency asset adjustment changed since the last valuation? ☐ Yes ☑ No
If **yes**, complete **(ii)a** or **(ii)b**, as appropriate:

a) The change in method increases the solvency asset adjustment by the amount of..........

b) The change in method decreases the solvency asset adjustment by the amount of ....

P. Miscellaneous

145. Prior year credit balance.......... 48,000,000

146. Transfer ratio (express in decimal format).......... 0.7300

Guarantee fund assessment

147. PBGF liabilities 6,539,590,939

148. PBGF assessment base.......... 0

149. Amount of additional liability for plant closure and/or permanent layoff benefits as described in E of subsection 37(4) of the Regulation 0

149a. Number of Ontario plan beneficiaries.......... 13,393

Part IV – Information required by the Canada Revenue Agency

R. Additional information

173. Surplus/deficit determined at the valuation date as per the instructions:

173a. Going-concern basis	1,074,066,232
173b. Wind-up basis	-2,594,888382
173c. For designated plans, maximum funding valuation basis	

174. Excess surplus determined at the valuation date:

174a. Going-concern basis	
174b. For designated plans, maximum funding valuation basis	

175. For designated plans, employer normal cost determined under the maximum funding valuation basis:

Period 1	
Period 2	
Period 3	
Period 4	

176. Minimum surplus required under applicable pension benefit legislation before contribution holiday:

176a. Going-concern basis	
176b. Wind-up basis	

177. Maximum amount that could be claimed as eligible employer contribution(s) – defined benefit provisions – under subsection 147.2(2) of the Income Tax Act:

177a. Unfunded liability	2,594,888,382
177b. Normal cost:	
Period 1	66,463,461
Period 2	65,993,735
Period 3	65,248,200
Period 4	

178. Do you have any employees contributing over the limit stipulated under paragraph 8503(4) of the Income Tax Regulations? ☑ Yes ☐ No

Part V – Information required by Retraite Québec

S. Additional Information

185. Date on which the valuation report was prepared .... ______
186. Value of additional liabilities arising from an improvement on a funding basis .... ______
187. Value of additional liabilities arising from an improvement on a solvency basis .... ______
188. Surplus assets that can be allocated to fund contributions .... ______
189. Special payments.......... ______
190. Total of the letters of credit taken into account in the assets on a funding basis.......... ______
191. Insured annuities from an insurer taken into account in the actuarial valuation on a solvency basis.......... ______

T. Additional information for plans whose employer is a municipality, a municipal housing bureau, or an educational institution at the university level

For service prior to the establishment of the stabilization fund

192. Reserve on a funding basis .... ______

	Present value	Amortization payments			
		Period 1	Period 2	Period 3	Period 4
193. Deficiency attributable to the employer					
194. Funding deficiency 194a. Payable by the members					
194b. Payable by the employer					

For service following the establishment of the stabilization fund

195. Stabilization fund value .... ______

	Stabilization contributions			
	Period 1	Period 2	Period 3	Period 4
196. Members				
197. Employer				

	Present value	Amortization payments			
		Period 1	Period 2	Period 3	Period 4
198. Technical funding deficiency 198a. Payable by the members					
198b. Payable by the employer					

U. Additional information for pension plans other than those mentioned in Section T, and for which solvency funding does not apply.

199. Target level (as a percentage) of the required stabilization provision .... ____________

	Current service stabilization contributions			
	Period 1	**Period 2**	**Period 3**	**Period 4**
200. Members				
201. Employer				

	Present Value	Amortization payments			
		Period 1	**Period 2**	**Period 3**	**Period 4**
202. Technical funding deficiency **202a.** Payable by the members					
202b. Payable by the employer					
203. Stabilization funding deficiency **203a.** Payable by the members					
203b. Payable by the employer					
204. Improvement funding deficiency **204a.** Payable by the members					
204b. Payable by the employer					

Part VI – Certification by Actuary

As the actuary who signed the funding valuation report (the report), I certify that this completed form accurately reflects the information provided in the report.

Dated this 30 (day) day of September (month), 2019 (year)

Suzanne Jacques
Signature of actuary

Suzanne Jacques
Print or type name of actuary

Towers Watson Canada Inc.
Name of firm

(416)960-7460
Telephone

suzanne.jacques@willistowerswatson.com
Email*

*** Optional information. The Canada Revenue Agency will not communicate on plan specific matters with clients by email, since we cannot guarantee the confidentiality of emailed information.**

UNDERTAKING - JT 2.32

Reference:

Undertaking:
To provide a similar response as JT 2.31 related to the Society of United Professionals.

Response:
The following table summarizes the difference between a 1:1 service cost ratio and the current service cost ratio (as per the updated valuation) for the period of 2020 – 2022 for the Society plans.

	2020	2021	2022
Society Difference between 1:1 and current Service Cost Ratio	$1.30M	$1.20M	$1.20M

Hydro One's significant gains in reducing pension costs are set out in Exhibit F, Tab 4, Schedule 1 pages 38 – 39.

The updated pension valuation is provided in Exhibit JT 2.31.

SEC INTERROGATORY #55

Reference:
F-04-01-02

Interrogatory:
With respect to the Mercer Compensation Cost Benchmarking Study:

a) Please provide an estimate of the dollar difference between the weighted average total compensation for Hydro One's employees allocated to its transmission business and the P50 median used in the study. Please provide the amount in 2017 (the year the study was completed) and for each year between 2020 and 2022. Please provide a step-by-step explanation of how the estimate was reached and include the supporting calculations so that calculations can be verified.

b) Please provide a list of all types of compensation (i.e. salary, overtime, share grant, LTIP etc.) that were paid in 2017 that: i) were included in the study, and ii) were not included in the study.

c) Please provide the percentage of total compensation in each year between 2020 and 2022 that if of a type not types not included in the study.

d) Are there any additional types of compensation that will be paid in 2020 through 2022 that were not in 2017?

Response:

a) An estimate of the dollar difference between the weighted average total compensation for Hydro One's employees allocated to its transmission business and the market median used in the study is as follows:

	Study Year	2020	2021	2022
Estimated Dollar Difference (Hydro One to Market Median)	$34,485,965	$38,566,291	$40,010,087	$39,079,490

This value was calculated based on the results of the Compensation Cost Benchmarking Study (F-04-01-02), based on the following set of assumptions:

- Estimates are based on the differential between the average salary and the market median rate for the corresponding level, multiplied by the number of incumbents in the relevant level.
- Projections assume external market increases and Hydro One salary increases as per the information below:
    - Market (MCP roles): CPI + 0.6%,
    - Market (represented roles): Increase at rate of CPI
    - CPI Assumptions: 2017: 2.3%, 2018: 2.3%, 2019: 2.0%, 2020: 2.0% , 2021: 1.9%, 2022: 2.0%

- Assumes that headcount increases occur as per the business plan (F-04-01 Table 2) and the proportion of MCP incumbents in each level remains consistent.

- The allocation of compensation to Transmission related activities is based on the following percentages 2020: 48.22%, 2021: 49.68% and 2022: 48.35%.

Hydro One has reduced the amount of compensation for recovery in revenue requirement since the Mercer Study was conducted. The above Mercer median should be updated to reflect the further offsetting reductions as consistent with OEB approved decision in EB-2017-0049. The variance between the Mercer study market median and Hydro One compensation as well as the reductions included in this application related to OM&A are set out in the table below:

Net Mercer Median Reductions Allocated to OM&A ($M)	**2020**
Mercer Median - Tx OM&A	10.1
Pension Reduction OM&A	(5.5)
OPEB Reduction OM&A	(2.4)
Executive Comp. Reduction	(1.5)
The Directive	(0.1)
Total Net Mercer OM&A Reductions	**0.5**

Updated Pension Reduction OM&A	(1.7)
Total Net Mercer OM&A Reductions	**(1.2)**

- Mercer Median (+$10.1 million) is the OM&A component of the transmission allocated portion of $38.6 million as stated above;

- The current revenue requirement reflects the reduced pension OM&A costs (-$5.5 million) due to the actuarial valuation of pension expenses completed by Willis Towers Watson (Exhibit F, Tab 5, Schedule 1 Attachment 1);

- The current revenue requirement reflects the reduced OPEB OM&A costs (-$2.4 million) as a result of the latest valuation which is provided in Exhibit I, Tab 1, Schedule OEB-205;

- The current revenue requirement reflects the reduced executive compensation OM&A costs (-$1.5 million) identified in EB-2018-0130, Exhibit I, tab 7, schedule 3, page 2 to be in compliance with Bill 2; and

- As part of the blue-page update Hydro One further reduced its OM&A (-$0.1 million) by factoring the Ontario Government Directive issued on January 1, 2019 (“the Directive”), as discussed in Exhibit F, Tab 4, Schedule 1, page 35 and also identified in Exhibit F, Tab 1, Schedule 1, page 3.

- As a result of the updated pension valuation as of December 31, 2018, which Hydro One provided in the updated response to JT 2.31, pension OM&A costs are further reduced by (-$1.7 million).

Hydro One submits that any further reductions contemplated by the OEB to the amount of compensation recovered in rates based on the Mercer benchmark median are not appropriate. As evident from the table above, the current OM&A ask in the application reflects reductions which are larger than the OM&A component representing the Net Mercer Median reduction by $1.2 million.

b) The compensation elements included in the Mercer Compensation Benchmark Study are described in Exhibit F-4-1 Attachment 2, p. 28 of 34 Appendix C – Detailed compensation Benchmark Methodology. The compensation elements are: Base Salary / Wage, Short-term Incentive or Bonus paid/lump sum, Benefits including post retirement non-pension benefits, Pensions, and long-term incentives (i.e. LTIP, share awards).

c) The study included all relevant compensation elements for both Hydro One and market respondents.

d) There are no planned additional types of compensation that will be paid in 2020 through 2022 that were not in 2017.

UNDERTAKING - JT 1.14

Reference:
I-07-SEC-046

Undertaking:
To provide the 2018 NATF transmission reliability report.

Response:
The 2018 NATF transmission reliability report was made available on October 10, 2019. Below please find a summary of the data.

The 2018 NATF Report replaced the IPII with TRIND (Transmission Index) due to the retirement of the IPII metric. TRIND, similar to IPII, is an index that aggregates key indicators to provide an overall score enabling the comparison of performance over time. Unlike IPII which was a single year score, TRIND provides a score reflecting a 5-year period.

There are nineteen peers in the 2018 data set.[1] Hydro One's ranking is shown below. Hydro One is investigating the factors contributing to the downward performance trend; one possible reason is the inclusion of 115 kV circuit data beginning in 2016. Prior to 2016 only 230 kV and 500 kV data was considered.

TRIND Total 5-year Period	Score*
2014-2018	19/19
2013-2017	17/21
2012-2016	13/21

**Lower score indicates better relative ranking*

The 2018 NATF Report included traditional metrics rankings for both 2018 on a stand-alone basis and for the 2014-2018 5-year period. These metrics are comparable to the traditional metrics in I-7-SEC-46.

[1] One peer didn't submit data and another only submitted partial data.

Traditional Reliability Metrics (200-799 kV) – Single and 5-year Average	**2018***	**2014-2018***
AC Circuit Outage Rate per Hundred Miles per Year	15/19	12/19
AC Circuit Outage Rate per Element per Year	19/19	17/19
AC Circuit Average Outage Rate Duration of Sustained Outages	14/19	13/19
AC Circuit Outage Rate Per Hundred Miles per Year-Momentary	15/19	12/19
AC Circuit Outage Rate per Element per Year Rate-Momentary	18/19	16/19
AC Circuit Outage Rate per Hundred Miles per Year-Sustained	16/19	11/19
AC Circuit Outage Rate per Element per Year-Sustained	17/19	14/19

**Lower score indicates better relative ranking*