Energy Probe Compendium #2

EB-2019-0082

IN THE MATTER OF *the Ontario Energy Board Act, 1998* ("Act");

AND IN THE MATTER OF an Application by Hydro One Networks Inc. for an order or orders made pursuant to section 78 of the Act approving rates for the transmission of electricity.

Hydro One Transmission
X-Examination Compendium #2
Energy Probe Research Foundation

October 21, 2019

EB-2019-0082 Hydro One Transmission-Energy Probe Compendium Panel 1 and Panel 2

A-3-1 Attachment 1 Evolved Transmission Regulatory Scorecard

								Targets					
Performance Outcomes	Performance Categories	Measures	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Customer Focus	Customer Satisfaction	Satisfaction with Outage Planning Procedures (% Satisfied)	86	92	89	94	85	86	86	87	87	88	88
		Overall Customer Satisfaction (% Satisfied)	77	85	78	88	90	88	88	88	88	88	88
	Service Quality	Customer Delivery Point (DP) Performance Standard Outliers as % of Total DPs	11.8	14.3	9.7	9.5	10.1	12.0	11.7	11.5	11.3	11.0	10.8
Operational Effectiveness	Safety	Recordable Incidents (# of recordable injuries/illnesses per 200,000 hours worked)	1.8	1.7	1.1	1.2	1.1	1.1	1.1	1.0	0.9	0.9	0.9
	System Reliability	T-SAIFI-S (Ave. # Sustained interruptions per Delivery Point)	0.60	0.59	0.46	0.65	0.83	0.55	0.54	0.53	0.52	0.51	0.50
		T-SAIFI-M (Ave. # of Momentary interruptions per Delivery Point)	0.48	0.50	0.33	0.47	0.50	0.49	0.48	0.48	0.47	0.46	0.45
		T-SAIDI (Ave minutes of interruptions per Deliver Point)	36.7	43.9	80.8	42.8	70.0	35.4	34.66	33.96	33.28	32.62	31.97
		System Unavailability (%)	0.48	0.63	0.70	0.69	0.71	0.48	0.47	0.47	0.46	0.45	0.44
		Unsupplied energy (minutes)	12.2	11.8	11.4	13.2	19.5	9.8	9.59	9.40	9.21	9.02	8.84
	Asset & Project Management	Transmission System Plan Implementation Progress (%)	99	105	100	94	99	100	100	100	100	100	100
		CapEx as % of Budget	90	106	105	100	98	100	100	100	100	100	100
		OM&A Program Accomplishment (composite index)		97	99	108	108	100	100.0	100.0	100.0	100.0	100.0
		Capital Program Accomplishment (composite index)		122	59	88	116	100	100.0	100.0	100.0	100.0	100.0
	Cost Control	Total OM&A and Capital per Gross Fixed Asset Value (%)	8.4	9.0	8.6	7.9	7.7	7.3	7.8	7.9	7.7	7.3	7.0
		OM&A per Gross Fixed Asset Value (%)	2.7	2.9	2.5	2.3	2.3	1.8	1.8	1.7	1.6	1.5	1.5
		Line Clearing Cost per kilometer ($/km)	2,495	2,234	1,966	2,100	2,797	2,295	2,264	2,200	2,175	2,100	2,100
		Brush Control Cost per Hectare ($/Ha)	1,624	1,566	1,542	1,356	1,539	1,625	1,620	1,630	1,608	1,608	1,608
Public Policy Responsiveness	Connection of Renewable Generation	% on-time completion of renewables customer impact assessments	100	100	100	100	100	100	100	100	100	100	100
	Regional Infrastructure Planning (RIP) & Long-Term Energy Plan (LTEP) Right-Sizing	Regional Infrastructure Planning progress - Deliverables met, %	100	100	100	100	100	100	100	100	100	100	100
		End-of-Life Right-Sizing Assessment Expectation				Met	Met	Met	Met	Met	Met	Met	Met
Financial Performance	Financial Ratios	Liquidity: Current Ratio (Current Assets/Current Liabilities)	0.69	0.13	0.20	0.13	0.12						
		Leverage: Total Debt (includes short-term and long-term debt) to Equity Ratio	1.16	1.39	1.43	1.47	1.53						
		Profitability: Regulatory Return on Equity – Deemed (included in rates)	9.36	9.30	9.19	8.78	9.00						
		Profitability: Regulatory Return on Equity – Achieved	13.12	10.93	10.02	9.03	11.08						

Figure 1 – Evolved Electricity Transmitter Scorecard & Targets – Hydro One Networks Inc.[4]

Exhibit B-1-1 TSP Section 1.5 Attachment 1 Page 12

Appendix D - Team Scorecard – Example

Corporate Goal	Definition	Measure	2017 Performance Levels				% Weight	Achievement	% STIP
			Actual	Threshold	Budget	Maximum			
Health and Safety (10%)	Recordable Incidents	Incidents per 200,000 hours	1.2	1.6	1.1	1.0	10.0%		
Work Program (25%)	Reliability – Tx (SAIDI)average length of unplanned interruptions to multi-circuit supplied delivery points	Minutes per Delivery Point	5.4	10.0	9.6	[illegible]	6.3%		
	Reliability - Dx (SAIDI) average length of outages in hours that a customer experiences	Hours per Customer	7.9	[illegible]	7.[illegible]	7.2	6.3%		
	Tx In Service Additions Delivery Accuracy	Variance (%) to approved budget of $931M (Tx Application)	87[illegible]	+/[illegible] (978-[illegible]; 866-884)	+/- 5% (950-978; 884-912)	+/- 2% (912-950)	6.3%		
	Dx In Service Additions Delivery Accuracy	Variance (%) to approved budget of $66[illegible]	68[illegible]	+/- 6% (690-703; 623-636)	+/- 4% (676-690; 636-650)	+/- 2% (650-676)	6.3%		
Net Income (30%)	Net Income to Common Shareholders	$M	694***	615	665	715	30.0%		
Productivity (10%)	Productivity Savings (Capital and OM&A) - Tier 1 savings o[illegible]	Sa[illegible] $M	89.5	64.3	70.6	77.7	10.0%		
Customer (25%)	Dx Satisfaction - Improve [illegible] Small and Residential Dx cu[illegible]ome[illegible] satisfaction	Customer Satisfaction	71.1%	70.0%	72.0%	75.0%	12.5%		
	Tx Satisfaction - Improve overall Large Tx customer satisfaction	Customer Satisfaction	88.3%	80.0%	82.0%	85.0%	12.5%		

Exhibit B-1-1
TSP Section 1.5
Attachment 2
Page 1 of 1

Appendix 5-A
Metrics

Metric Category	Metric	Measures	
		1 Year	5 Year Average
Cost	Total Cost per Deliver Points1	2,075,508	1,946,674
	Total Cost per km of Line[2]	50,388	46,908
	Total Cost per MW[3]	59,657	56,374
CAPEX	Total CAPEX per Delivery Points	1,448,004	1,337,183
	Total CAPEX per km of Line	35,154	32,231
O&M	Total O&M per Delivery Points	627,504	609,491
	Total O&M per km of Line	15,234	14,677

Notes to the Table:

1 The Total Cost per Customer is the sum of a distributor's capital and O&M costs divided by the total number of Deliver Points that the distributor
2 The Total Cost per km of Line is the sum of a distributor's capital and O&M costs divided by the total number of kilometers of line that the distributor
3 The Total Cost per MW is the sum of the distributor's capital and O&M costs divided by the total peak MW that the distributor serves.

Energy Probe Workbook Tab 1 Hydro One2013-2024 System Reliability Metrics

Energy Probe Exhibit K XXX Based on TC Undertaking JT-1.38-01.xls				EB-2019-0082		Hydro One	2020-2024 CIR Plan System Reliability Metrics					
Reference					Actuals		Forecast/Targets					
HONI Historical and Forecast												
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
T-SAIFI(S) Sustained Interruptions /DP	0.57	0.60	0.59	0.46	0.65	0.83	0.55	0.54	0.53	0.52	0.51	0.50
T-SAIFI(M) #Momentary Interruptions /DP	0.69	0.48	0.50	0.33	0.47	0.50	0.49	0.48	0.48	0.47	0.46	0.45
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
T-SAIDI Avg min/DP	64.9	36.7	43.9	80.8	42.8	70.0	35.4	34.7	34.0	33.3	32.6	32.0
System Unavailability %	0.37	0.48	0.63	0.70	0.69	0.83	0.48	0.47	0.47	0.46	0.45	0.44
Unsupplied Energy Minutes	20.9	12.2	11.8	11.4	13.2	19.5	9.8	9.6	9.4	9.2	9.0	8.8
Ex A-3-1 ETRS												
T-MAIFI(S) Sustained Interruptions /DP					0.65	0.58	0.57	0.56	0.55	0.54	0.53	-
T-MAIFI(M) #Momentary Interruptions /DP					0.47	0.53	0.52	0.51	0.50	0.49	0.48	-
T-SAIDI Avg min/DP					42.80	46.50	45.60	44.90	43.80	42.90	42.10	-
System Unavailability %					0.69	0.42	0.41	0.40	0.39	0.38	0.38	-
Unsupplied Energy Minutes					13.20	12.60	12.36	12.11	11.87	11.63	11.40	-
Ex B-1-1 TSP Section 1.1 Pg 26												
TSAIDI Excl FIM Events Targets minutes					3.00	14.60	8.10	7.90	7.80	7.60	7.50	7.30
EX I-2-Energy Probe -5 Page 11/12 (DEC 2018)												
T-MAIFI(M) #Momentary Interruptions /DP					0.47	0.50	0.49	0.48	0.48	0.47	0.46	0.45
T-MAIFI(S) Sustained Interruptions /DP					0.65	0.83	0.55	0.54	0.53	0.52	0.51	0.50
T-SAIDI Avg min/DP					42.76	69.95	35.36	34.66	33.96	33.38	32.62	31.97
Unsupplied Energy Minutes					13.16	12.60	9.78	9.59	9.40	9.21	9.02	8.84
System Unavailability %					0.69	0.67	0.48	0.47	0.47	0.46	0.45	0.44
Exhibit I Tab 02 Schedule 10												
TSAIFI (S) Excluded					0.65	0.83	0.55	0.54	0.53	0.52	0.51	0.50
T-MAIFI(S) Sustained Interruptions /DP					0.47	0.50	0.49	0.48	0.48	0.47	0.46	0.45
T-SAIDI Avg min/DP					42.76	69.95	35.36	34.66	33.96	33.38	32.62	31.97
Unsupplied Energy Minutes					13.16	19.50	9.78	9.59	9.40	9.21	9.02	8.84
System Unavailability %					0.69	0.67	0.48	0.47	0.47	0.46	0.45	0.44
Exhibit B-1-1 TSP Section 1.5 and Figures 6-10												
T-SAIDI (Ave minutes of interruptions per Delivery Point)		0.66	0.56	0.46	0.61	0.83	0.53	0.55	0.54	0.53	0.51	0.50
T-SAIFI-M (Ave. # of Momentary interruptions per Delivery Point)		0.47	0.50	0.33	0.47	0.46	0.49	0.48	0.48	0.47	0.46	0.45
T-SAIDI (Ave minutes of interruptions per Delivery Point)		31.40	37.40	77.20	33.60	47.10	35.40	34.66	33.96	33.28	32.62	31.97
System Unavailability (%)		0.48	0.63	0.71	0.69	0.83	0.48	0.47	0.47	0.46	0.45	0.44
Unsupplied Energy (minutes)		9.00	10.60	8.50	13.20	15.70	9.80	9.59	9.40	9.21	9.02	8.84

Red Values reflect Update

Chart 1

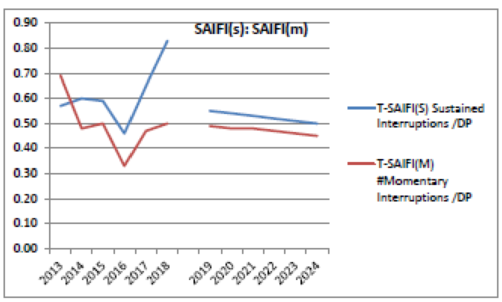
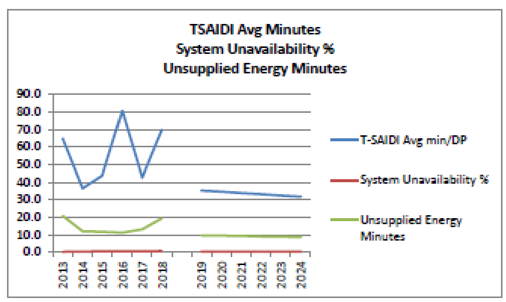


Chart 2

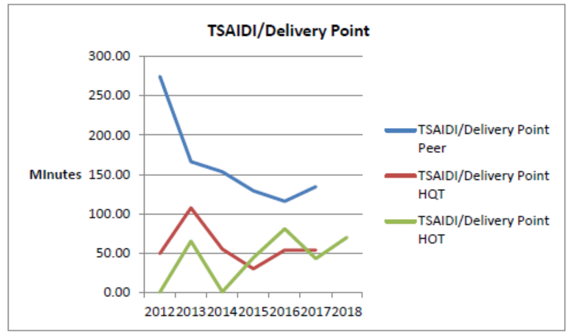


Energy Probe Workbook Tab 2- Industry and Hydro Quebec System Reliability Comparisons

PA Consulting & First Quartile Historic System Reliability Data for US Peer Group; Hydro Quebec Transenergie and Hydro One TX

	2012	2013	2014	2015	2016	2017	2018
TSAIDI/Delivery Point Peer	274.70	166.20	153.30	129.20	115.90	134.20	
TSAIDI/Delivery Point HQT	49.30	107.40	55.10	30.10	53.90	53.70	
TSAIDI/Delivery Point HOT	-	**64.90**	**0.48**	**43.90**	**80.80**	**42.8**	**70.0**
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
TSAIFI(s)/Delivery Point Peer	1.91	0.83	0.83	0.74	0.75	0.77	
TSAIFI(s) /Delivery Point HQT	0.86	0.85	0.61	0.43	0.54	0.50	
TSAIFI(s) /Delivery Point HOT	-	**0.57**	**0.60**	**0.59**	**0.46**	**0.65**	**0.83**
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
TSAIFI(m)/Delivery Point Peer	0.59	0.86	0.72	0.85	0.70	0.55	
TSAIFI(m) /Delivery Point HQT	0.27	0.24	0.23	0.21	0.19	0.27	
TSAIFI(m) /Delivery Point HOT	-	**0.69**	**0.48**	**0.50**	**0.33**	**0.47**	**0.50**

Chart 1



References R-4058-2018 HQT Doc 3 pages 20-23
R-4096-2019 HQT-2, Doc 1 Pages 16-17

Chart 2

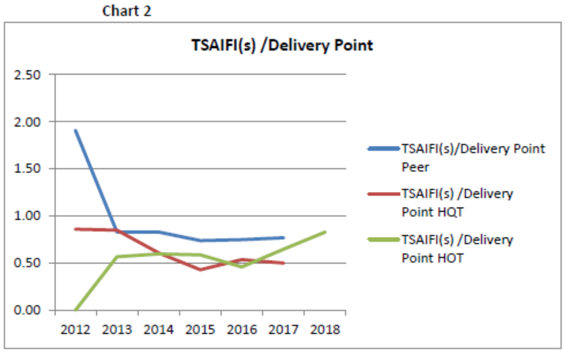
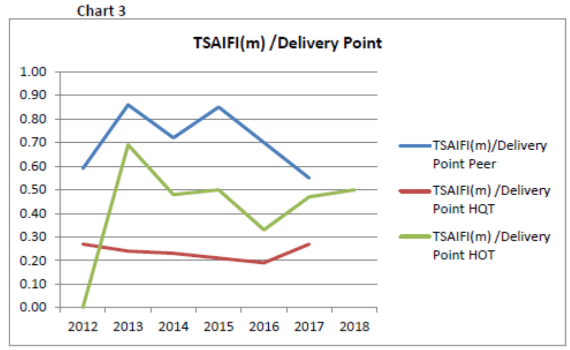


Chart 3



Hydro One Tx Customer Delivery Point Outliers

Updated: 2019-06-19
EB-2019-0082
Exhibit B-1-1
TSP Section 1.5
Page 25 of 55

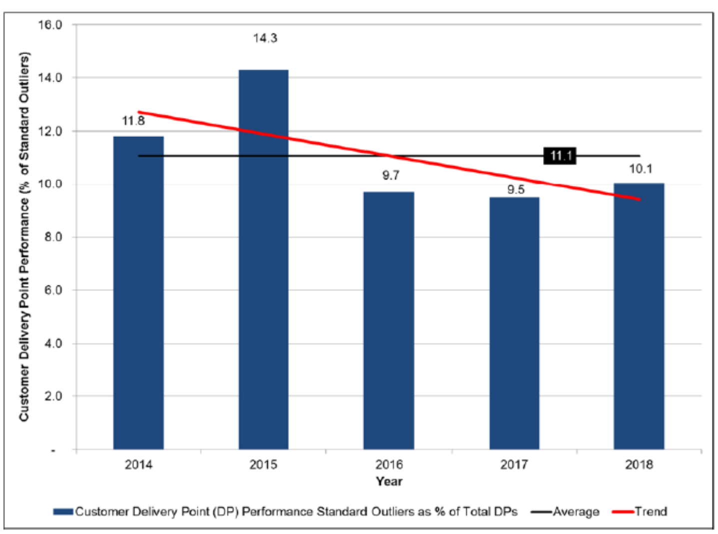


Figure 4 - Customer Delivery Point (DP) Performance, Standard Outliers as % of Total Delivery Points

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.

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November 23, 2016

VIA RESS AND COURIER

Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto, Ontario M4P 1E4

Dear Ms. Walli:

RE: EB-2016-0160 Hydro One Networks Inc. ("Hydro One") Transmission Rates Application – NATF Reliability Report Rankings

In accordance with the Board's Procedural Order No. 5 issued November 22, 2016, enclosed for filing is the NATF Reliability Report Rankings showing Hydro One's rank order among its peer group.

Yours truly,

McCarthy Tétrault LLP
Per:

Gordon M. Nettleton
GMN

NATF Transmission Reliability Reports

The first NATF Reliability Report that included Hydro One's information was generated in 2013 and took into account Hydro One's outage data from 2008 to 2012. Given this, only NATF Reliability Reports between 2012 and 2015 include Hydro One information.

The NATF Reliability Report is organized into two groups. The first is Integrated Performance Indicator Index ("IPII"). The IPII is a numeric (0-100 points) representing member performance based on an aggregated set of weighted inputs.

Hydro One's ranking (1 = best, 21 = worst) among its peer group on Total IPIII Score and individual parameters are shown below.

	2012	2013	2014	2015
Number of Participants (including Hydro One)	21	21	21	21
IPII Total Score	15	13	8	13
IPII Score Failed AC Circuit Equipment per Hundred Miles	12	11	11	16
IPII Score Failed AC Substation Equipment per Element	8	2	1	7
IPII Score Failed Protection System per Element	16	15	15	1
IPII Score Human Error per Element	11	9	1	1
IPII Score AC Circuit Unavailability per Element per Year	15	15	9	16
IPII Score AC Transformers Unavailability per Element per	10	10	12	14
IPII Score Unknowns per Hundred Miles	9	10	10	8
IPII Score Lightning per Hundred Miles	19	13	15	12
IPII Score Weather Excluding Lightning per Hundred Miles	6	10	8	7
IPII Score Aggregate Residual Causes per Hundred Miles	19	14	15	14

TSP -01-02-03 Customer Survey Innovative Research Group

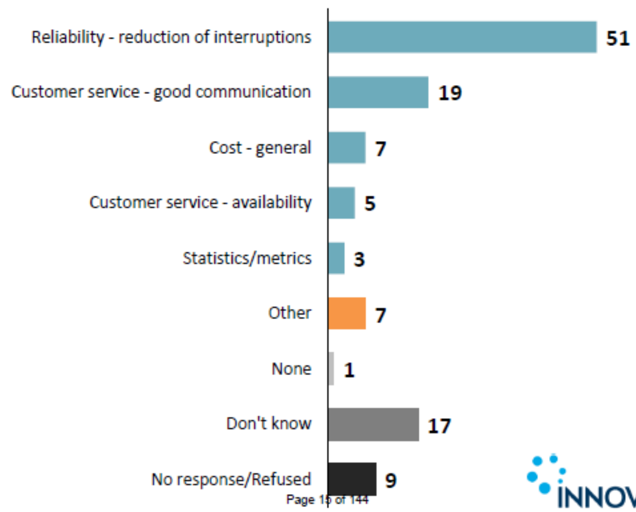
Performance Criteria:

15

Reduction in outages and interruptions, power supply, and customer service in terms of communication are top mentions for performance metrics

Q How do you know if Hydro One is doing a good job for your business?

[asked of all respondents, n=103]



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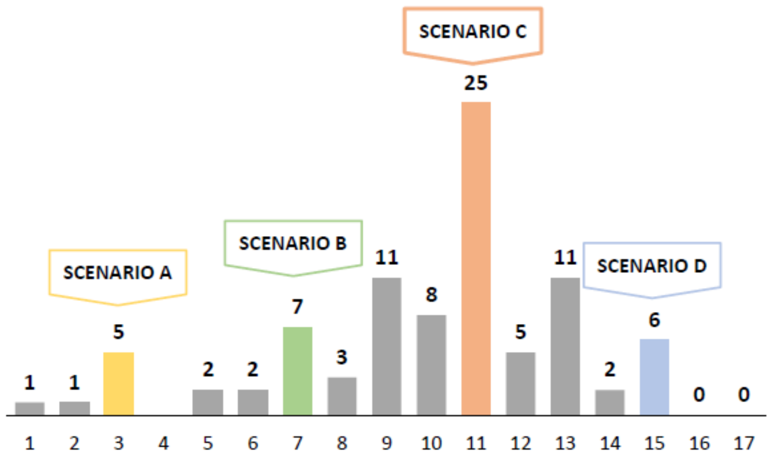
INNOVATIVE RESEARCH GROUP

NOTE: Total is greater than 103 due to responses being coded into multiple categories

Illustrative Scenarios:

Maintaining current level of investment ("Scenario C") is the most popular scenario

Q Thinking of all the considerations outlined, please choose a point along the line below that you believe strikes the right balance between rates and outcomes. (Remember that you can choose a point between scenarios or directly aligned with one of them).
[asked of all respondents, n=103]



Lower increases now
Higher future increases
Lower reliability

Higher increases now
Lower future increases
Higher reliability

NOTE: "Don't know" (n=7), No response (n=7) not shown.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
LDC		1	1		1	1			5	6	6	1	3				
End-User			2		1		5	1	3	2	11	2	4				
Generator	1		2			1	2	2	3		8	2	4	2	6		

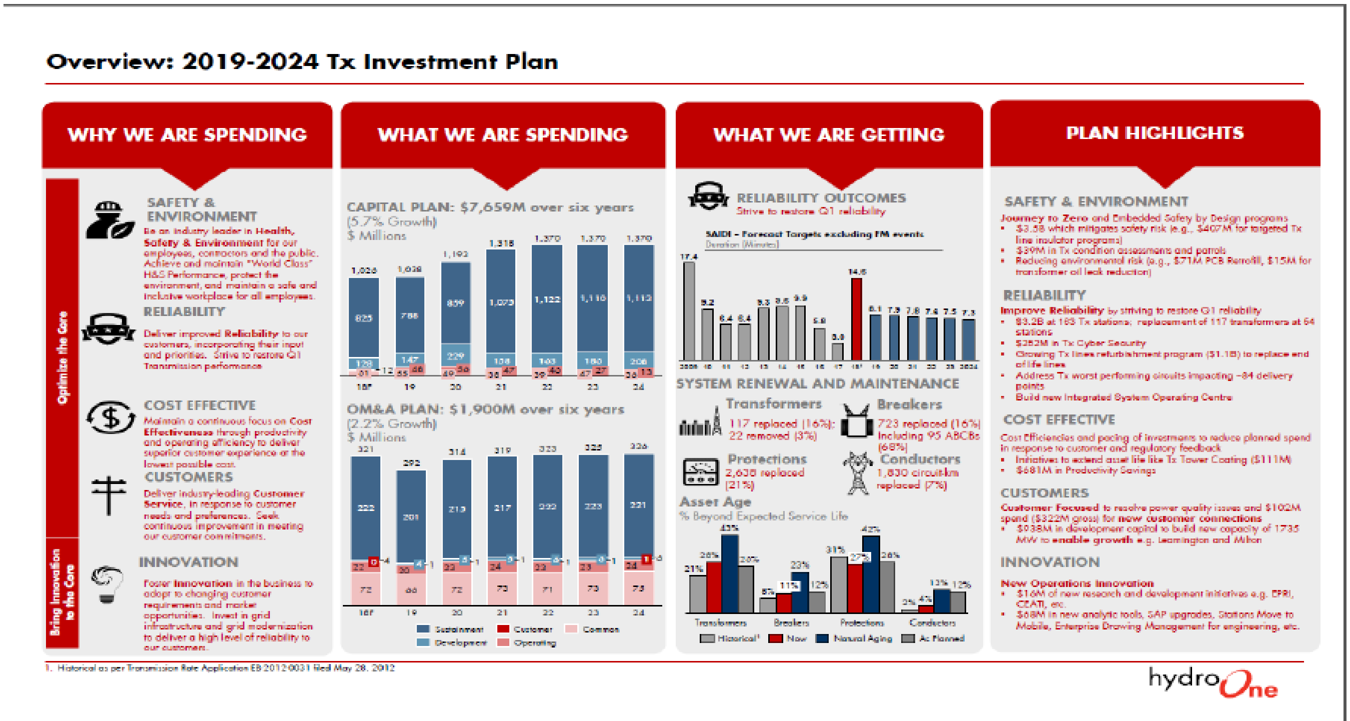


Figure 6 - Alignment Between Strategic Priorities and Planned Transmission Investments

Appendix 2-AA
Capital Projects Table ($M)

Projects	2015	2016	2017	2018	2019 Bridge	2020 Test
Reporting Basis	**USGAAP**	**USGAAP**	**USGAAP**	**USGAAP**	**USGAAP**	**USGAAP**
System Access						
Overhead Lines Refurbishment Projects, Component Replacement Programs and	-0.5	1.8	-0.9	4.4	2.9	0.9
Generator Customer Connection	-1.7	0.2	0.4	0.3	1.1	2.3
Load Customer Connection	7.7	13.6	42.3	28.5	41.1	21.6
P&C Enablement for Generation Connections	2.1	1.3	0.8	0.5	0.0	0.0
Sub-Total	7.6	17.0	42.7	33.7	45.1	24.8
System Renewal						
Circuit Breakers	7.1	4.1	0.4	0.1	0.0	4.1
Overhead Lines Refurbishment Projects, Component Replacement Programs and	125.4	164.0	197.2	221.2	291.9	323.9
Integrated Station Investment	374.2	469.1	481.0	410.7	336.9	405.1
Underground Lines Cable Refurbishment & Replacement	3.5	1.7	10.7	16.5	15.0	7.1
Power Transformers	43.5	13.0	0.0	-0.7	0.1	0.0
Other Power Equipment	12.5	5.3	0.0	0.3	0.0	0.0
Protection and Automation	60.2	40.5	20.9	44.4	72.8	77.7
Ancillary Systems	17.1	7.6	1.1	0.7	0.0	0.0
Site Facilities and Infrastructure	14.5	2.2	2.2	0.3	0.0	0.0
Stations Environment	3.8	1.9	0.4	0.0	0.0	0.0
Tx Transformers Demand and Spares	27.2	24.6	26.8	82.6	56.6	47.4
Sub-Total	688.9	733.9	740.7	776.2	773.3	865.2
System Service						
Inter Area Network Transfer Capability	86.3	80.8	36.0	48.9	54.9	121.0
Local Area Supply Adequacy	64.9	54.3	45.1	20.7	39.0	73.9
Smart Grid	3.5	3.3	0.7	0.2	0.0	0.0
TS Upgrades to Facilities Distribution Generation	-1.2	0.0	0.0	0.0	0.0	0.0
Performance Enhancement	1.3	0.4	0.0	0.0	0.3	0.3
Risk Mitigation	3.1	1.8	9.5	2.6	5.4	4.7
Power Quality	0.0	0.2	2.3	1.4	4.1	4.2
Sub-Total	157.9	140.9	93.5	73.9	103.8	204.1
General Plant						
Facilities & Real Estate	22.7	13.9	6.7	7.0	7.2	8.1
Grid Operating and Control Facilities	14.2	7.6	6.0	3.8	37.4	35.3
Information Technology (Including Cornerstone)	21.6	35.9	32.8	42.0	33.7	25.7
Operating Infrastructure	1.4	4.6	4.8	5.8	10.2	21.1
Other (Including CDM)	0.7	0.3	-1.1	-0.7	0.0	0.0
Site Facilities and Infrastructure	5.9	8.1	10.8	16.4	12.0	9.4
Transport and Work & Service Equipment	22.1	24.6	16.9	9.3	15.9	15.8
Sub-Total	88.6	94.8	76.9	83.6	116.3	115.4
Progressive productivity Placeholder						-17.0
Directive Adjustment *					-0.3	-0.3
Total	943.0	986.7	953.9	967.3	1,038.2	1,192.2
Less Renewable Generation Facility Assets and Other Non-Rate-Regulated Utility Assets *(input as negative)*						
Total	943.0	986.7	953.9	967.3	1,038.2	1,192.2

Notes:

* The Directive Adjustment reflects the impact of the directive issued by Ontario's Management Board of Cabinet on February 21, 2019 and the associated compensation framework they approved on March 7, 2019. Refer to Exhibit F, Tab 4, Schedule 1 for further details.

1 Please provide a breakdown of the major components of each capital project undertaken in each year. Please ensure that all projects below the

2 The applicant should group projects appropriately and avoid presentations that result in classification of significant components of the capital

JT 1.15 Page 2 Reliablity Risk

Table 1: Historical Interruption Duration

	% of Interruption Duration (2011-15)
Lines	69%
Transformers	6%
Breakers	9%
Other	16%

Table 2: Supporting Data – Fleet Risk

	Supporting Data – Fleet Risk				
	Jan 1, 2019	**Scenario A**	**Scenario B**	**Scenario C**	**Scenario D**
Lines	1.11%	1.42%	1.22%	0.96%	0.92%
Transformers	2.66%	3.86%	3.19%	2.77%	2.77%
Breakers	1.62%	1.92%	1.68%	1.32%	1.32%

Table 3: Calculation of Asset Reliability Risk

	Calculation – Asset Reliability Risk [Fleet Risk x % of Interruption Duration]									
	Jan 1, 2019		**Scenario A**		**Scenario B**		**Scenario C**		**Scenario D**	
Lines	1.11% x 69% =	0.77%	1.42% x 69% =	0.98%	1.22% x 069% =	0.84%	0.96% x 69% =	0.66%	0.92% x 69% =	0.63%
Transformers	2.66% x 6% =	0.16%	3.86% x 6% =	0.23%	3.19% x 6% =	0.19%	2.77% x 6% =	0.17%	2.77% x 6% =	0.16%
Breakers	1.62% x 9% =	0.15%	1.92% x 9% =	0.17%	1.62% x 9% =	0.15%	1.32% x 9% =	0.12%	1.32% x 9% =	0.11%
Total	0.77% + 0.16% + 0.15% =	**1.07%**	0.98% + 0.23% + 0.17% =	**1.39%**	0.84% + 0.19% + 0.15% =	**1.19%**	0.66% + 0.17% + 0.12% =	**0.95%**	0.63% + 0.16% + 0.11% =	**0.91%**

Table 4: Change in Asset Reliability Risk

	Calculation – Change in Asset Reliability Risk							
	Scenario A		**Scenario B**		**Scenario C**		**Scenario D**	
Change Relative to Jan 1, 2019	(1.39 / 1.07) – 1 =	**30%**	(1.19 / 1.07) – 1 =	**11%**	(0.95 / 1.07) – 1 =	**-11%**	(0.91 / 1.07) – 1 =	**-15%**
As presented in Customer Engagement	Increase in risk ~30%		Increase in risk ~10%		Decrease in risk ~10%		Decrease in risk ~15%	

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Exhibit 19: Summary of Hydro One's scoring system and risk criteria

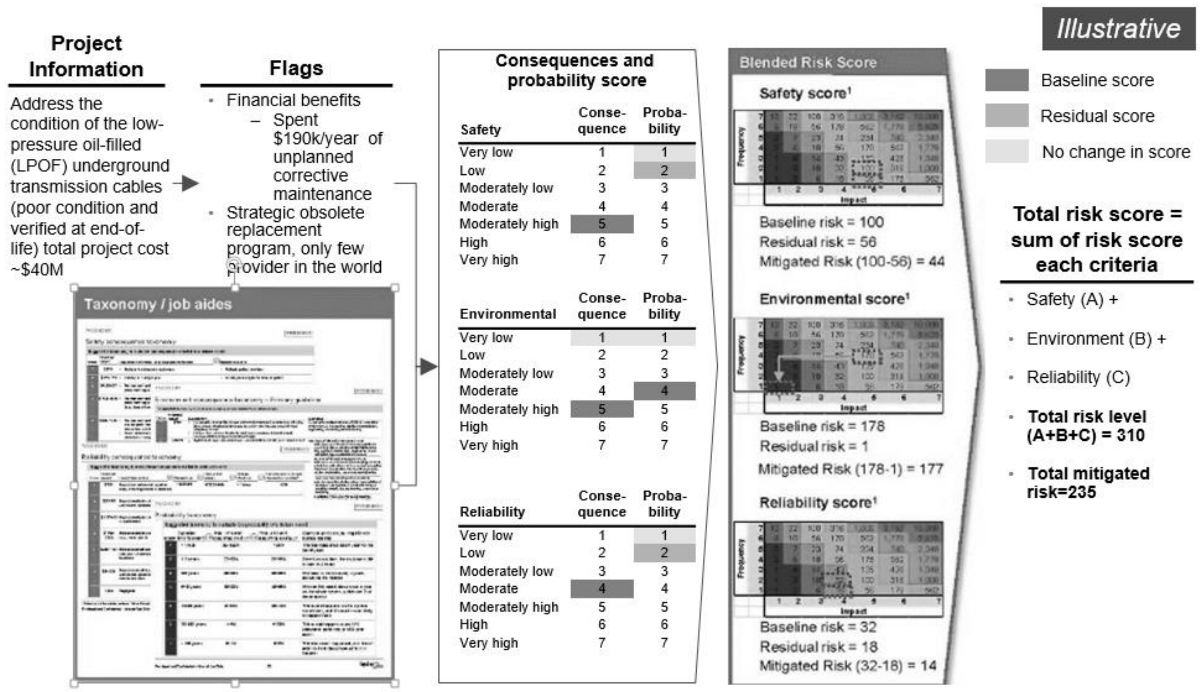

Exhibit B-1-1TSP Section 1.4Attachment 15 Page 3

<u>Outcomes Tracking</u>

Guided by the BCG recommendations outlined in the Investment Planning Process Review, Hydro One implemented a new process step in 2018, which included an upfront identification of corporate strategic direction, the establishment of interim targeted outcomes and more granular, strategic budget allocations based on operational, financial, regulatory and customer considerations at the beginning of the investment planning process.

Hydro One conducted a strategic budget (capital/OM&A) allocation at the beginning of the process, whereby the plan was divided into smaller, discrete budgets based on business unit, and then investments were subsequently prioritized within those budgets. The basis for this upfront allocation was the expenditure levels included in the previous plan, adjusted for efficiency gains and new strategic directions, as illustrated in Figure 1 below. This was done by business unit, resulting in nine allocations.

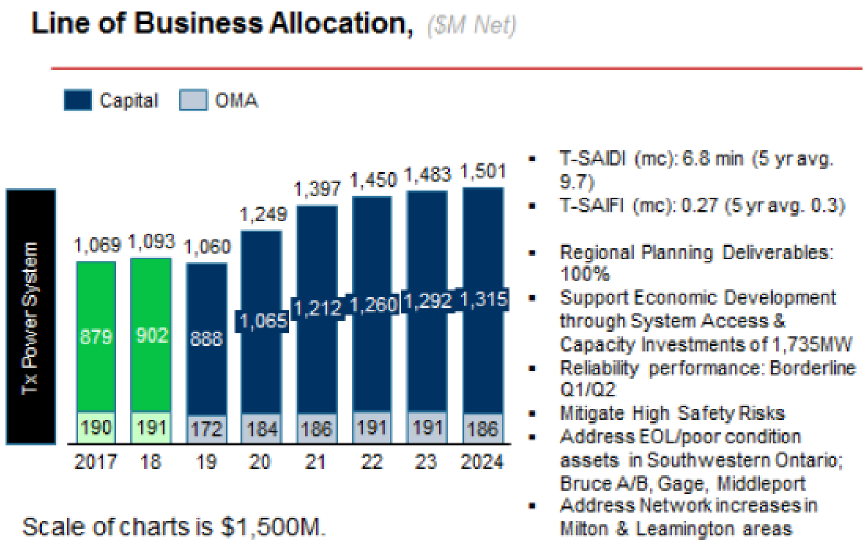

Figure 2 - Transmission Power System Outcomes

Table 1 - 1-year Transmission Outcome Metrics

LOB	Initial 1-year Metrics
Transmission Power Systems	• Tx SAIDI (MC) - 8.7 minutes • Regional Infrastructure Planning Process Deliverables Met – 100%
System Operations	• Reliability of Service - 99.95% of key systems
Facilities	• Productivity Savings - $1M
Fleet	• Fleet Size – 7,200 asset count • Annual Utilization – 6.0M hours
Information Solutions	• Cost of Service - 4.5% of operating expenses • Reliability of Service – 99.53% critical system availability
Security	• Security Posture – Medium • NERC Compliance – 100%
Health, Safety and Environment	• Recordable rate - <1.0 incident per 200,000 hours

Exhibit B-1-1 TSP Section 3.3 Page 15/16

7 **Table 6 - System Renewal - Material Capital Investments Proposed**

ISD	Investment Name	2020	2021	2022	2023	2024
SR-01	Air Blast Circuit Breaker Replacement Projects	107.5	128.4	133.5	129.2	98.7
SR-02	Station Reinvestment Projects	107.0	125.4	120.6	87.9	53.9
SR-03	Bulk Station Transformer Replacement Projects	33.2	51.8	72.5	131.5	113.8
SR-04	Bulk Station Switchgear and Ancillary Equipment Replacement Projects	17.5	32.4	41.4	34.6	49.3
SR-05	Load Station Transformer Replacement Projects	91.2	132.3	129.4	178.5	200.0
SR-06	Load Station Switchgear and Ancillary Equipment Replacement Projects	19.2	30.8	47.5	58.4	77.0
SR-07	Protection and Automation Replacement Projects	6.7	8.6	12.7	12.2	21.7
SR-08	John Transformer Station Reinvestment Project	3.5	17.9	25.6	24.0	20.9
SR-09	Transmission Station Demand and Spares and Targeted Assets	44.2	36.4	37.0	37.7	38.3
SR-10	Transformer Protection Replacement	3.8	0.0	0.0	0.0	0.0
SR-11	Legacy SONET System Replacement	4.1	26.0	27.6	28.1	28.1
SR-12	Telecom Performance Improvements	0.0	0.9	5.5	3.7	0.0
SR-13	ADSS Fibre Optic Cable Replacements	7.0	7.1	1.0	0.0	0.0
SR-14	Mobile Radio System Replacement	2.9	6.2	6.1	4.0	0.0
SR-15	Telecom Fibre IRU Agreement Renewals	0.0	2.8	8.5	2.6	1.5
SR-16	NERC CIP-014 Physical Security Implementation	18.0	18.0	18.0	0.0	0.0
SR-17	NERC CIP Transient Cyber Asset Project	3.5	0.0	0.0	0.0	0.0
SR-18	PSIT Cyber Equipment Replacement	1.0	5.0	7.7	7.0	3.4
SR-19	Transmission Line Refurbishment - End of Life ACSR, Copper Conductors & Structures	81.8	122.1	94.5	51.0	75.9
SR-20	Transmission Line Refurbishment - Near End of Life ACSR Conductor	62.2	63.4	111.7	117.8	137.7
SR-21	Wood Pole Structure Replacements	51.0	52.0	53.0	54.1	55.2
SR-22	Steel Structure Coating Program	11.4	21.8	22.3	22.7	23.2
SR-23	Tower Foundation Assess/Clean/Coat Program	11.8	22.3	22.8	23.3	23.7
SR-24	Transmission Line Shieldwire Replacement	12.3	12.6	12.8	13.1	13.4
SR-25	Transmission Line Insulator Replacement	68.3	69.7	66.3	67.6	68.9
SR-26	Transmission Line Emergency Restoration	9.6	9.8	10.0	10.2	10.4
SR-27	C5E/C7E Underground Cable Replacement	2.1	29.8	30.9	32.2	29.2
SR-28	OPGW Infrastructure Projects	5.3	7.5	2.2	6.2	9.7
SR-29	Physical Security ISL Application Replacement	5.0	1.1	0.0	0.0	0.0
System Renewal Projects & Programs Less Than $3M		**77.8**	**67.3**	**60.1**	**44.1**	**41.1**
Total Gross System Renewal Capital ($M)		**869.1**	**1,109.2**	**1,181.1**	**1,181.5**	**1,194.9**
	Less Capital Contributions ($M)	*(3.8)*	*(6.1)*	*(8.3)*	*(4.1)*	*(1.1)*

END COMPENDIUM 1 Hydro One TX PANEL 1

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Exhibit A Tab 3 Schedule 1Page 41-43 Tables 9 and 10

Table 9: Summary of Transmission OM&A Expenditures ($ Million)

	Historical								Bridge	Test
	2015		2016		2017		2018		2019	2020
	Actual	**Plan**	**Actual**	**Plan**	**Actual**	**Plan**	**Actual**	**Plan**	**Forecast**	**Forecast**
Category Level										
Sustainment	233.6	238.7	215.1	241.1	218.1	241.2	229.4	238.5	200.6	214.2
Development	6.1	12.9	4.6	13.4	5.1	4.8	5.2	5.0	6.0	6.9
Operations	59.0	58.5	62.5	59.1	61.1	61.3	53.4	62.1	46.1	48.9
Customer Care	5.1	5.5	4.5	5.5	8.5	4.0	11.0	3.9	7.3	7.5
Common Corporate Costs and Other Costs[1]	73.9	70.2	60.1	71.3	41.5	49.9	54.9	47.5	29.4	30.3
Property Taxes & Rights Payments	63.9	66.3	61.3	67.0	50.7	63.6	65.3	64.3	67.2	68.1
Adjustments										
EB-2014-0140 Settlement Reduction		-20.0		-20.0						
EB-2016-0160 Decision Reduction						-15.0		-15.0		
Removal of B2M Expense		-0.9		-0.7		-0.8		-2.1		
Pension Adjustment						-11.4		-9.9		
Directive *									-0.1	-0.1
Envelope Level										
Total Transmission OM&A	**441.6**	**431.2**	**408.1**	**436.8**	**385.0**	**397.7**	**419.2**	**394.3**	**356.5**	**375.8**
% Change Year over Year			-7.6%		-5.6%		8.9%		-9.6%	5.4%
Variance to Plan	10.4		-28.7		-12.7		24.9			

Exhibit Reference: F-1-1, Table 1.

**Directive refers to the Government Directive as detailed and defined in Exhibit F, Tab 4, Schedule 1.*

Table 10: Summary of Total Transmission-Allocated Compensation Costs ($)

	2019	2020	Change
Total Capital Transmission Comp	456,985,537	505,243,466	48,257,929
Total OM&A Transmission Comp	176,094,700	178,968,609	2,873,909
Total Transmission Compensation	**633,080,237**	**684,212,075**	**51,131,837**

Hydro One Total Compensation KT 2.1

Compensation Costs 2014-2022

Transmission Unrepresented	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022 versus 2018	2020 versus 2018
Base Pay	33,396,323	34,508,999	33,641,927	38,772,661	36,544,290	38,524,614	43,137,614	45,511,365	45,048,884		
Burdens	22,435,650	23,448,136	17,666,653	19,961,342	15,690,642	16,363,898	18,603,459	19,927,923	20,043,316		
Other Allowances	3,452,267	2,367,920	3,296,601	3,983,397	5,723,344	3,596,819	4,021,881	4,237,275	4,194,217		
STI	4,055,590	4,414,248	4,555,907	7,257,372	6,297,493	4,618,185	5,308,380	5,674,271	5,630,422		
LTI	-	-	241,898	2,350,267	3,730,541	632,252	984,137	1,070,633	847,416		
ESOP	-	-	774,963	886,803	540,602	1,771,039	1,963,382	2,046,258	1,998,514		
Transmission Unrepresented Total	63,339,829	64,739,302	60,177,949	73,211,844	68,526,913	65,506,806	74,018,853	78,467,725	77,762,769		

Headcount Total / FTE Transmission	331 / 285	313 / 277	319 / 275	357 / 308	360 / 290	307	334	345	336

Distribution Unrepresented	2014	2015	2016	2017	2018	2019	2020	2021	2022
Base Pay	37,601,338	39,909,527	41,751,062	42,861,848	46,685,158	53,165,528	50,517,625	50,137,653	52,495,756
Burdens	25,260,579	27,117,681	21,925,067	22,066,579	20,044,720	22,582,842	21,786,151	21,953,622	23,356,606
Other Allowances	3,886,951	2,738,490	4,091,222	4,403,509	7,119,612	4,963,755	4,709,947	4,668,000	4,887,548
STI	4,578,312	5,117,332	5,712,824	8,142,916	7,564,939	7,819,365	7,464,246	7,442,291	7,839,166
LTI	-	-	249,764	2,535,402	4,764,858	1,870,199	1,374,938	1,140,263	1,210,384
ESOP	-	-	708,363	811,624	677,410	2,290,696	2,128,505	2,075,874	2,153,951
Distribution Unrepresented Total	71,327,180	74,883,031	74,438,303	80,821,878	86,856,697	92,692,386	87,981,412	87,417,704	91,943,411

Headcount Total / FTE Distribution	372 / 320	360 / 320	390 / 336	378 / 325	433 / 348	385	359	349	358
Shareholder Allocated Unrepresented	3,089,801	2,615,254	9,597,169	9,660,409	13,112,786	23,748,837	24,288,558	24,881,971	25,490,502
TOTAL Unrepresented Labour	137,756,810	142,237,587	144,213,420	163,694,131	168,496,396	181,948,030	186,288,823	190,767,400	195,196,682
TOTAL Unrepresented Headcount / FTE/YE	703 / 605 / 584	673 / 597 / 585	709 / 611 / 596	735 / 633 / 627	793 / 638 / 641	692	693	694	694

Transmission Society Represented	2014	2015	2016	2017	2018	2019	2020	2021	2022
Base Pay	67,393,687	66,909,144	65,179,365	72,517,488	70,250,107	83,210,524	91,575,087	96,245,302	95,123,535
Overtime	2,940,988	2,853,433	1,792,765	4,635,127	5,942,030	5,446,164	5,512,817	5,626,666	5,717,210
Lump Sums	-	-	618,063	1,312,146	-	-	-	-	-
Burdens	45,275,079	45,463,351	34,228,158	37,334,202	30,162,557	35,344,898	39,492,527	42,142,638	42,322,714
Share Grants	-	-	-	-	1,243,401	1,142,108	1,127,076	1,086,518	1,041,623
Transmission Society Represented Total	115,609,754	115,225,928	101,818,351	115,798,964	107,598,095	125,143,693	137,707,506	145,101,125	144,205,083

Headcount Total / FTE Transmission	660 / 608	636 / 595	624 / 569	685 / 627	678 / 607	699	755	778	754

Distribution Society Represented	2014	2015	2016	2017	2018	2019	2020	2021	2022
Base Pay	75,689,891	77,185,295	79,896,923	76,588,835	84,388,775	104,483,618	98,355,141	97,474,771	101,619,468
Overtime	4,029,156	3,788,344	5,240,140	3,090,085	3,961,353	3,630,776	3,675,211	3,751,111	3,811,473
Lump Sums	-	-	757,623	1,385,814	-	-	-	-	-
Burdens	50,848,469	52,445,778	41,956,906	39,430,255	36,233,130	44,380,958	42,416,482	42,680,982	45,212,909
Share Grants	-	-	-	-	1,436,756	1,319,711	1,302,342	1,255,478	1,203,601
Distribution Society Represented Total	130,567,516	133,419,417	127,851,592	120,494,989	126,020,015	153,815,064	145,749,176	145,162,341	151,847,451

Headcount Total / FTE Distribution	741 / 683	734 / 687	764 / 698	724 / 662	815 / 730	878	810	788	806
TOTAL Society Represented Labour	246,177,271	248,645,345	229,669,943	236,293,954	233,618,109	278,958,757	283,456,682	290,263,465	296,052,535
TOTAL Society Represented Headcount / FTE/YE	1401 / 1291 / 1290	1370 / 1282 / 1285	1388 / 1267 / 1241	1409 / 1289 / 1288	1493 / 1337 / 1382	1,577	1,565	1,566	1,560

Transmission PWU Represented	2014	2015	2016	2017	2018	2019	2020	2021	2022
Base Pay	148,298,536	146,298,728	145,538,184	158,933,735	154,996,772	165,116,892	185,433,184	196,453,689	196,258,552
Overtime	28,468,143	24,728,915	15,636,038	36,486,246	46,990,537	43,212,279	44,677,729	45,980,102	47,243,112

										2022 versus 2018		2020 versus 2018	
	2014	2015	2016	2017	2018	2019	2020	2021	2022				
Total Capital Transmission Comp	397,892,921	391,130,026	400,633,366	394,177,597	424,531,224	456,985,537	506,498,946	542,636,628	543,823,133				
Total OM&A Transmission Comp	207,166,269	200,807,004	151,489,987	223,675,880	185,069,058	176,094,700	179,413,328	171,377,284	169,214,468				
Total Transmission Compensation	605,059,190	591,937,030	552,123,353	617,853,477	609,600,282	633,080,237	685,912,274	714,013,912	713,037,600	17.0%	4.2%	12.5%	6.3%

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Capital Distribution Comp	319,056,686	330,163,788	318,482,459	285,834,231	303,991,403	399,601,250	378,225,534	390,700,714	431,538,200
Total OM&A Distribution Comp	308,085,500	293,826,096	315,501,373	293,726,326	315,330,439	296,704,045	292,373,150	288,016,313	279,243,254

Total Distribution Compensation	627,142,186	623,989,883	633,983,832	579,560,557	619,321,842	696,305,295	670,598,684	678,717,027	710,781,454	14.8%	3.7%	8.3%	4.1%

	2014	2015	2016	2017	2018	2019	2020	2021	2022				
Total Capital Transmission + Distribution Comp	716,949,607	721,293,813	719,115,826	680,011,828	728,522,627	856,586,788	884,724,480	933,337,343	975,361,333				
Total OM&A Transmission + Distribution Comp	515,251,769	494,633,100	466,991,359	517,402,206	500,399,497	472,798,745	471,786,477	459,393,597	448,457,722				
Total Shareholder Allocated Comp	3,089,801	2,615,254	9,597,169	9,660,409	13,112,786	23,748,837	24,288,558	24,881,971	25,490,502				
Total Transmission + Distribution Compensation	1,235,291,177	1,218,542,167	1,195,704,354	1,207,074,444	1,242,034,910	1,353,134,369	1,380,799,515	1,417,612,911	1,449,309,557	16.7%	4.2%	11.2%	5.6%

Headcount FTE	2014	2015	2016	2017	2018	2019	2020	2021	2022				
MCP Represented Regular Employees	605	597	611	633	638	692	693	694	694				
Society Represented Regular Employees	1,291	1,282	1,267	1,289	1,337	1,577	1,565	1,566	1,560				
PWU Represented Regular Employees	3,342	3,356	3,391	3,382	3,527	3,739	3,790	3,824	3,852				
Temporary and Casual Employees	3,070	2,842	3,095	2,842	2,927	3,208	3,098	3,099	3,054				
Total	8,308	8,077	8,364	8,146	8,429	9,216	9,146	9,183	9,160	8.7%	2.2%	8.5%	4.3%

Burdens Tx include:	2014	2015	2016	2017	2018	2019	2020	2021	2022				
Pension	77,400,000	76,500,000	49,500,000	41,000,000	35,500,000	34,000,000	38,000,000	40,000,000	39,000,000				
OPEB	59,600,000	52,400,000	57,500,000	61,200,000	55,800,000	50,000,000	55,000,000	58,000,000	59,000,000				
Total	137,000,000	128,900,000	107,000,000	102,200,000	91,300,000	84,000,000	93,000,000	98,000,000	98,000,000	7.3%	1.8%	1.9%	0.9%
Burdens Dx include:	2014	2015	2016	2017	2018	2019	2020	2021	2022				
Pension	90,100,000	94,700,000	54,100,000	43,400,000	37,000,000	36,000,000	35,000,000	34,000,000	34,000,000				
OPEB	69,400,000	64,800,000	62,800,000	64,400,000	58,200,000	53,000,000	53,000,000	52,000,000	56,000,000				
Total	159,500,000	159,500,000	116,900,000	107,800,000	95,200,000	89,000,000	88,000,000	86,000,000	90,000,000	-5.5%	-1.4%	-7.6%	-3.8%

Total Pension & OPEB Burden Tx and Dx	296,500,000	288,400,000	223,900,000	210,000,000	186,500,000	173,000,000	181,000,000	184,000,000	188,000,000
% Burden Tx	46.2%	44.7%	47.8%	48.7%	49.0%	48.6%	51.4%	53.3%	52.1%
% Burden Dx	53.8%	55.3%	52.2%	51.3%	51.0%	51.4%	48.6%	46.7%	47.9%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

FTE Transmission	2014	2015	2016	2017	2018	2019	2020	2021	2022				
MCP Unrepresented Regular Employees	285	277	275	308	290	307	334	345	336				
Society Represented Regular Employees	608	595	569	627	607	699	755	778	754				
PWU Represented Regular Employees	1,574	1,558	1,523	1,645	1,602	1,658	1,827	1,900	1,862				
Temporary and Casual Employees	1,836	1,711	1,860	1,724	1,748	1,811	1,775	1,715	1,661				
Total	4,303	4,141	4,227	4,304	4,247	4,474	4,691	4,738	4,613	8.6%	2.2%	10.5%	5.2%

FTE Distribution	2014	2015	2016	2017	2018	2019	2020	2021	2022				
MCP Unrepresented Regular Employees	320	320	336	325	348	385	359	349	358				
Society Represented Regular Employees	683	687	698	662	730	878	810	788	806				
PWU Represented Regular Employees	1,768	1,798	1,868	1,737	1,925	2,081	1,963	1,924	1,990				
Temporary and Casual Employees	1,234	1,131	1,235	1,118	1,179	1,397	1,323	1,384	1,393				
Total	4,005	3,936	4,137	3,842	4,182	4,742	4,455	4,445	4,547	8.7%	2.2%	6.5%	3.3%

FTE Total	2014	2015	2016	2017	2018	2019	2020	2021	2022				
MCP Unrepresented Regular Employees	605	597	611	633	638	692	693	694	694				
Society Represented Regular Employees	1,291	1,282	1,267	1,289	1,337	1,577	1,565	1,566	1,560				
PWU Represented Regular Employees	3,342	3,356	3,391	3,382	3,527	3,739	3,790	3,824	3,852				
Temporary and Casual Employees	3,070	2,842	3,095	2,842	2,927	3,208	3,098	3,099	3,054				
Total	8,308	8,077	8,364	8,146	8,429	9,216	9,146	9,183	9,160	8.7%	2.2%	8.5%	4.3%

Compensation Total	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Transmission	605,059,190	591,937,030	552,123,353	617,853,477	609,600,282	633,080,237	685,912,274	714,013,912	713,037,600
Total Distribution	627,142,186	623,989,883	633,983,832	579,560,557	619,321,842	696,305,295	670,598,684	678,717,027	710,781,454
Total Shareholder Allocated	3,089,801	2,615,254	9,597,169	9,660,409	13,112,786	23,748,837	24,288,558	24,881,971	25,490,502

Undertaking JT 2.10

KT 2.1 b) The 4.2% increase in transmission compensation costs as referenced in line 111 of Exhibit KT2.1 includes compensation costs associated with a 2.2% FTE increase (as referenced on line 166 of KT2.1) and escalation assumptions in compensation. Based on the reasons outlined above, **overall transmission allocated compensation is increasing at a faster rate than the FTE increases.**

F-04-01 Pg. 36 Table 8 Mercer Compensation Benchmark 2017

Table 8: Mercer Compensation Benchmarking Study Results vs. Market Median

Total Compensation Above/Below Market Median

Employee Group	2008 Survey Results	2011 Survey Results	2013 Survey Results	2016 Survey Results	2017 Survey Results	Total Change from 2008 to 2017
Management	-1%	-17%	-1%	2%	1%	2%
Society	5%	5%	9%	11%	12%	7%
PWU	21%	18%	12%	16%	12%	-9%
Overall	17%	13%	10%	14%	12%	-5%

**Management employee group positioning of -17% to market median likely impacted by legislative freeze for non-represented compensation.*

I-02-021 Table 2 EP IRR 21

Table 2 - Updated Benchmark Based on Stated Assumptions: 2018 to 2022

	2017*	2018	2019	2020	2021	2022
Non-Represented		103.5	105.9	108.0	110.7	113.5
Market**		102.9	105.9	108.6	111.4	114.2
Multiple of P50	1.01	1.01	1.00	0.99	0.99	0.99
Energy Professionals		112.6	114.8	117.1	119.4	121.8
Market		102.3	104.7	106.7	108.8	110.9
Multiple of P50	1.12	1.10	1.10	1.10	1.10	1.10
Trades and Technical		114.0	116.3	118.6	121.0	123.4
Market		102.3	104.7	106.7	108.8	110.9
Multiple of P50	1.12	1.11	1.11	1.11	1.11	1.11
Total						
Multiple of P50	**1.12**	**1.11**	**1.10**	**1.10**	**1.10**	**1.10**

*Table 2 Notes: * Mercer Compensation Cost Benchmark Study was effective October 1, 2017; ** Market project based on CPI + 0.6% based on Mercer Compensation Survey results.*

SEC IRR 55

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

JT 2.15

Table 1: Estimated Dollar Differential – Hydro One (Dx and Tx)

	Study Year	2020	2021	2022
Estimated Dollar Difference (Hydro One to Market Median)	$70,915,000	$79,979,865	$80,535,602	$80,826,246

JT 2.9 Capital Allocation

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**

F-04-01 Attachment Towers Watson Benchmark 2018

Segment	Number of Incumbents Benchmarked	Hydro One Target Compensation (% above / below market median)		
		Salary Range Midpoint	Total Target Cash (TTC)	Target Total Direct Compensation (TDC)
Executives	25	-4%	-9%	-8%
Operations*	236	-2%	-3%	-3%
Core Services*	326	5%	7%	8%
Overall**	**587**	**2%**	**2%**	**3%**

* Operations and Core services positioning excludes executives (levels 8-10)
** Overall positioning represents incumbent-weighted average across all segment

F-04-01Pages 42 -47 APPENDIX A:

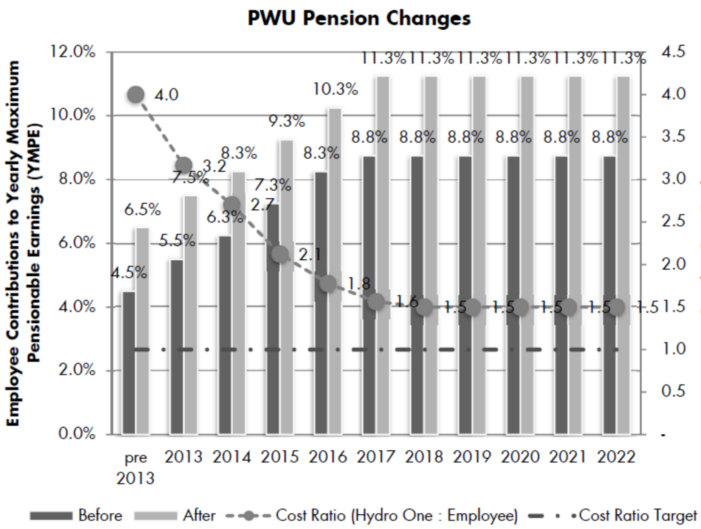

Figure 7: PWU Employee Pension Contribution Increases, 2013 to 2022

F-04-01Pages 42 -47 APPENDIX A:

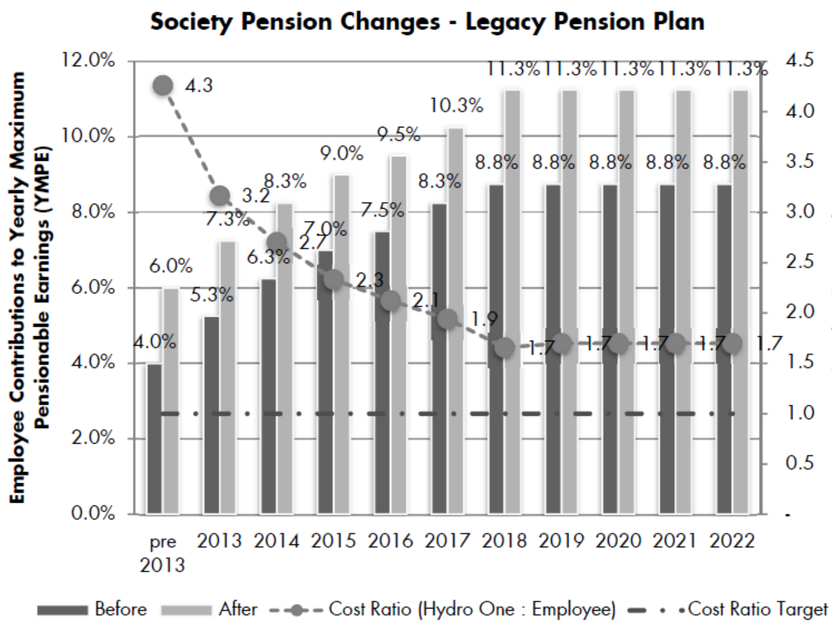

Figure A 1: Society Pension Changes - Legacy Pension Plan

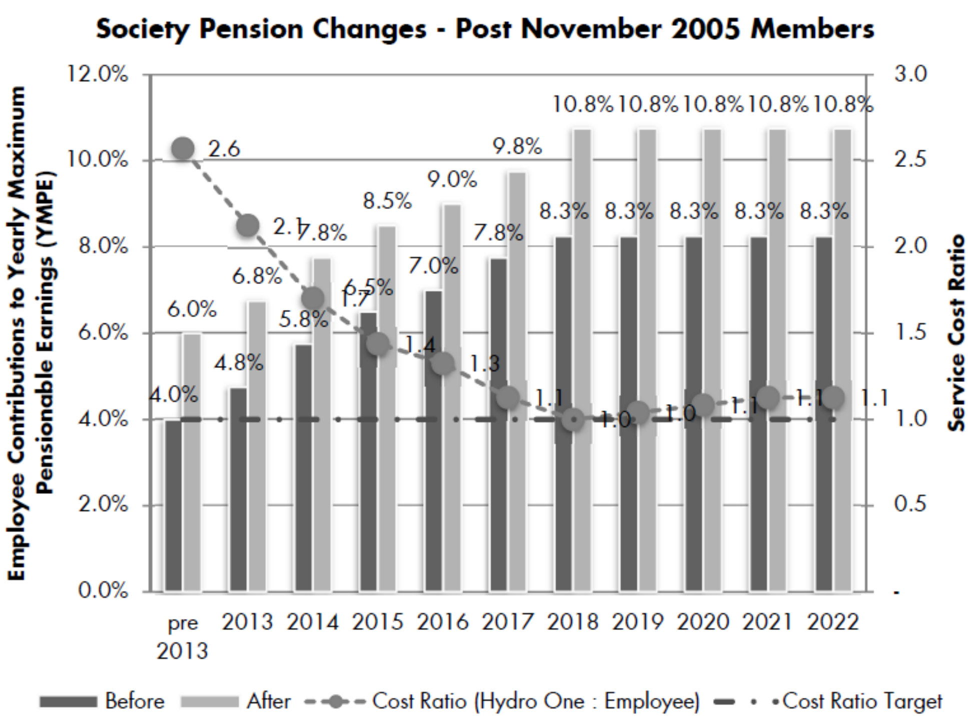

Figure A 2: Society Pension Changes - Post November 2005 Members

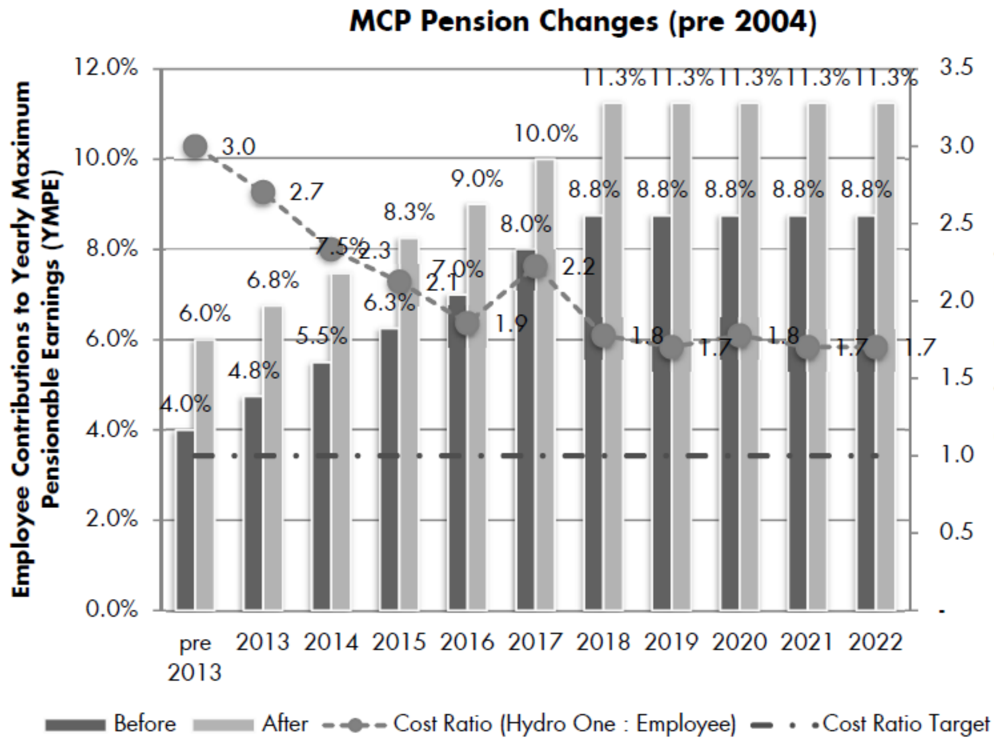

Figure A 3: MCP Pension Changes, Pre 2004

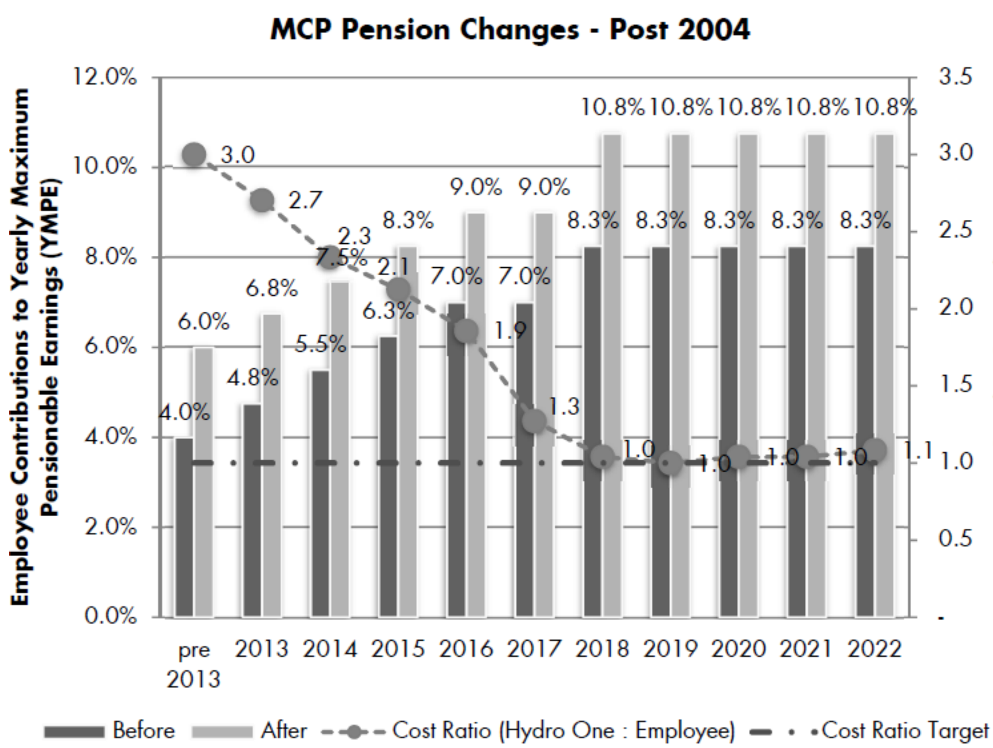

Figure A 4: MCP Pension Changes, Post 2004

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:
Hydro One is considering what information can reasonably be provided in response to this request. Additional time, information and calculations are needed from our external experts relating to this request.

Hydro One's efforts to reduce pension costs are set out in Exhibit F, Tab 4, Schedule 1 pages 38 – 39.

F-02-02 Corporate Costs- Human Resources

Table 1: Summary of Total Common Corporate Functions and Services OM&A

($ millions)

	Historical				Bridge	Test
Description	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
	Actual	**Actual**	**Actual**	**Actual**	**Forecast**	**Forecast**
Corporate Management	16.4	16.1	27.6	32.6	26.5	26.9
Finance	39.1	38.1	34.6	38.3	34.6	35.8
Human Resources	13.6	15.6	17.9	21.5	23.9	24.3
Corporate Affairs and Outsourcing Services	17.3	15.2	13.4	12.2	10.5	10.6
General Counsel and Secretariat	8.6	10.1	8.5	9.6	9.1	9.1
Regulatory Affairs	24.1	23.3	21.0	20.6	19.9	20.3
Security Management	4.2	4.6	4.4	5.2	4.0	4.2
Internal Audit	4.2	4.9	6.8	5.6	5.8	6.2
Real Estate and Facilities	60.0	58.6	56.9	57.9	55.5	62.5
Total CCF&S Costs	**187.5**	**186.6**	**191.2**	**203.4**	**189.8**	**199.8**
Change Year over Year		**-0.5%**	**2.5%**	**6.4%**	**-10.4%**	**5.3%**