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

BY COURIER, RESS AND COURIER

November 18, 2019

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

Dear Ms. Long,

EB-2019-0082 – Hydro One Network's 2020-2022 Transmission Rates Application – Undertaking Responses

Attached please find the following undertaking responses in respect of the above noted proceeding:

J 3.7	J 7.5
J 4.4	J 7.6
J 5.8	J 9.1
J 6.3	J 9.2
J 7.4	

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

Sincerely,

ORIGINAL SIGNED BY FRANK D'ANDREA

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

UNDERTAKING J3.7

Reference:

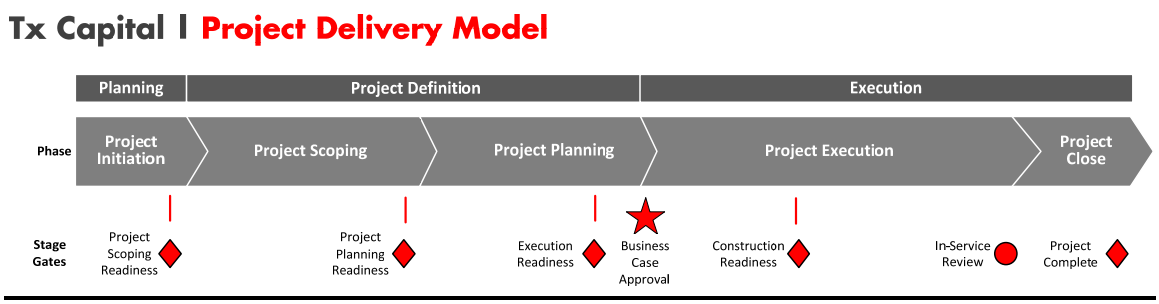
JT 1.16

Undertaking:

To provide data supporting success rate in terms of projects delivered on budget, over budget, under budget, and on time, late, or early.

Response:

Hydro One measures a project from the Business Case Approval at the end of the Project Definition Phase (shown in the figure below).



Hydro One's Planning and Project Definition processes are designed to produce an effective project execution plan capturing scope, schedule and cost requirements and identifying any potential risks likely to arise and change project scope, schedule and cost.

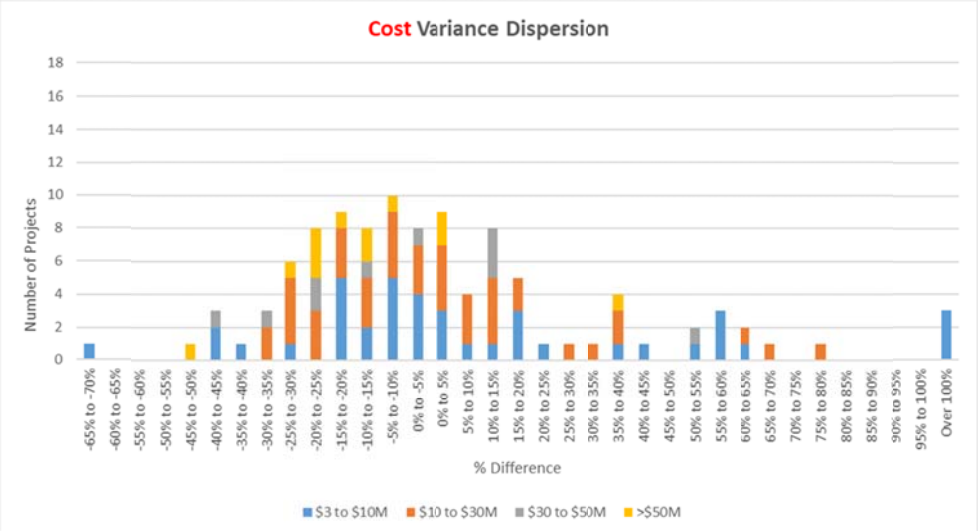
During Project Definition, a cross-functional project team is formed and the project execution plan is developed. During this phase all major material is identified and engineering studies and surveys are complete and basic layout drawings including the phasing of work are determined. In addition, a preliminary outage staging plan, comprehensive schedule, and risk registry are produced.

Key internal and external stakeholders are consulted during the Project Definition phases including but not limited to: Indigenous Relations, Community Relations, Customer Solutions, Regulatory Affairs, and Real Estate. This ensures that proper consultation, engagement, and risk identification and mitigation actions can be incorporated into the project execution plan.

Witness: Andrew Spencer

At the culmination of the Project Definition phases, the project execution plan is subject to a stage gate panel review and ultimately, Business Case Approval. At this point the scope, schedule and cost of a project are firm and a baseline is created and reported against. For more information on the project planning process please refer to the Capital Work Execution Strategy (Exhibit B, Tab 2, Schedule 1).

The graph below provides cost performance relative to the approved business case for projects that were completed over the 5-year period between 2014 and 2018.[1] The majority of projects were completed at[2] or below their approved business case budget. This demonstrates that at the portfolio level there are a balanced number of projects above and below the approved budget, which is consistent with Hydro One's objectives. With one exception, all large projects that had an approved business case budget greater than $50 million were completed on or below budget.

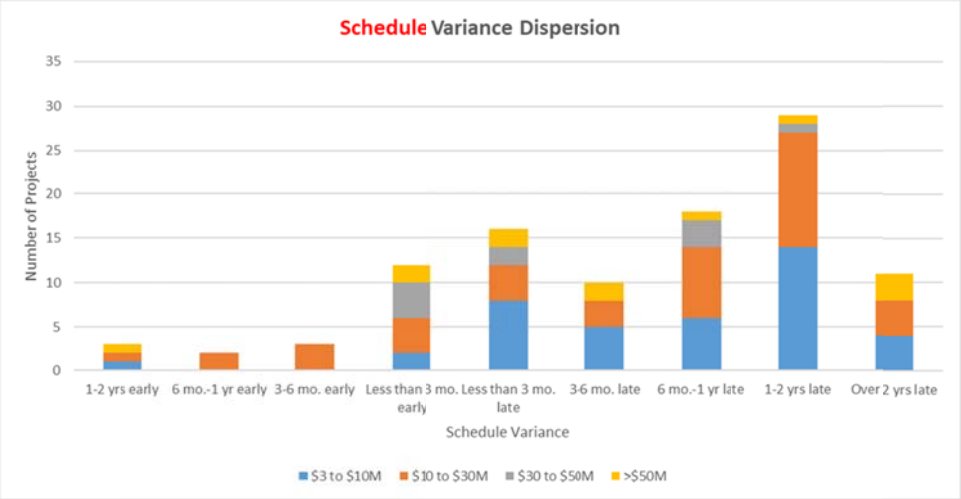


[1] The data set includes the majority of Transmission Capital Power System projects completed between 2014 and 2018 in the System Access, System Renewal and System Service categories. Excludes projects with business case approved budgets <$3M and excludes projects where approved budget values were not readily available.

[2] On Budget refers to projects that had a cost variance between -10% and +10% relative to the business case approved budget which aligns with Hydro One's criteria for a major variance.

The graph below provides schedule performance relative to the approved schedule for projects that were completed between the 5-year period of 2014 and 2018. Almost half of the projects were completed early or on time[3] relative to their approved business case schedules. This analysis uses the final project in-service date to indicate total project completion, however many projects have substantial phases completed and are in-use well before this point in time, and therefore a negative skew is not a major concern in and of itself.

Hydro One is continually learning and enhancing project planning, definition, and execution practices so that the projects are delivered safely and efficiently against the plan.



[3] On Time refers to projects that have a schedule variance between -6 months and +6 months relative to business case approved schedule.

UNDERTAKING J4.4

Reference:
GP-01 p. 32 and K-4.2, ISD-GP-18, p. 23 of 24

Undertaking:
To confirm the exchange rate data in GP-01, and advise whether a correction is needed.

Response:
The exchange rate shown on line 2 of ISD-GP-01, p.32 of 33 is shown as a rounded value of $1.3 CAD, however the calculation was based on $1.3366 CAD.[1] The exchange rate shown on line 2 of ISD-GP-18, p.23 of 24 is also shown as a rounded value of $1.3 CAD, however the calculations was based on $1.3310 CAD.[2]

As such, no correction is needed, on this particular point. However, on a related note in respect of this evidence, a correction is required to the calculation of the *Adjusted 2016 Industry Comparator Average Cost* value of $996/ft^2 CAD on page 23 of 24 in ISD-GP-18, as follows:

The BC Transmission Corporation project is split into three values:

i. the actual project, and for further analysis, two sub-components were broken out;
ii. Control Centre (building only); and
iii. Backup Control Centre (building only).

There were only eight control facility projects (NYISO, AEP, ISO-New England, PG&E's three control centres, First Energy, and BC Transmission Corp) in the comparator table. The BC Transmission Corporation costs were calculated three times, when it should have only been the actual project costs of $133M or $1,310 CAD/ft^2 included in the weighted average calculation.

The corrected *Adjusted 2016 Industry Comparator Average Cost* for ISD-GP-18 is $1,072 CAD/ft^2 as shown below.

[1] Bank of Canada Daily Exchange Rate, March 21, 2019, https://www.bankofcanada.ca/rates/exchange/daily-exchange-rates-lookup/
[2] Ibid, March 31, 2017

$$\frac{\$950 + \$789 + \$742 + \$1,395 + \$1,582 + \$936 + \$874 + \$1,310}{8} = \$1,072\ CAD/ft\text{^}2$$

This was corrected in the table in EB-2019-0082, ISD-GP-01, p.32 by utilizing only the full project cost of the BC Transmission Corporation project of $133M when calculating the overall average cost of the eight control facility projects, resulting in the **2018 cost of $1,141 CAD/ft^2**, a 6% increase after readjusting for inflation. This table featured industry comparator projects which were placed into service pre-2015.

Using the pre-2015 dataset from ISD-GP-01, the analysis demonstrates that the estimated cost of the ISOC of $1,266 CAD/ft^2 is comparable[3] with the average cost of $1,141 CAD/ft^2 for facilities evaluated in the study. The marginally higher cost/ft^2 is primarily due to the impact of new foreign tariffs and market pressures for labour resources (e.g. a 20% increase to the cost of steel, a 25% increase to the cost of labour, and a 30% increase to the cost of rebar).

[3] In J-4.05, Attachment 1, Hydro One provided the Board of Directors' approved business case. The business case had a lower total cost, the reason for which is explained in the undertaking, and therefore a lower cost of $1,224 per sq. ft. is presented in the business case.

Further and by way of update to provide a more recent comparison of industry comparator costs, we have updated below the industry comparator table (relative to the table at ISD-GP-01, Appendix B, p.32). This includes investments in facilities and data centre development projects constructed after 2015.[4] The costs associated with these projects are more current than the ones included at ISD-GP-01and thus provide a more useful comparison to the ISOC costs. Updating the industry comparator table for post-2015 projects, results in a *2018 Industry Comparator Average Cost* of $2,215 CAD/ft^2 as shown below (in comparison to the estimated cost of the ISOC, which is $1,266 CAD/ft^2).

Industry Comparator	**Cost ($M)**	**Size (ft^2)**	**Year Built**	**Adj. Cost to 2018 $ (CPI)**	**Cost (2018 $/ft^2)**
Project 1	191.6	167,000	2017	197.2	1,181
Project 2	184.0	115,000	2019	184.0	1,600
Project 3	46.5	35,833	2016	48.3	1,348
Project 4	75.8	51,000	2015	80.0	1,569
Project 5	345	175,000	Construction Underway	345	1,971
Project 6	250.4	110,000	2018	250.4	2,276
Average Cost, USD					**1,658**
Average Cost, CAD[5]					**2,215**
Proposed ISOC Cost Comparison	**159.8**	**126,200**	**2021**	**159.8**	**1,266**

[4] Costs have been provided to Hydro One on an anonymized basis.

[5] Using the $1.3366 CAD exchange rate used in ISD-GP-01.

UNDERTAKING J5.8

Reference:

Transcript Volume 5, Page 163, line 9 to Page 167, line 19

Undertaking:

To describe how Hydro One would communicate how successful it was in executing the capital plan, at a Board of Directors level of detail.

Response:

The following metrics would communicate the company's success in executing its capital plan, at a "Board of Directors level" of detail:

1. Capital Expenditures and In-Service Additions Reporting, comparing the previous year-end actuals against the OEB-approved budget, along with associated variance explanations, at:
    a. The envelope level; and
    b. Using the OEB category levels of *System Access, System Service, System Renewal,* and *General Plant*
2. Project and Program Level Reporting: Status report for all projects and programs requiring Board of Directors approval (i.e. total gross budget over $50 million) including schedule and costs, relative to Business Case Approval levels
3. Costs and schedule variances for projects, relative to Business Case Approval levels, broken down by project value ($3-$10 million; $10-$30 million; $30-$50 million; over $50 million)

These metrics are illustrated in the attached sample PowerPoint as an example of how this information could be presented at a "Board of Directors level" of detail.

Project level performance reporting is tracked relative to the estimates included in the Business Case Approval, as shown at the 'star' in Figure 1 below. At this point, the scope, schedule, and cost of a project are well-defined and a baseline is created and reported against.

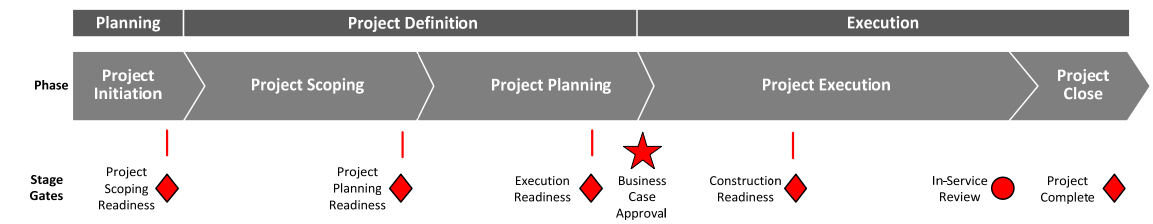


Figure 1 - Transmission Capital Project Delivery Model

In addition, Exhibit C, Tab 2, Schedule 1, Attachment 1, *Capital Program Performance Report – 2017 and 2018* (the "Capital Variance Report"),[1] describes Hydro One's performance relative to plan by identifying and explaining material scope, cost or schedule variances for projects and programs with total budgeted costs greater than $3 million which were completed in 2017 and 2018. The results indicate good performance at the portfolio level and the individual project and program levels and reflect Hydro One's ongoing efforts to continually update and enhance its Transmission Capital Project Delivery Models.

[1] This exhibit fulfills the OEB direction from the EB-2016-0160 proceeding

Filed: 2019-11-18
EB-2019-0082
Exhibit J-5.8
Attachment 1
Page 1 of 5

Sample Report

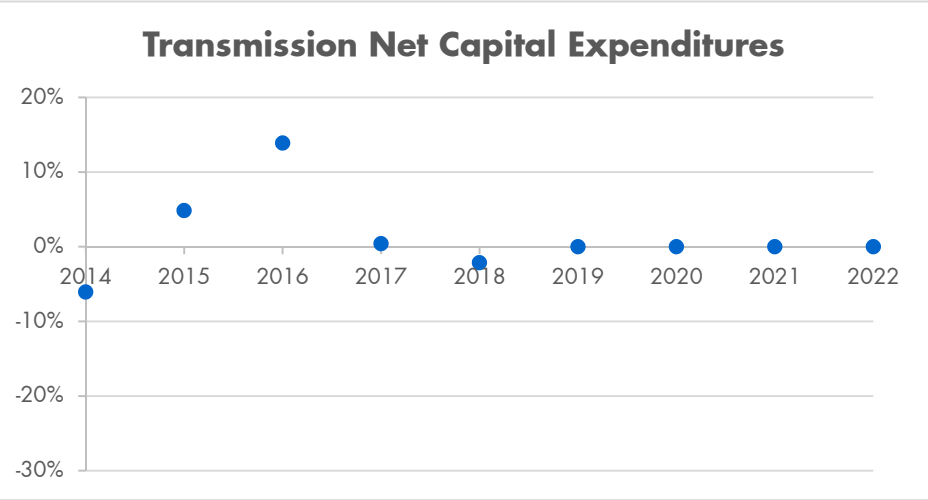
For Illustrative Purposes only

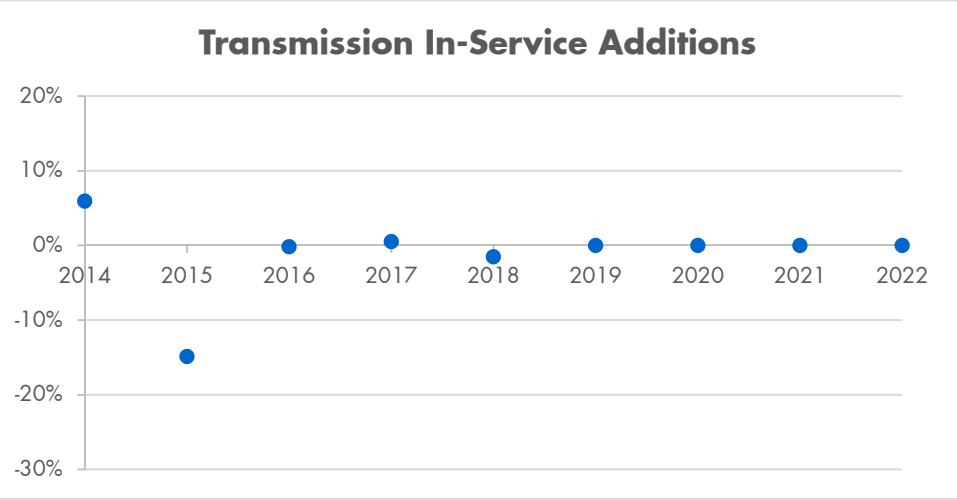
hydro One

Transmission Capital Portfolio **Data provided for Illustrative Purposes only**

Historical Performance against Capital Expenditure and In-Service Additions Targets [1]

Recent delivery of the transmission capital portfolio against target has improved significantly versus prior years for both net capital expenditures [2] and in-service additions (ISA)





Net CAPEX $M	2014	2015	2016	2017	2018	2019	2020	2021	2022
OEB Approved	899	899	866	950	1000	1038	1192	1318	1370
Actuals	845	943	987	954	967				
% Variance	**-6.1%**	**4.8%**	**13.9%**	**0.4%**	**-3.3%**				

ISA $M	2014	2015	2016	2017	2018	2019	2020	2021	2022
OEB Approved	863	821	912	868	1178	951	1037	1298	1293
Actuals	914	699	910	872	1160				
% Variance	**5.9%**	**-14.9%**	**-0.2%**	**0.5%**	**-1.5%**				

- Historically, Hydro One had difficulty in delivering the complete transmission capital portfolio on target due to delays in some planned projects initiating, and project-level variances with a bias towards over-estimation
- Portfolio performance over recent years has improved significantly, in large part due to an improved project definition process and tools that were initiated in 2016. We are now seeing increased predictability both in terms of capital expenditure and in-service additions at both the portfolio and project levels.

(1) Data set includes all of Hydro One Networks functional areas, power system and other

Transmission Capital Portfolio Data provided for Illustrative Purposes only

Capital Expenditures and In-Service Addition Performance Relative to Regulatory Categories

	e.g. 2018 Net Capital Expenditures			
	OEB Approved ($M)	Actual ($M)	Variance (%)	Variance Explanation
System Access	24.3	33.7	38.6%	TBD
System Renewal	780.4	776.2	-0.5%	TBD
System Service	75.6	73.9	-2.2%	TBD
General Plant	119.7	83.6	-30.2%	TBD
Total	**1,000.0**	**967.3**	**-3.3%**	

	e.g. 2018 In-Service Additions			
	OEB Approved ($M)	Actual ($M)	Variance (%)	Variance Explanation
System Access	68.2	12.1	-82.3%	TBD
System Renewal	761.4	852.3	11.9%	TBD
System Service	244.8	218.0	-10.9%	TBD
General Plant	104.0	77.9	-25.1%	TBD
Total	**1,178.4**	**1,160.4**	**-1.5%**	

Projects and Programs Performance

Status of Projects and Programs against Business Case Approval / Budget

On Track
At Risk
Pending Variance Approval

Data provided for Illustrative Purposes only

Project Description	Status	Completion Date	Costs[2]	Forecasted Cost Variance	Comment
Example **Beach TS Station Rebuild** *Located within the industrial core in the City of Hamilton serving the bulk electricity system as well as load delivery to LDC (Alectra)* **Scope** Project includes replacement or upgrade of multiple end-of-life assets in the 230kV and 115kV switchyards including transformers, breakers and switches and associated protection and control facilities.		Original: Q4 2019 Current: Q4 2019 Forecast: Q4 2019 Released: Q4 2013	Original: $77.7M Current: $77.7M Forecast: $74.3M To-Date: $74.0M	Original:-$3.4M (-4%) Current:-$3.4M (-4%)	**Status:** Site drainage, physical security perimeter, control building alterations and lighting replacements in progress. T3/T4 transformer equipment & foundations removals in progress.

Program Description	Status	Units	Costs	Variance	Comment
Example **Transmission Lines Insulator Replacement Program** **Scope** Replacement of prematurely deficient Transmission lines insulators that would otherwise not survive the life of the circuit **Unit of Measure:** Number of Structures		Budget: 3700 Actual 3700	Budget: $61.4M Actual: $65.7M	Cost: $4.3M (7.0%) Units: 0 (0%)	**Status:** Significant number of structures with challenging terrain

(1) Data set would inlcude all projects and programs with a Total Gross Budget >$50M. **(2)** Original – Refers to the original Business Case Approval at the beginning of the Project Execution phase; Current – refers to the most recent approval, i.e. if a variance has been approved for the project.

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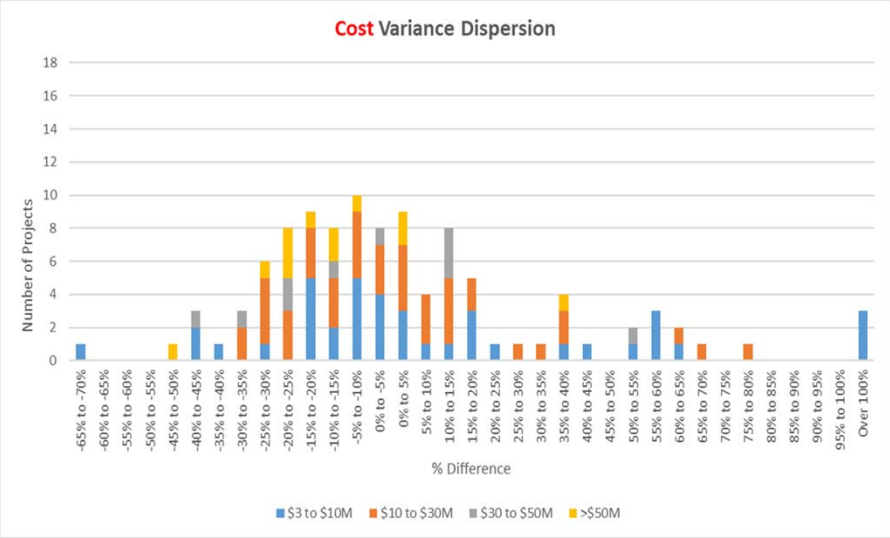
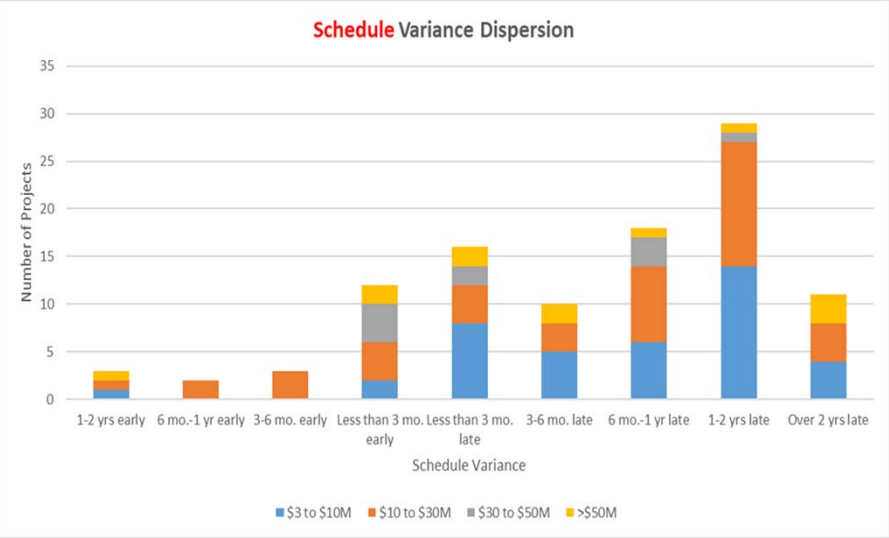
Tx & Stations Historical Project Performance

Cost and Schedule Variance Dispersion (1)

Data provided for Illustrative Purposes only

- Analysis showing cost and schedule performance for completed projects relative to Business Case approved cost budgets and schedule.
- The data set in the graphs below is for projects completed from 2014 to 2018 and is included in Undertaking J.3.07.





	Projects Completed (3 year average)	Projects Completed (2020)	Change
Overall Cost Variance Dispersion (std. dev. [%])	N/A	N/A	N/A
Overall Schedule Variance Dispersion (std. dev. [Days])	N/A	N/A	N/A

(1) Data set includes Tx power system projects greater than $3M only

UNDERTAKING J6.3

Reference:

JT2.24

Oral Hearing Volume 6, Page 46, Line 24 – Page 47, Line 19

Undertaking:

To provide an example of a monthly productivity report.

Response:

Attached is the Productivity Report for December 2018 (dated January 2019), which was prepared on a consolidated basis and includes productivity initiatives for both Transmission and Distribution.

Please note that the Productivity Report contains limited redactions which are subject to confidentiality request set out in a separate letter from Hydro One's counsel.

Productivity Review

January 31st, 2019

Meeting Chair: Rob Berardi, VP – Shared Services

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December 2018 Summary

Purpose of this meeting

- Provide visibility on major Operations initiatives, and to enable cross-functional collaboration across LoB's
- **Our goal today** is to review our 2018 September results and discuss any concerns for 2019 planning.

Summary of progress

- **YTD Actuals increased from Nov to Dec from $123.8M to $127.3M mainly due to:**:
  - Fleet 12.6M
  - Provincial Lines $3.7M
  - Supply Chain $2.4M
  - Planning $2.0M

Savings to date

- **As of December Year end actuals, we are $19.7M ahead of Year end budget of $107.6M. Achieving $127.3M (Tier 1) in productivity savings, and $145.2M (Tier 1 + Tier 2).**

Agenda

• Meeting Follow-Ups and Action Items	All	5 min
• Overview of Operations Productivity	Rob Berardi	40 min
• Roundtable of current initiatives - Productivity	All VPs	30 min
• Appendix (Supporting Materials)	All VPs	10 min

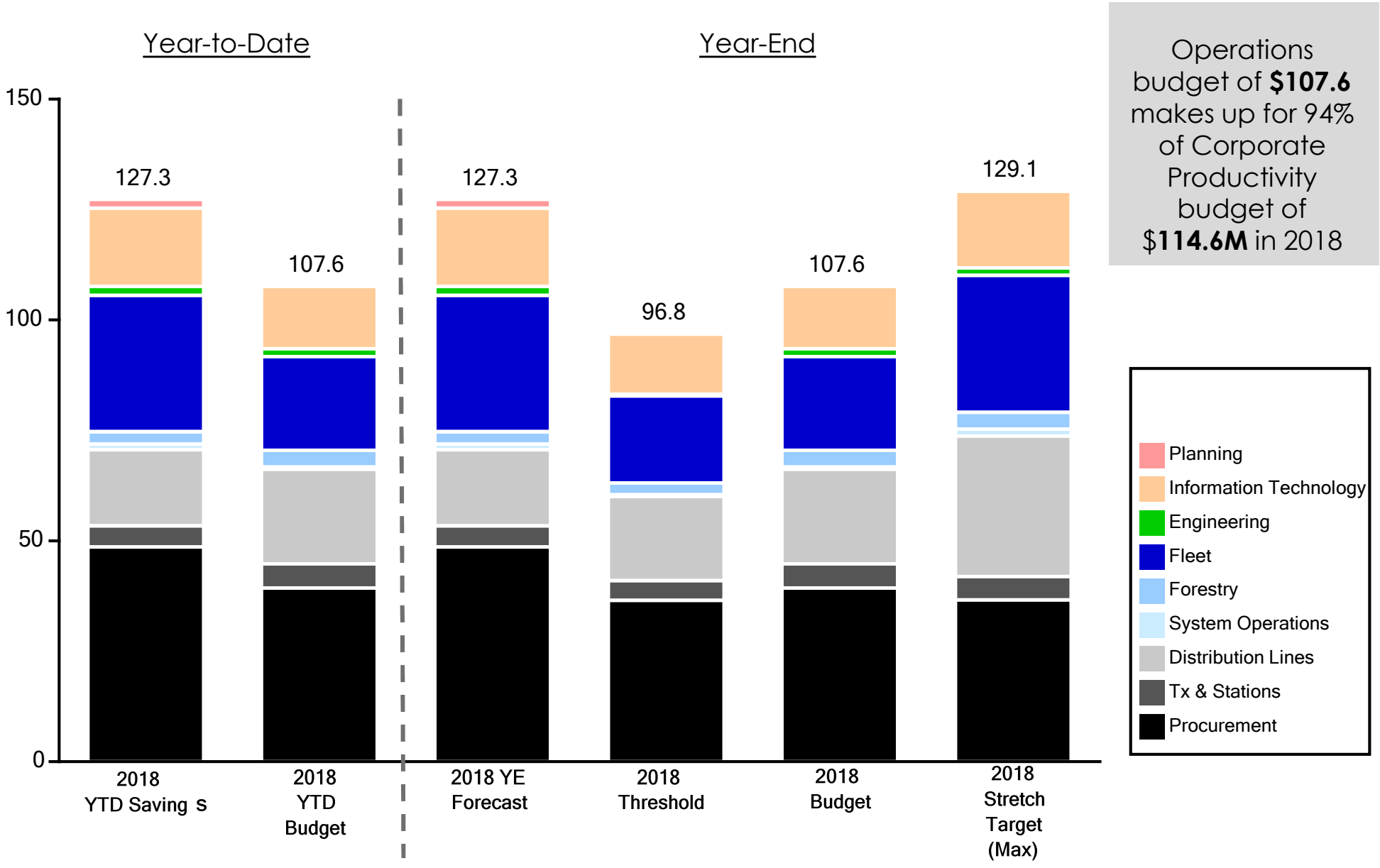
November Major Initiatives: Follow-Up

#	Item	Sponsor	Status	Expected Completion Date By
None				

Agenda

• Meeting Follow-Ups and Action Items	All	5 min
• Overview of Operations Productivity	Rob Berardi	40 min
• Roundtable of current initiatives - Productivity	All VPs	30 min
• Appendix (Supporting Materials)	All VPs	10 min

2018 Productivity Savings Summary (Tier 1)



Operations budget of **$107.6** makes up for 94% of Corporate Productivity budget of $**114.6M** in 2018

Note: All numbers updated for inclusion of ISD. Max has been adjusted using a proration of the all non-Ops amounts.

Hydro One Total Productivity Savings – December 2018

OPERATIONS			
Line of Business	**YTD Actual**	**YE Forecast**	**YE Budget**
Fleet	$ 30.9	$ 30.9	$ 21.2
Supply Chain	$ 48.6	$ 48.6	$ 39.4
Dx Lines	$ 17.2	$ 17.2	$ 21.4
Forestry	$ 2.8	$ 2.8	$ 3.8
Engineering	$ 2.0	$ 2.0	$ 1.8
Planning	$ 2.0	$ 0.0	$ 0.0
Tx & Stations	$ 4.8	$ 4.8	$ 5.5
System Operations	$ 1.3	$ 1.3	$ 0.5
Information Technology	$ 17.7	$ 17.7	$ 14.1
Total Operations	**$ 127.3**	**$ 127.3**	**$ 107.6**
HYDRO ONE			
Customer Service	$ 5.5	$ 5.5	$ 3.3
Finance	$ 0.1	$ 0.1	$ 0.6
People & Culture	$ 2.7	$ 2.7	$ 3.1
Total Corporate	**$ 8.2**	**$ 8.2**	**$ 7.0**
TOTAL	**$ 135.5**	**$ 135.5**	**$ 114.6**

Detailed Breakdown of Tier 2 – December 2018

Month over Month Shift in Tier 2

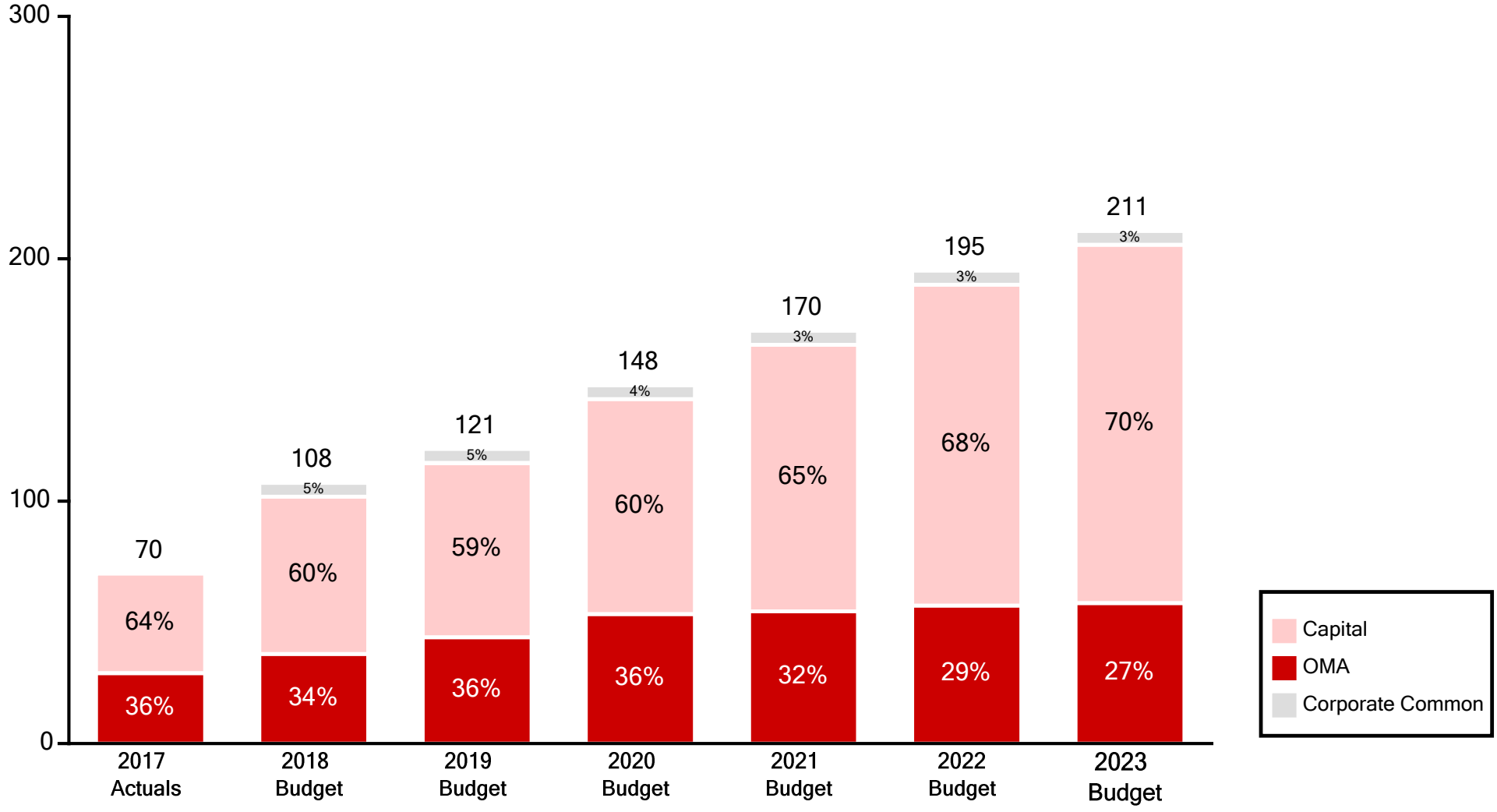
Line of Business	Tier 2 YE Forecast @ Dec	Tier 2 YE Forecast @ Nov
Fleet	$ 0.0	$ 0.0
Supply Chain	$ 12.5	$ 11.0
Dx Lines	$ 0.0	$ 0.0
Forestry	$ 0.0	$ 0.3
Engineering	$ 0.1	$ 0.4
Planning	$ 0.0	$ 0.0
Tx and Station Services	$ 3.9	$ 3.2
System Operations	$ 1.0	$ 1.0
Information Solutions	$ 0.3	$ 0.0
TOTAL	**$ 16.0**	**$ 16.0**

Tier 2 Details – December 2018

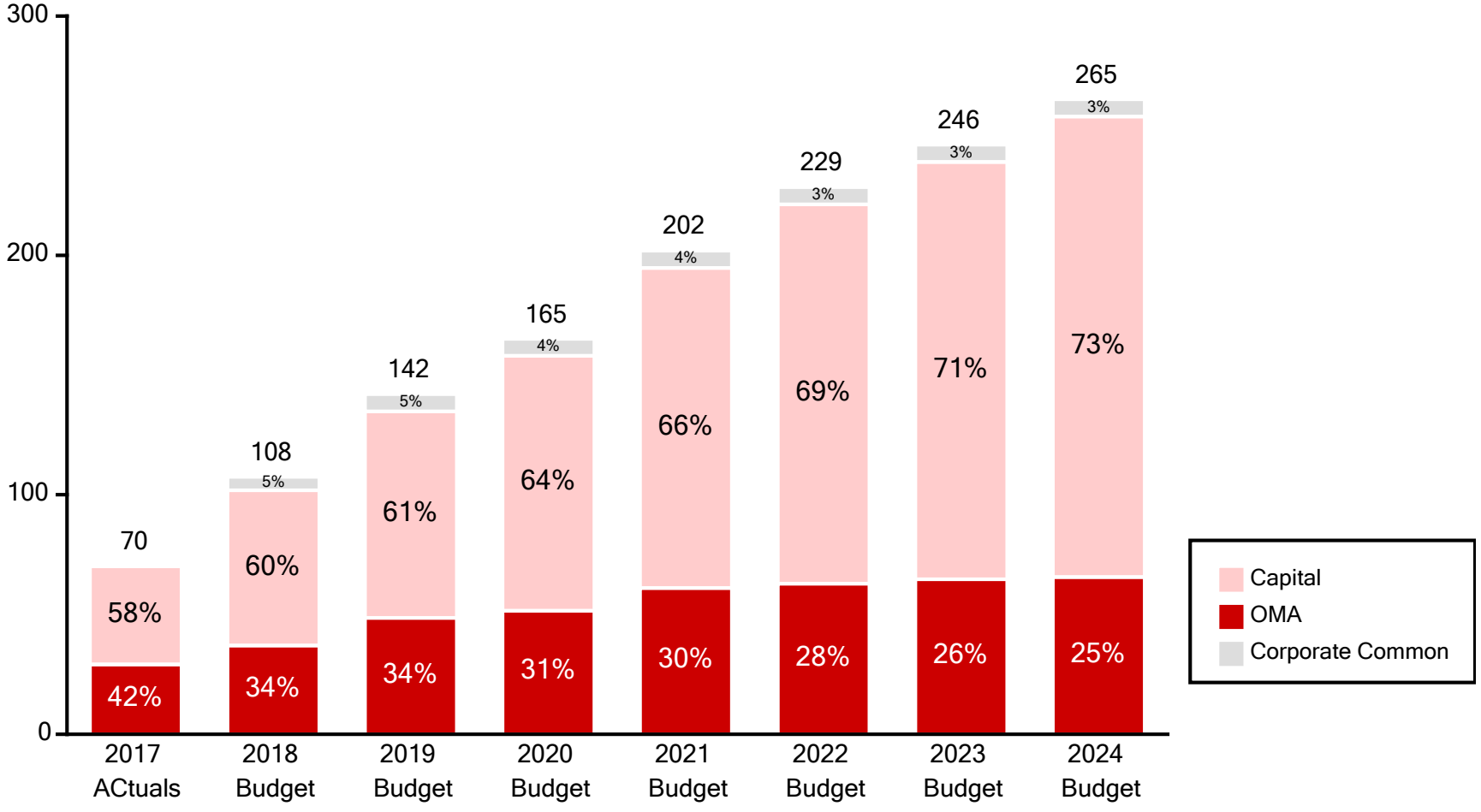
Supply Chain ($12.5)
- Telecom & ISD

Tx and Stn ($3.9)
- OT Reduction
- TWHQ

2018-2023 Operations Productivity OMA/CAPEX Breakdown



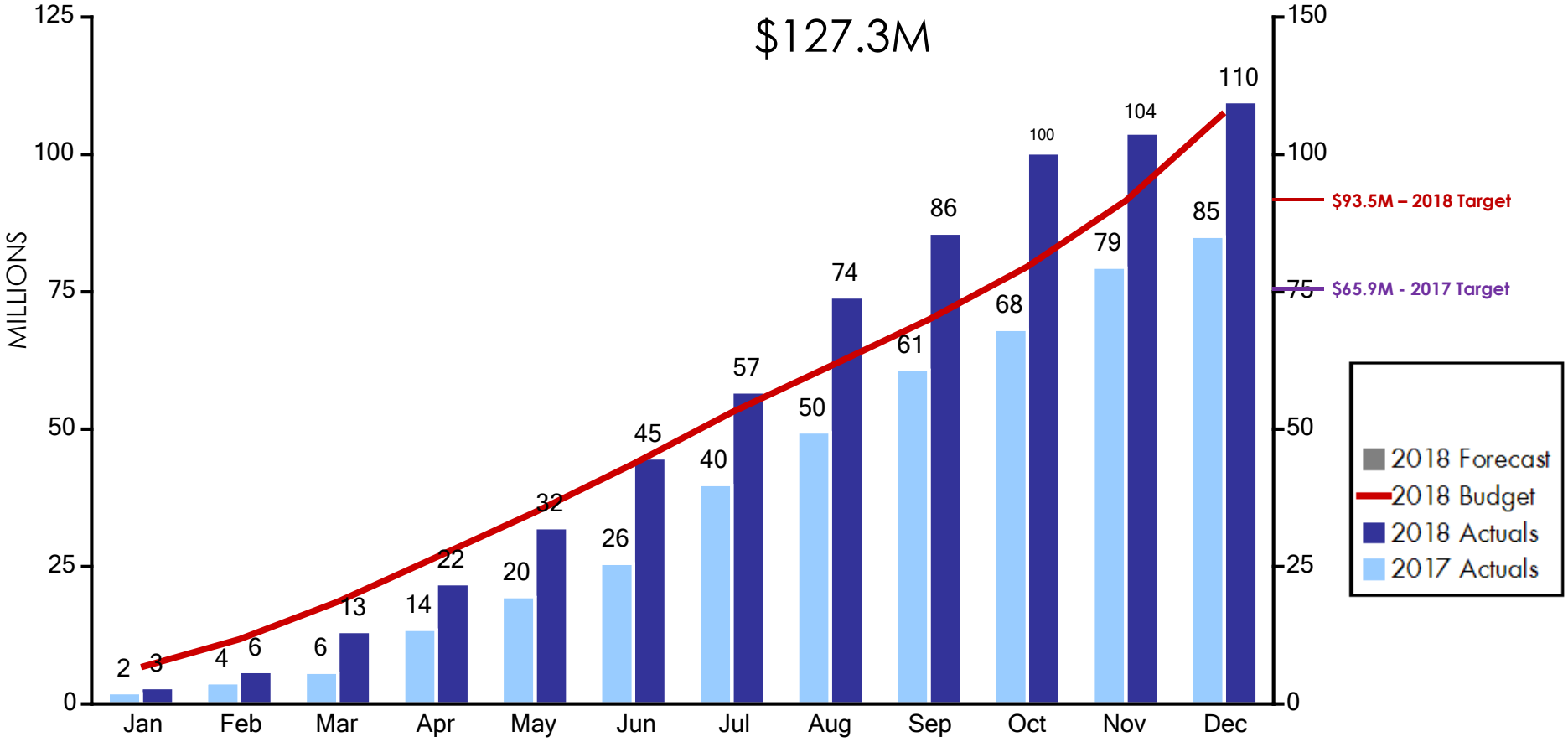
2019-2024 Operations Productivity OMA/CAPEX Breakdown



2017 Actuals vs. 2018 Actuals @ Dec. 31, 2018

Note: November Forecast $123.8M

December Actual $127.3M



Note: ISD Productivity not included in chart = 109.6M. With ISD included 127.3M

Summary of productivity savings to date

Legend
- Meets or Exceeds Budget
- Below Budget
- Below Threshold

Line of Business	Specific Initiative	YTD Tier 1 Savings	YTD Budget	YE Tier 1 Forecast As of Nov	YE Tier 1&2 Actual Dec.	YE Budget	YE Status	Summary
Information Technology	All	$17.7M	$14.1M	$17.6M	$18.0M	$14.1M		
Engineering	All	$2.0M	$1.8M	$1.7M	$2.1M	$1.8M		• Savings identified through the EDM Project and DOM Maintenance
Planning	All	$2.0M	$0.0M	$0.0M	$0.0M	$0.0M		• Moved DOM Maintenance initiative into Engineering Savings as of February 2018
System Operations	All	$1.3M	$0.5M	$1.3M	$2.3M	$0.5M		• Initiative includes outage cancellation reductions, load transfer studies & Dx After Hours
TX & Stations	All	$4.8M	$5.5M	$4.8M	$8.7M	$5.5M		• Savings on 10 initiatives continuing to drive productivity.
Distribution	Move to Mobile	$5.8M	$13.0M	$5.0M	$5.8M	$13.0M		• Savings derived from M2M clerical and field initiative.
	Cable Locates	$11.4M	$8.4M	$11.2M	$11.4M	$8.4M		• Savings from the continued outsourcing of demands to locate HONI cables to a low cost service provider and avoiding locates when possible
	Forestry	$2.8M	$3.8M	$3.2M	$2.8M	$3.8M		• Savings below budget include: inclement weather and switching & grounding
Shared Services	Fleet	$30.9M	$21.2M	$31.2M	$30.9M	$21.2M		• Includes Fuel and MFA savings. Fleet initiative being implemented with vehicles right-sizing.
	Supply Chain	$48.6M	$39.4M	$47.7M	$61.1M	$39.4M		• Significant value locked-in through renegotiated contracts, to be realized over coming months
Total Cost Savings		**$127.3M**	**$107.6M**	**$123.8M**	**$145.2M**	**$107.6M**		

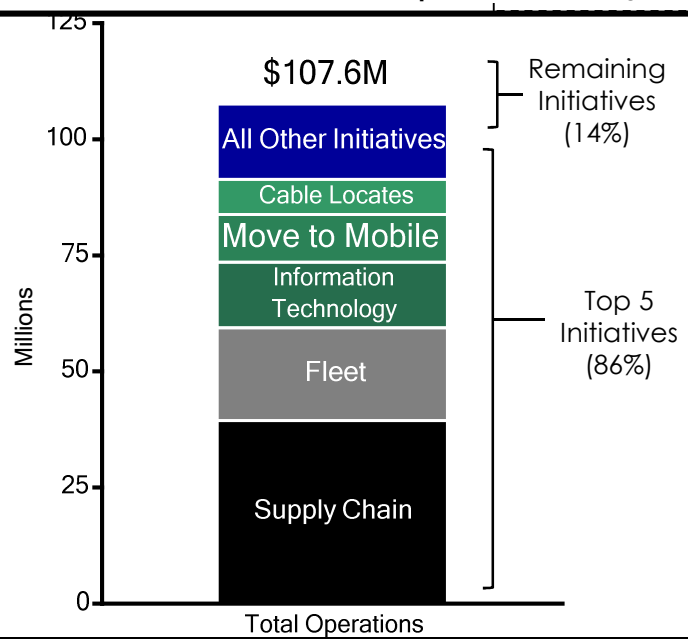
Note 1: YE Budget includes Cable Locates $7.6M and Fault Indicators at $0.8M. Note 2: YTD Budget includes Cable Locates and Fault Indicators

Top Initiatives

TOP 5 INITIATIVES MAKE UP FOR ~86% OF YE BUDGET

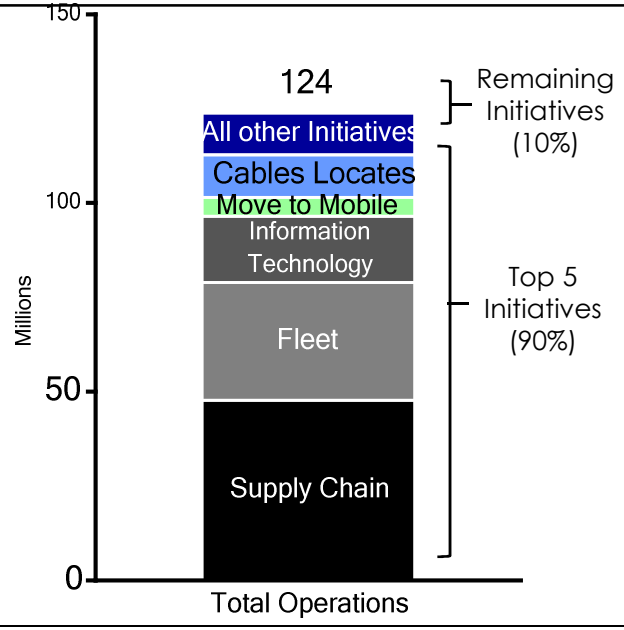
Initiative	YE Budget	% of Total Operations
Supply Chain	39.4	37%
Fleet Capital Reduction	21.2	19%
Information Technology	14.1	13%
Move to Mobile (Field)	10.3	10%
Cable Locates	7.6	7%
Total	**$92.6M**	**86%**

Total budget of $107.6M



TOP 5 INITIATIVES MAKE UP FOR ~90% OF YE ACTUAL

Initiative	YE Actual	% of Total Operations
Supply Chain	48.6	38%
Fleet Capital Reduction	30.9	24%
Information Technology	17.7	14%
Cable Locates	11.4	9%
Move to Mobile (Field)	5.8	5%
Total	**$114.4M**	**90%**



Agenda

• Meeting Follow-Ups and Action Items	All	5 min
• Overview of Operations Productivity	Rob Berardi	40 min
• Roundtable of current initiatives - Productivity	All VPs	30 min
• Appendix (Supporting Materials)	All VPs	20 min

Supply Chain | December 2018

Rob Berardi / Susan Wylie

On Track
At Risk
Definite Impact

- Procurement activities that have a quantifiable impact on HONI work program
- Budgeted procurement savings that were allocated to LOB's 2018 investment drivers and cost centers are included below, as well as ongoing Supply Chain initiatives that continue to realize value for Hydro One

		YTD 2018		YE 2018					
Portfolio Group	Status	Actual	Budget	Actual (Tier 1)	Actual (Tier 2)	Tier 1 & Tier 2	Budget	YE Comment	Actions to Tier 2 to Tier 1
Transmission & Stations		28.1	24.0	28.1	0.3	28.4	24.0	• [redacted]	
Telecom and ISD		4.9	4.9	4.9	10.4	15.3	4.9	• [redacted]	
Distribution		5.0	4.5	5.0	1.5	6.4	4.5	• YE actuals exceeded YE budget • [redacted]	
Corporate Functions		0.5	0.5	0.5	0.3	0.9	0.5	• [redacted]	
Non-Sourcing		10.1	5.5	10.1		10.1	5.5	• [redacted] • Higher than expected savings due to increased management of volume rebates and new tracking tool • Volume rebate backlog has now been collected, collection rate for remainder of year expected to slow	
Total Savings		**48.6**	**39.4**	**48.6**	**12.5**	**61.1**	**39.4**		

Fleet Services | December 2018

Rob Berardi

On Track
At Risk
Definite Impact

- The Telematics initiative has been implemented with ~4300 behavior modification devices and ~300 location-only devices at year-end 2017 with a goal to improve safety, reduce carbon footprint, as well as continuing to optimize the fleet complement.

		YTD 2018		YE 2018				
Portfolio Group	**Status**	**Actual ($M)**	**Budget ($M)**	**Forecast (Tier 1 - $M)**	**Forecast (Tier 2 - $M)**	**Budget ($M)**	**Comment**	**Actions to Move Tier 2 to Tier 1**
Telematics Fuel Savings		(0.23)	1.2	(0.23)	0.00	1.20	Definite Impact – Deterioration in expected fuel consumption efficiency for LOB Telematics equipped on-road assets. Non-Productive idle is trending higher compared to 2016. Negative Productivity reported in conjunction with approved methodology.	• None
Fleet Capital Reduction (MFA)		29.82	19.98	29.82	0.00	19.98	On track	• None
Right-Sizing Gains on Disposition		1.27	N/A	1.27	0.00	N/A	On track – Net New Productivity for 2018, no budget was set.	• None
Total Savings		**30.86**	**21.18**	**30.86**	**0.00**	**21.18**		

Key Developments / Achievements

- Savings will be realized through:
  - An improvement in driver behavior (e.g. reduction in speeding incidents, sharp acceleration, harsh braking and non-productive idling)
  - The fleet right-sizing exercise in collaboration with the lines of business. Assets with low utilization have been removed from service and further fleet optimization will continue through 2018. These initiatives will reduce our capital investment requirement going forward.
  - The net gains from the sale of Surplused right-sized transport and work equipment (TWE) via Investment Recovery.
- Complete all required documentation to send surplus assets to auction.
- Continue to work with LOBs to ensure accurate and thorough identification of all assets for continued right-sizing as required.

Key Decisions upcoming

- Assess the quantities and type of equipment within the Hydro One equipment pool to ensure optimal levels are maintained going forward.

Risks Being Managed

- Potential lag between decision and savings realized given vehicle resale / disposal process.
- Ineffective communication with LOB's in regards to the deterioration in expected fuel consumption efficiency.

Distribution Overview | December 2018

Brad Bowness/Scott Vicary, Dave Price & Kelly Kingsley

On Track
At Risk
Definite Impact

		YTD 2018		YE 2018						
Sub-initiative	Status	Actual	Budget	Forecast (Tier 1)	Forecast (Tier 2)	Tier 1 + Tier 2 Forecast	Budget	Comment	Actions to move $ to Tier 1	Initiative Status
Cable Locate Outsourcing	●	11.20	7.60	11.20	0.00	11.20	7.60	• Outsource portion of Dx cable locates to lower cost provider	• No action required all Tier 1	*On track*
Tx Brush Control	●	0.85	0.99	0.85	0.00	0.85	0.99	• Brush control unit costs compared against 2015 baseline. Difference in unit costs multiplied by the 2018 units will be used to derive savings.	• No action required	*At risk*
Inclement Weather	●	0.96	1.60	0.96	0.00	0.96	1.60	• Change management of shifts for temporary staff to increase flexibility during inclement weather	• No action required	*At risk*
Switching & Grounding	●	0.00	0.71	0.00	0.00	0.00	0.71	• Restore power faster by training Forestry crew(s) to open switches and apply grounds in place of Lines crews	• No action required	*At risk*
OCP Trouble Call Reduction	●	1.03	0.50	1.03	0.00	1.03	0.50	• Completion of the defect correction program will drive down the number of Trouble calls.	• No action required	*On track*
Move to Mobile Field Force	●	3.94	10.30	3.94	0.00	3.94	10.30	• Sustainment team is continuing support and will address defects through minor enhancements. • Year end forecast reflects 2017 year end actuals.	• No action required	*At risk*
Move to Mobile Back Office	●	1.86	2.70	1.86	0.00	1.86	2.70	• Methodology approved with Finance for monthly reporting and tracking. • Year end forecast reflects back office savings as identified in the 2018 business plan	• No action required	*At risk*
Total Category Value Savings		**19.84**	**24.4**	**19.84**	**0.00**	**19.84**	**24.4**			

hydro One

Transmission & Stations Overview

Sponsor: Andrew Spencer

On Track
At Risk
Definite Impact

		YTD 2018		YE 2018						
Sub-initiative	Status	Actual	Budget	Forecast (Tier 1)	Forecast (Tier 2)	Tier 1 + 2 Forecast	Budget	Savings Tracking Method	Actions to move $ to Tier 1	Initiative Status
OT Reductions	●	2.5	1.0	1.0	1.5	2.5	1.0	• % old OT hrs on base reg. hrs.* new reg. hrs. – new OT hrs * lbr rate.	Another review of stats and logic for 2019	*Clear plan in place*
Recondition Oil	●	0.6	0.6	0.6	0.0	0.6	0.6	• Liters of oil used * difference in cost/L ($1.5)		*Clear plan in place*
TWHQ Stations	●	2.0	0.5	0.5	1.5	2.0	0.5	• # Person days on TWHQ * (saved travel time * lbr rate + distance to TWHQ * fuel cost (0.12) – travel allowance (55) – motel/meals)[1]	• Another review of stats and logic for 2019	*Clear plan in place*
Straddle Hoist Usage	●	0.5	0.4	0.4	0.1	0.5	0.4	• # hrs * external hrly cost ($800) – # hrs * internal hrly cost ($25)		*Clear plan in place*
Wrench Time Studies	●	0.5	1.0	0.5	0.0	0.5	1.0	• Actual cost of work (old) – actual cost of work (new) • Budget spend/accomplishments met	• Review of Capital savings required to confirm forecast.	*Plan in place,*
Outsourcing G&S BGIS	●	0.7	0.3	0.4	0.3	0.7	0.3	• Old cost – new cost		*On track*
OMA Stretch	●	1.3	1.0	1.0	0.3	1.3	1.0	• Actual cost of work (old) – actual cost of work (new) • Budget spend/accomplishments met	Review completed confirmed Tier 1	*Plan in place,*
Remote Impact Recorders	●	0.1	0.1	0.1	0.0	0.1	0.1	• # Hrs * lbr rate ($130) + # hrs * TWE ($12.5) + meals/hotel/flight/car savings	• No Action	*Clear plan in place*
In-House Retorques	●	0.2	0.1	0.2	0.0	0.2	0.1	• # In-house vehicles * hrs saved/vehicle (0.875)* lbr rate ($140/hr) + external garage cost/vehicle ($10))	• No Action	*Clear plan in place*
Scheduling Tool	●	0.3	0.5	0.3	0.0	0.4	0.5	• Implementation of Scheduling Tool leading to efficiencies and reduced l	• Savings review for correctives 2019	*Clear plan in place*
Total Category										

Note: 1. All values used are Zone averages, based on 2016 information
Source: Major Initiatives Governance Submissions

System Operations Overview

Sponsor: Martin Huang *(Including New Initiatives)*

On Track
At Risk
Definite Impact

		YTD 2018		YE 2018							
Initiative	**Status**	**Actual**	**Budget**	**Forecast (Tier 1)**	**Forecast (Tier 2)**	**Total Tier 1 + 2 forecast**	**Budget**	**Initiative Description**	**Actions to move $ to Tier 1**	**Savings Tracking Method**	**Initiative Status**
Outage Cancellation Reduction	●	0.53	0.53	0.53	1.03	1.56	0.53	Reduce outage cancellations; save unused equip. costs, improve outage execution group efficiency		# reduced cancelled outages * avg. cancelled outage cost	*On Track*
Load Transfer Studies	●	0.38	0	0.38	0	0.38	0	Reduce the per unit cost to do a Load Transfer Study using the Distribution Management System (DMS)		# of studies done using DMS tool as compared to using CYME	*On Track*
Dx Cleared After Hours Locates	●	0.36	0	0.36	0	0.36	0	Reduction in After Hours Locates dispatched. Reduce unnecessary truck roles, reduce cost, (labor, equipment)		# Total number of after hours locates cleared multiplied by avg truck roll cost	*On Track*
Approved initiatives total:		**1.26**	**0.53**	**1.26**	**1.03**	**2.30**	**0.53**				
Total Savings		**1.26**	**0.53**	**1.26**	**1.03**	**2.30**	**0.53**				

Methodology approved
Methodology not yet approved

Source: Major Initiatives Governance Submissions

UNDERTAKING J7.4

Reference:
Exhibit K-7.04

Undertaking:
To check if long-term reliability impact is available and if so to provide it.

Response:
The average percentage of key assets (conductors, breakers and transformers) beyond expected service life (ESL) in 2016 was approximately 19%.[1] Please see the Customer Engagement report filed in Exhibit B-1-1 TSP Section 1.3, Attachment 1.

Since Hydro One's last application, assets have aged and more assets have exceeded their ESL than before. ESL is used to indicate potential replacement quantities in the longer-term. Importantly, replacement decisions are determined by asset condition and other criteria such as historical performance, utilization, and technological obsolesce, and not asset age relative to ESL.

[1] EB-2016-0160 Exhibit B1-2-2 Attachment 2 p 14: [conductors (20%) + transformers (28%) + breakers (9%)]/3

UNDERTAKING J7.5

Reference:

Transcript Volume 7, Page 107, line 13 to Page 108, line 7.

Undertaking:

To add to the appendix data the position on the Scenario scale that the verbatim responses are associated with.

Response:

Below is a list of respondents by customer-type who provided a verbatim response, the point on the Scenario scale they selected, and their verbatim responses. None of the verbatim responses were summarized.

Customer Type	Slider Placement	Verbatim
Generator	15	Best choice overall from reliability and long term cost perspective
LDC	13	•Ideally, the rate increase would be inflation plus some nominal percentage. However, if 3.3% results in a material decrease in service capability, this new information suggests that the next highest level of investment is appropriate, thereby putting this somewhere in between Scenarios C and D.
LDC	12	•The system already has a health percentage of aged equipment and with the increasing reliance on the transmission system to achieve the government's environmental goals, reliability will only become more important.
LDC	11	•It combines all four scenarios into one with moderate rate increase, high reliability and moderature future increases.
LDC	11	•decrease on reliability risk while levelling future rate increases.
LDC	11	•This scenario keeps the transmission system at about the same health level as it is today and while the transmission rate increase is moderate, the overall bill impact is small and likely tolerable by most customers.
End User	11	•maintaining the current level of investments will provide the planning and necessary funds for equipment is replace/upgrade as required to ensure reliability of power supply
End User	11	•To maintain a consistent cost(although increased) with a higher reliability.
End User	11	•The current level of reliability is acceptable therefore maintaining the status quo would seem appropriate.

Customer Type	Slider Placement	Verbatim
End User	11	•Reduces risk, reduces the number of assets beyond expected life, cost increase is high, moving to Scenario D does not reduce the risks that much more based to cost. Selecting Scenario A or B will put our distribution system at to high a risk.
End User	11	Do not want to see any service supply or reliability deteriorate from the current state
Generator	11	•It meets many of the things and it's a subtantial capital investment, but it has a lot of things moving in the right way. Decrease in reliability risk, improvement in long-term reliability. Fairly level future rate increase.
Generator	11	•increased reliability, levelled rates
Generator	11	•The current situation is in part the result of a deliberate reduction in re-investment in the mid 1990's to mid 2000's which has resulted in equipment beyond service life. If reliability levels are to be maintained or improved, then a balanced and consistent approach is required.
Generator	11	•there is a lot of old components that need replacing already. reducing spent $'s will not enhance current performance
LDC	10	•This rate should still enable you to decrease the risk without a significant short term rate increase.
LDC	10	•The costs are a major input into these evaluations. A TS decommisioning was quoted at over $10M, transfer trip for a DG a few years ago was $180k is now being quoted at $400k, rebuilding a TS is being quoted at $38M. The choice is really C with an A rate increase.
End User	10	•Maintains the average percentage of key assets beyond expected service life constant.
End User	10	•Internal savings and efficiencies must be considered (salaries) to minimize rate increases. Increases in the 2 to 3% range combined with internal savings should net to Scenario C. This should be the goal.
LDC	9	•best balance of costs vs benefits
LDC	9	•Significant investments have been made over the last five years to allow for DG resources to be connected. My expectation is that the rate of investment can now be curtailed back some.
End User	9	•Chose the middle, trying to find a happy medium, so that we try to fix the mess we are in efficiently and cost affective as possible. However the rate increases is to high but we can't keep delaying either creating a bigger problem for future etc

Customer Type	Slider Placement	Verbatim
End User	9	•Reliability needs to improve but rate increases need to be balanced as it effects our operating costs
End User	9	•Preference would be investment close to scenario C but at lower transmission rate increase. i.e. Hydro One should look into improving its own efficiencies or finding ways to obtain the required funds to achieve scenario D or at minimum Scenario C's goals without significant increases to the transmission rates.
Generator	9	•We want a decrease in reliability risk and not too much increase in rates;
Generator	9	•I do not agree with Hydro One's premise that there should be increases in Hydro rates amongst all the options. Like any other business; Hydro One needs to improve how it runs its business; how it seeks innovative answers; how it can deliver the same or better service for less money. I fundamentally disagree with all the options above; Hydro One has to stop acting in a way that it think it is entitled to more money or else the lights go out; Hydro One needs to start thinking like all other businesses; get lean; lower costs; meet customer expectations. The people and businesses of Ontario shouldn't have to keep paying for Hydro One's excesses. Rates should be kept constant; and the service should improve for that cost moving forward.
LDC	9	•Under your maintain current level you are showing a reduction in average percentage of key assets beyond normal life expectancy. how is this maintain? In addition, you are suggesting that to maintain current levels of expenditures you need a 5.1 % annual increase in rates. Why is it not at or below inflation? These various senerios don't seem to make sense when looking at the rates or risks shown
End User	8	•Transmission costs are already too high. More needs to be done to ensure the investment $$ are being spent wisely.
End User	7	•Hydro One is unfortunately operating in one of the highest rate markets in North America. Normally higher increases could be tolerated, however with the current state of the electricity market reasonable rate increase are expected, even if it comes at the cost of degraded reliability. This is ultimately due to current and previous provincial governments however Hydro One is forced to take this under consideration.

Customer Type	Slider Placement	Verbatim
End User	7	•we're on unreliable lines so we'd like some investment in those lines under any scenario. some is more than what we've seen in recent years. with upward pressure on rates, we'd be hard pressed to call for much more reinvestment than B. I'm wondering about the capital estimates and whether or not there is any room for efficiencies within?
Generator	7	•Balance the annual rate increase based on risk.
LDC	6	•I recognize HONI has very difficult choices to make. However, it is very difficult to support a transmission rate increase that is greater than 1.5 times CPI
Generator	6	•You should manage your business to be at or below the annual Canadian index price increase and still be reliable. Actual rates are already very high. We pay anywhere between $120-150/MW which is too high.
LDC	5	Keep increases at inflation.
LDC	3	•Low rates a priority and managed risks - information is imperfect and so the best investment is to get better data/information while you have the time to drive better investment outcomes while living within a cost affordability index. Are you getting the right bang for your investment today? That data was not made available - can you assume you will get more for the money you are investing?
End User	3	•I am prepared to take on more risk as we get the cost envelop sorted out and I am not willing to accept that rates would only change from .11% to .46% between scenario's when costs to the public have been going up by double digits per year for many years. IN addition I am not prepared to accept that managing the rate of investment now will necessarily result in significantly higher future rates. The whole system has to take responsibility for the costs the public is struggling with NOW !
Generator	3	•Scenario A seems the most favourable at this time; companies are very cost focus and margins are currently very tight.
LDC	2	•1) Hydro One is inefficient and needs to sort out their internal processes and find greater efficiency.2) There is nothing in this plan for innovation. Why would they invest in Tx infrastructure without a plan to manage the two-way flow of electricity that distributed generation will bring in 10-15 years. The last thing anyone wants is billions of $ in distressed transmission assets.
Generator	1	•Clever OEB type presentation Ontario in very fragile economic condition Just focus on cutting cost There is not as you imply direct correlation between cost reduction and reliability

Customer Type	Slider Placement	Verbatim
LDC	None	•No choice made. Analysis simplistic. Need to look for alternative savings (OM&A) to offset cost of increased asset investments.
End User	None	•Good balance
End User	None	•It would appear that the infrastructure has not been maintained at the correct pace. A reduction now would jeopardize future reliability.
Generator	None	•The reality is we have taken the cheap route and now the system needs to be upgraded and repaired. Best to pay and be done with it.

UNDERTAKING J7.6

Reference:
Exhibit B, Tab 1, Schedule 1, TSP Section 1.3, Attachment 1, p.28 of 144

Undertaking:
[Reserved for question relating to safety, in the event Panel 1 has something to add]

Response:
The Customer Engagement Survey asked customers to a) rank which outcomes were important to them[1] and then b) prioritize these important outcomes to help Hydro One's planners set priorities when preparing its business plan.[2]

Across all segments (LDC, End user, Generator) most customers (79 out of 103) rated safety to be extremely important. When asked to prioritize these important outcomes to help Hydro One's planners prepare its business plan, half of the surveyed customers (54 out of 103) rated safety as the top priority.

Importantly, deteriorated equipment has the potential to fail unexpectedly causing unplanned outages and safety risks. Surveyed customers on an overall basis ranked reliability and safety as the top two priorities and noted "that outages are not only a safety hazard, but also a financial concern affecting their business/production."[3]

Customers' prioritization of safety informs the identification and consideration of alternative investment strategies such as a proactive versus reactive replacement. Adopting a reactive replacement approach involves waiting for deteriorating components to fail, and subsequently replacing those components on a reactive basis, which can present a risk to both public and employee safety. Understanding that customers prioritize safety reinforces the importance of proactive system renewal to minimize exposure to safety hazards.

Hydro One was not seeking customer feedback on whether its design practices should incorporate safety standards. Hydro One designs and builds according to industry standards for safety and incorporates safety practices in its day-to-day operations such as engineering controls, administrative controls, and personal protective equipment.

[1] Exhibit B-1-1 TSP Section 1.3 Attachment 1 pg 18.
[2] Exhibit B-1-1 TSP Section 1.3 Attachment 1 pg 28.
[3] Exhibit B-1-1 TSP Section 1.3 Attachment 1 pg 6.

Witness: Bruno Jesus

UNDERTAKING J9.1

Reference:

A-4-1, JT-2.28
Oral Hearing Volume 9, Page 16, Line 17 – Page 21, Line 27

Undertaking:

To clarify what aspects of the Cumulative In-Service Variance Account (CISVA) the OEB is approving as part of the existing application and specifically as it relates to excluding verifiable productivity gains from the calculation.

Response:

As discussed in response to interrogatory OEB-11, verifiable productivity gains are to be excluded from the calculation of the Cumulative In-Service Variance Account (CISVA). Verifiable productivity gains refer to additional capital-related productivity gains beyond those identified and included in the current revenue requirement (both specific productivity savings and progressive productivity savings). As further discussed in OEB-11, the intent of excluding verifiable productivity gains is to incent incremental findings of productivity gains throughout the custom IR period without penalizing the utility for finding these savings. Moreover, the process associated with achieving and quantifying verifiable productivity savings places the onus on Hydro One to prove the achievements of these additional savings in future rate proceedings.

As it relates to the current application, Hydro One is seeking OEB approval for the following items:

- Establish the CISVA with key features as described under Exhibit A, Tab 4, Schedule 1, Section 2.2. The key features of the account are consistent with the previously approved variance account in the Distribution Decision (EB-2017-0049).
- Approve the capital expenditures envelope and the associated in-service additions as discussed further in Exhibit B-1-1 TSP Section 3.3 and Exhibit C, Tab 2, Schedule 1 which reflect both the base productivity savings and the progressive productivity.
- Note the level of productivity savings reflected in the TSP are tied to the specific mix of investments proposed in the application. If the OEB directs a capital reduction in its decision, this capital cut will result in corresponding reductions to Hydro One's in-service additions forecast and may result in reductions to the productivity savings currently embedded in the proposed capital plan.

Witness: Joel Jodoin, Samir Chhelavda

The impact of the capital cuts on in-service additions and productivity savings will be evaluated and reported on as part the Draft Rate Order process and will form the baseline for CISVA entries in future years.

- At the next rebasing application, the onus will be on Hydro One to prove the achieved incremental productivity savings above the levels embedded in the approved revenue requirement.

Hydro One has requested that the CISVA track the impact on revenue requirement of any in-service additions that are on a cumulative basis 98% or lower than the OEB-approved amount for each year of the Custom IR term. Revenue requirement associated with variances in in-service additions resulting from verifiable productivity gains should be excluded from the calculation, as described in Exhibit A, Tab 4, Schedule 1 page 10.

By way of example, Hydro One's in-service additions for 2020 could be 96% of the OEB-approved levels for two different reasons:

1. The under in-service is not due to verifiable productivity and instead simply reflects a failure to in-service to forecast amounts. In this event, Hydro One will record an entry to reduce revenue and record the revenue requirement impact in the CISVA, which will be refunded to customers when Hydro One files its next rate application.
2. Hydro One over-achieves on the in-year productivity commitments embedded in this application by an amount that translates to 2% or greater than the forecast in-service additions. In this event, Hydro One will not make an entry to the account.[1]

Under both scenarios, Hydro One is committed demonstrating to the OEB at the next rebasing application the results of the productivity program and how it has impacted the associated capital spending levels and the CISVA. The CISVA entry, or lack thereof, will be undertaken by Finance and will be part of the Company's audited financial statements.

[1] In the event that Hydro One over-achieves on the in-year productivity commitments by an amount that is less than 2%, an entry will be made but only for the amount it under in-serviced after factoring the over-achievement on productivity gains.

UNDERTAKING J9.2

Reference:

A-4-1

Oral Hearing Volume 9, Page 21, Line 28 – Page 23, Line 26

Undertaking:

To confirm whether the additional verifiable productivity gains which are excluded from the Cumulative In-Service Variance Account (CISVA) calculation also excluded from the Earning Sharing Mechanism calculation.

Response:

Please refer to Undertaking J9.1 for details relating to Hydro One's verifiable productivity gains.

The regulatory net income component of the ESM calculation will be inclusive of verifiable productivity gains.

As previously mentioned in the Oral Hearing, the calculation of actual ROE will use the OEB approved mid-year rate base for that period to avoid double counting with amounts in the proposed in-service variance account.[1]

[1] Oral Hearing Volume 9, Page 22, Line 1 – Line 16

Witness: Joel Jodoin