

**Hydro One Networks Inc.**

7<sup>th</sup> Floor, South Tower  
483 Bay Street  
Toronto, Ontario M5G 2P5  
www.HydroOne.com

Tel: (416) 345-5680  
Cell: (416) 568-5534  
Frank.Dandrea@HydroOne.com

**Frank D'Andrea**

Vice President, Regulatory Affairs & Chief Risk Officer



BY COURIER

August 28, 2019

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

Dear Ms. Walli,

**EB-2019-0082 – Technical Conference Undertakings for Hydro One Networks Inc.'s 2020-2022 Transmission Custom IR Application (the "Application")**

---

Pursuant to the Ontario Energy Board's (OEB) letter dated August 16, 2019, wherein the OEB granted Hydro One's request to file undertaking responses to the above noted Application in two tranches – on August 21, 2019 and August 28, 2019 – please find enclosed Hydro One's undertaking responses for the second and final tranche.

Appendix A provides a list of undertaking responses and which tranche they were filed under.

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,

Frank D'Andrea

Encls. cc.

EB-2019-0082 parties (electronic)

## APPENDIX A

Name	Tranche	Name	Tranche	Name	Tranche	Name	Tranche
JT-1.01.docx	2	JT-1.24-01.pdf	2	JT-2.05.docx	2	JT-2.34-Q02-01.xlsb	1
JT-1.01-1.docx	2	JT-1.24-01.xlsx	2	JT-2.06.docx	2	JT-2.34-Q03.docx	1
JT-1.02.docx	1	JT-1.25.docx	2	JT-2.07.docx	2	JT-2.34-Q04.docx	1
JT-1.03.docx	2	JT-1.26.docx	2	JT-2.08.docx	2	JT-2.34-Q05.docx	1
JT-1.04.docx	2	JT-1.26-01.pdf	2	JT-2.09.docx	2	JT-2.34-Q06.docx	1
JT-1.05.docx	1	JT-1.26-01.xlsx	2	JT-2.10.docx	2	JT-2.34-Q07.docx	2
JT-1.06.docx	1	JT-1.27.docx	1	JT-2.11.docx	2	JT-2.34-Q08.docx	2
JT-1.07.docx	1	JT-1.28.docx	1	JT-2.12.docx	1	JT-2.34-Q09.docx	1
JT-1.08.docx	1	JT-1.29.docx	1	JT-2.13.docx	1	JT-2.34-Q10.docx	1
JT-1.09.docx	2	JT-1.30.docx	1	JT-2.14.docx	2	JT-2.34-Q11.docx	1
JT-1.10.docx	1	JT-1.31.docx	1	JT-2.15.docx	2	JT-2.34-Q12.docx	1
JT-1.11.docx	2	JT-1.32.docx	1	JT-2.16.docx	2	JT-2.34-Q13.docx	1
JT-1.11-01.pdf	2	JT-1.33.docx	1	JT-2.17.docx	2	JT-2.34-Q14.docx	1
JT-1.11-02.pdf	2	JT-1.34.docx	1	JT-2.18.docx	2	JT-2.34-Q15.docx	1
JT-1.11-03.pdf	2	JT-1.35.docx	1	JT-2.19.docx	1	JT-2.34-Q16.docx	1
JT-1.11-04.pdf	2	JT-1.36.docx	1	JT-2.20.docx	1	JT-2.34-Q17.docx	1
JT-1.11-05.pdf	2	JT-1.36-Q01.docx	1	JT-2.21.docx	1	JT-2.34-Q18.docx	1
JT-1.11-06.pdf	2	JT-1.36-Q01-01.xlsm	1	JT-2.22.docx	1	JT-2.34-Q19.docx	1
JT-1.11-07.pdf	2	JT-1.36-Q01-02.xlsm	1	JT-2.23.docx	2	JT-2.34-Q20.docx	1
JT-1.11-08.pdf	2	JT-1.36-Q02.docx	1	JT-2.24.docx	2	JT-2.35.docx	2
JT-1.12.docx	2	JT-1.36-Q02-01.xlsm	1	JT-2.25.docx	2	JT-2.35-Q01-Q04.docx	2
JT-1.13.docx	1	JT-1.36-Q02-02.xlsm	1	JT-2.26.docx	1	JT-2.36.docx	1
JT-1.14.docx	1	JT-1.36-Q02-03.xlsm	1	JT-2.27.docx	2	JT-2.37.docx	1
JT-1.15.docx	2	JT-1.36-Q02-04.docx	1	JT-2.28.docx	2	JT-2.38.docx	1
JT-1.16.docx	1	JT-1.36-Q02-04.pdf	1	JT-2.28-01.pdf	2	JT-2.39.docx	1
JT-1.17.docx	1	JT-1.37.docx	1	JT-2.29.docx	1	JT-2.40.docx	1
JT-1.18.docx	1	JT-1.38.docx	2	JT-2.30.docx	2	JT-2.41.docx	1
JT-1.19.docx	1	JT-1.38-01.pdf	2	JT-2.31.docx	2	JT-2.42.docx	2
JT-1.20.docx	1	JT-1.38-01.xlsx	2	JT-2.32.docx	2	JT-2.43.docx	2
JT-1.21.docx	2	JT-2.01.docx	1	JT-2.33.docx	1	JT-2.43-Q01.docx	2
JT-1.22.docx	2	JT-2.02.docx	1	JT-2.34.docx	2		
JT-1.23.docx	2	JT-2.03.docx	1	JT-2.34-Q01.docx	1		
JT-1.24.docx	2	JT-2.04.docx	2	JT-2.34-Q02.docx	1		

## UNDERTAKING - JT 1.1

### **Reference:**

I-01-OEB-062

### **Undertaking:**

To confirm that Hydro One asserts that an analysis based upon data set that includes removals for all causes, including failure and non-failure replacements, and one that does not include non-failure removals, would generate identical condition-based end of life results.

### **Response:**

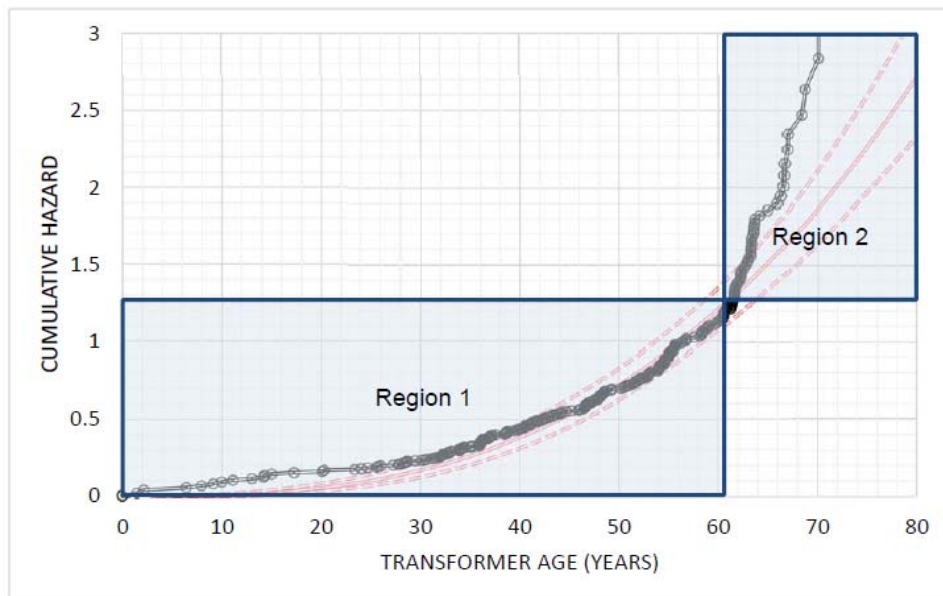
Hydro One has provided an update to Interrogatory I-1-OEB-62 found in Attachment 1 to align with EPRI's guidance regarding this Undertaking and the analysis it conducted.

The analysis referenced in the undertaking would generate a hazard function not a condition-based end of life result.

EPRI has advised that the hazard function (or Weibull model) derived from failure and non-failure data would not be identical to the hazard function derived from failure only data. Any similarity between the two functions would be dependent upon the proportion of failure removals to non-failure removals in the data set used to derive the function. Therefore, if a large portion of the removals were for failures and only a small portion were due to non-failures, the two functions would tend to converge i.e. they would be similar.

Given an understanding for the basis for transformer removals, it is reasonable to consider the removal hazard function as a good proxy for the failure hazard function, especially for younger transformers (younger transformers are rarely replaced except for failure). Therefore, it is expected that if the data allowed that only failure data were used, the cumulative hazard function would look very similar to the one presented in Region 1 of Figure 1 below (red line), which was derived from Hydro One's removal data. In this region, the cumulative hazard function derived from the Weibull model (red line) matches the cumulative hazard function calculated from the actual event data (black line). In Region 2 the cumulative hazard function derived from Hydro One's removal data (black line) is much steeper than the cumulative hazard function derived from the

Weibull model (red line). EPRI's report<sup>1</sup> proposed that this may be due to either a "failure process that is more dominant in older units" or a "result of discretionary replacement decisions" or a combination of both. Hydro One does not run its transformer fleet to failure as this would be imprudent and would elevate safety and system risk. Rather Hydro One replaces transformers before failure driven by condition criteria that demonstrate the transformer has reached end of life.



**Figure 1: Comparison of Model and Sample Cumulative Hazard Functions 115 kV Transformers - Exhibit B-1-1 TSP 1.4 Attachment 2, Figure 2-4 on page 2-6.**

<sup>1</sup> Exhibit B-1-1 TSP Section 1.4 Attachment 2 page 2-6

Updated: 2019-08-28  
EB-2019-0082  
Exhibit I  
Tab 01  
Schedule 62  
Page 1 of 3

## OEB INTERROGATORY #62

### Reference:

TSP-01-04-02 p. 21 & 25TSP-01-04-03 p. 21

### Interrogatory:

At the first reference above, EPRI stated the following:

However, removed from service data is more abundant and consist of 419 transformers within a period of 1981 to first quarter 2017. The reasons for removal are not supplied in data, therefore failures and discretionary replacements cannot be distinguished. Since the reason is not supplied a time-to-event model can be developed where the event, rather than failure, is removal.

At the second reference above, EPRI stated the following:

### **Fitting the data to the Model**

The removal rate model is verified by comparing the sample cumulative hazard function calculated from the actual event data (previously described) against the cumulative hazard functions created from the Weibull model. There are cumulative hazard functions for each MCMC observation. For each age from 0 to 100, we calculate the median cumulative hazard rate and the corresponding 95% credibility interval.

At the third reference above, EPRI stated the following:

### **Removed from Service Data**

The removed from service data provided by Hydro One consists of 1218 circuit breakers as of third quarter 2017. No reason for removal was provided.

- a) Please confirm that the term “removals” is not synonymous with the term “failures”.
- b) Removals are being used to create a “hazard” curve, even though the reasons for the removals have not been categorized. Is this methodology appropriate as EPRI is applying it here?

Witness: Donna Jablonsky

- 1 c) A true "Hazard Rate" implies an age-related likelihood of failure. Please confirm that  
2 the supplied input data does not support the determination of a true Hazard Rate for  
3 these assets.  
4  
5 d) Based on the above references, it appears that EPRI has used uncategorized asset  
6 removal data in its derivation of Hazard Rates because that was the data set provided  
7 by Hydro One, rather than because the data is fit for purpose. Does the lack of  
8 categorization of retirement causes in the data supplied to EPRI potentially invalidate  
9 the conclusions drawn in the both the "Derivation of Circuit Breaker Hazard  
10 Functions" report and the "Derivation of Transmission Substation Transformer  
11 Hazard Functions" report?  
12

13 **Response:**

- 14 a) Confirmed. The term "removals" is not synonymous with the term "failures."  
15 Removals may include but are not limited to "failures".  
16  
17 b) Yes. The methodology is mathematically appropriate for developing a removal  
18 hazard curve. See the further discussions in c) and d) below.  
19  
20 c) Confirmed, the supplied data was for removals for any reason and therefore may have  
21 included both failure and non-failure related data. No, a hazard rate does not need to  
22 be restricted to failures only.  
23  
24 "Hazard rate" is a statistical term used as one way to mathematically describe the  
25 functional relationship between the waiting time and the occurrence of a well-defined  
26 event. The analysis of such relationships often is called time-to-event analysis. The  
27 event depends on the focus of the study. In the EPRI analysis under discussion, the  
28 defined event is removal for any reason. Where the hazard rate of interest is that for  
29 failure, the terms hazard rate and failure rate are often used interchangeably.  
30  
31 d) No, the asset removal data EPRI analyzed does not invalidate the conclusions  
32 presented. It is reasonable to believe that, given the expenses involved, removals of  
33 transmission assets were done for well-considered reasons such as (1) actual failure,  
34 (2) increased risk of failure beyond acceptable limits or (3) unacceptable maintenance  
35 costs. There is very little reason for removing from service a young transformer other  
36 than (1) or (2) above. Therefore, it is reasonable to consider the removal hazard rate  
37 as a good proxy for the failure hazard rate, especially for younger transformers.

1  
2 For older transformers, the replacement rate was found to be much steeper. EPRI's  
3 report<sup>1</sup> proposed that this may be due to either a "failure process that is more  
4 dominant in older units" or a "result of discretionary replacement decisions" or a  
5 combination of both. Hydro One does not run its transformer fleet to failure as this  
6 would be imprudent and would elevate safety and system risk. Rather Hydro One  
7 replaces transformers before failure driven by condition criteria that demonstrate the  
8 transformer has reached end of life.

---

<sup>1</sup> Exhibit B-1-1 TSP Section 1.4 Attachment 2 page 2-6

## UNDERTAKING - JT 1.3

### **Reference:**

I-01-OEB-184

### **Undertaking:**

To provide analysis that supports Hydro One's assertion that OM&A deferred in 2019 cannot be repeated in 2020.

### **Response:**

#### ***2020 Sustainment OM&A is the Minimum Level of Funding Needed***

Hydro One's 2020 Sustainment OM&A budget of \$214.2 million consists of expenditures required to maintain transmission system assets so that they continue to function as originally designed. The average age range of the major transmission system assets is 28-41 years<sup>1</sup> with 3-27%<sup>2</sup> of these assets in High or Very High Risk condition. With this age and condition context, the current plan seeks an appropriate balance between the needs of the system, overall stewardship of Hydro One's assets to maintain asset condition and performance, and customer preferences regarding outcomes, including system reliability and rates. The resulting 2020 maintenance plan represents the prioritization of these competing needs and provides the minimum level of investment needed to ensure this balance is achieved.

Furthermore, the proposed Sustainment OM&A budget for the 2020 Test Year is almost \$10 million lower than the 2015-2018 average spending (i.e. \$214.2M for 2020 versus \$224.0M for 2015-2018 average). For the reasons below, the proposed 2020 Sustainment budget is the minimum level of investment needed to maintain transmission system assets to ensure that they continue to function as designed.

#### ***2020 Sustainment OM&A Includes Additional Mandatory Compliance Work***

The 2020 Sustainment OM&A is forecast to be \$13.6 million higher than the forecast 2019 Sustainment OM&A (2020: \$214.2M vs 2019: \$200.6M)<sup>3</sup>. \$6.9 Million or about 51% of this funding increase relative to 2019 is comprised of mandatory PCB Retirement

---

<sup>1</sup> Exhibit B-1-1 TSP Section 2.2 Table 3, 6, 9, 17, 20 and page 60

<sup>2</sup> Interrogatory I-11-CCC-04 part b)

<sup>3</sup> Exhibit F-1-3 Table 1

(remediation) work to address PCB filled equipment in order to comply with Federal PCB Regulations. A significant volume of additional PCB retrofill and sampling work relative to 2019 has been planned and paced during the test period.<sup>4</sup> The plan provides for a one year buffer to schedule outages and resolve new identified PCB filled equipment. Funding this work at 2019 levels is not possible as that level of funding will not be sufficient to complete the planned retrofill and sampling work in time for Environment Canada's 2025 deadline.

If the 2020 Sustainment OM&A were fixed to the 2019 level of \$200.6 million, accommodating this mandatory PCB work would result in reprioritization and reduced funding to other maintenance work categories to levels significantly below 2019 budgets. This funding approach would be ill advised as it would introduce a much greater level of risk in these below-2019 funded categories than that originally contemplated for 2019.

***2020 Sustainment OM&A Includes Further Essential Maintenance; The 2019 Funding Level is not Prudent***

Funding not related to mandatory PCB remediation work (discussed above) is associated with further essential maintenance work that cannot be held at 2019 levels. This includes additional funding relative to 2019 for Power Equipment Preventive Maintenance (\$2.4 million)<sup>5</sup>, Transformer Refurbishments<sup>6</sup> (\$1.5 million)<sup>7</sup>, Site Infrastructure Maintenance (\$1.5 million)<sup>8</sup>, Vegetation Management (\$2.2 million)<sup>9</sup>, and Overhead Lines Maintenance (\$3.2 million)<sup>10</sup>. Despite this additional funding, which for each category is below the materiality threshold in this Application, almost all of these categories remain funded below historical levels (total of these categories in 2020: \$92M vs 2015-2018 average: \$98M).

---

<sup>4</sup> Interrogatory I-10-VECC-36 part b)

<sup>5</sup> \$17.6M for 2020; \$15.2M for 2019; and \$20.6M for the 2015-2018 period; 2020 funding is **below** historical funding

<sup>6</sup> Includes activities to fully refurbish transformers or transformer sub-systems such as radiators or under-load tap changers (ULTC)

<sup>7</sup> \$3.9M for 2020; \$2.4M for 2019; and \$4.7M for the 2015-2018 period; 2020 funding is **below** historical funding

<sup>8</sup> \$21.3M for 2020; \$19.8M for 2019; and \$23.0M for the 2015-2018 period; 2020 funding is **below** historical funding

<sup>9</sup> \$31.9M for 2020; \$29.7M for 2019; and \$32.6M for the 2015-2018 period; 2020 funding is **below** historical funding

<sup>10</sup> \$17.2M for 2020; \$14.0M for 2019; and \$17.1M for the 2015-2018 period; 2020 funding is **in line** historical funding

1 Maintaining the 2019 funding and associated unit accomplishments through 2020-22 for  
2 the above noted categories would result in more than four times as many assets not  
3 receiving maintenance or assessments than was contemplated in 2019, because some  
4 categories of work would need to be funded below 2019 levels in order to fund the  
5 additional mandatory maintenance (PCB Retirement discussed above).

6  
7 For some assets classes the impact of such a proposal poses a significant risk to their  
8 condition. For example, maintaining Power Equipment Preventive Maintenance for  
9 breakers and switches at 2019 unit accomplishments through 2020-22 would be  
10 equivalent to suspending all breaker and switch maintenance for 2 and 1.4 years<sup>11</sup>  
11 respectively, relative to historical levels; or maintaining Transformer Refurbishments at  
12 2019 unit accomplishments through 2020-22 would be equivalent to suspending all  
13 transformer refurbishment work for 2.5 years relative to historical unit accomplishments;  
14 or maintaining Vegetation Management (Brush Control and Line Clearing) at 2019  
15 maintenance levels through 2020-22 would be equivalent to suspending line clearing for  
16 one year and suspending brush control for a third of a year relative to historical unit  
17 accomplishments; or maintaining Overhead Lines Maintenance (Preventive Maintenance  
18 and Asset Assessment) at 2019 maintenance levels through 2020-22 would be equivalent  
19 to suspending all preventive and assessment work for 1.3 and 3 years<sup>12</sup> for wood poles,  
20 conductor and foot patrols respectively, relative to historical unit accomplishments.

21  
22 Hydro One does not consider this to be an acceptable approach to prudent stewardship of  
23 the system and does not consider this to be an acceptable risk to place on the transmission  
24 system. These types of maintenance and assessment suspensions would be imprudent  
25 especially at a time when power assets are experiencing significant demographic  
26 pressure; for example absent replacement, the percentage of the transformer, breaker,  
27 conductor and wood pole fleet exceeding ESL will increase by 5% to 80% during the  
28 2019-22 period.<sup>13</sup> Correspondingly the historical condition trend for these aging assets  
29 shows increasing deterioration in most asset categories.<sup>14</sup> Notably, the condition of these  
30 asset categories would have been worse without the historical Sustainment OM&A and  
31 capital investment levels.

---

<sup>11</sup> Breakers: 2.0 years; Switches: 1.4 years

<sup>12</sup> Wood poles: 1.3 years; Conductor: 1.9 years; Foot Patrols: 3 years

<sup>13</sup> Exhibit B-1-1 TSP Section 2.2 page 2: Transformers increasing from 192 to 251 units beyond ESL in 2022 (31%); Breakers increasing from 604 to 915 units beyond ESL in 2022 (51%); Conductor increasing from 1650 to 2980 units beyond ESL in 2022 (80%); and Exhibit B-1-1 TSP Section 2.2 Table 20 page 69: Wood Poles increasing from 14,400 to 15,100 units beyond ESL (5%)

<sup>14</sup> For example: Undertaking JT 1.21 showing the increasing percentage/number of assets in the High or Very High Risk condition category

If Sustainment OM&A for this essential maintenance were funded at 2019 levels for three additional years:

- Power Equipment Preventive Maintenance (performed to cost effectively preserve equipment functionality, reliability, availability, and meet safety, and regulatory requirements) would be significantly curtailed (as shown above) and would result in deteriorating assets such as transformers, breakers, ULTCs or switches not being identified in time to prevent more costly repairs, or to be inoperable when needed, causing larger outage zones which may impact connected customers, inhibiting other maintenance or capital work, and resulting in inefficiencies such as delays and increased costs to deliver this planned work.
- Transformer Refurbishment, which addresses verified poor condition assets that need to be treated, would be significantly curtailed (as shown above), putting these transformers at risk of accelerated deterioration that may result in failure or reduce expected service life. In light of the significant expense and potential customer reliability impact to replace a transformer, refurbishment at the 2020 level is recommended as the minimum level to prevent greater future capital replacement costs.
- Vegetation Management would result in further deferral of brush control and line clearing activities on 115 kV non-critical circuits, which are generally radial circuits that supply large industrial customers in Northern Ontario. Vegetation management on these circuits cannot be indefinitely deferred as neglecting these corridors will result in overgrowth, which results in higher future clearing costs and danger trees that could fall on the line. Further, funding at the 2019 level will curtail vegetation work in urban areas that are more costly in light of the heightened effort to coordinate this work with adjacent property owners and municipal governments.<sup>15</sup>
- Overhead Lines Maintenance work i.e. foot patrols assessments, on all flyable circuits where helicopter inspections are performed would continue to be suspended. However helicopter inspections are not a long-term substitute for foot patrols which offer a greater level of condition assessment information.

Funding 2020 Sustainment OM&A for this essential maintenance significantly below the historical average (i.e. at 2019 funding levels) would result in two general outcomes: a) Hydro One would complete significantly fewer condition assessments resulting in it having less condition data upon which to make investment decisions and b) Hydro One

---

<sup>15</sup> Interrogatory I-12-AMPCO-52 and 53

1 would be unable to prevent further degradation and perform refurbishment work on  
2 verified poor condition assets that need to be treated at a greater pace than 2019 levels. In  
3 respect of outcome a) much of this assessment work supports Hydro One's capital  
4 investments, and the loss of this condition information risks high priority deficiencies  
5 from not being identified and included in planned replacement programs. Thus this work  
6 cannot be funded at 2019 levels for three additional years.

7  
8 ***2020 Sustainment OM&A Has Not Been Increased Across All Categories***

9  
10 In 2020 many Sustainment OM&A categories require additional funding for mandatory  
11 and further essential maintenance. To offset this additional funding need, many  
12 categories have been funded in line with or below 2019 levels. In particular, Engineering  
13 & Environmental Support has received a \$1.2 million funding reduction below the 2019  
14 funding level and Protection and Control, and Telecom maintenance has received an  
15 appreciable \$3.3 million funding reduction below the 2019 funding level<sup>16</sup> demonstrating  
16 that 2020 Sustainment OM&A has not been increased across all categories relative to  
17 2019. For 2019 Hydro One reviewed and extended the preventive maintenance intervals  
18 for the protection relay fleet to achieve more cost-effective delivery of the maintenance  
19 program.<sup>17</sup> Funding in 2020 for Support Process (field support and failure analysis) and  
20 Telecom operational services within the Protection and Control, and Telecom  
21 maintenance category have received the bulk of the 2020 reduction in this category in  
22 order to not impact other important Protection and Control, and Telecom maintenance  
23 work including NERC and NPCC compliance work and fixed contracted payments for  
24 leased telecommunication circuits.

25  
26 ***Conclusion***

27  
28 The proposed 2020 Sustainment OM&A is almost \$10 million lower than the 2015-2018  
29 average spending, reflecting Hydro One's effort to prioritize mandatory and further  
30 essential work, and its effort to offset these increases with reductions in other  
31 maintenance categories where possible.

32  
33 Maintaining the 2019 funding and associated unit accomplishments through 2020-22 for  
34 the above noted categories would result in more than four times as many assets not  
35 receiving maintenance or assessments than was contemplated in 2019, because some

---

<sup>16</sup> \$35.5M for 2020; \$38.8M for 2019; and \$41.4M for the 2015-2018 period

<sup>17</sup> Exhibit B-1-1 TSP Section 2.3 Table 4 page 20

1 categories of work would need to be funded below 2019 levels in order to fund the  
2 additional mandatory maintenance that is required in 2020. Furthermore, continuing at  
3 2019 funding levels for three additional years (2020-22) would be equivalent to  
4 suspending all maintenance work in certain categories for one or more years. Hydro One  
5 considers this to be imprudent and ill-advised especially at a time when power assets are  
6 experiencing significant demographic pressure and verified deteriorating condition.

## UNDERTAKING - JT 1.4

### **Reference:**

I-01-OEB-184, part c)

I-01-OEB-184, part e)

### **Undertaking:**

- a) To quantify and explain the impact of the 2019 extension of planned maintenance and asset condition assessments on both the 2019 and 2020 revenue requirements, including the impacts on both OM&A and capital;
- b) To quantify and explain the impact on the 2020 revenue requirement, including the impacts on both OM&A and capital, if the 2019 extension of planned maintenance and asset condition assessments were repeated in 2020;
- c) To break down the requested above-noted impacts that relate to OM&A by all of the general components itemized in exhibit f, tab 1, schedule 1, page 3, table 1, such as “sustainment”, “development”, “operations”, etc.

### **Response:**

- a) and b)

The \$28.8 million referenced in Interrogatory I-01-Staff-184 c) reflects the reduction to the 2019 Sustainment OM&A forecast relative to the 2018 Sustainment OM&A actuals through the extension of maintenance cycles and condition assessments. (2019: \$200.6M vs 2018 Actuals: \$229.4M – Exhibit F-1-3 Table 1)

The \$13.6 million referenced in Interrogatory I-01-Staff-184 e) reflects the increase to the 2020 Sustainment OM&A forecast relative to the 2019 Sustainment OM&A forecast. (2020: \$214.2M vs 2019: \$200.6M – Exhibit F-1-3 Table 1) As stated in Interrogatory I-01-Staff-184 e) if sustainment maintenance were held at 2019 levels for 2020, the 2020 revenue requirement would be reduced by \$13.6 million as it already includes a \$15.2 million reduction related to the management of maintenance cycles described in Interrogatory I-01-Staff-185.

The \$15.2 million referenced in Interrogatory I-01-Staff-185 reflects the reduction to the 2020 Sustainment OM&A forecast relative to the 2018 Sustainment OM&A actuals. (2020: \$214.2M vs 2018 Actuals: \$229.4M – Exhibit F-1-3 Table 1)

- 1        These are solely Sustainment OM&A impacts; there is no impact to capital in the
- 2        above.
- 3
- 4    c) These amounts are all related to Sustainment OM&A.

## UNDERTAKING - JT 1.9

**Reference:**

I-01-OEB-002

**Undertaking:**

To provide an update for progressive productivity.

**Response:**

Below is an update on Hydro One's draft defined progressive productivity initiatives, which would include undefined progressive productivity that has been defined since the filing of this Application.

*\$ in millions*

<b>Working Draft - Defined Savings</b>					
<b>Initiative</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Reduce perimeter Hydro Vac excavations in Stations	1.9	2.2	2.3	2.6	2.6
Temporary portable access roads	2.5	3.0	3.1	2.8	3.2
Control Optimization Capital Savings	2.0	2.0	2.0	2.0	2.0
Cadweld vs DMC Connectors	3.0	1.0	1.0	1.0	1.0
A&B Cable Trench Separation employing a single route	1.0	1.0	1.0	1.0	1.0
MTU deployment	1.0	1.0	1.0	1.0	1.0
<b>Total Defined</b>	<b>11.5</b>	<b>10.1</b>	<b>10.4</b>	<b>10.5</b>	<b>10.8</b>

By giving the benefit of these savings to customers upfront, the Company has taken on financial and execution risk to deliver its planned work program within a reduced funding envelope. The initiative results in a further push towards a productive culture through the development of more initiatives.

## UNDERTAKING - JT 1.11

### **Reference:**

I-07-SEC-016, part c)

### **Undertaking:**

To re-file previous undertakings, now un-redacting the previously redacted transmission related information.

### **Response:**

Attachments 1 to 8 contain Hydro One's response to the undertakings J2.4 and J7.01 that were filed in the EB-2017-0049 proceeding. These attachments are also referenced in the interrogatory response, I-07-SEC-016 filed in the current proceeding. Certain portions of the attachments contain information that has been redacted with a red box or a black box as follows:

- Red box redactions contain information that relates to the unregulated business of Hydro One's affiliated companies and as such is not relevant and falls outside of the scope of the current proceeding. In the EB-2017-0049 proceeding, the Board considered the relevance of the red box redacted information and concluded that it has little probative value to the Board in assessing the ultimate proposal submitted by Hydro One in its application.
- Black box redactions contain information that was prepared in contemplation of Hydro One's 2017-2018 transmission rate application (EB-2016-0160). In most instances, the information contains plans, strategies, or considerations that were formulated in developing the 2017-2018 transmission rate application. It also contains historical information and values that have been reproduced in the current proceeding. The EB-2016-0160 proceeding has been adjudicated and the Board rendered its revised decision on November 1, 2017. As such, the information pertaining to the concluded proceeding is not relevant and has no probative value to the Board in assessing Hydro One's proposals that are subject of the current proceeding.

# Executive summary

## Effectiveness of Hydro One's existing VM programs on par with other utilities

- \$/ACI for cyclic and strategic trim in line with BCG benchmarks

## Under existing grid technology/design, opportunity to improve reliability through better VM practices appears limited

- Based on historical data, trimming every year would only drive a SAIFI improvement of 0.09 (18%)
- Consistent with observation that ~80% of tree-related outages come from off-ROW

## Hydro One's VM program can deliver maximum value to customers by focusing on two areas

- Ensuring that existing VM program is optimized for cost effectiveness
- Delivering expected reliability outcomes (e.g. ensuring high reliability to LDAs while maintaining performance for rural customers)

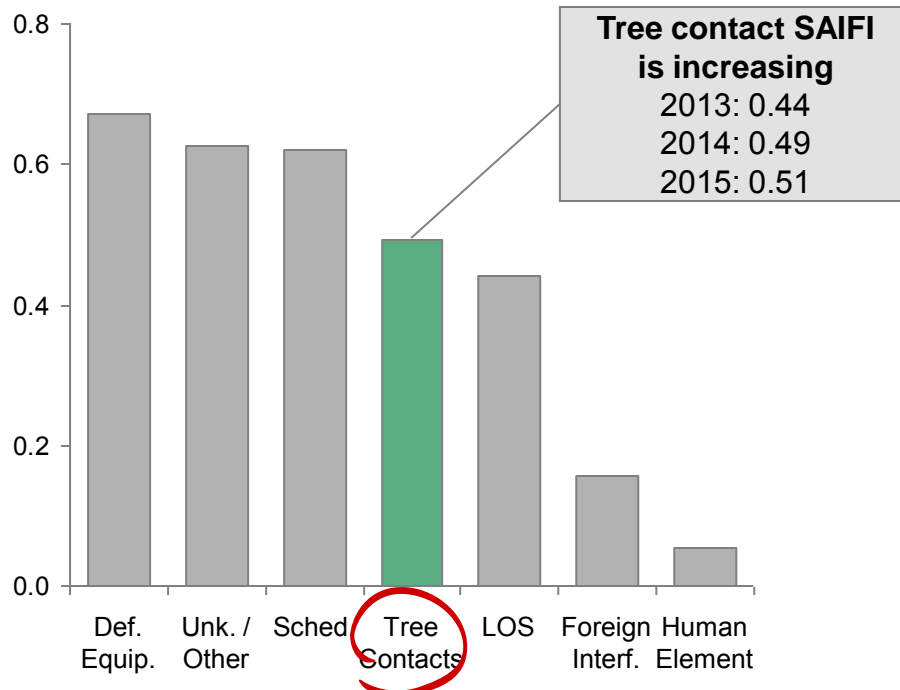
## 3 potential opportunities for reducing VM spend while meeting customer segment expectations

- 1 Cyclical trim: reduce trim cycle for highest priority feeders (M-class, LDA-serving, 3-phase, etc.)
  - Shorter trim cycle reduces total O&M costs but likely not feasible/optimal for all feeders
- 2 Strategic trim: optimize around cost effectiveness of spend
- 3 Deployment of new design standards (e.g. Hendrix cables) in high risk areas to reduce customer impacts from tree outages

# Tree contacts are a large and growing driver of outages in the distribution system

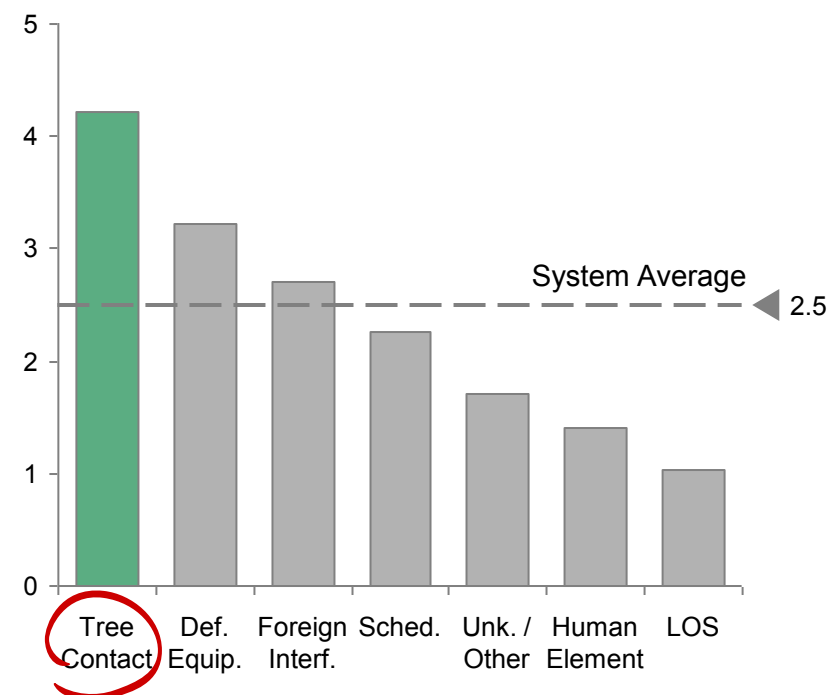
## Tree contacts remain major driver of SAIFI, increasing in the past 3 years

SAIFI (2011-2015 avg.)



## Tree contact outages have highest CAIDI, reflecting high cost of response

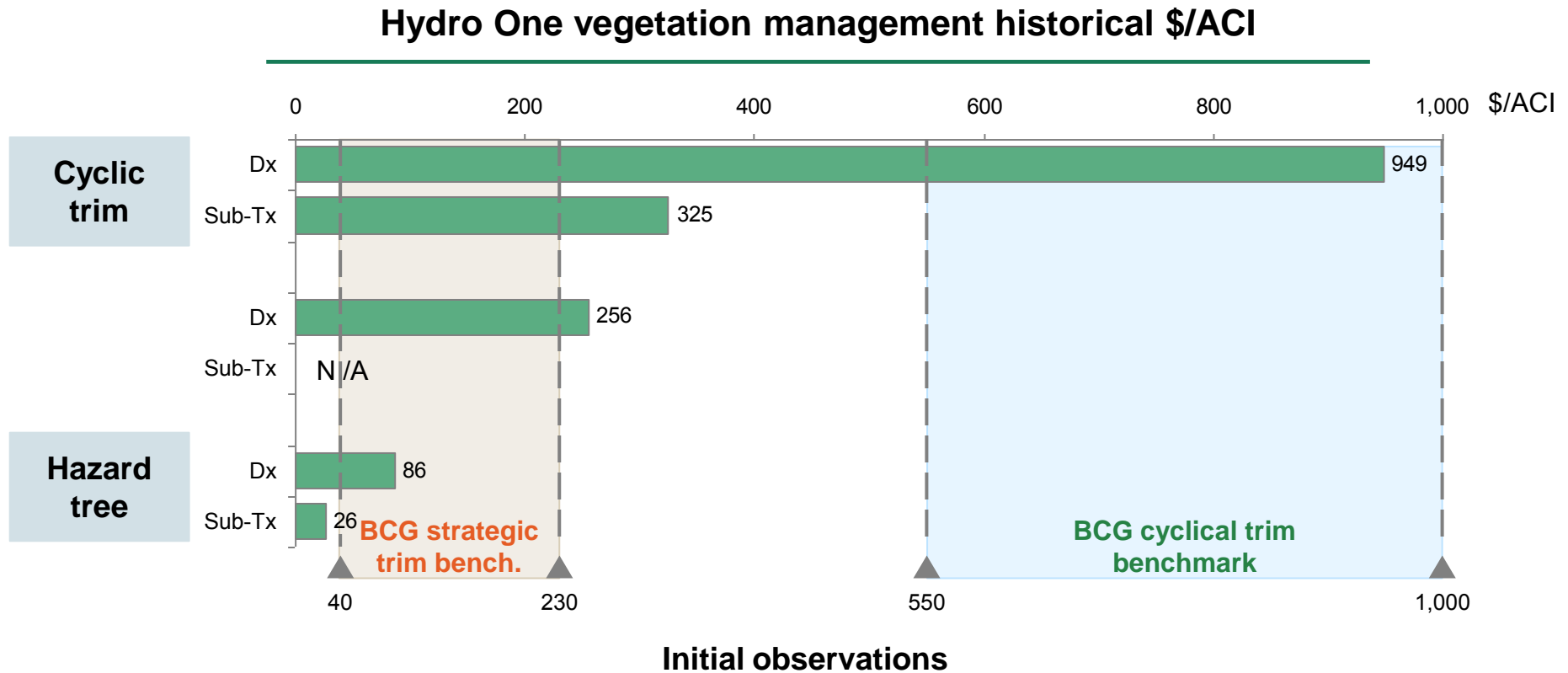
CAIDI (2011-2015 avg.)



**Tree contracts account for 16% of system SAIFI and 28% of overall SAIDI**

Note: Data includes LOS and excludes FM; data follows the Hydro One standard defining a sustained outage as greater than 1 minute; FM events calculated using 10% methodology  
 Source: H1 OMS Data

# H1's historical vegetation management cost effectiveness on par with other utilities



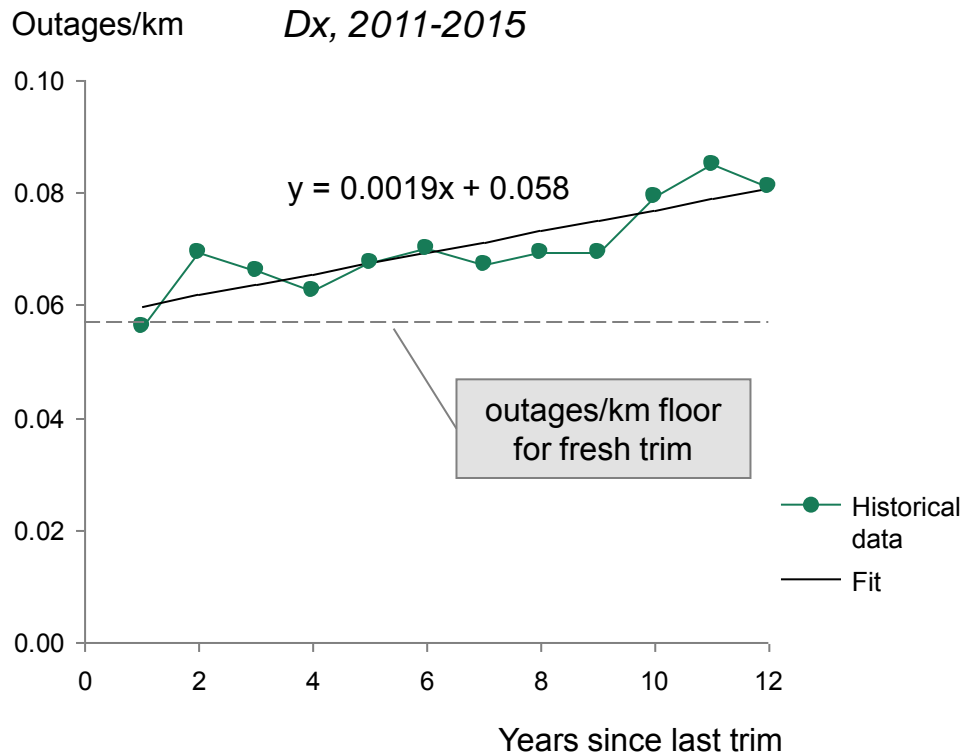
- 1 Hydro One's veg mgmt program effectiveness in line with BCG benchmarks
- 2 Sub-Tx cyclic trim more cost effective than Dx trim
- 3 Hazard tree program is effective but represents limited spend (~\$250k /yr)

Note: Data includes LOS and excludes FM; FM events calculated using 10% methodology

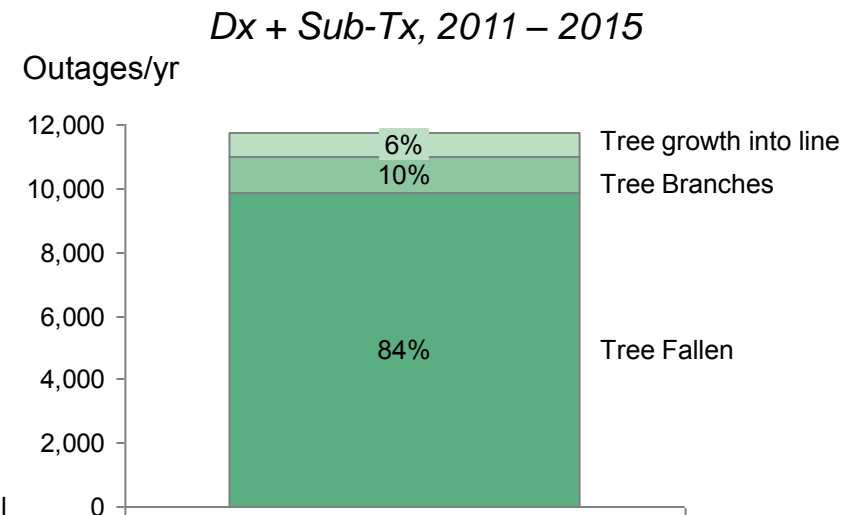
Source: BCG Analysis, BCG experience with other utilities

# Outages increase with time since last trim – but base level of outages likely due to fall-ins

## Recently trimmed feeders still suffer from number of tree-related outages



## Majority of tree-related outages caused by trees falling from off ROW



**Utilities report 80-90% of fallen-tree outages are caused by trees outside managed ROW**

- Challenging to identify hazard trees outside maintenance zone

**Outage/km floor suggests trimming on 1-year cycle reduces tree-related SAIFI by 18%, from 0.51 to 0.42**

Note: Outages/km data includes LOS and excludes FM; outages/yr data includes FM events; data follows the Hydro One standard defining a sustained outage as greater than 1 minute; FM events calculated using 10% methodology. Source: H1 OMS Data

# Several potential levers identified to improve vegetation management program

Historic		Future	
Current H1 programs	\$/ACI	High potential reliability levers	\$/ACI + ease of implementation
1 Cyclic trim	Dx: \$949 Sub-Tx: \$325	OM&A	4 Clear current backlog Dx: \$589 Sub-Tx: \$405
2 Off-cycle requests	Dx: \$256 Sub-Tx: N/A		5 Adjust trim cycle Dx: <b>(\$549)</b> Sub-Tx: <b>(\$589)</b>
3 Hazard tree program	Dx: \$86 Sub-Tx: \$26		6 Increase strategic trim Dx: \$170 Sub-Tx: \$96
			7 Enhance trim standards • Trim standards in line with others; opportunity to address hazard trees?
			8 Tech-enabled risk-based trim Dx: \$310-\$646 Sub-Tx: \$245-\$493
			9 Spacer cables Dx: \$26-\$525 <sup>1</sup> Sub-Tx: \$22-\$499 <sup>1</sup>
		CapEx	10 Aerial bundled cables Dx: \$2,250-2,960 Sub-Tx: \$1,850-2,430

= suggested approach

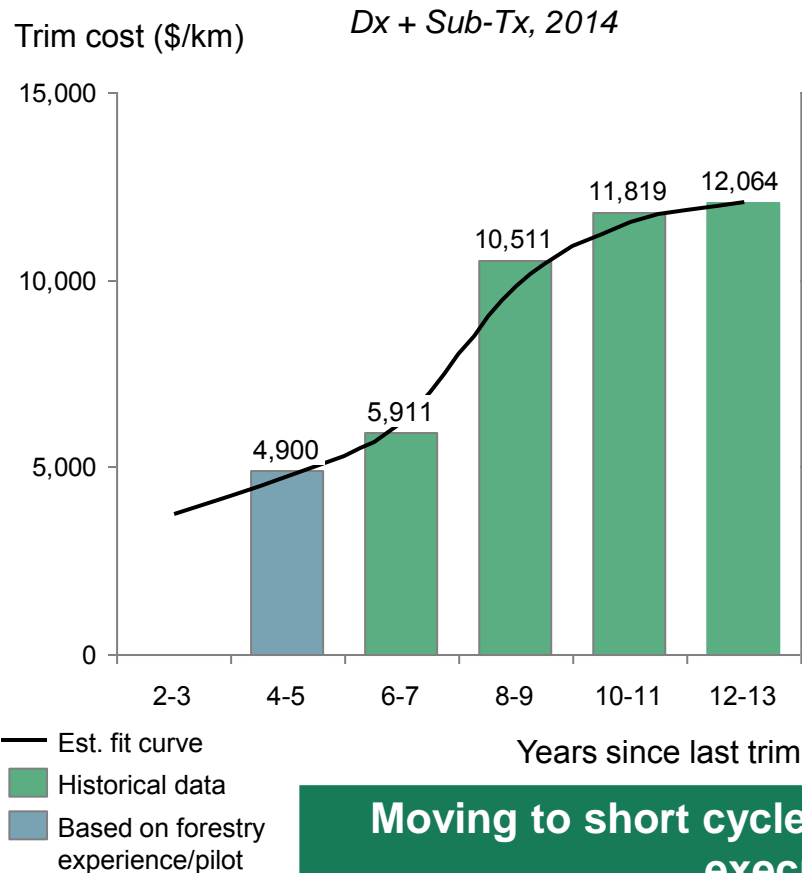
= in progress

( ) = negative

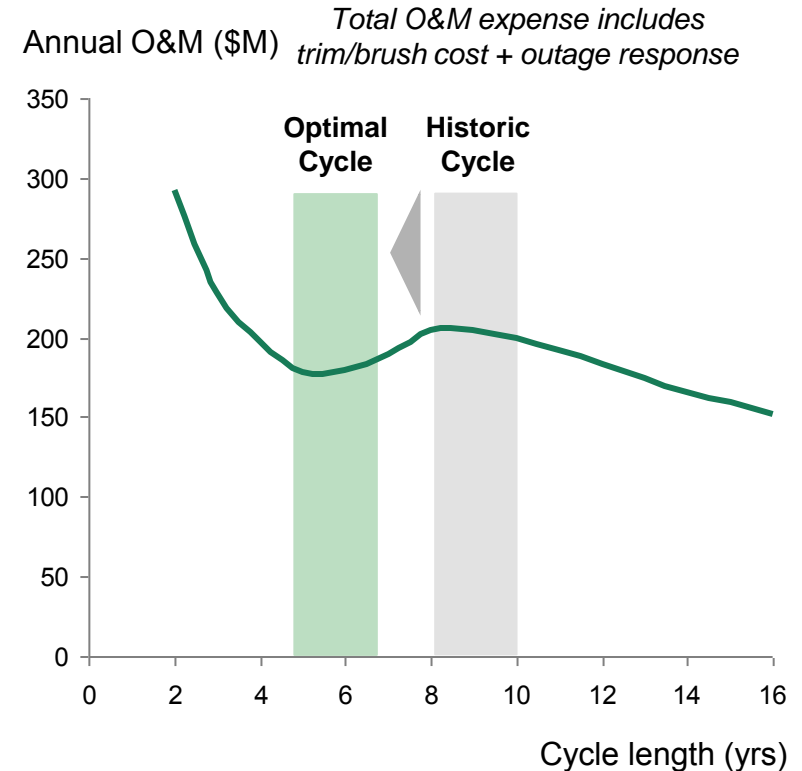
*\$/ACI reflects cost per avoided customer interruption on a 10-year timeframe*

# Increased trim costs with age lead to lower overall VM costs with shorter cycles

## Trim cost rises with age since last trim



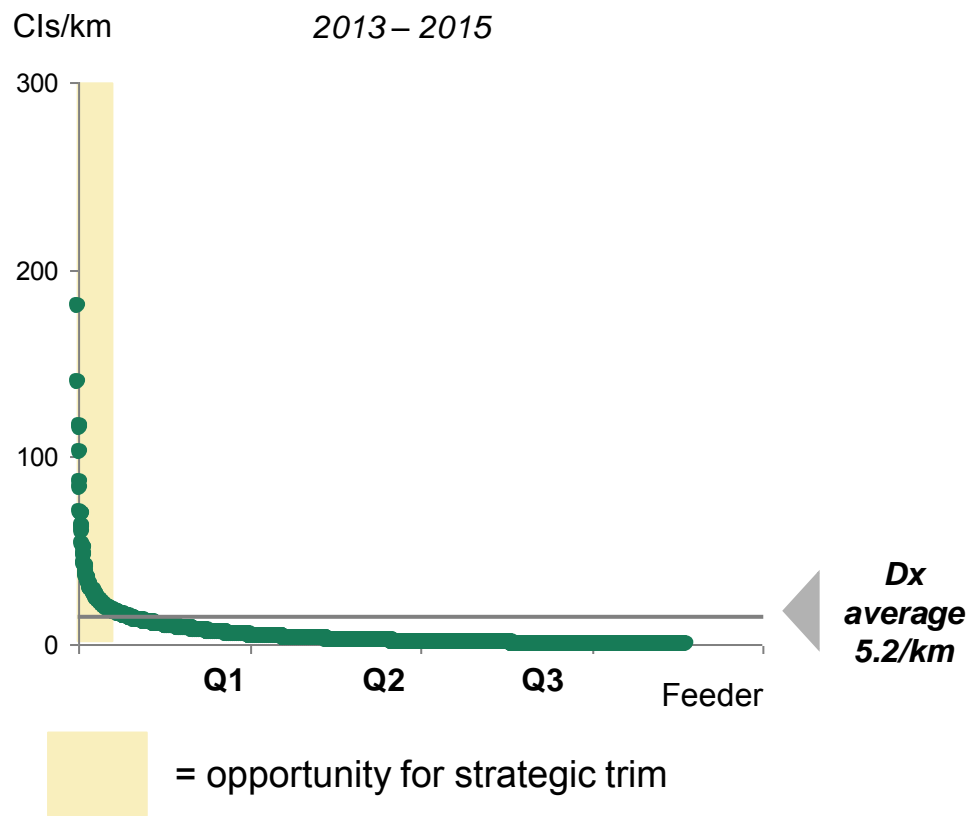
## Opportunity to reduce total O&M expense through shift to shorter cycle



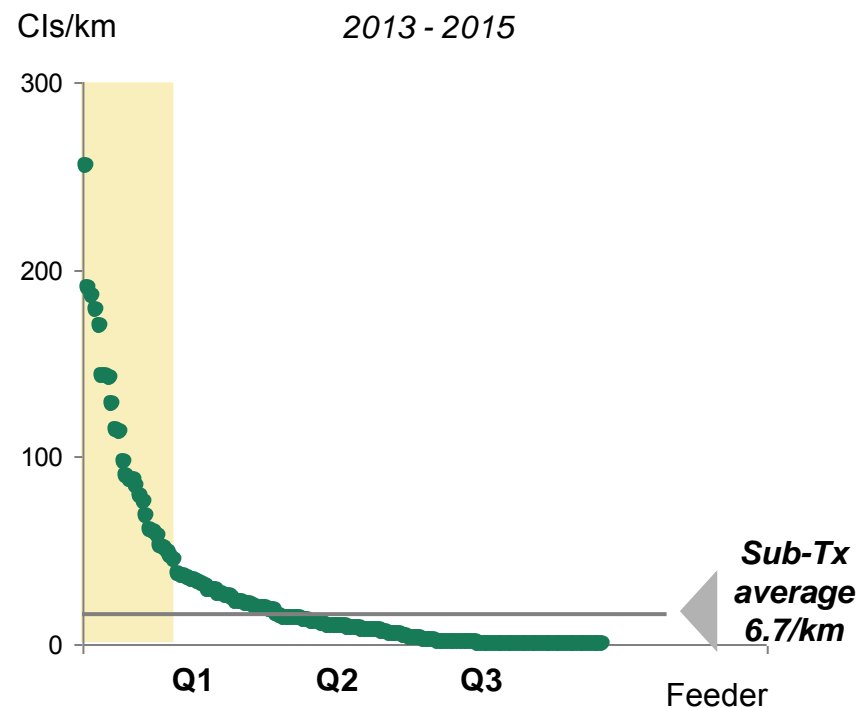
**Moving to short cycle on all feeders not optimal due to execution constraints**

# Small number of feeders have significantly more tree-related outages than system average

## Tree-related customer interruptions for Dx feeders



## Tree-related customer interruptions for Sub-Tx feeders



Note: Data includes LOS and excludes FM; data follows the Hydro One standard defining a sustained outage as greater than 1 minute; FM events calculated using 10% methodology  
Source: H1 OMS Data, BCG Analysis

# Adjusting strategic trim prioritization mechanism yields significant cost benefits

## H1's current strategic trim prioritization emphasizes overall SAIDI/SAIFI

### H1's current prioritization criteria

- Feeder-level reliability data (SAIDI / SAIFI for last 3 years) - **(70%)**
- Years since last trim - **(20%)**
- Condition data from SAP on per-pole defects - **(10%)**

Age and defect count do not enhance prediction of future reliability

## More cost efficient to prioritize based on potential \$/ACI

### Focus on CI/km rather than absolute number of interruptions

- Customer interruptions (non-FM) per km is more relevant reliability metric than total CI

### Factor in variation in trimming costs

- Longer feeders are more expensive to trim
- Trimming costs vary significantly by region

### Projected SAIFI impact of highest priority Dx feeder trim

	H1 2016 Scheduled <sup>1</sup>	H1 2016 Prioritized <sup>2</sup>	New Priority <sup>3</sup>
<b>Cost (\$M)</b>	25.5	25.7	7.3
<b>SAIFI Improve.</b>	0.013	0.013	0.013
<b>\$/ACI</b>	302	303	88

1. Highest priority feeders using H1 methodology scheduled for work in 2016. 2. Highest priority feeders using H1 methodology. 3. Highest priority feeders using new \$/ACI methodology.  
Source: H1 OMS Data, BCG Analysis

# Spacer cables provide opportunity to reduce outages from tree fall-ins, but are not suitable everywhere

## Spacer cables offer potential to reduce tree-caused outage baseline

### Network reliability benefits

- Reduction in tree-caused outages of 70-90%<sup>1</sup> relative to bare wires

### Reduced tree trimming costs

- Compact design and shielded wires allow vegetation to grow closer to lines



## Assumptions

Reduction in VM spend of 30%<sup>3,4</sup> and tree-related outages by 70%<sup>1</sup>

Incremental spacer cable cost is 15% above bare line cost<sup>3,4</sup>

Outages measured under all conditions

Source: H1 OMS Data, 1. Electric Power Distribution Handbook, T&D World. 2. Lower limit of cost range reflects \$/ACI for first 100km of addressible line. 3. CEMIG (Brazil) case study 4. Hendrix Wire and Cable, BCG Analysis

veg mgmt strategy overview v5.pptx

## Spacer cables have low \$/ACI on select feeders

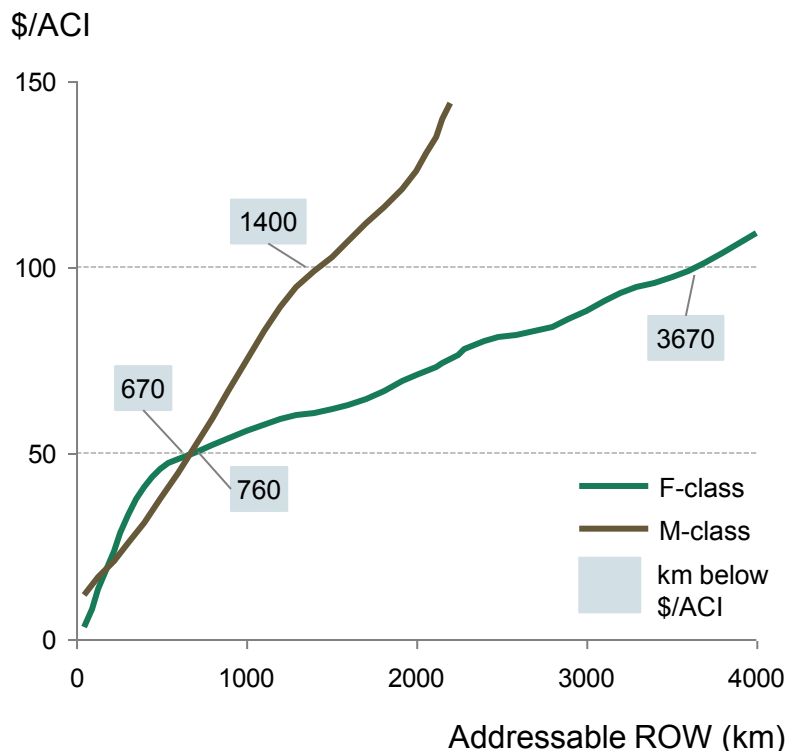
	Dx	Sub-Tx
Spacer Cables	\$26-\$525 <sup>2</sup>	\$22-\$499 <sup>2</sup>

## Initial Observations

- 1 Low \$/ACI for both Dx and Sub-Tx on high-impact feeders
- 2 Cost effectiveness of spacer cables highly dependent on reduction in customer interruptions
- 3 Spacer cables likely not suitable for widespread deployment, but appear cost effective for some feeders

# Spacer cables cost effective on significant portion of ROW

## ROW addressable by spacer cables



**Deployment will require implementation of new design standards as lines reach end of life**

## Replacement program targets highest impact feeders at end of line life

**Spacer cables only suitable when line is at end of life or for new build**

- Not cost effective to replace conductors which are in good condition

**Feeders with highest CI/km are most attractive target for replacement**

- Areas with either high outages/km (densely forested) or high CI/outage (densely populated) are good candidates

**Trimming standards can be adjusted on replaced feeders**

- Compact design and covered conductors permit smaller clearances

# Summary of proposed vegetation management program

## 1 Strict maintenance of shorter cycle on high-priority feeders

- Maintain M-class, LDA-serving, and 3-phase F-class feeders on strict cycle corresponding to lowest total VM costs

## 2 Increased use of targeted strategic trim on lower-priority feeders

- Adjust prioritization methodology to maximize avoided customer interruptions per dollar
- Continue to evaluate tech-based monitoring to better assess vegetation risk

## 3 Deployment of spacer cables in high-impact areas as lines reach end of life

## 4 Management of existing backlog to maintain system integrity

- Will need to establish maximum age since last trim
- Likely to be driven by regulatory pressures

## Appendix

# Shortening trim cycle results in lower costs and higher reliability

## Methodology

### Calculated total veg mgmt cost for various trim cycle lengths

- used historical \$/km trim cost data

### Determined historical outages/km for all Dx feeders based on time since last trim

### Estimated impact of scenarios on tree-related SAIFI

- reduction in tree-related outages used to calculate O&M savings from storm/trouble calls

## Assumptions

### Sub-Tx feeders display same rate of reliability benefit degradation from veg mgmt as Dx feeders

## Shorter trim cycle would yield lower overall costs and better reliability

Cycle Length	Total cost (trim + brush + trouble calls)	Tree-related SAIFI
1	485	0.420
2	292	0.433
3	229	0.446
4	197	0.460
5	178	0.473
6	179	0.486
7	190	0.500
8	207	0.513

## Initial Observations

- System will be further segmented to determine optimal cycle length for feeder subsets

# Targeted strategic trim is more cost effective than cyclic trim

## Methodology

### Estimated \$/ACI for each feeder

- Outages/km assumed to reach system average after targeted trim
- Trim cost estimated from historical data

### Rank ordered feeders from worst to best based on \$/ACI

### Determined total cost and reliability impact for all feeders with \$/ACI below \$300

## Assumptions

### Assumed feeder outages/km reaches system average after strategic trim

### Linear decline in VM benefit over 5 year period

## Projected impact from first year targets

	Dx	Sub-Tx
Total ACI (5-yr)	220,000	209,000
Trim Cost	\$37 M	\$20 M
SAIFI Improvement	0.034	0.032
<b>\$/ACI</b>	<b>170</b>	<b>96</b>

H1 has strategic trim program

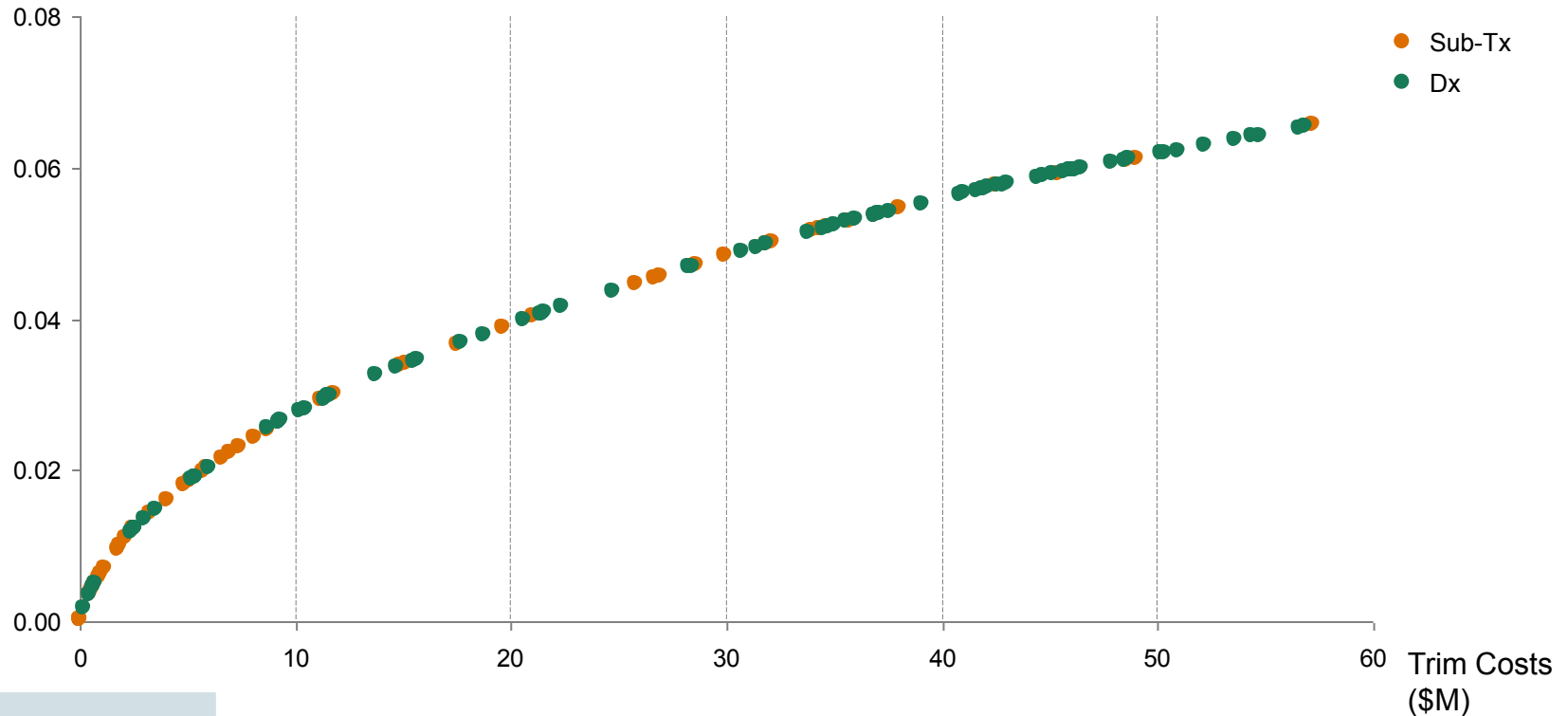
## Initial Observations

- 1 High-outage feeders represent large SAIFI improvement opportunity
- 2 Hydro One initiated strategic trim program on F-class feeders in 2016

# Well-targeted strategic trim has large SAIFI impact

## SAIFI Improvement for various levels of strategic trim spend

Cumulative SAIFI Improvement



SAIFI Imprvt.

0.028

0.040

0.048

0.056

0.062

\$/ACI

\$56

\$79

\$95

\$111

\$124

# Recent reliability is best predictor of future SAIFI

Years since last trim and defects/km do not reliably predict SAIFI for individual feeders

## Factors used in current strategic trim prioritization

- 1 Feeder-level reliability data (SAIDI / SAIFI for last 3 years) - (70%)
- 2 Years since last trim - (20%)
- 3 Condition data from SAP on per-pole defects - (10%)

## Recent CI/km is only significant predictor of 2015 CI/km<sup>1</sup>

	Coeff.	Std. Error	p-value
2012-2014 CI/km	0.66	0.06	2 x 10 <sup>-25</sup>
Age (yrs)	-0.21	0.16	0.21
Defects/km	0.14	0.31	0.66

## Suggested new prioritization criteria

- 1 Length-normalized feeder-level reliability data (CI/km for last 3 years)
- +
- 2 Trimming cost/km
- =
- Projected \$/ACI for each feeder

1. Multiple regression analysis performed on feeders trimmed prior to 2014. Coefficient indicates rise in 2015 CI/km for one unit rise in independent variable listed. P-value is likelihood relationship between variables was obtained by chance.

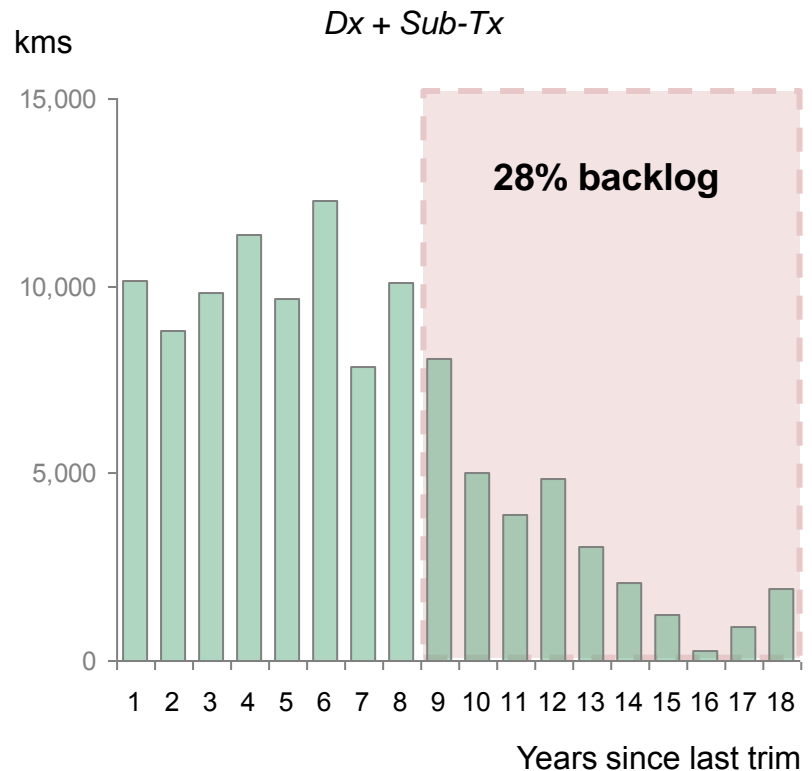
# Jurisdictions with mandated vegetation management have similar clearance standards to Hydro One but shorter cycles

State/province (standard)	Horizontal Clearance (m)	Vertical Clearance (m)	Trim Cycle (yrs)	Motivation
Hydro One	3.0 (at trim)	3.0 (at trim)	8	<ul style="list-style-type: none"> <li>Provide cost effective service that mitigates tree related risk</li> </ul>
Maryland	3.0 (at trim)	3.0 (at trim)	4 (urban) 6 (rural)	<ul style="list-style-type: none"> <li>Response to PEPCO's status as one of the most unreliable utilities</li> </ul>
Alberta	1.0	2.0	n/a	<ul style="list-style-type: none"> <li>Desire to create 'best in class' utilities which comprehensively address risk of tree contact</li> </ul>
Oregon	1.5	1.5	n/a	<ul style="list-style-type: none"> <li>Attempt to mitigate accidents and electrocutions from climbing tree near power lines</li> </ul>
California	1.2	1.2	n/a	<ul style="list-style-type: none"> <li>Primarily adopted to reduce high risk of fire</li> </ul>
Missouri	n/a	n/a	6(r) 4 (u)	<ul style="list-style-type: none"> <li>Improve utility reliability</li> </ul>
Oklahoma	n/a	n/a	4	<ul style="list-style-type: none"> <li>Improve utility reliability</li> </ul>
Florida	n/a	n/a	3	<ul style="list-style-type: none"> <li>Reduce hurricane related damage</li> </ul>

Source: 1. CNUC 2010 Regulatory Requirements Report 2. Oregon Public Utilities Commission Division 24 Safety Standards. 3. Electrical Protection Act Alberta Electrical & Communication Utility Code Section 3.1.7 4. MD PSC RM 43 Vegetation Management 5. California Public Resource Code 4293, General Order 95 Rule 35

# Backlog has now grown to nearly 30% of entire right-of-way, increasing strain on vegetation management

## 28% of right-of-way is greater than 8 years since last clearing



## Backlog imposes growing burdens on vegetation management

### Trimming costs increase with years since last trim

- More trees must be addressed in cyclic trim
- Higher-cost labor must be employed for brush management when brush nears lines (>6 years)

### Safety concerns rise for trimming and outage response

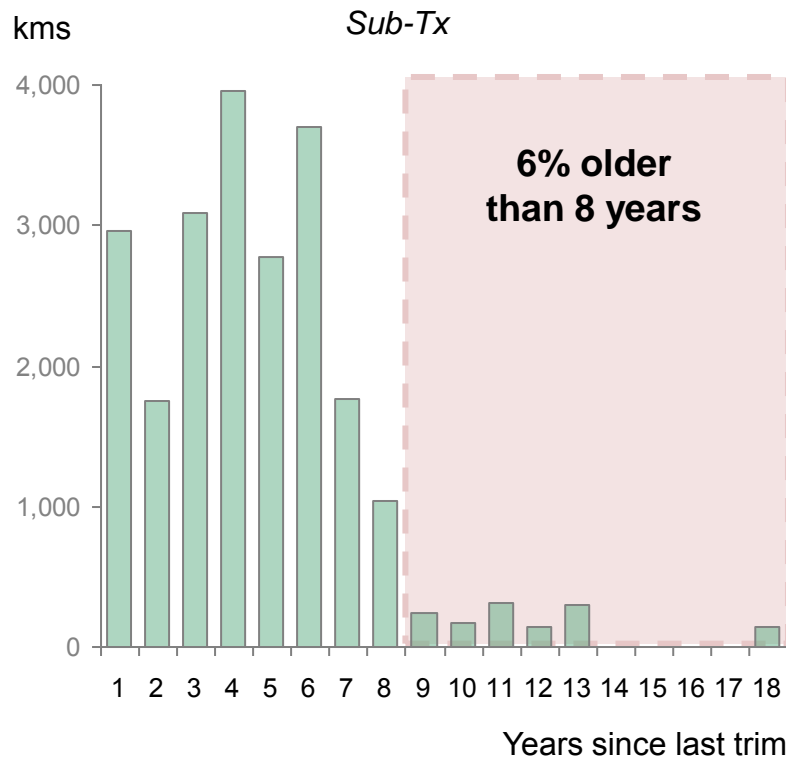
- Overgrown feeders present greater challenges for forestry and repair crews working in vicinity of lines

### Tree-related outages increase with years since last trim

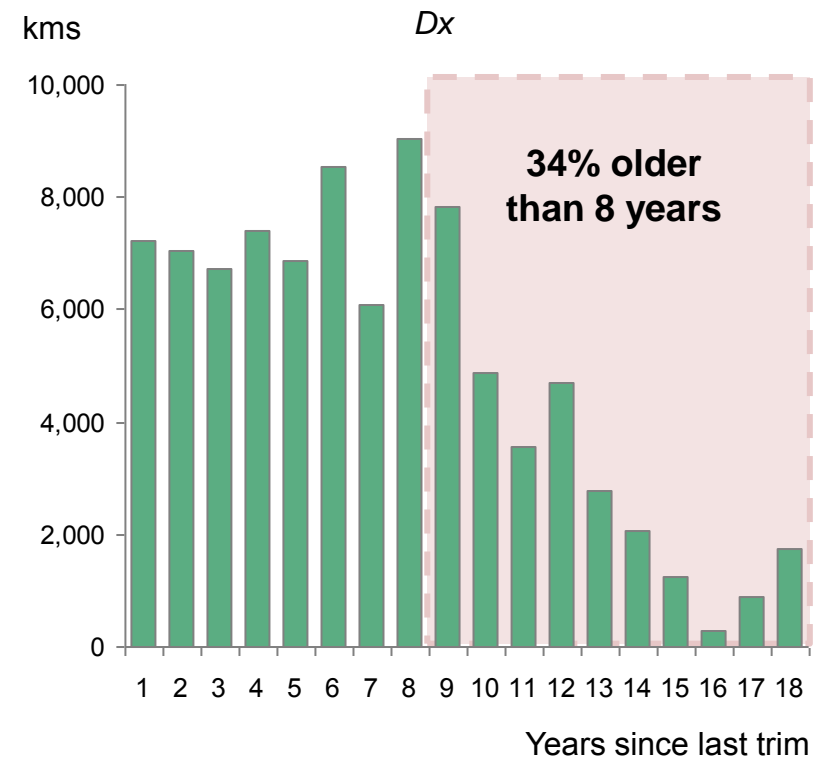
- Outage rate rises linearly with trim age causing deterioration in system SAIFI

# Sub-Tx lines have been maintained on a 6-8 year cycle at the expense of Dx lines

Nearly all Sub-Tx lines have been maintained on 6-8 year cycle



Over one third of Dx feeders older than 8 years old



Current vegetation management spending insufficient to maintain all ROW on <8 year cycle



Filed: 2018-06-19  
EB-2017-0049  
Undertaking J 2.4  
Attachment 2  
Page 1 of 34



Filed: 2019-08-28  
EB-2019-0082  
Exhibit JT-1.11  
Attachment 2  
Page 1 of 34

# Strategic Plan

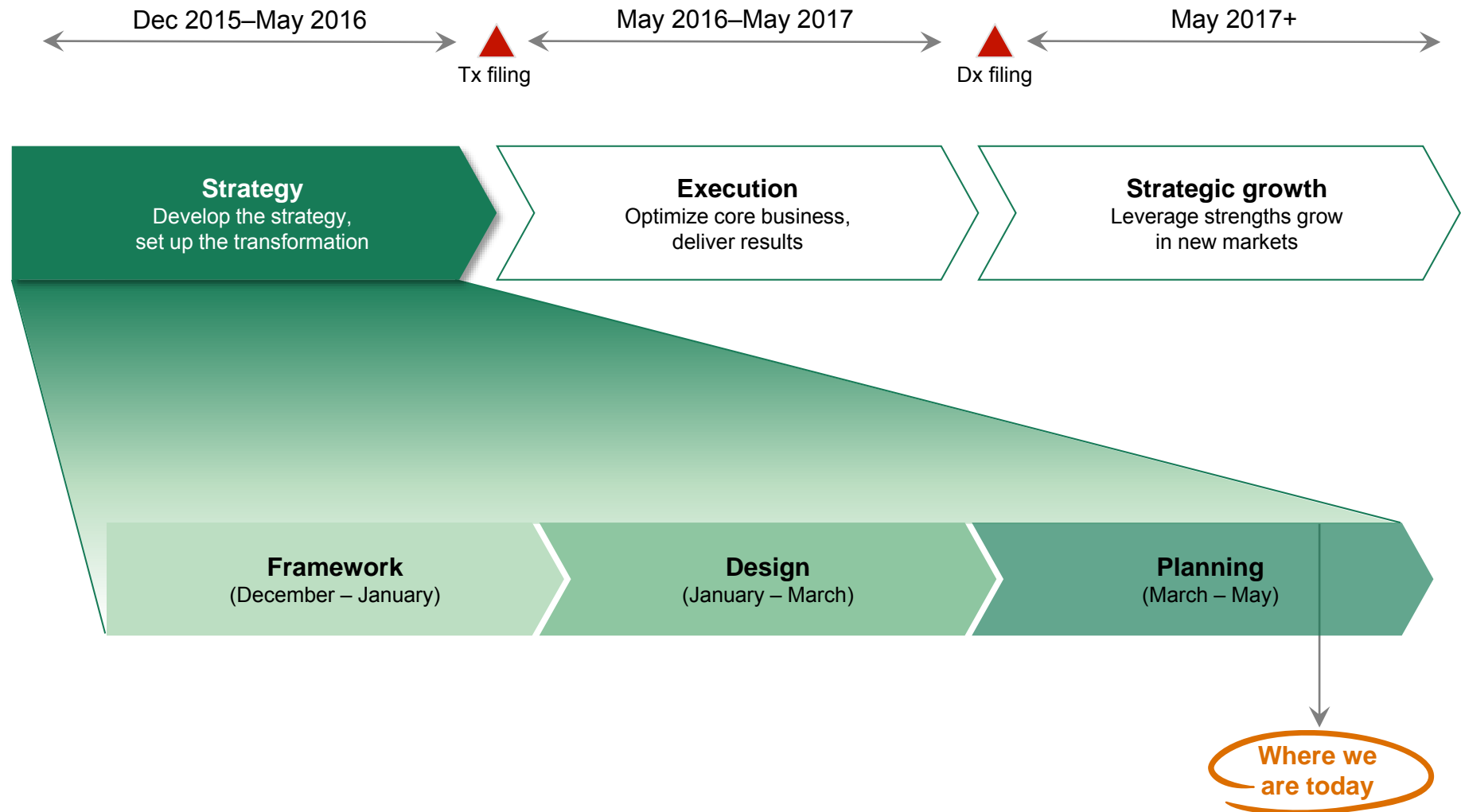
## Board of Directors discussion document

May 6, 2016

THE BOSTON CONSULTING GROUP

# Context: Where we are in the longer-term journey

Completing Planning in preparation for Execution



## Board meetings in 2016

## January 14

## Review strategic framework

- Baseline trajectory
- Strategic framework
- Strawman strategy and transformation sequence
- Plan to finalize strategy and launch transformation

**March 31**

## Review draft of strategy

- Voice of customer
- System investment plan
- Capital delivery strategy
- Customer service roadmap
- Efficiency opportunity scaling

### Confirm direction of Tx filing

- Investment plan and supporting evidence
- Customer input
- Bill impact

## For education

- [REDACTED]  
 [REDACTED]  
 [REDACTED]

## May 6 (Today)

**Approve**

- 5-year strategy

## Review

- Top-down 5 year financials
- 2-year Tx filing ('17-'18)
- Initial perspectives on 2017 Dx filing & selected strategic choices
- Core capabilities for T&D operators
- Good to Great execution plan

**For education:**

- [REDACTED]  
 [REDACTED]  
 [REDACTED]  
 [REDACTED]

## August 12

## Update on Good to Great execution

**For education:**

- 
- | Government          | Percentage |
|---------------------|------------|
| Current government  | 75%        |
| Previous government | 25%        |

## December 2

**Approve**

- 6 year business plan (2017-22)
- Budget (2017)

## Review of 2018-22 Dx filing

## Review IT strategy

## Update on Good to Great execution

**For education:**

- [REDACTED]  
 [REDACTED]  
 [REDACTED]  
 [REDACTED]  
 [REDACTED]

# Our agenda for today

Topic	Lead	Time (min)
<b>Opening</b>	<i>Mayo Schmidt</i>	5
<b>Overall strategic narrative</b>	<i>Mayo Schmidt</i>	30
<b>Deep dive topics</b>		
• Top down 5 year financials	<i>Mike Vels</i>	30
• Tx filing	<i>Oded Hubert / Mike Penstone</i>	30
• Dx filing	<i>Oded Hubert / Mike Penstone</i>	20
• Capabilities	<i>Mayo Schmidt</i>	20
• Good to Great execution plan	<i>Stefanie Stocco</i>	10
<b>Closing and next steps</b>	<i>Mayo Schmidt</i>	5

# Overall strategic narrative (I)

**Since privatization, Hydro One has embarked on a journey to becoming a best-in-class, customer-centric commercial organization. This is consistent with the 4 core principles of the RRFE<sup>1</sup>**

- Customer focus: Responding to the needs and preferences of customers
- Operational effectiveness: Meeting reliability and quality objectives while continuously driving productivity
- Public policy responsiveness: Delivering on obligations mandated by government
- Financial performance: Maintaining financial viability, sustaining operational effectiveness efforts

**Our strategy translates these principles into our approach to**

- Serving our customers
- Forming our investment plans (for approval in rate filings)
- Operating and managing the costs of our business

**...while maintaining our strong commitment to Safety and the Environment**

**Serving our customers: Improving the end-to-end customer experience and satisfaction by addressing the unique needs of our four core segments. In the near-term we will focus on:**

- Residential/Small Business: Improving first-call resolution, enhancing digital experience, redesigning the bill
- Commercial & Industrial: Marketing energy conservation programs, improving first-call resolution
- Large Distribution: Marketing energy conservation programs, better communicating unplanned outages
- Transmission: Pro-active reporting on power quality and reliability, following through on commitments made

1. Renewed Regulatory Framework for Electricity

# Overall strategic narrative (II)

## **Forming investment plans: Be responsible stewards of assets while taking a customer-centric approach**

- Transmission: Sustain assets to meet reliability, risk, and power quality needs of customers
- Distribution: Transition to a modern, reliable grid through condition-based asset renewal and targeted enhancement programs to increase reliability and functionality with highest return on investment

## **Investment plans will be presented in 3 rate filings, each with unique objectives to consider:**

- 2-year Transmission filing (May 2016):
  - Signal longer-term capital plan (5 year plan weighted to out-years, based on risk modeling)
  - Shift to RRFE<sup>1</sup> principles (e.g. consult with customers, incorporate productivity commitment)
- 5-year Distribution filing (May 2017):
  - Assess range of investment options through customer consultation
  - Align on incentive rate structure based on capital flexibility and fair distribution of productivity incentives
- 5-year Transmission filing (May 2018):
  - Secure investment plan previewed in May 2016 submission and replicate
  - Replicate incentive rate structure established in Distribution the prior year

## **Operating and managing the costs of our business: Set efficiency targets informed by benchmarks and track through a performance management system**

- Efficiency program launched to both offset customer bill impacts and capture productivity benefits
- Unconstrained potential of ~\$200M (~50/50 OM&A vs. capital) with varying degrees of difficulty to capture
- Execution already underway to build early momentum and drive impact near-term

1. Renewed regulatory framework for electricity  
Board 5 Year Strategy May6 - April28vFINAL.pptx

# Overall strategic narrative (III)

## Our strategy effectively balances shareholder returns and rate payer impacts over the next 5 years

- Total capital expected to grow to ~\$2B+ by 2021, resulting in rate base of ~\$22B (~5-6% growth)
- OM&A expected to remain flat to 2021, with cost pressures (e.g. inflation) offset by efficiency program impacts
- Range of scenarios possible, depending on investment plan approval and efficiency potential realized
- Implies [REDACTED] TSR and annual tariff increases of 2-3% for Distribution and 5-6% for Transmission

## As we continue our transition to a high performing culture, we have identified 10 core capabilities to successfully deliver on this plan and prepare us for future growth

- Aspire to be best-in-class in 3 of them: customer service, regulatory, asset management
- While still early, already down path of developing and embedding improvements across 10 core capabilities
- Assessment, development and acquisition of talent remains a critical focus

## Achieving excellence in these areas prepares and earns us the right to grow beyond our core business

[REDACTED]

[REDACTED]

[REDACTED]

# Proposed deep dive topics

Focus area	Key topics to discuss
<b>1 Top-down 5 year financials</b> <i>page 9-15</i>	<ul style="list-style-type: none"> <li>Economics of our business: how rates are set in CoS vs IRM<sup>1</sup>, economic drivers</li> <li>Scenarios: Range of outcomes based on OEB approval, efficiencies realized</li> <li>Summary of 5-year projected Capital spend and OM&amp;A (by scenario)</li> <li>Preliminary [REDACTED] TSR and average tariff increase (by scenario)</li> </ul>
<b>2 Tx filing</b> <i>page 16-20</i>	<ul style="list-style-type: none"> <li>Strategy for filing</li> <li>Summary of our ask and rationale</li> <li>Impact of proposed plan on tariffs and customer bill</li> <li>Key strategic issues and positioning</li> <li>Key risks and mitigation</li> </ul>
<b>3 Dx filing</b> <i>page 21-25</i>	<ul style="list-style-type: none"> <li>Strategy for filing</li> <li>Historical Distribution performance and network needs</li> <li>Potential investments and impacts</li> <li>Customer engagement</li> </ul>
<b>4 Capabilities</b> <i>page 26-31</i>	<ul style="list-style-type: none"> <li>Overview of key capabilities for T&amp;D companies</li> <li>Where to invest and build in being best-in-class</li> <li>Approach for Hydro One capabilities maturity assessment and next steps</li> </ul>
<b>5 Good to Great execution</b> <i>page 32-33</i>	<ul style="list-style-type: none"> <li>Summary of initiative pipeline</li> <li>Review of program management structure to support execution</li> </ul>

1. CoS = Cost of Service (existing rate structure), IRM = Incentive Rate mechanism (required rate structure under Renewed Regulatory Framework for Electricity)

# Background: Economic basics of Hydro One's business

## How rates are set

- **Allowed earnings** set based on target return on approved capital base
- Revenue requirement permits **recovery of approved costs**
- Rates calculated based on expected volume (also known as load forecast)
- **Actual earnings** can differ from allowed based on load and cost variances

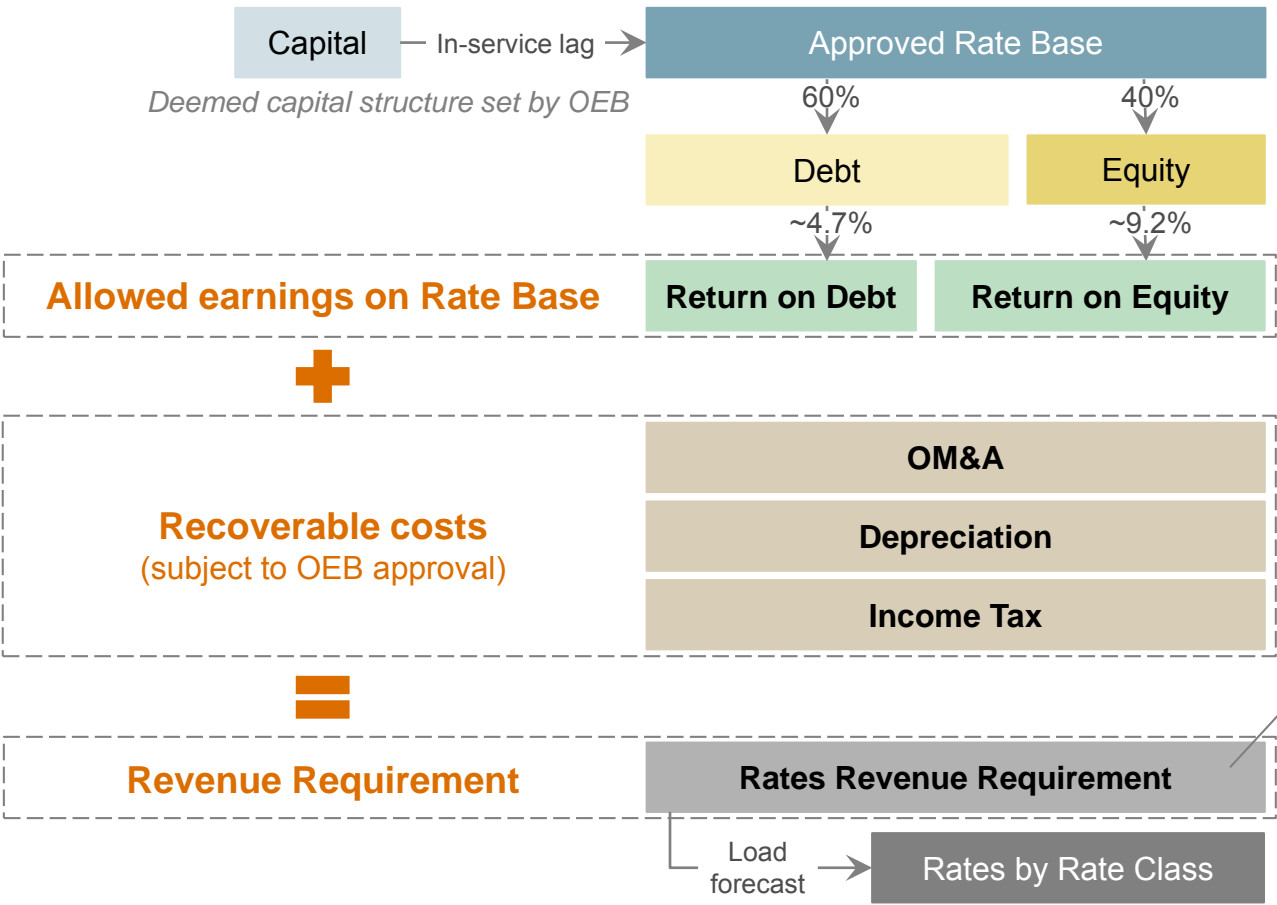
## How rate-setting differs by rate structure

- **Cost of Service:** rates reset every year to reflect expected changes to both approved capital base and costs to operate business
- **Incentive Rate Mechanism (IRM):** rates for Year 1 (test year) set identically to Cost of Service. In subsequent years, rates determined by inflation-based formula, adjusted for planned capital spend
- **Shift from Cost of Service to IRM** implies higher risk on recoverable capital (longer planning horizons, less flexibility), while rewarding (but also requiring) productivity improvement

## Sensitivity of key economic drivers

- **Five key economic drivers:** approved capital, approved OM&A, cost efficiencies, load, allowed return on deemed equity
- Approval of capital and OM&A the key drivers under Hydro One control
- Cost efficiencies with moderate impact on Distribution, lower on Transmission
- Return on deemed equity high impact, but outside of Hydro One control

# How rates are set and how this differs by rate structure



**Cost of Service model**

- Annual reset of revenue requirement (to reflect rate base, cost changes)
- Short window to capture run-rate savings as net income

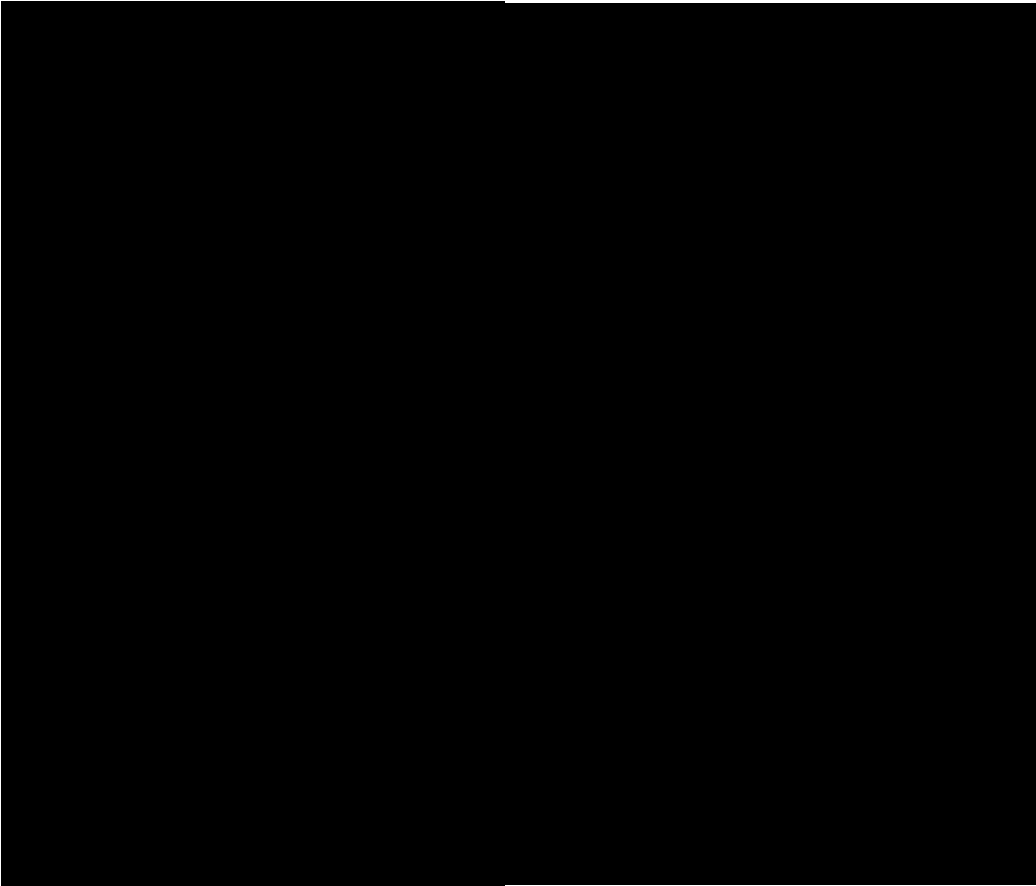
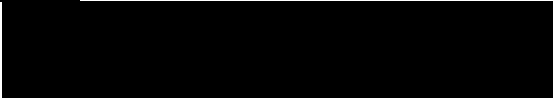
vs.

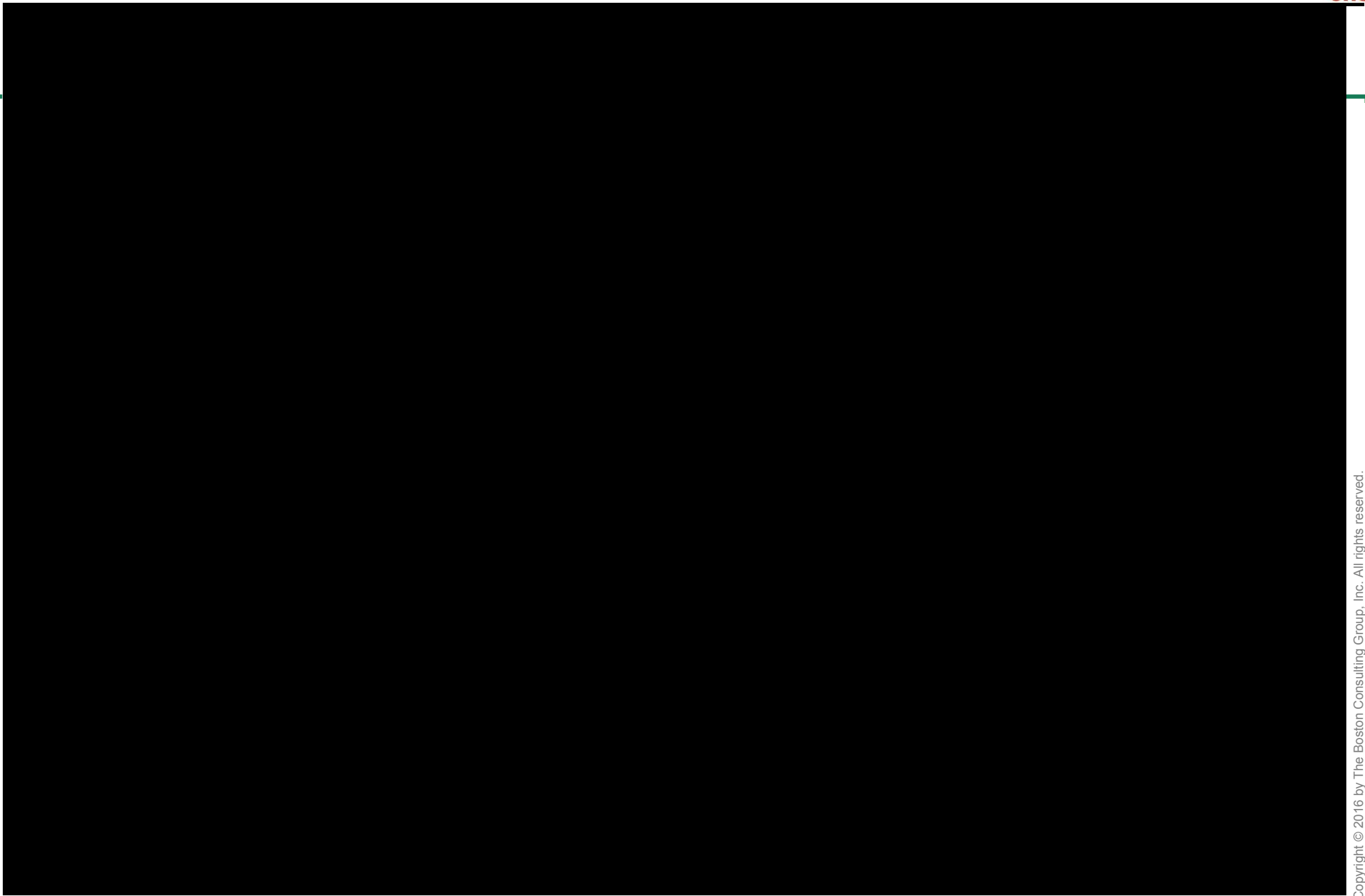
**Incentive Rate Mechanism**

- Cost of Service build-up in Year 1
- Years 2-5: revenue requirement escalated off year 1 using inflation-based formula
- Run-rate cost efficiencies flow through to net income until Year 6 reset

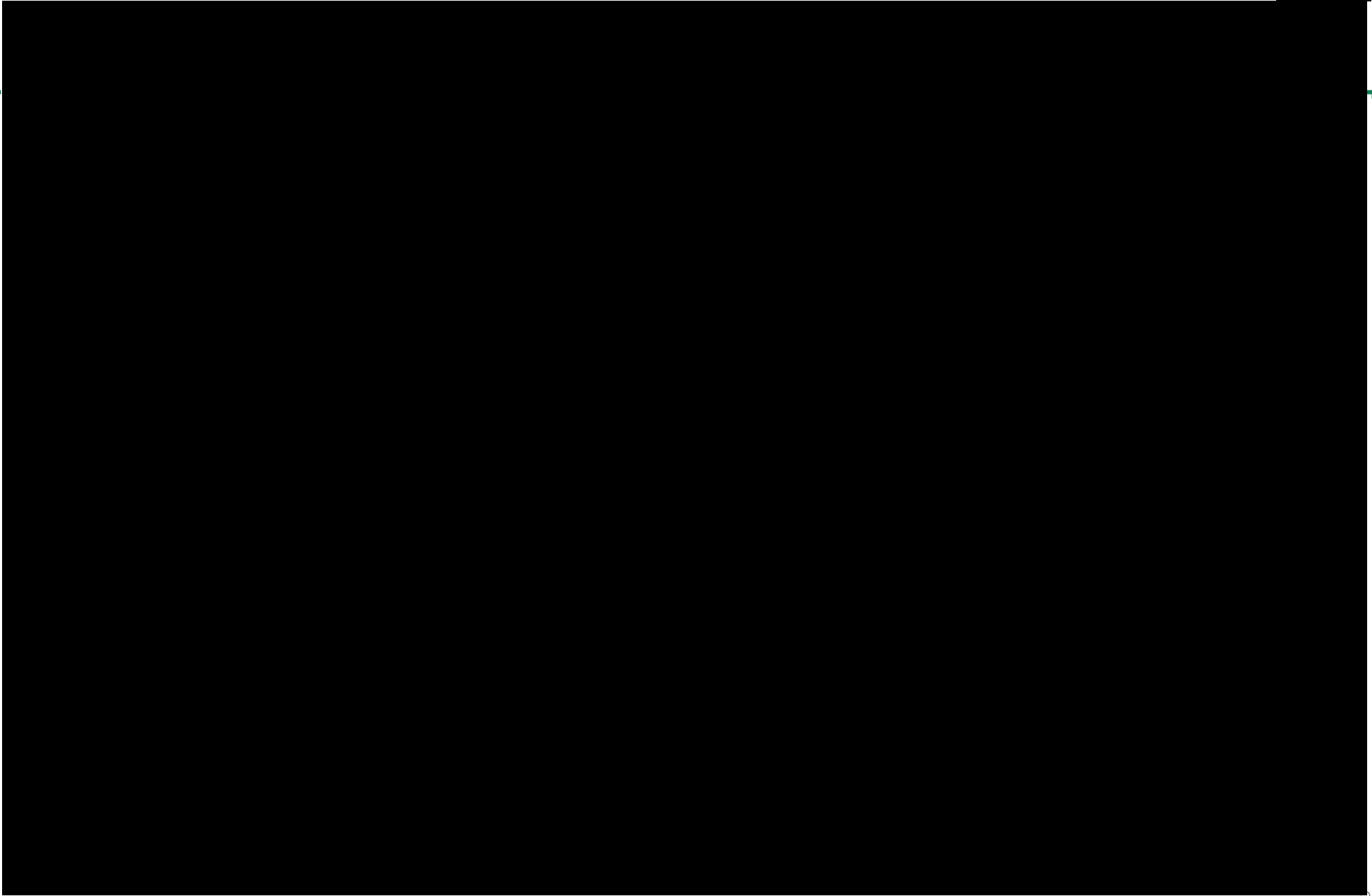
Actual earnings often differ from allowed earnings due to variance in costs and load

# Sensitivity of key economic drivers

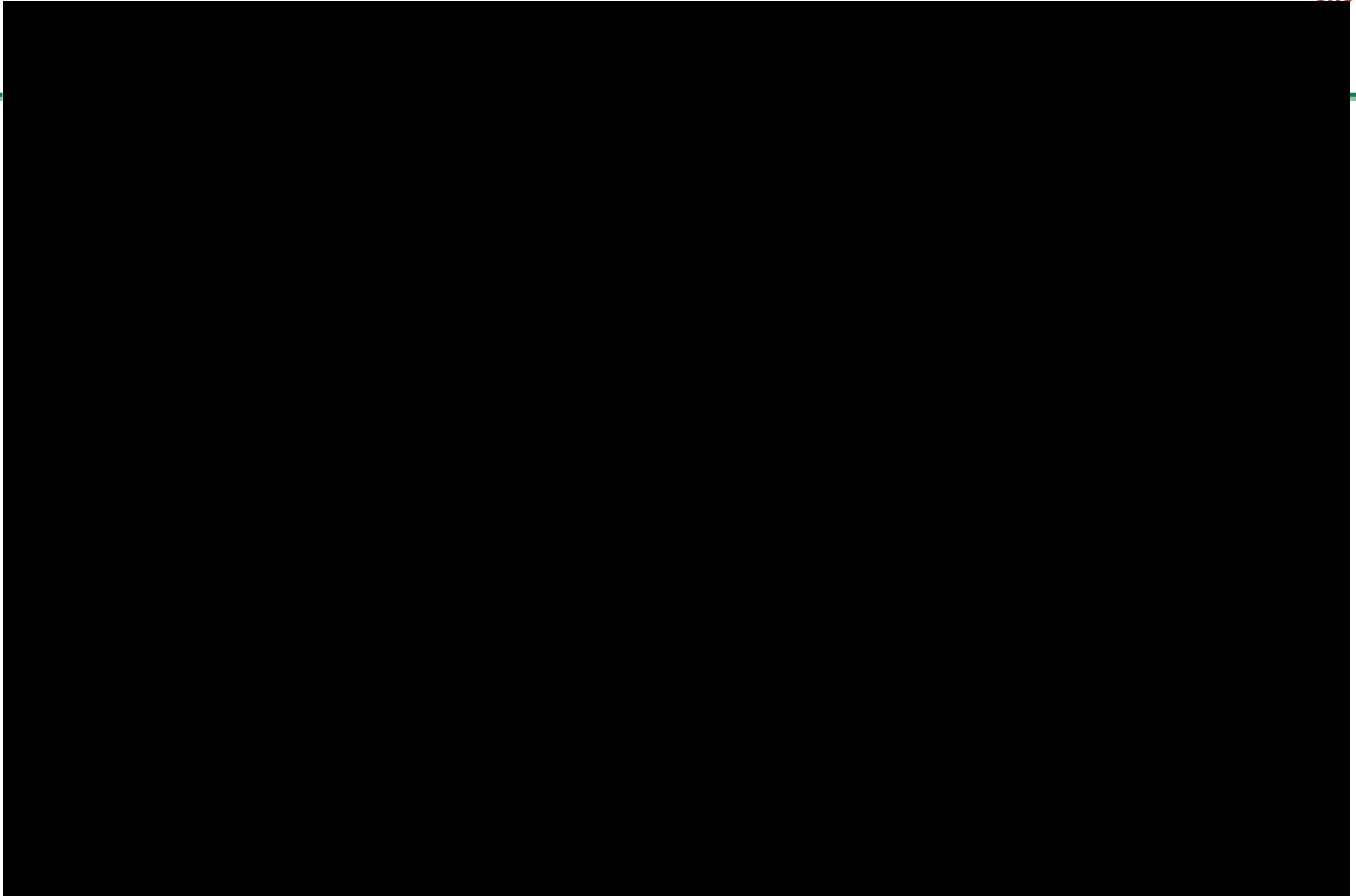
Drivers	Starting point	Sensitivity	Earnings impact (\$M average annually, 2017-2021)
Approved OM&A (% of investment plan)	100% of planned OM&A approved by OEB		
Approved capital (% of investment plan)	100% of planned Capital approved by OEB		
Cost efficiencies (\$M of OM&A efficiencies realized)	No OM&A efficiencies realized		
Load (% variance to forecast)	No variance to forecast		
Allowed return on deemed equity (% return on equity)	9.19% (2016 actual)		

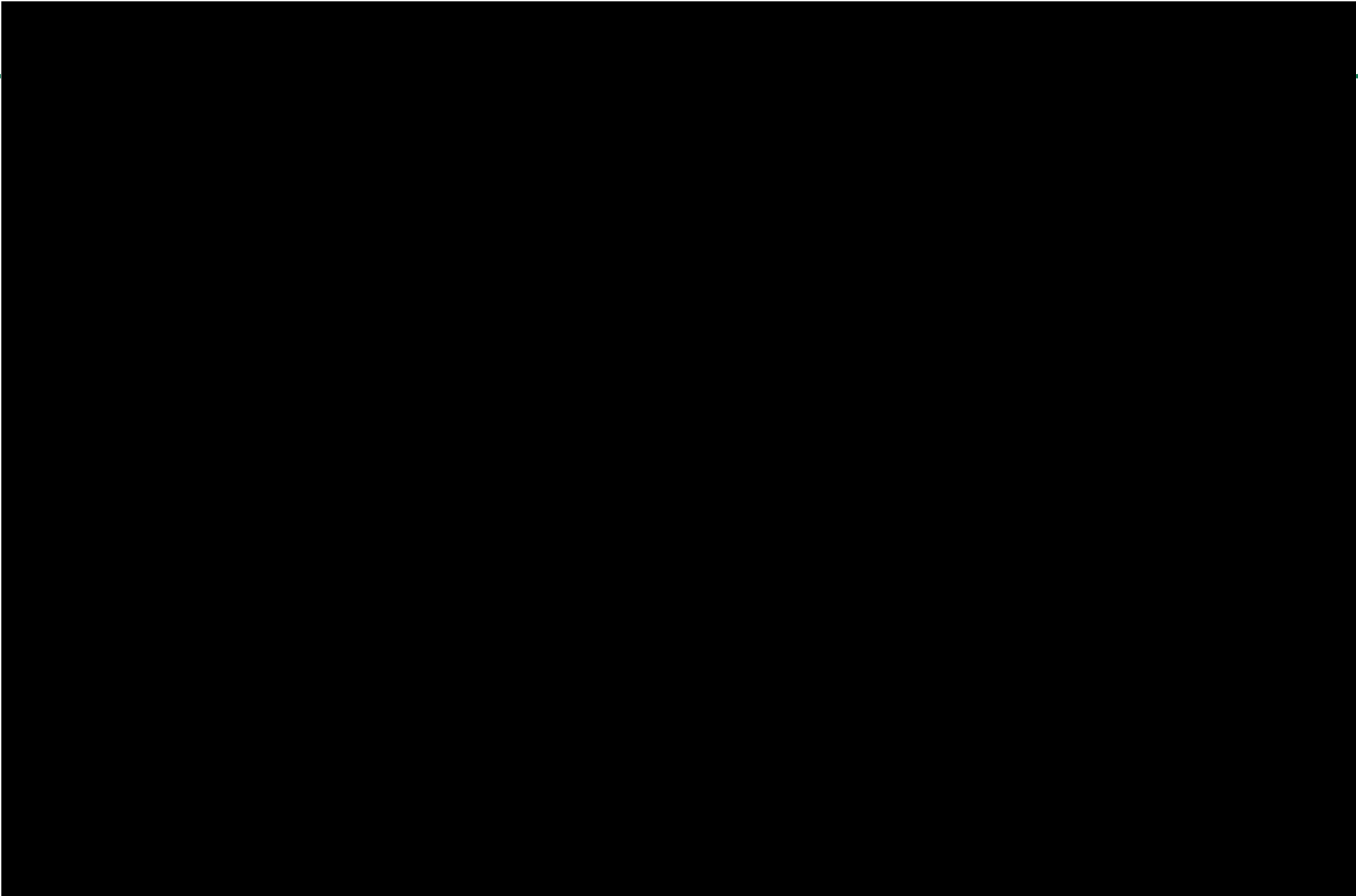


1. Based on last 5 years of Hydro One filings and recent filings from other Ontario distribution companies

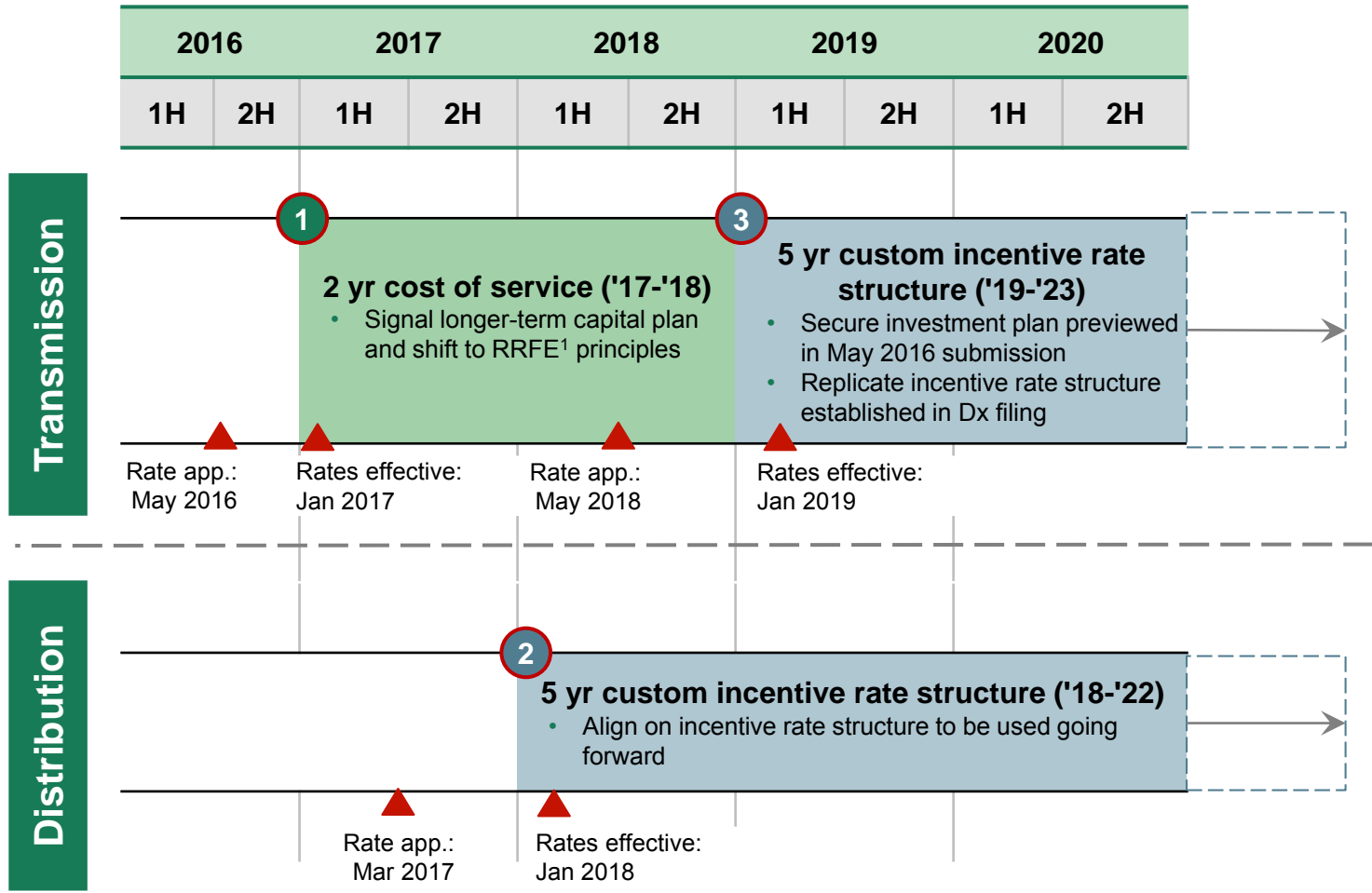


Note: Confident = Execution prerequisites largely in place; Challenging = Many interdependencies to consider and get right; Constrained = Renegotiations required to realize value

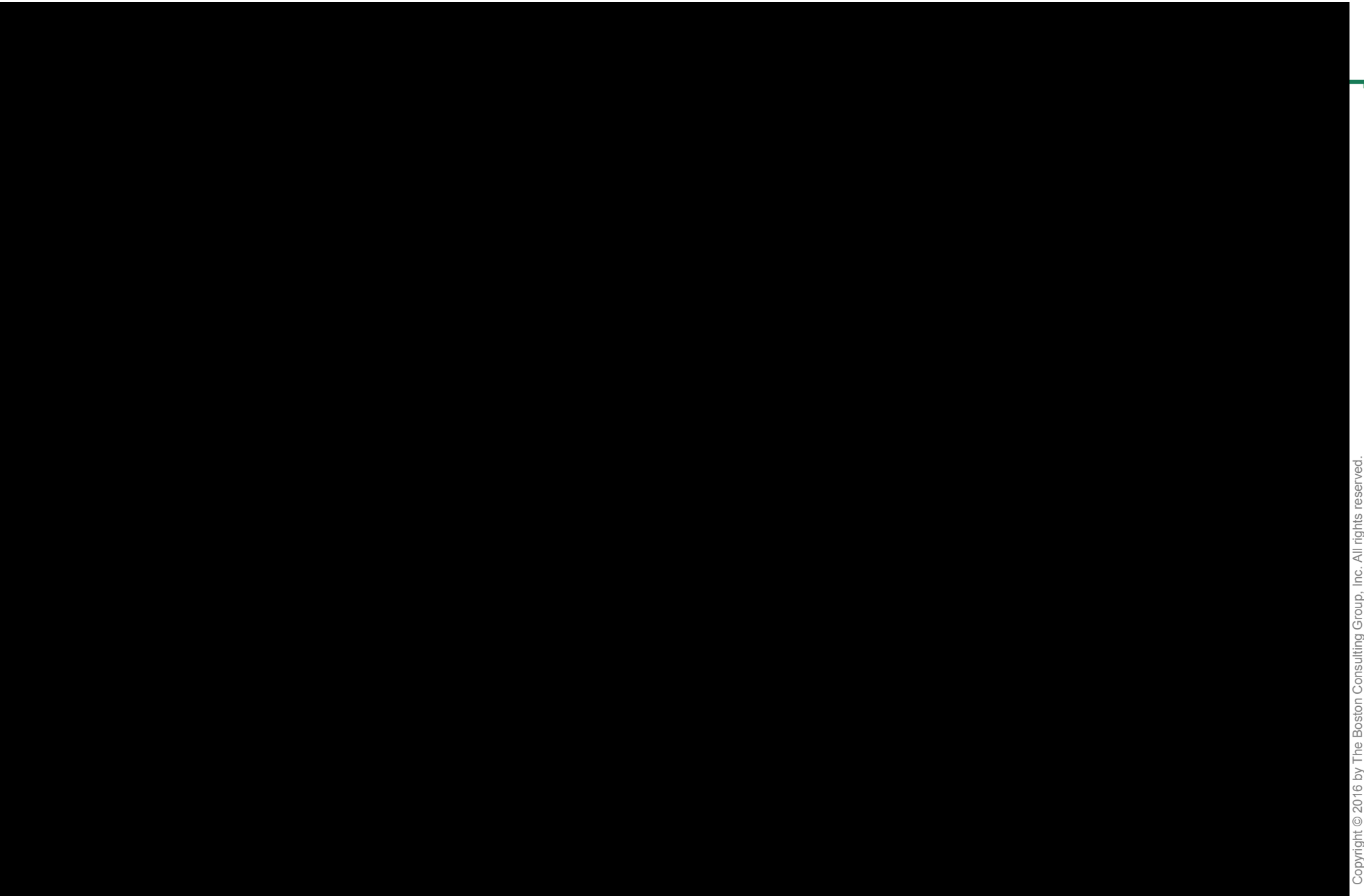




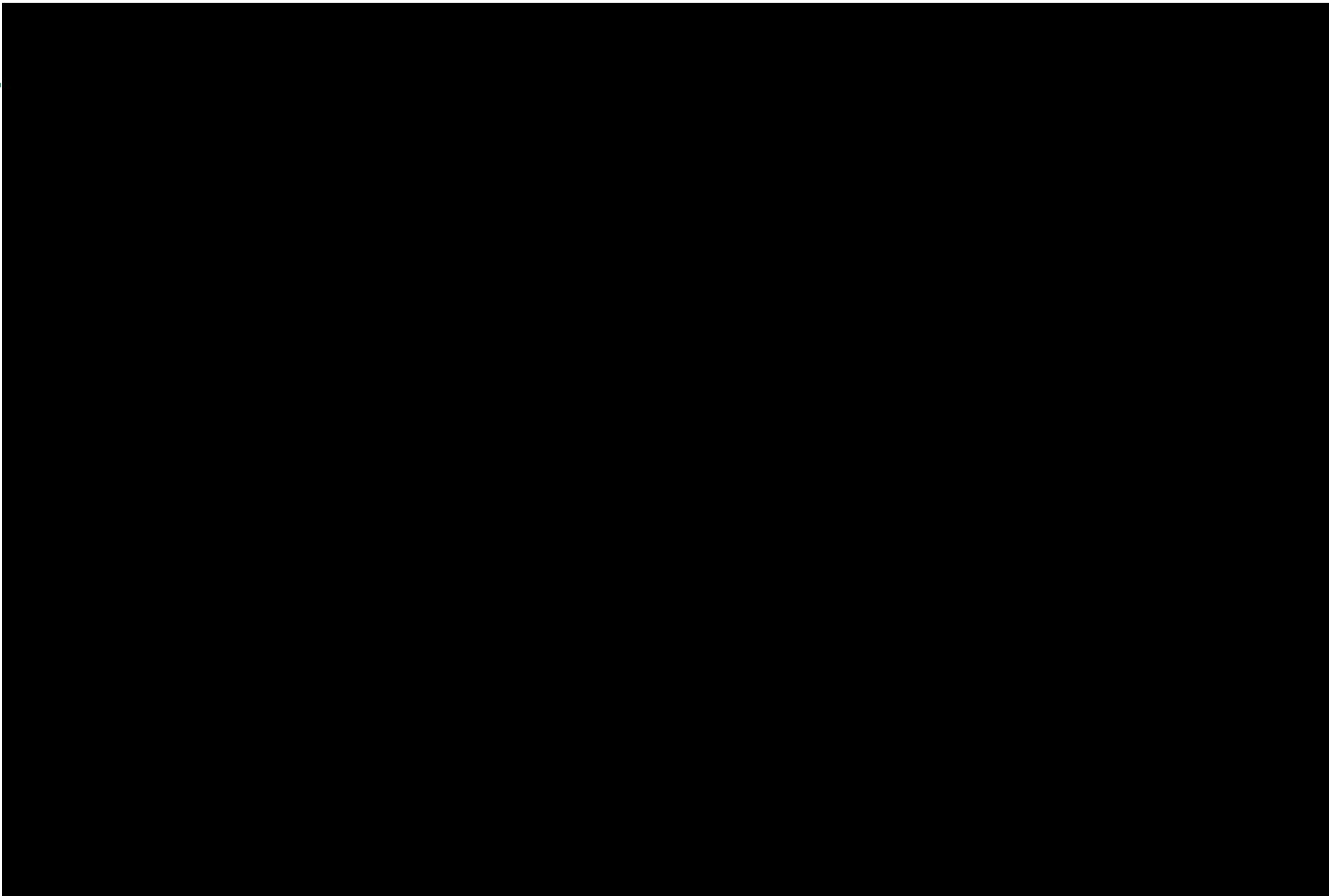
# Timing and objectives of 3 upcoming filings

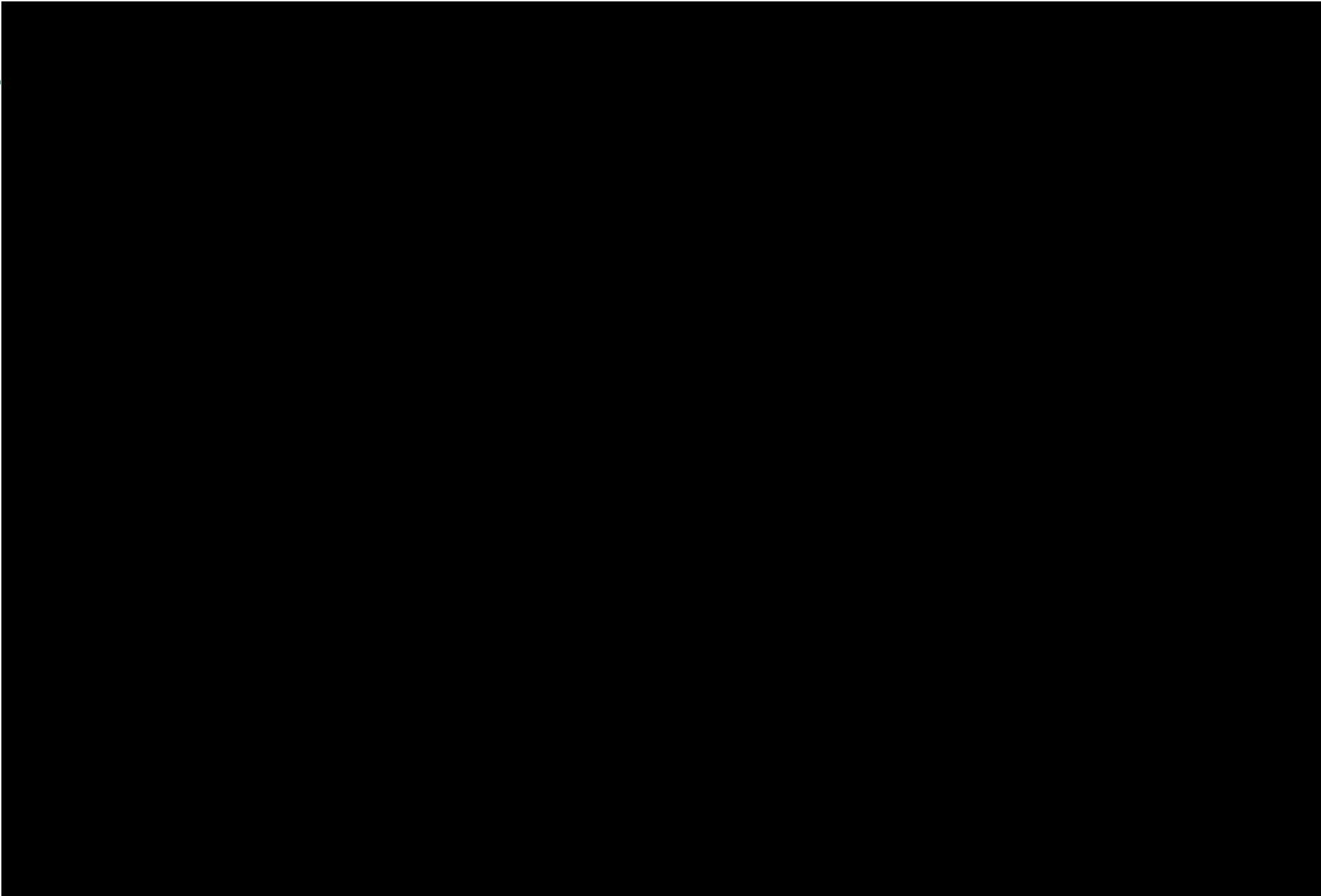


1. Renewed regulatory framework for electricity  
Board 5 Year Strategy May6 - April28vFINAL.pptx









# Background / context for Hydro One Dx rate filing

## Hydro One's previous RRFE<sup>2</sup> Dx rate application not accepted by OEB in Mar '15

**At highest level, application not accepted due to insufficient alignment with RRFE<sup>2</sup>**

- However, '15-'17 rates were accepted on a Cost of Service basis

### **Several specific reasons cited:**

- Inconsistency with outcome-based regulation
- Lack of externally imposed incentives to inform productivity and efficiency gains
- Weak benchmarking evidence
- Limited prospects for continuous improvement
- Unclear demonstration of value to customers

**In addition, OEB highlighted ten specific studies to complete and address in subsequent filing**

- Largely focused on productivity and benchmarking<sup>1</sup>

## Key steps being taken to address areas of concern in upcoming Dx application

**Incorporate incentive rate structure to drive RRFE<sup>2</sup>'s desired performance outcomes**

**Heavily leverage customer engagement findings to inform Distribution System Plan**

- Customer need and preferences to drive investments

**Reflect thorough internal and external benchmarking to support:**

- Levels of planned spend,
- Opportunities for improvement / efficiency

**Include an Earnings Sharing Mechanism to align financial incentives with customers**

**Remove complexity wherever possible**

**2018 – 2022 Dx filing will be first Hydro One filing that is fully consistent with RRFE<sup>2</sup> framework**

1. Relevant benchmarking studies include: Vegetation management program, station refurbishment program, total factor productivity, and compensation 2. Renewed regulatory framework for electricity

# Shift to incentive rate mechanism has implications for Hydro One planning and performance management

## 5-year Dx filing will fall under an incentive rate mechanism...

### Three available incentive rate mechanisms:

- **Annual index** - rate increases limited to inflation less a productivity improvement factor
- **Price Cap** – similar to annual index, with tools for recovery of capital from unforeseen events
- **Custom** – applicant must define a custom formula to capture 5-yr capital and O&M needs

**Selection of mechanism to be based on balancing flexibility (required to meet Hydro One's needs) with complexity (which drives regulatory risk)**

### Several features common to all 3 mechanisms:

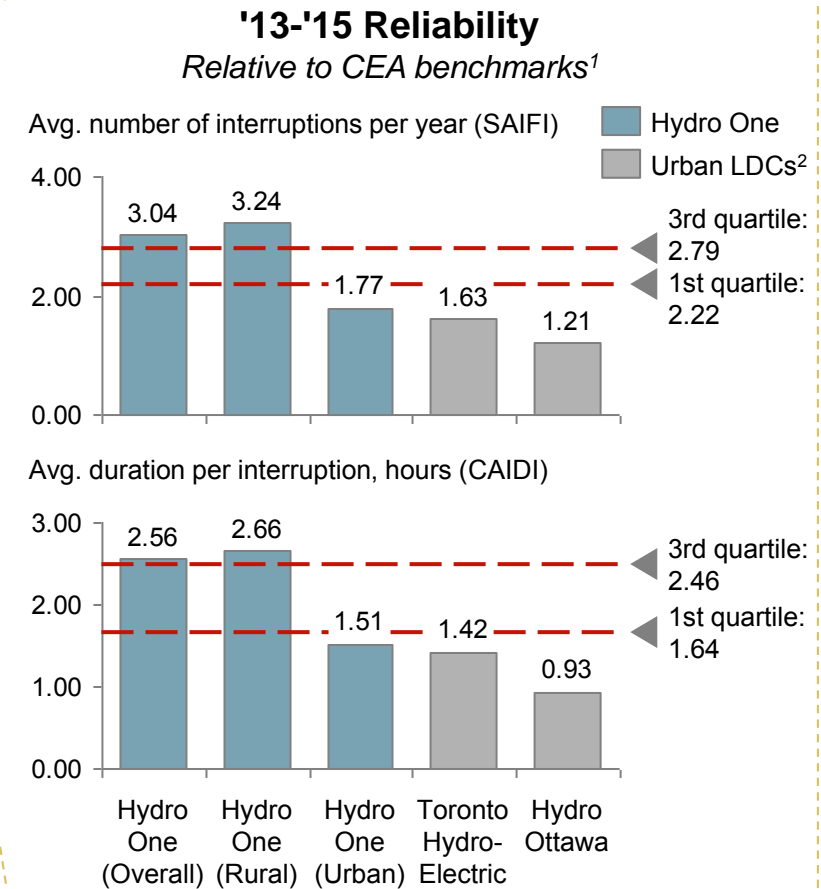
- In-service variance account calculated annually
- Mandatory OM&A efficiency improvements
- Costs re-based only once every five years
- Earnings sharing mechanism to ensure alignment of incentives with customers

## ...necessitating an increased focus by Hydro One on three areas

- 1 Living within our means – staying within capital envelope
- 2 Improving rigour in planning and execution – need to ensure we "get it right"
- 3 Becoming more efficient – driving and measuring productivity across LOBs

# Distribution system presents a unique set of challenges relative to transmission system

	Transmission	Distribution
Reliability		Consistent 4th quartile reliability
OM&A intensity		Annual OM&A expense ~80% of CapEx
Capital profile		High volume of simple, lower-cost, single-year projects
Customers		~1.3M direct-connected customers <ul style="list-style-type: none"> <li>Residential (1.2M)</li> <li>Industrials</li> <li>LDCs</li> <li>Commercial</li> <li>Small Businesses</li> </ul>
Customer satisfaction		~70 – 80%



1. CEA benchmark composed of large, provincial Canadian electric utilities with comparable rural service territories to Hydro One, including B.C. Hydro, FortisBC, Maritime Electric Company, New Brunswick Power, Newfoundland and Labrador Hydro, and Nova Scotia Power Inc.; benchmark quartiles based on average '11-'13 performance 2. Data for Toronto Hydro and Hydro Ottawa are averages of 2011-2013 (most recent period available), excludes force majeure and includes loss of supply; Source: Toronto Hydro and Hydro Ottawa rate filings

# Dx spend divided into foundational and enhancement

Level of enhancement spend and associated performance impact to be informed by customers

## Foundational spend

Avg ('18-'22): CapEx \$575M/yr, OM&A \$365M/yr

**Investments required to operate system, maintain reliability risk, and enable expected customer growth**

- Continued efficiency and performance improvement through regular system maintenance / renewal
- E.g., Wood pole replacement, new load connections, vegetation management

**Foundational spend level to be justified through risk analysis, benchmarks, and growth forecasts**

## Enhancement spend

Avg. ('18-'22): CapEx \$60M/yr, OM&A \$20M/yr

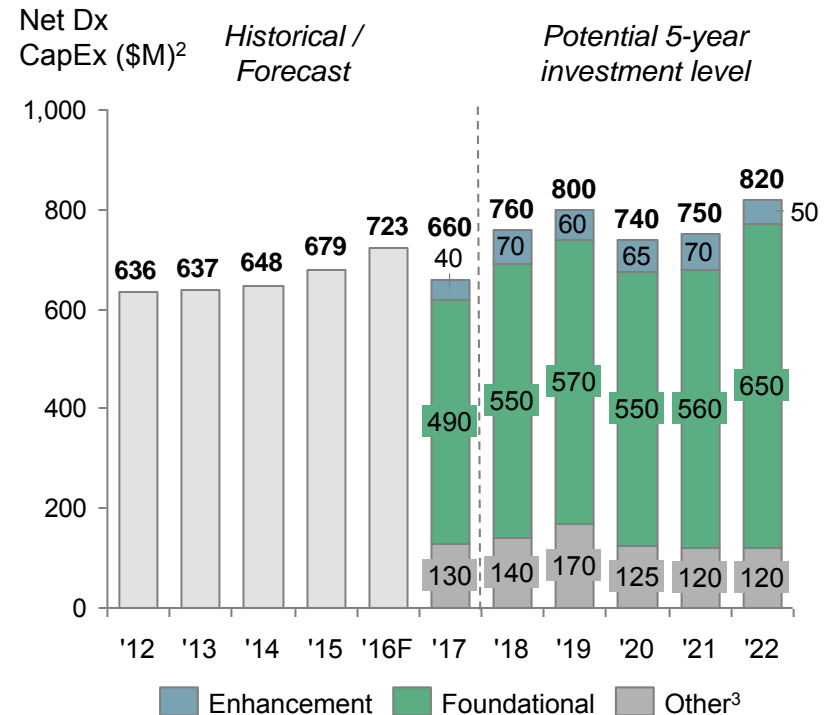
**Investments which drive performance improvements**

- Targeted at outcomes most valued by customers
- Focused on most cost-effective opportunities
- E.g., Grid modernization, worst performing feeder improvement, optimized vegetation management

**Enhancement spend level to be validated through customer consultations → potential to adjust based on customer willingness to pay**

*Subject to change pending customer inputs*

## Potential Dx investment level by year



## Preliminary estimates of impact

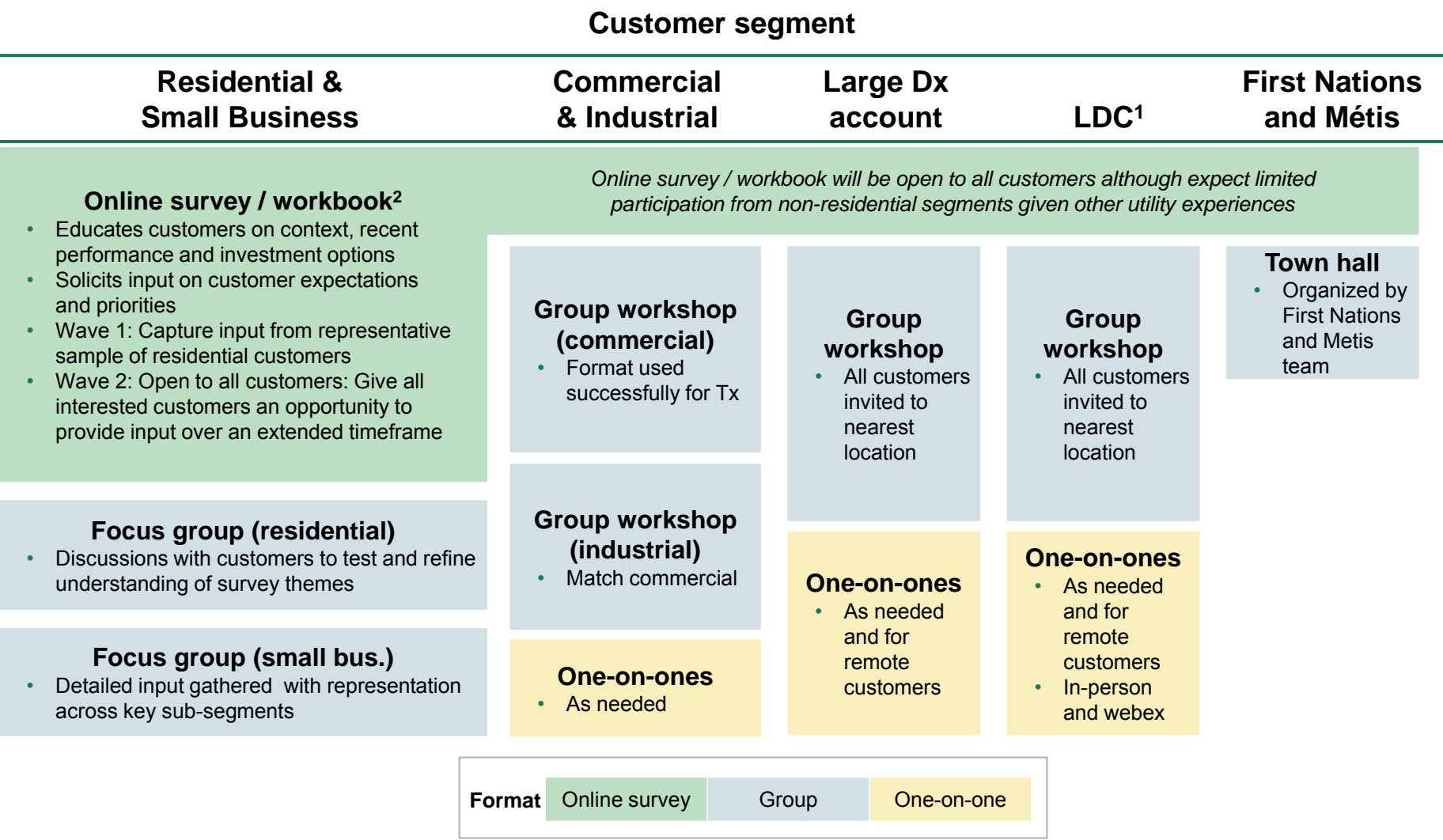
Reduce avg. number of interruptions<sup>1</sup> / year by ~10%  
Reduce avg. duration of interruptions<sup>1</sup> by ~8%

Note: Total CapEx ('18-'22) is \$3,840M; includes foundational, enhancement, and "other" spend (\$650M), which includes "common", "operating", "customer", and non-wires budget items

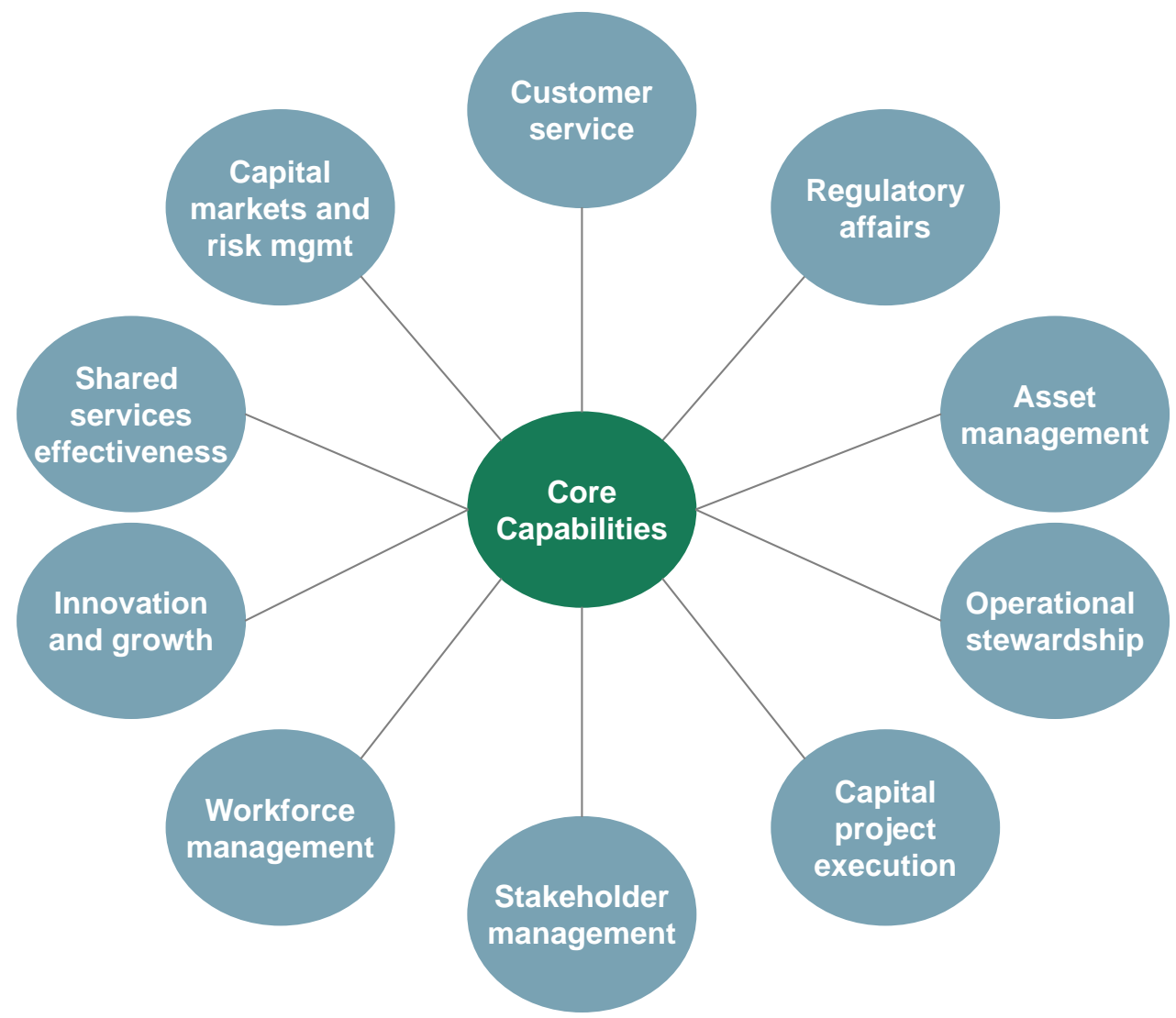
1. Includes interruptions caused by loss of supply and excludes force majeure 2. 2016 forecast as of April 8th 2016; Source: Draft\_2017-2022 Accomplishment\_File\_April 8

3. Other includes "Common," "Customer," and "Operating" budget items, non-wires spend (e.g., Security, IT), and capitalized personnel costs (union share grants, ESOP, LTIP)

# Planned engagement approach for each customer segment



# We identify 10 core capabilities for T&D operators



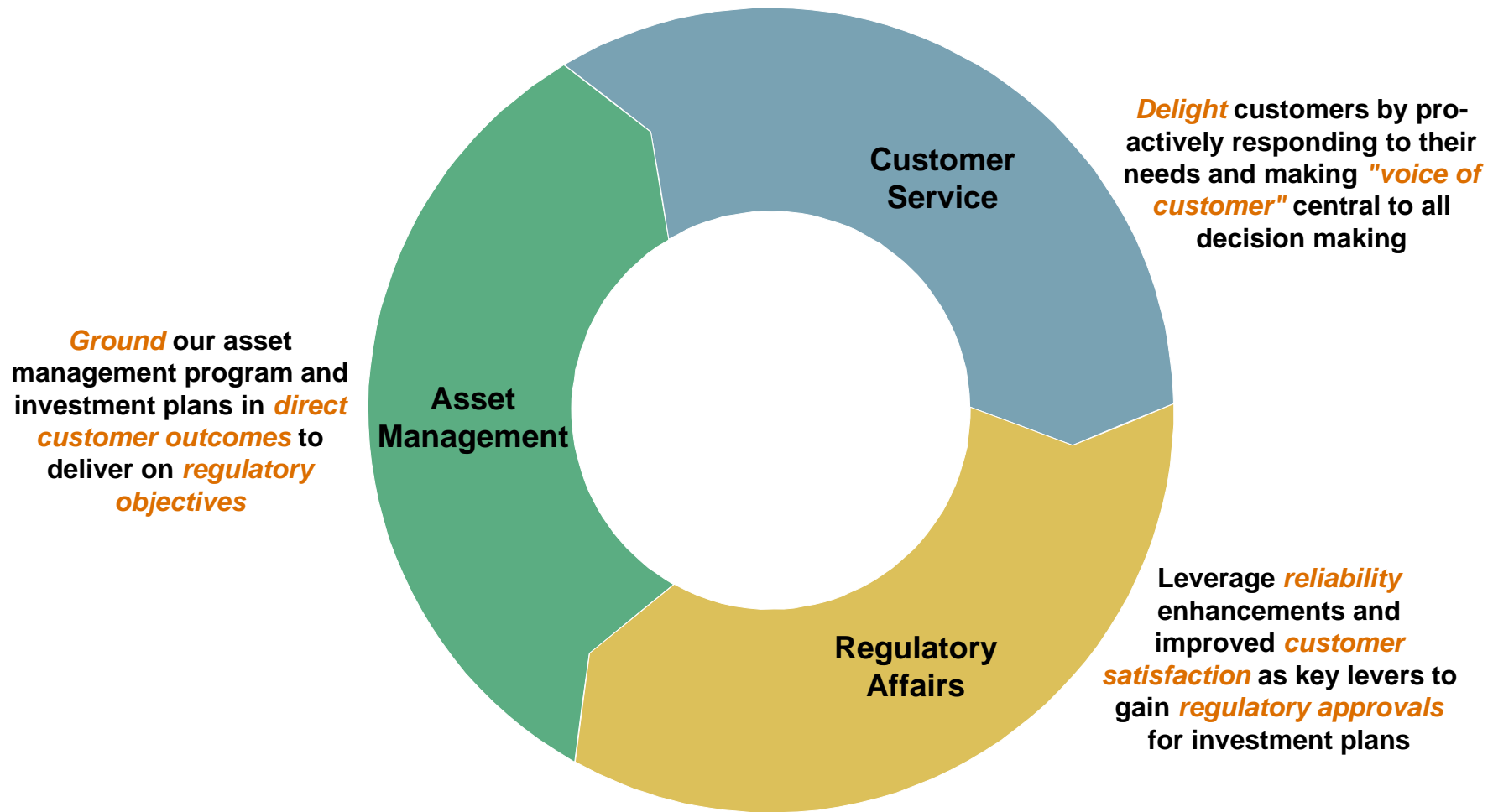
# Several dimensions critical for each capability (I)

Core T&D Capability	High-level definition of capability
<b>Customer service</b>	<b>Customer satisfaction</b> <ul style="list-style-type: none"> <li>Deliver superior service to all customer segments</li> <li>Gain trust of our customers</li> </ul> <b>Customer experience</b> <ul style="list-style-type: none"> <li>Define vision for customer experience</li> <li>Make "Voice of Customer" central to all decision making</li> </ul> <b>Service Delivery</b> <ul style="list-style-type: none"> <li>Invest in programs and functionality to help customers manage energy usage</li> <li>Utilize customer usage data to develop innovative products and services</li> </ul>
<b>Regulatory affairs</b>	<b>Regulatory strategy</b> <ul style="list-style-type: none"> <li>Define clear regulatory strategy and roadmap</li> <li>Effective regulatory relationship management</li> <li>Proficiency in rate filing and case management</li> </ul>
<b>Asset management</b>	<b>Capital allocation</b> <ul style="list-style-type: none"> <li>Optimize capital allocation across programs and asset classes</li> </ul> <b>Investment program design</b> <ul style="list-style-type: none"> <li>Utilize asset condition, field info and analytics to inform investment strategy</li> <li>Manage asset replacement cycles to balance risk-reliability tradeoffs</li> </ul>
<b>Operational stewardship</b>	<b>Maintenance and Operations</b> <ul style="list-style-type: none"> <li>Operate the grid and execute the work program in "safety first" manner</li> <li>Plan maintenance activities based on asset condition and reg requirements</li> <li>Execute field activities in a cost efficient manner</li> <li>Deploy advanced technologies to increase productivity of field crews</li> </ul> <b>Emergency response</b> <ul style="list-style-type: none"> <li>Effectively triage and respond to emergencies based on criticality</li> <li>Deploy modern tools and analytic capabilities to enable real time grid monitoring</li> </ul>
<b>Capital project execution</b>	<b>Project delivery</b> <ul style="list-style-type: none"> <li>Utilize a lean process to progress projects from concept to implementation</li> <li>Deliver capital projects safely, on time and on budget</li> <li>Optimize mix of internal vs. outsourced projects</li> </ul>

## Several dimensions critical for each capability (II)

Core T&D Capability	High-level definition of capability
<b>Stakeholder management</b>	<b>Stakeholder management</b> <ul style="list-style-type: none"> <li>Engage legislative and government stakeholders to shape policy decisions</li> <li>Gain confidence of stakeholders at local and regional level</li> <li>Consult with and gather inputs from key groups and intervenors</li> </ul>
<b>Workforce management</b>	<b>Talent management</b> <ul style="list-style-type: none"> <li>Manage talent to deliver skills against strategic business needs</li> <li>Conduct strategic workforce planning for succession and knowledge transfer</li> </ul> <b>Contractor management</b> <ul style="list-style-type: none"> <li>Develop effective approaches to manage contractors and unionized employees</li> </ul>
<b>Innovation and growth</b>	<b>Innovation</b> <ul style="list-style-type: none"> <li>Set-up an innovation centre and effective approach to screen opportunities</li> </ul> <b>Growth</b> <ul style="list-style-type: none"> <li>Develop expertise and experience in M&amp;A and post merger integrations</li> <li>Manage strategic partnerships and Joint-Ventures to support growth</li> </ul>
<b>Shared services effectiveness</b>	<b>IT</b> <ul style="list-style-type: none"> <li>Streamline IT operations to enable and strengthen core business processes</li> <li>Develop analytics capabilities to leverage customer and operational data</li> </ul> <b>Vendor Management</b> <ul style="list-style-type: none"> <li>Define and document contracting strategy support for entire organization</li> <li>Develop approach for Service level mgmt to govern contract performance</li> </ul> <b>Program management</b> <ul style="list-style-type: none"> <li>Enhance program and project management skills across organization</li> <li>Deploy effective performance management systems</li> </ul>
<b>Capital markets and risk management</b>	<b>Risk management</b> <ul style="list-style-type: none"> <li>Manage risk to match investor risk appetite, adapt to changing circumstances</li> </ul> <b>Capital markets management</b> <ul style="list-style-type: none"> <li>Fund business activities competitively vs. peers via low cost of capital</li> <li>Facilitate advantaged access to diversified sources of capital</li> <li>Manage relationships with investor community</li> </ul>

# 3 of these capabilities work hand in hand and are critical to deliver value for our current business ...



These are the capabilities we should invest in to drive best-in-class performance

... and will also be important drivers for our future growth

# 3 steps to conduct a holistic capabilities assessment

## Define framework

*What are core capabilities to be a strong T&D operator*

## Assess capabilities

*How well is H1 placed against core capabilities*

## Address gaps

*How do we close performance gaps*

### Key questions

- What capabilities are core?
- Which ones should we invest in to deliver best-in-class performance?
- Which ones will drive value for future growth

- Where is H1 today?
- Where do we see the biggest gaps?
- What improvement is required to deliver on strategy?

- How do we best address gaps in our capabilities
- What concrete levers are needed to enhance each required capability?

### Approach

- BCG experience and discussions with experts
- Learnings from work completed to date
- Industry trends and H1 context

- Structured rubric to evaluate current performance
- Self assessments by each LoB

- Implementation plans by LoB using mix of levers
  - Org (structure, op model, process, policy)
  - People (train, hire, etc)
  - Tools
  - Academy

# Program summary: initiative pipeline

	Program execution objective	Initiatives
Service delivery	<b>1 Regulatory</b> <ul style="list-style-type: none"> <li>Successfully execute Tx cost of service (May '16) and Dx custom incentive rate mechanism (May '17) filings</li> </ul>	<ul style="list-style-type: none"> <li>Tx filing</li> <li>Dx filing</li> <li>Dx customer consultation</li> </ul>
	<b>2 Asset management</b> <ul style="list-style-type: none"> <li>Demonstrate outcomes-based planning and measurement ahead of Dx filing in May '17</li> </ul>	<ul style="list-style-type: none"> <li>Integrated investment planning process (including data integrity and asset analytics)</li> </ul>
	<b>3 Capital delivery</b> <ul style="list-style-type: none"> <li>Transform stage gate process and delivery model to predictably and efficiently execute work program</li> </ul>	<ul style="list-style-type: none"> <li>Execution efficiency (project controls, field)</li> <li>Contract management and quality control</li> <li>Stage gate process and advanced readiness</li> <li>Work program KPI<sup>2</sup> s and benchmarks</li> </ul>
	<b>4 Customer service</b> <ul style="list-style-type: none"> <li>Execute priority customer initiatives to progressively improve satisfaction across segments</li> </ul>	<ul style="list-style-type: none"> <li>Two key near-term R&amp;SB<sup>1</sup> initiatives: <ul style="list-style-type: none"> <li>E-Billing, My account</li> </ul> </li> <li>Plus 10 other initiatives across segments</li> </ul>
Efficiency	<b>5 Procurement</b> <ul style="list-style-type: none"> <li>Execute waves of sourcing events to deliver impact starting in '16; enable org. with new capabilities</li> </ul>	<ul style="list-style-type: none"> <li>Four waves covering 18 categories</li> <li>Wave 1: Staff augmentation, general hardware, transformers, IT software and professional services</li> </ul>
	<b>6 O&amp;M efficiency</b> <ul style="list-style-type: none"> <li>Execute O&amp;M efficiency initiatives to deliver impact starting in '17</li> </ul>	<ul style="list-style-type: none"> <li>7 initiatives including: labour mix optimization, Dx brush outsourcing, preventive maintenance</li> </ul>
	<b>7 SG&amp;A effectiveness</b> <ul style="list-style-type: none"> <li>Execute near-term initiatives in '16, prepare full cascaded org and process redesign by '17</li> </ul>	<ul style="list-style-type: none"> <li>Action plans by lines of business for realization of near term SG&amp;A<sup>3</sup> opportunities</li> </ul>
	<b>8 Labour &amp; Outsourcing</b> <ul style="list-style-type: none"> <li>Execute HR processes and controls, and Labour and Inergi contract strategies</li> </ul>	<ul style="list-style-type: none"> <li>Inergi strategy</li> <li>Labour strategy</li> </ul>

1. RS&B is residential and small businesses customer segment 2. KPI is key performance indicator 3. SG&A is sales, general and administration

# Rigorous program management process in place

## Clear program structure in place

- Dedicated TMO resources
- Defined governance structure



Team structure

## Detailed execution planning

- Clear milestone plans
- Measurable KPIs and targets

Initiative description			
Module	Name	Initiative Leader	Executive Sponsor
120		120	120
Objective		Key KPIs to measure success	
• Main goal of initiative e.g. improve customer experience		• e.g. customer satisfaction by 10 points, if outage decreased by 10%	
Potential cost of implementation (\$)		Expected benefit	
• e.g. mobile application: \$250K		• e.g. savings, FTE reduction, improved customer satisfaction, etc.	
Other considerations		In scope / Out of scope	
• Risks, interdependencies, assumptions, etc.		• e.g. When 1 excludes contract renegotiation, no volume reduction	
CIT support required? (check box if yes)			

Initiative charter

The Tracker table is a large grid with columns for 'Milestone', 'Start', 'End', 'Status', 'Owner', 'Dependencies', and 'Notes'. It contains numerous rows of data, with some cells highlighted in green to indicate completed or on-track milestones. The table is organized into sections for different initiatives or projects.

Tracker

Description		Initiative description			
2.b) Emergency Telecom/3rd Party		Initiative leader Ray Mitchell	Initiative sponsor Lynette Friesen		
Overall Milestone Plan					
Milestone	Expected savings (\$M)	Savings realized (\$M)	Expected date	Effective date	Status
Contract Assessment - 3rd Party			1-Jan	1-Jan	✓
Assessment			1-Jan	1-Jan	✓
Forecast Reduction			29-Feb	29-Feb	✓
Overall Target	1.5		29-Feb	29-Feb	✓

✓ Completed

⦿ All risk

⦿ On track

⦿ Off Track

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

➤ None at this time

➤ Contract Assessment

➤ Contract Terms for Vio

➤ Forecast Reduction

<

Status report

## Rigorous tracking and monitoring

- Status of individual milestones
- Management of risks and interdependencies

## Clear information flow and escalation paths

- Defined reporting cadence
- Formal issue resolution and change processes

**Future Board meetings to include *Good to Great* program status summary with initiative impact quantified**

A faint, pixelated world map in a dark teal color serves as a background for the BCG logo.

BCG

THE BOSTON CONSULTING GROUP

Thank you

[bcg.com](http://bcg.com) | [bcgperspectives.com](http://bcgperspectives.com)



Filed: 2018-06-22  
EB-2017-0049  
Exhibit J 7.1  
Attachment 1  
Page 1 of 78



Filed: 2019-08-28  
EB-2019-0082  
Exhibit JT-1.11  
Attachment 3  
Page 1 of 78

# Good to Great: Assessment of Full Potential

## Steering Committee #1

Feb 9, 2016

THE BOSTON CONSULTING GROUP

# What we would like to accomplish today

## What we would like for a great session

A short presentation of your content

A real discussion vs. a "marketing pitch"

Full engagement and participation from all

Peer review, questions, and input

Decisions on key issues

## What we would like to avoid

Not enough time for discussion

Avoiding the tough questions ... particularly for the key decisions we need to make

Getting too far into the weeds

Putting off key decisions or not having a path to resolve in a timely manner

### Three key decisions for today:

- ☐ Regulatory: Approval of transmission customer consultation plan
- ☐ Regulatory: Alignment on "Wave 1" invitees
- ☐ Quick wins: Approve \$9.2M in quick wins ready for execution

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b>	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (2:00 – 2:10)
<b>Regulatory: Tx Filing consultation approach</b>	Oded Hubert	<b>30 min</b> (2:10 – 2:40)
<b>Hydro One performance: Metrics and aspirations</b>		
• Asset management (system performance)	Mike Penstone	<b>25 min</b> (2:40-3:05)
• Customer (service performance)	Rob Quail	<b>15 min</b> (3:05-3:20)
• Capital efficiency	Brad Bowness	<b>15 min</b> (3:20-3:35)
<b>Efficiency: Baseline and Quick Wins</b>		
• Procurement	Gary Schneider	<b>15 min</b> (3:35-3:50)
• Org effectiveness	Andrew Loh (on behalf of Judy McKellar)	<b>15 min</b> (3:50-4:05)
• Labour strategy	Nadine O'Neill	<b>15 min</b> (4:05-4:20)
• O&M efficiency	Jon Rebick	<b>15 min</b> (4:20-4:35)
• Quick Wins	Stefanie Stocco / Frank D'Andrea	<b>15 min</b> (4:35-4:50)
<b>Wrap-up and next steps</b>	Stefanie Stocco	<b>10 min</b> (4:50-5:00)

# Where we are we in the process

## Today's focus

### SteerCo #1 Feb 9

#### Regulatory

- ☐ Review customer needs by segment
- ☐ Approve strategic approach to customer consultation (for Tx)

#### Hydro One Performance

- ☐ Define aspiration, metrics, and targets for performance
- ☐ Describe drivers to meet performance targets

#### OM&A Efficiency

- ☐ Review baseline and benchmark analysis
- ☐ Approve quick wins

### SteerCo #2 Feb 25

#### Regulatory

- ☐ Review investment scenarios and evidence for consultation

#### Hydro One Performance

- ☐ Review emerging Capital stage gate and delivery model plan
- ☐ Review detailing of near-term Customer initiatives

#### OM&A Efficiency

- ☐ Review opportunity sizing
  - Procurement
  - Org effectiveness
  - Labour policies
- ☐ Approve Procurement Wave 1
- ☐ Approve quick wins

### SteerCo #3 March 11

#### Regulatory

- ☐ Review emerging findings from Wave 1 consultation
- ☐ Approve Wave 2 consultation

#### Hydro One Performance

- ☐ Review 5 year asset mgmt plan
- ☐ Review 2016-2020 Customer plan
- ☐ Review proposed Capital stage gate and delivery model

#### OM&A Efficiency

- ☐ Review 2016-2020 plans
  - Org effectiveness
  - Labour policies
- ☐ Review O&M diagnostic
- ☐ Approve quick wins

### SteerCo #4 March 21

Review of materials for 3/31 board meeting

# Program status: Status of 8 core work streams

Workstream	Lead	Status	Status Comments
<b>Regulatory strategy</b>	Oded Hubert	<b>At risk</b>	<i>On track. Team progressing against elements of Tx rate filing. Critical path elements are Tx Customer Consultation input and Asset Management input into the Tx Capital plan – which are both being closely monitored</i>
<b>Asset management</b>	Mike Penstone	<b>At risk</b>	<i>Good overall progress. Main concern is aggressive Tx filing timeline - need to continue to manage interdependencies with regulatory work stream</i>
<b>Customer</b>	Rob Quail	<b>At risk</b>	<i>On track to original project plan except for clearly defined 2016 initiatives and targets for LDA and C&amp;I segments – team accelerating workplan to catch-up</i>
<b>Capital efficiency</b>	Brad Bowness	<b>On track</b>	<i>On track. Team identified 3 priority areas of focus. Workshop held on 2/3 to more clearly define scope, approach, and ultimate deliverables</i>
<b>Procurement</b>	Gary Schneider	<b>On track</b>	<i>On track. Spend cube validation complete with proposed actions to size opportunities underway for execution prioritization</i>
<b>Org effectiveness</b>	Judy McKellar	<b>At risk</b>	<i>Headcount baselining completed, but final validation by functional leads delayed – scheduled for next week with little/no impact on future milestones</i>
<b>Labour strategy</b>	Nadine O'Neill	<b>On track</b>	<i>On track. Labour cost baseline completed and assessment of levers underway</i>
<b>O&amp;M efficiency</b>	Jon Rebick	<b>On track</b>	<i>On track. Deep dive areas identified and data collection and preliminary analysis underway for all target areas. Initial field visits planned for later this week and next week to map &amp; observe work processes</i>

Not started

On track

At risk

Off track

Complete



# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b>	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (2:00 – 2:10)
<b>Regulatory: Tx Filing consultation approach</b>	Oded Hubert	<b>30 min</b> (2:10 – 2:40)
<b>Hydro One performance: Metrics and aspirations</b>		
• Asset management (system performance)	Mike Penstone	<b>25 min</b> (2:40-3:05)
• Customer (service performance)	Rob Quail	<b>15 min</b> (3:05-3:20)
• Capital efficiency	Brad Bowness	<b>15 min</b> (3:20-3:35)
<b>Efficiency: Baseline and Quick Wins</b>		
• Procurement	Gary Schneider	<b>15 min</b> (3:35-3:50)
• Org effectiveness	Andrew Loh (on behalf of Judy McKellar)	<b>15 min</b> (3:50-4:05)
• Labour strategy	Nadine O'Neill	<b>15 min</b> (4:05-4:20)
• O&M efficiency	Jon Rebick	<b>15 min</b> (4:20-4:35)
• Quick Wins	Stefanie Stocco / Frank D'Andrea	<b>15 min</b> (4:35-4:50)
<b>Wrap-up and next steps</b>	Stefanie Stocco	<b>10 min</b> (4:50-5:00)

# Summary: Regulatory strategy

**Overall team is progressing against elements of Tx rate filing and is on track**

- Critical path elements are Tx Customer Consultation input and Asset Management input into the Tx Capital plan
- Team has developed a broader stakeholder engagement plan, to ensure consideration of input beyond Tx customers

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

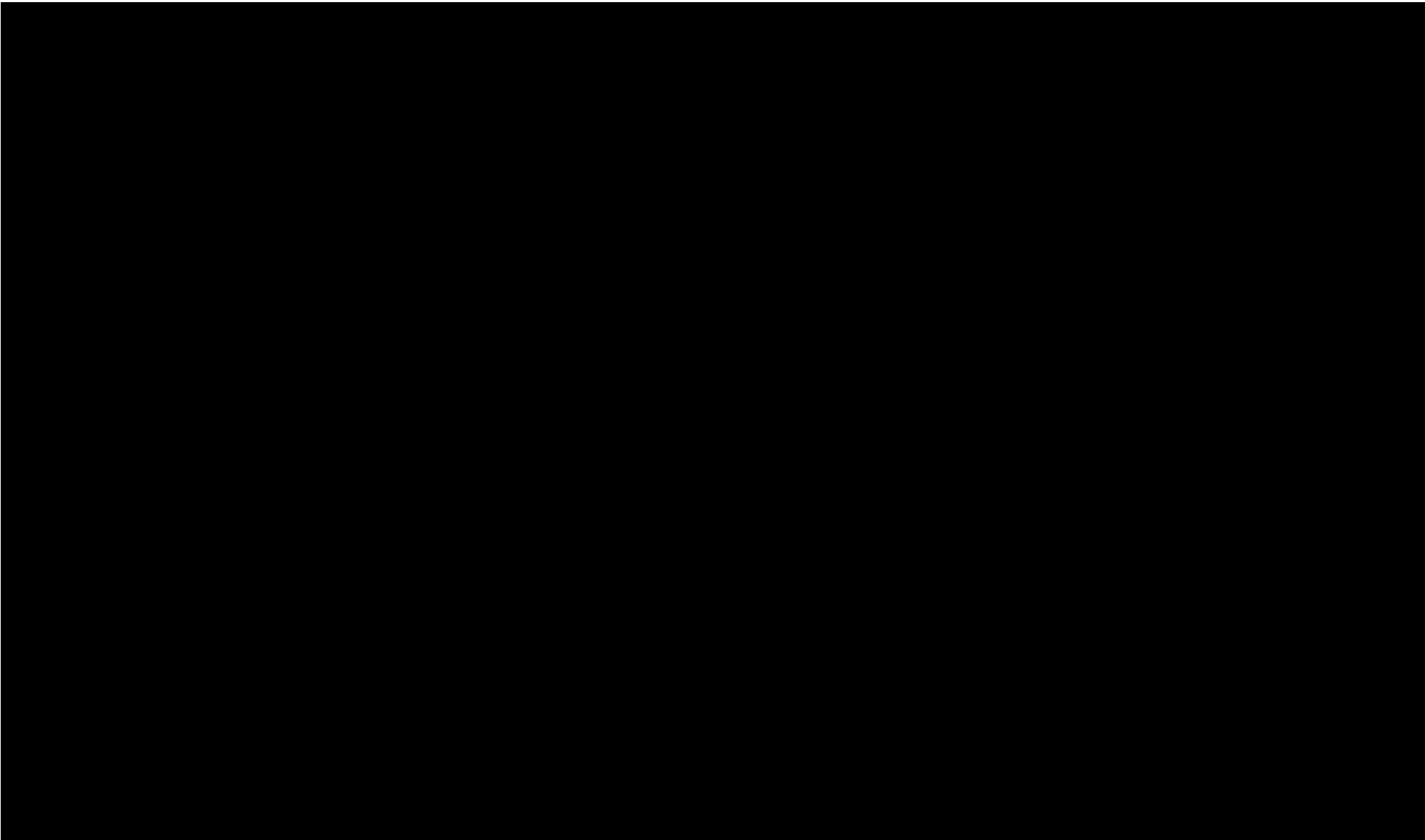
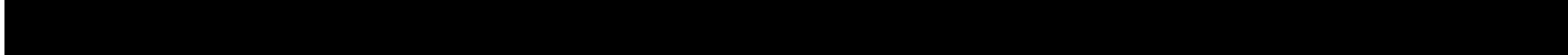
[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]



[Redacted]

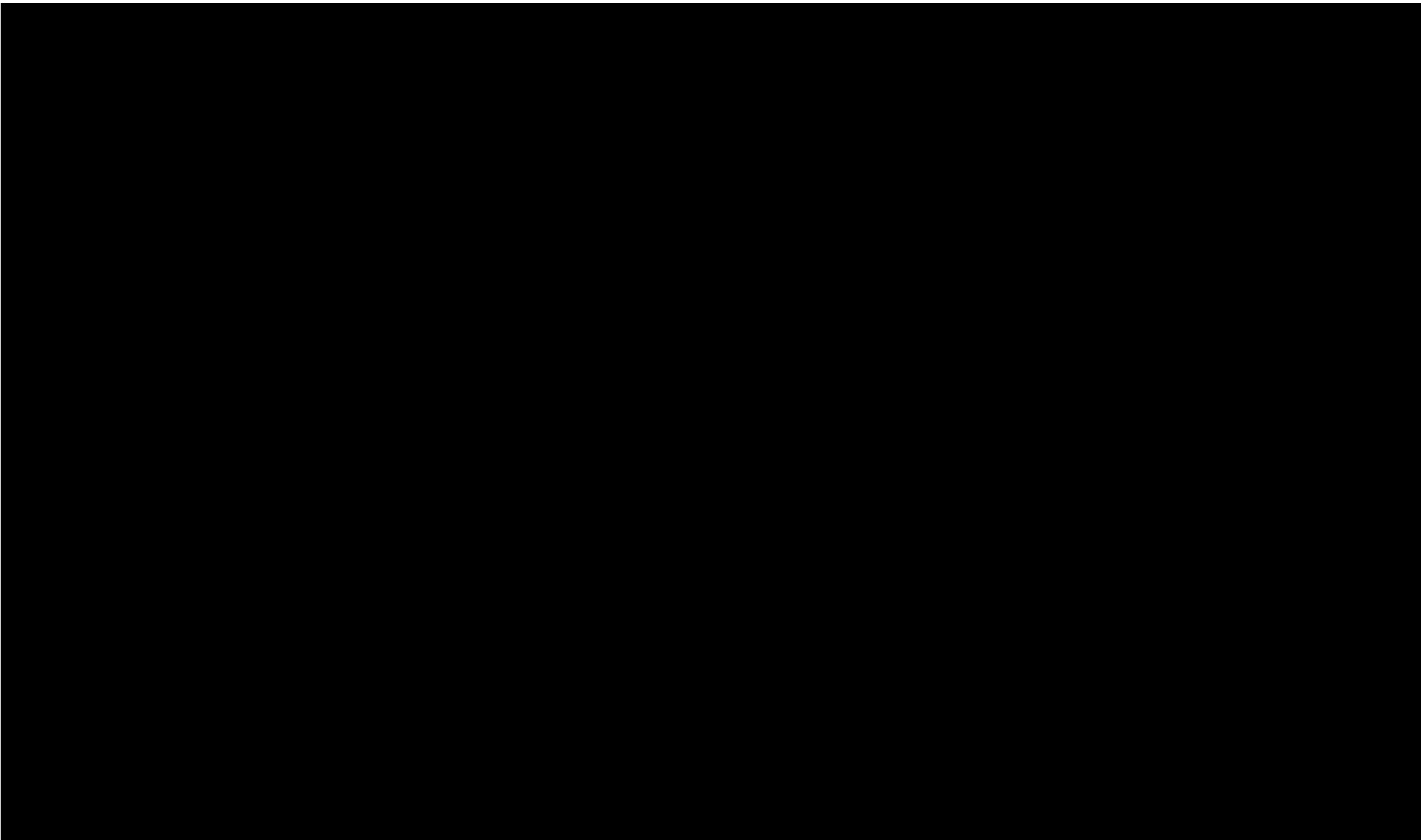
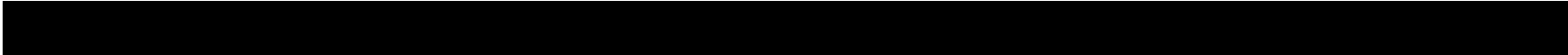
[Redacted]

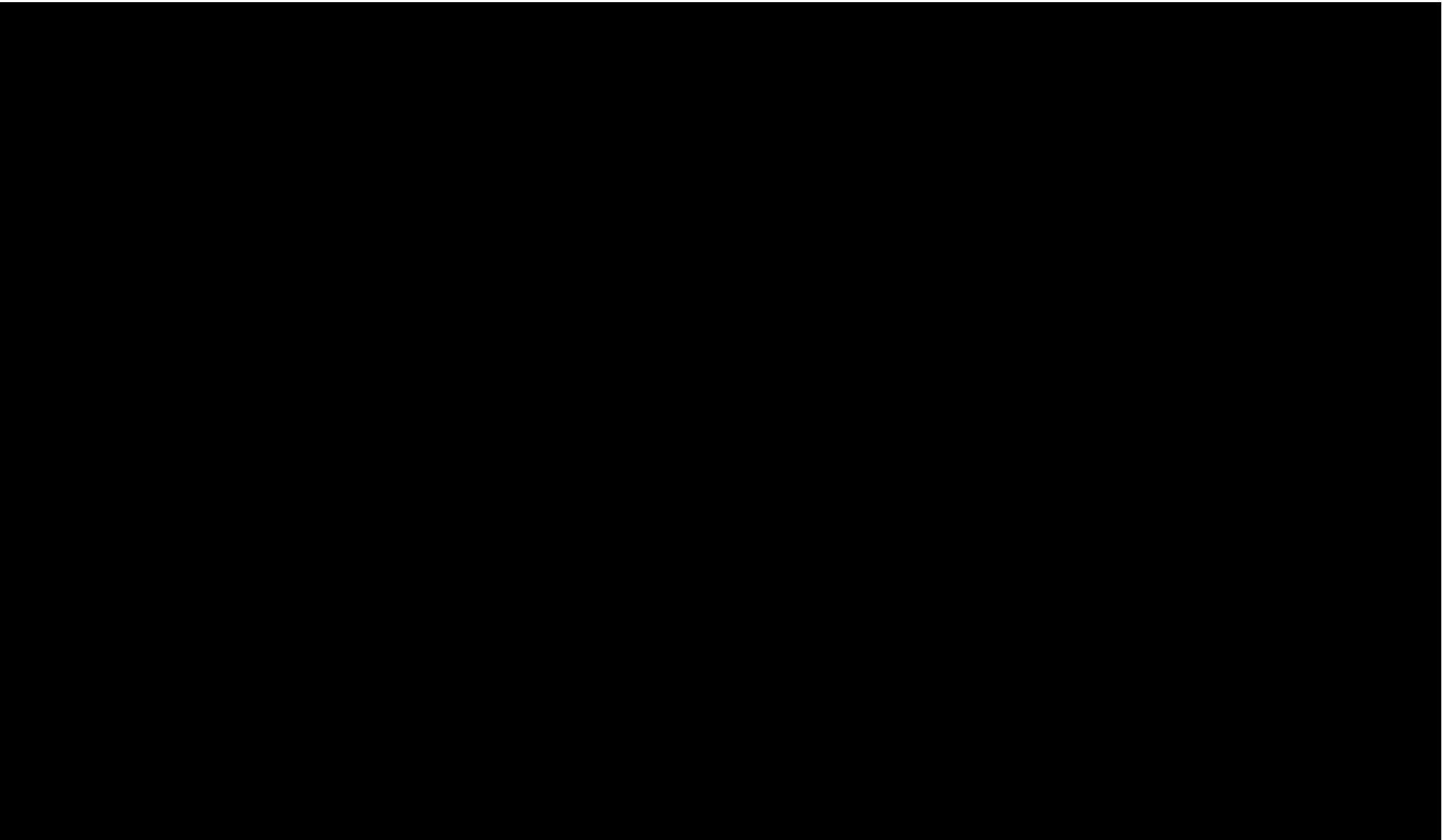
[Redacted]

[Redacted]

[Redacted]

[Redacted]





[Redacted]

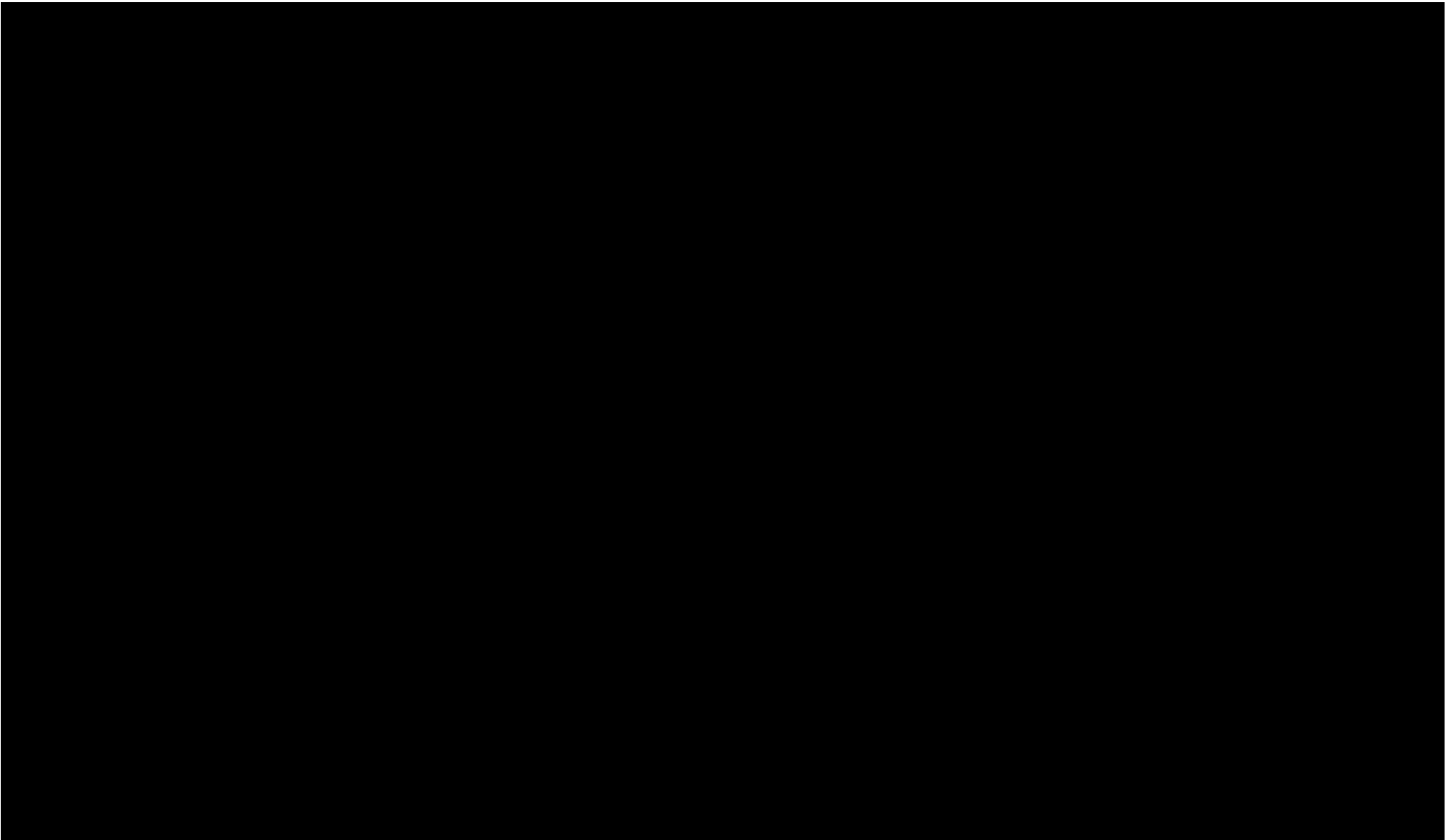
[Redacted]

[Redacted]

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b>	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (2:00 – 2:10)
<b>Regulatory: Tx Filing consultation approach</b>	Oded Hubert	<b>30 min</b> (2:10 – 2:40)
<b>Hydro One performance: Metrics and aspirations</b>		
• Asset management (system performance)	Mike Penstone	<b>25 min</b> (2:40-3:05)
• Customer (service performance)	Rob Quail	<b>15 min</b> (3:05-3:20)
• Capital efficiency	Brad Bowness	<b>15 min</b> (3:20-3:35)
<b>Efficiency: Baseline and Quick Wins</b>		
• Procurement	Gary Schneider	<b>15 min</b> (3:35-3:50)
• Org effectiveness	Andrew Loh (on behalf of Judy McKellar)	<b>15 min</b> (3:50-4:05)
• Labour strategy	Nadine O'Neill	<b>15 min</b> (4:05-4:20)
• O&M efficiency	Jon Rebick	<b>15 min</b> (4:20-4:35)
• Quick Wins	Stefanie Stocco / Frank D'Andrea	<b>15 min</b> (4:35-4:50)
<b>Wrap-up and next steps</b>	Stefanie Stocco	<b>10 min</b> (4:50-5:00)

# Summary: Tx system performance



# H1's Tx performance aspirations: Customer centric model

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

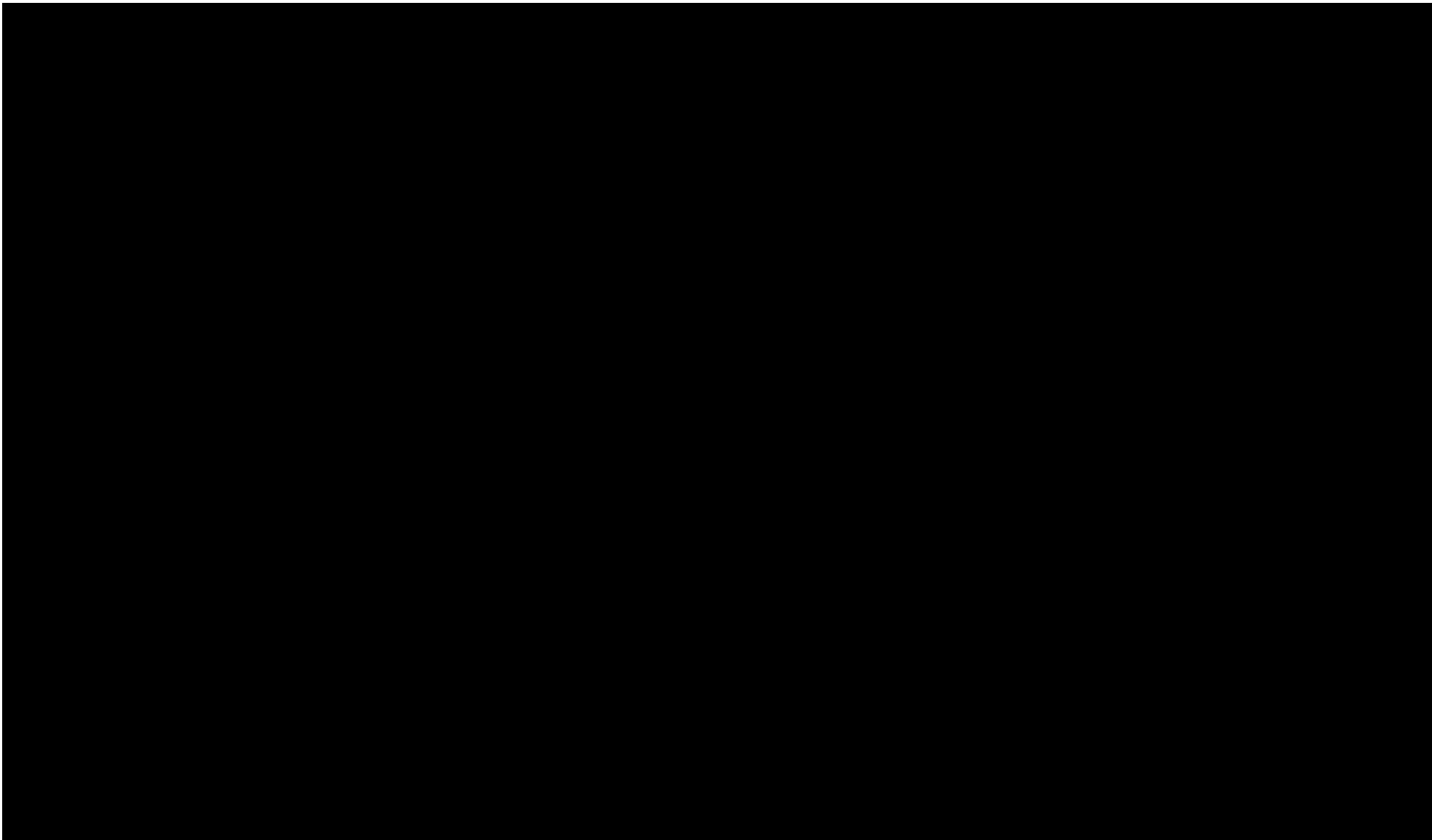
[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]



# Summary: Dx system performance

## Work completed to date has focused on four key areas

- Defining the aspirations for Dx grid performance
- Identifying the right high-level metrics to both drive performance and align us with customer needs / expectations
- Analyzing key drivers of historical performance
- Identifying specific improvement levers

## Going forward, preliminary Dx aspiration is to achieve more customized service aligned with segmented customer needs

## Moving forward, recommend focused effort around SAIFI and CAIDI; with targets varying by customer segment

- SAIFI / CAIDI should be core metrics because they are directly tied to reliability and outage response performance
- Segmented tracking to be done for urban, rural, and LDA customers given difference in customer profiles (to be confirmed via customer segmentation)

## Historical reliability relatively poor, with rural performance significantly impacting system metrics

- 3 yr avg. ('13-'15) overall system SAIFI is 3.04<sup>1</sup>, fourth quartile when compared to CEA peers– driven by rural SAIFI of 8.62
- 60% of non-Force Majeure (FM) SAIFI outages driven by defective equipment, tree contacts, and scheduled outages

## Metric goals will be defined as team refines view around customer needs, optimization of current spend, and evaluation of prudent incremental investments

- BCG has performed conceptual impact estimates leveraging previous industry assumptions
- Unconstrained, preliminary analysis identifies potential for improvement, but need to refine for unique Hydro One system characteristics

1. Includes Loss of Supply, Excludes Force Majeure (FM)

# Dx grid performance aspirations

## From

Consistent **4th quartile reliability** and significant service / quality issues

Small number of **poor-performing feeders** drive disproportionate percentage of SAIFI

**Lengthy outage durations** with limited data on grid operations and low specificity about service restoration timeline

Imperfect visibility into **outage drivers** and **root causes**

## To

Provide **reliability and power quality** aligned with segmented customer needs

- LDAs
- Urban
- Rural

**Limit SAIFI** contribution from worst performing feeders

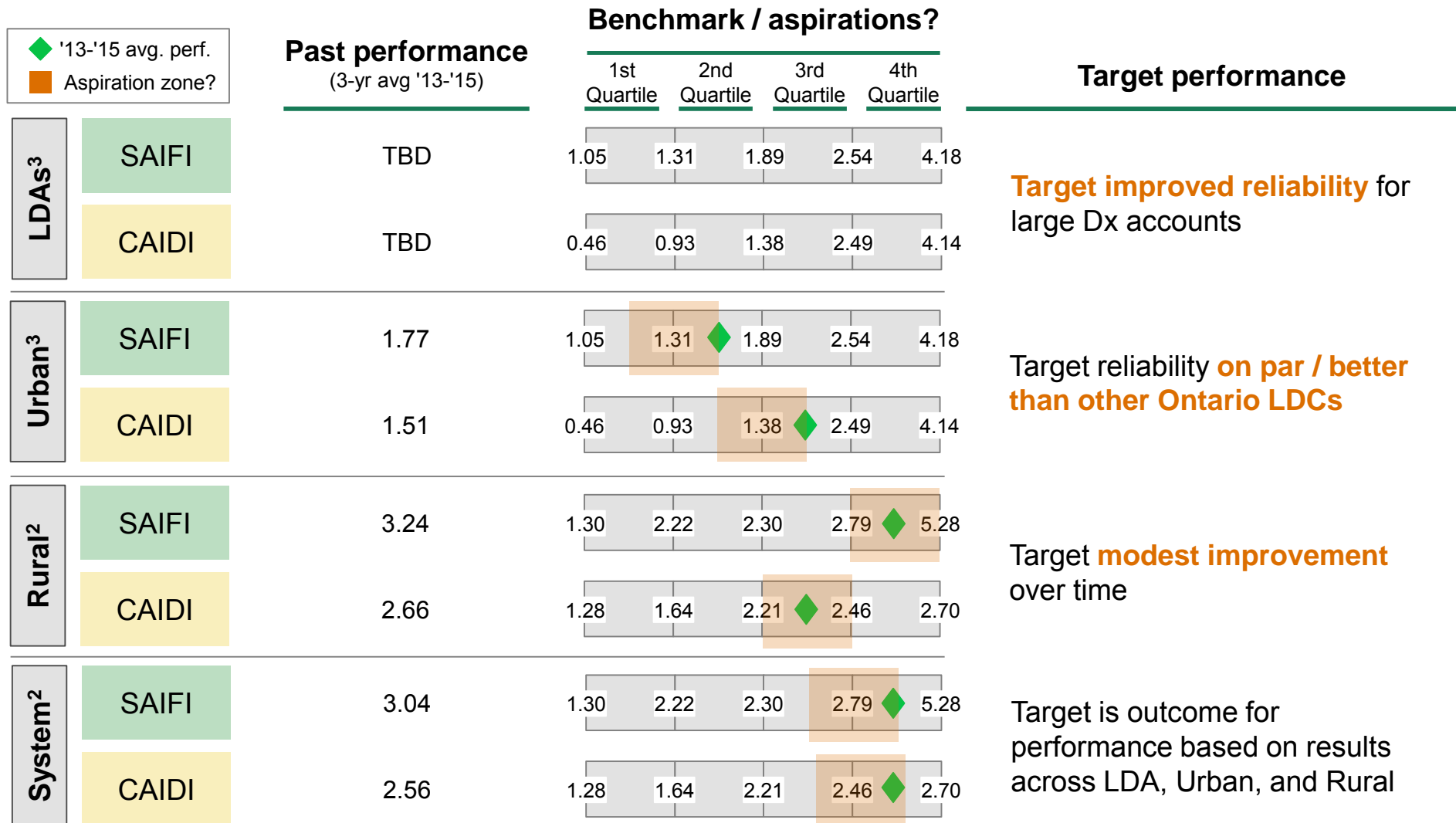
Improve **outage response** by leveraging grid modernization technology

- Reduce response time
- Improve accuracy and communication of Estimated Time of Restoration (ETR)

Enhance **data quality** for analytics

# What are Dx reliability metrics<sup>1</sup> and aspirations?

Depends on customer needs, optimization of current spend, and prudent incremental investment



1. Metrics exclude FM, include LOS, define interruptions as greater than 1 minute, and use the 10% methodology for calculating FM

2. Benchmark is a peer group of Canadian provincial utilities with similar, largely rural service territories as Hydro One

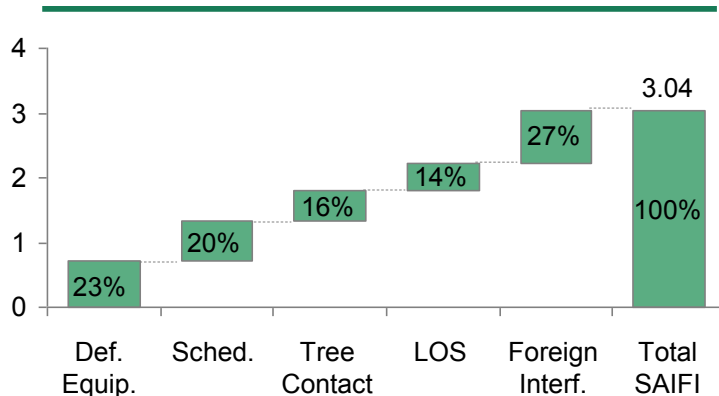
3. Benchmark is a subset of Ontario LDCs chosen because they have similar urban service territories as Hydro One

# Baseline performance of key SAIFI and CAIDI drivers

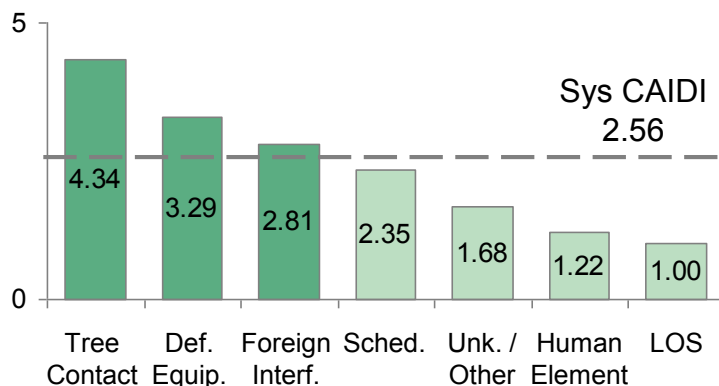
## Baseline performance

(3-yr avg '13-'15)

2015 SAIFI<sup>1</sup>



2015 CAIDI<sup>1</sup>



## Key levers

1 Targeted feeder improvement

2 Targeted vegetation management

3 Tx reliability programs

4 Corrective maintenance prioritization

5 Recloser installation

Other levers for analysis

## Rationale

- SAIFI concentrated in small % of feeders, largely due to defective equipment
- CapEx investments on worst feeders could greatly impact system SAIFI

- Veg outages concentrated in small % of feeders; strategic trim O&M could eliminate veg outages on high risk feeders
- Effective in combination with cyclical trim

- Prioritization by risk and customer impact could enable more efficient use of existing CapEx and O&M spend

- Could limit size and duration of outages
- One of the most cost effective ways to boost reliability in U.S. utility study

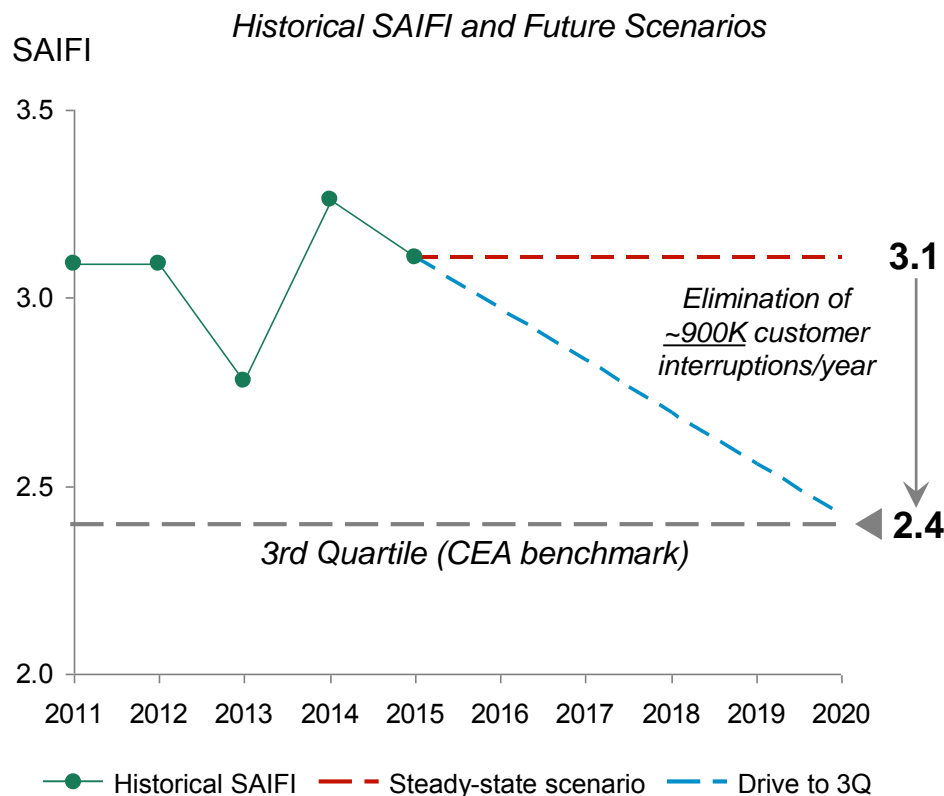
- Schedule optimization
- Grid modernization
- Outage response
- Feeder ties
- Private customer primary taps

1. Data based on a three year average ('13-'15) of historical performance

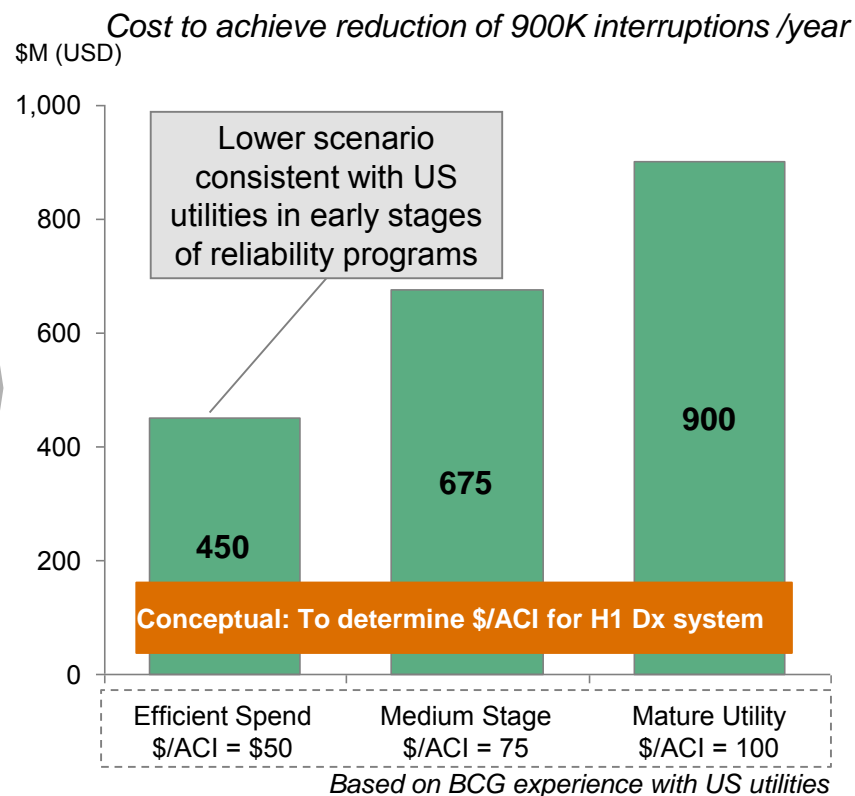
Note: Metrics exclude FM, include LOS, define interruptions as greater than 1 minute, and use the 10% methodology for calculating FM; Source: H1 OMS Data

# What you would need to believe: Conceptual reliability improvement scenarios in different investment assumptions

To reach 3rd quartile, H1 would need to avoid ~900K customer interruptions / yr



Based on BCG data, possible to achieve through dedicated reliability spend

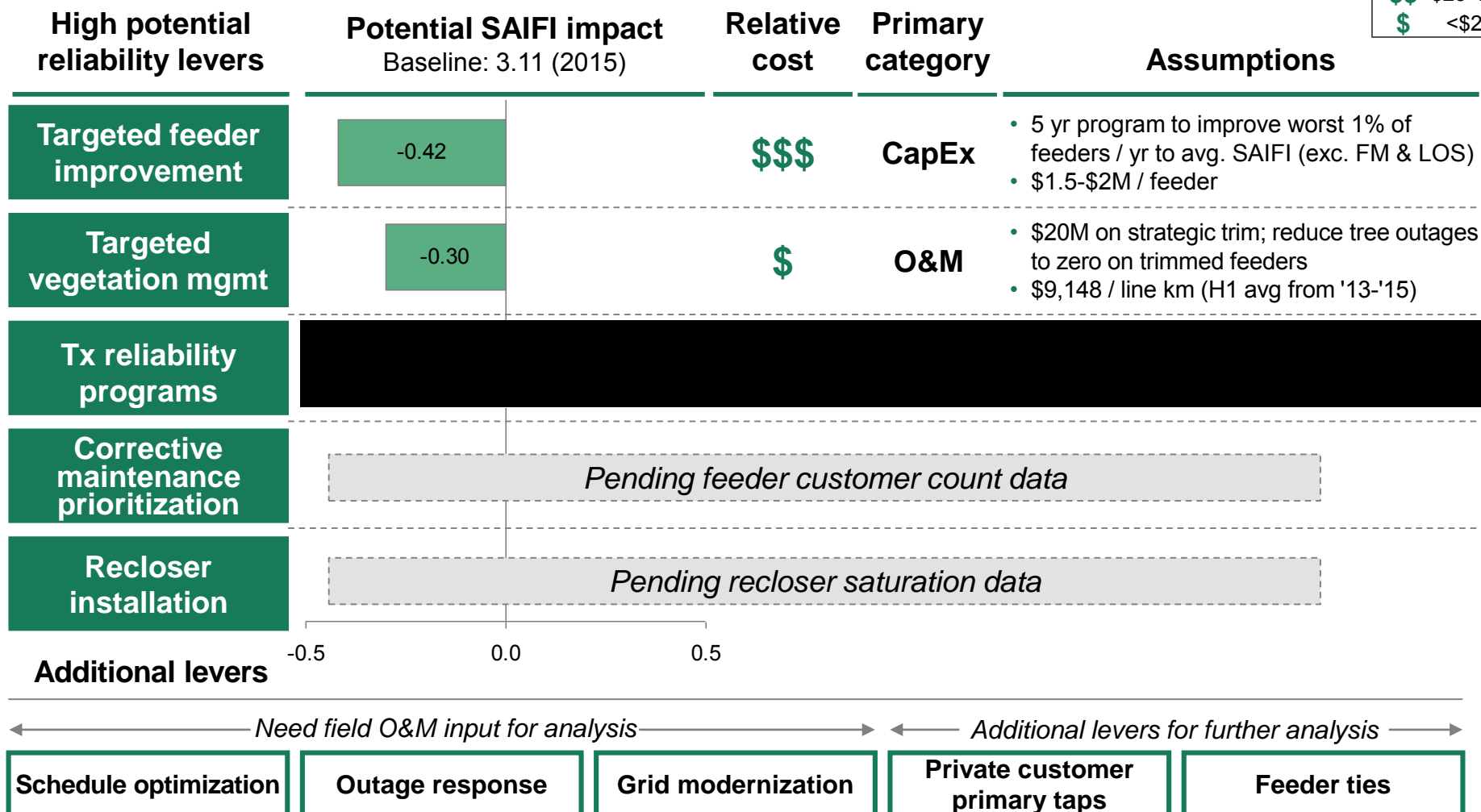


Spend is not fully incremental – may be achieved through re-focusing of existing spend as well as new programs

# What you would need to believe: Reliability levers and potential impact

Conceptual: currently assessing \$/ACI for H1 Dx system

\$\$\$ >\$150M  
 \$\$ \$25-150M  
 \$ <\$25M



1. Worst feeders defined as those with highest average SAIFI over 2013-2015, not including Loss of Supply outages (as LOS is highly variable and not tied to feeder-specific performance)
2. Peer set of 28 Ontario LDCs selected due to similar density to H1 (e.g. Toronto Hydro not included due to high density); Source: Ontario Energy Board 2014 Yearbook
3. \$/ACI estimate based on benchmark of five U.S. utilities; need to perform further analysis to determine most appropriate figures for Hydro One

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b>	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (2:00 – 2:10)
<b>Regulatory: Tx Filing consultation approach</b>	Oded Hubert	<b>30 min</b> (2:10 – 2:40)
<b>Hydro One performance: Metrics and aspirations</b>		
• Asset management (system performance)	Mike Penstone	<b>25 min</b> (2:40-3:05)
• Customer (service performance)	Rob Quail	<b>15 min</b> (3:05-3:20)
• Capital efficiency	Brad Bowness	<b>15 min</b> (3:20-3:35)
<b>Efficiency: Baseline and Quick Wins</b>		
• Procurement	Gary Schneider	<b>15 min</b> (3:35-3:50)
• Org effectiveness	Andrew Loh (on behalf of Judy McKellar)	<b>15 min</b> (3:50-4:05)
• Labour strategy	Nadine O'Neill	<b>15 min</b> (4:05-4:20)
• O&M efficiency	Jon Rebick	<b>15 min</b> (4:20-4:35)
• Quick Wins	Stefanie Stocco / Frank D'Andrea	<b>15 min</b> (4:35-4:50)
<b>Wrap-up and next steps</b>	Stefanie Stocco	<b>10 min</b> (4:50-5:00)

# Summary: Customer

## Where we are today

- Overall, Customer satisfaction has declined since '11; Improvement in every segment in '15 but we're not where we want to be
  - Brand perception is low across the board
  - Drivers of dissatisfaction differ by segment
- Internal Hydro One customer groups are at varying levels of advancement to address customer satisfaction
  - No single integrated strategy across segments but some initiatives are already under way for each segment
  - In addition to improving operational performance, we need to address gap between operational performance and customer perception, driven in part by brand perception

## Initiatives for 2016

- We have prioritized a few initiatives for 2016 in order to work towards our 2016 targets, and defined implementation plans
  - Dx satisfaction: Elevated customer commitments, guarantees and targets; launch integrated multi-channel program to close known perception gaps
  - Dx customer IT enablement: My Account eBilling and Advisory, Analytics & Smart Alerts tools



## Our plan for this phase

- Refine and clarify 2016 initiatives and impact aligned with 4 targets for 2016
- We are aligning the customer groups around an overall mission statement and supporting goals
- Each segment is defining the appropriate metrics and targets aligned with those goals, and will identify gaps and near/mid term initiatives to meet those targets

# Where we are today

## Key observations

**Overall, customer satisfaction has declined since '11; Improvement in every segment in '15 but we're not where we want to be**

- Brand perception low across the board
- Drivers of customer dissatisfaction differ by segment

**No single integrated customer strategy across segments**

- Varying levels of advancement by segment

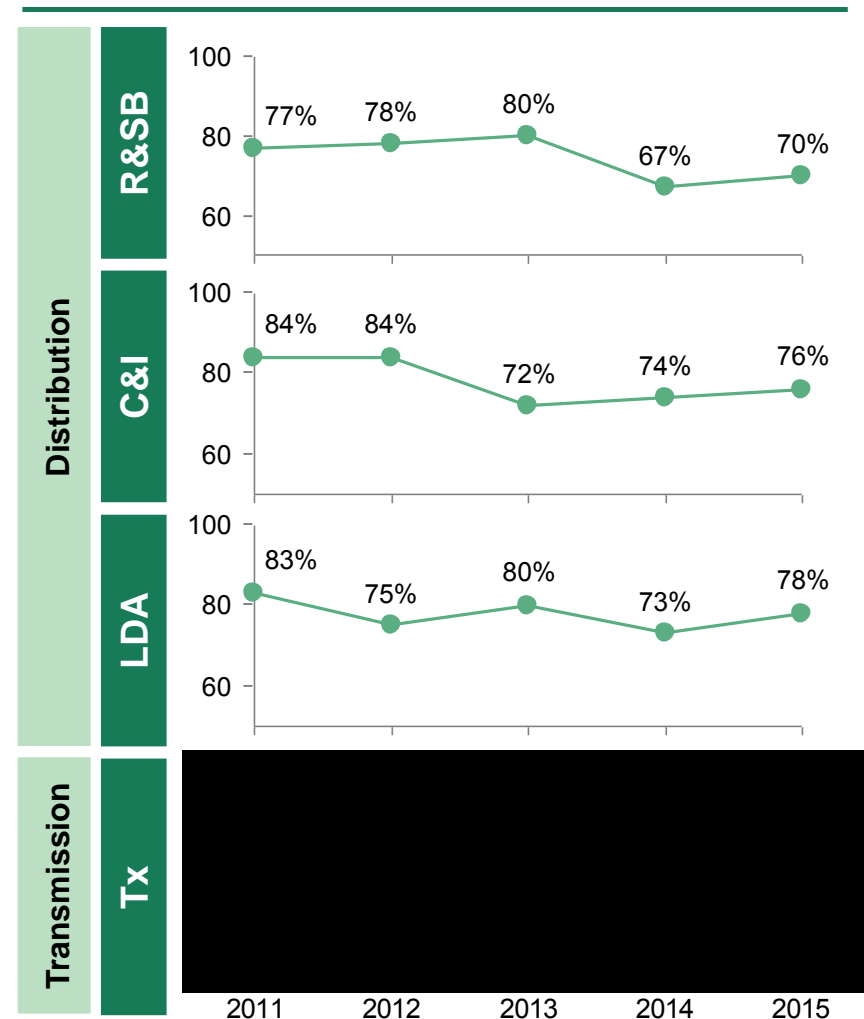
### R&SB and C&I

- Extensive segmentation and research exists
- Key drivers of dissatisfaction include cost and billing
- Focus in 2014 and H1-2015 has been on table stakes following 2013 CIS issues
- Digital engagement strategy developed and under way
- Large gap between operational performance and customer perception, which needs to be addressed

### LDA and Tx

- Current approach is more reactive one-on-one support
- Key drivers of dissatisfaction include reliability, proactive communications, costs and ability to keep commitments
- No formal strategy for improvement exists

## Customer satisfaction



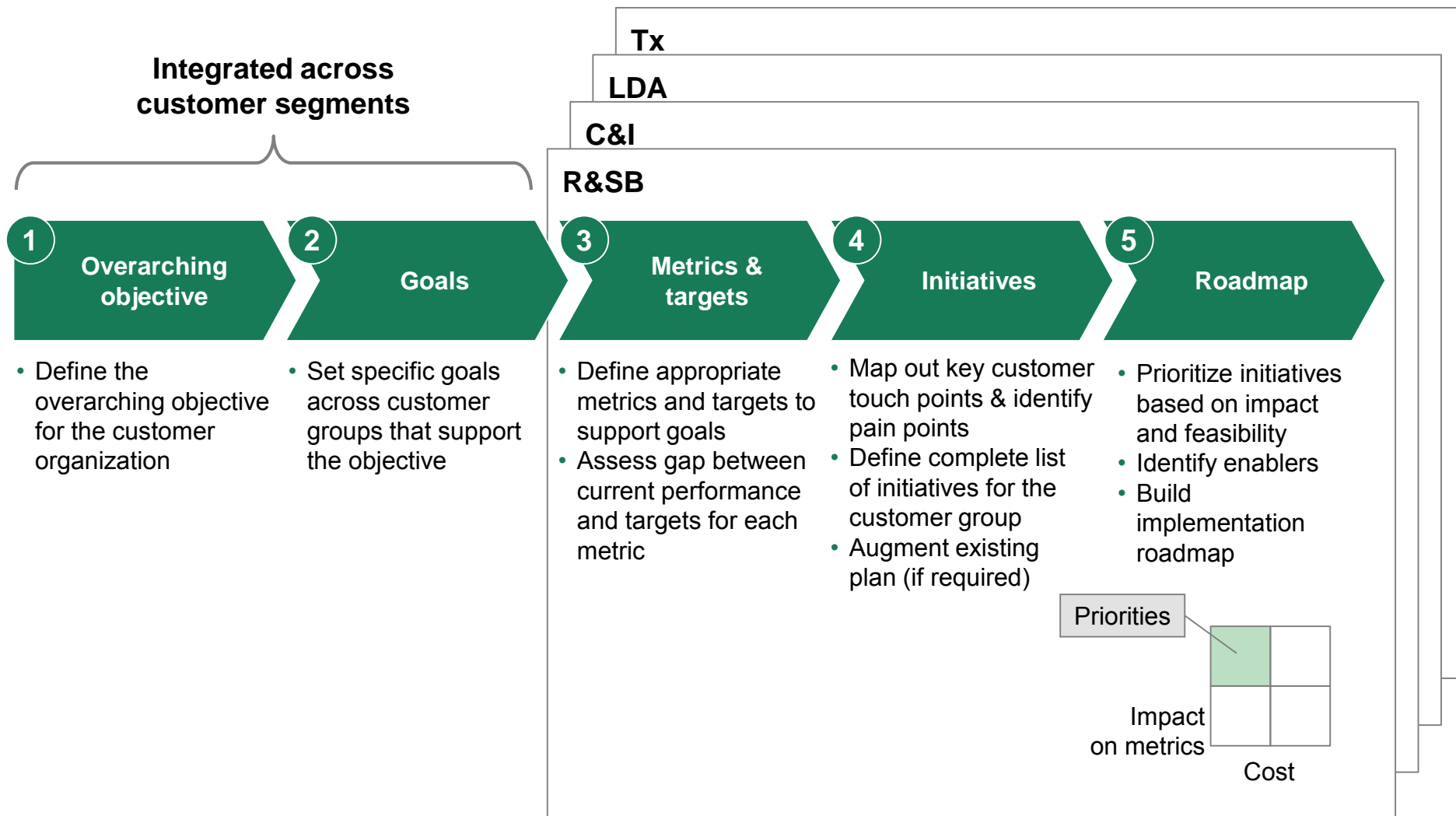
Source: Northstar and Ipsos customer satisfaction perception surveys 2015.

# Key metrics and priority initiatives for 2016

Metric	Measure	Current/Target /Stretch	2016 priority initiatives <sup>1</sup>
Dx Satisfaction	% satisfied of total surveyed (R&SB only)	70% / 73% / 79%	<ul style="list-style-type: none"> <li>Elevated customer commitments, guarantees and targets (e.g., flexible billing window, call center quality program, etc.)</li> <li>Launch integrated multi-channel program to close known perception gaps (e.g. rates/prices, billing and payment, bill accuracy, conservation, outage notification, etc.)</li> </ul>
Dx Customer IT Enablement	Provides Customers tools and technology	None / eBill & high bill alert / eBill & high bill alert & usage analytics	<ul style="list-style-type: none"> <li>My Account eBilling</li> <li>Advisory, Analytics &amp; Smart Alerts tools</li> </ul>
Tx Satisfaction			
Tx Commitments			

1. In addition to refinements to current customer engagement model, e.g., consultations, conference, etc.

# Overall approach for this phase and next steps



# Residential and Small Business Segment – Initiatives prioritization

Ingoing view for Dx pending review of customer pain points

## Customer initiatives

### Residential & Small Business (RSB)

Complete or In-Service:

- A. 'Conservation-First' Pgm
- B. Customer commitments, guarantees
- C. Flexible bill window
- D. Outage alerts (text and email)

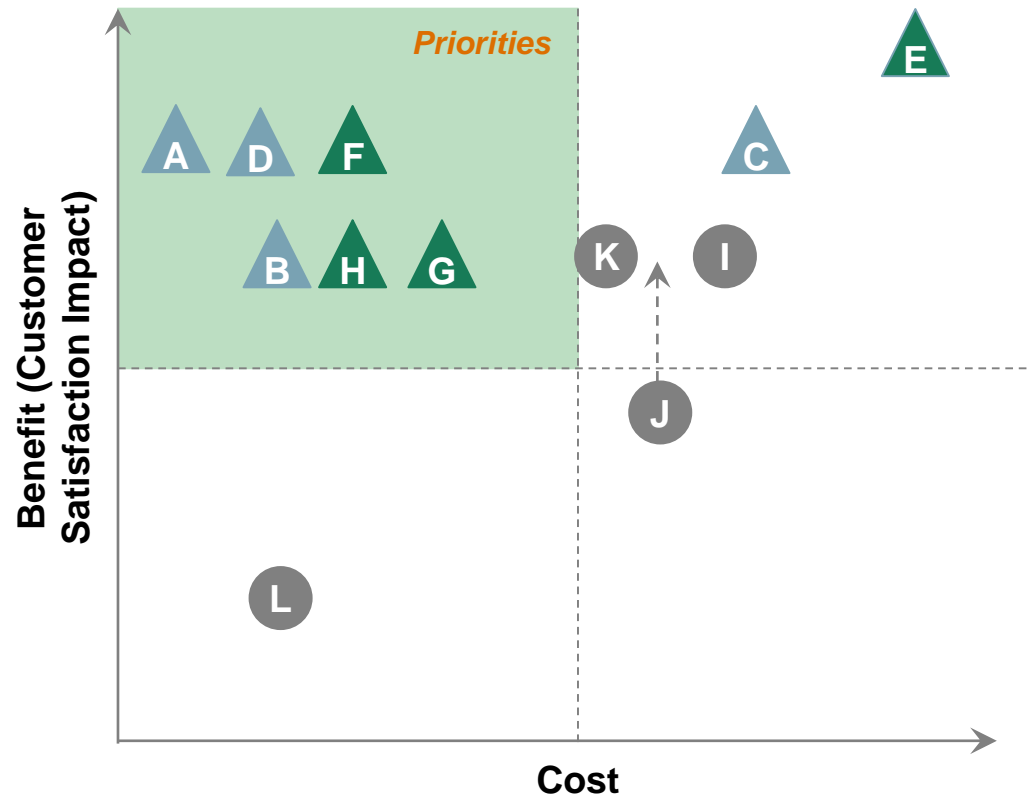
In-Progress

- E. Digital Engagement
  - eBilling (2016)
  - Alerts (2016)
  - Customer / agent analytics (2016)
  - My Account (2017)
- F. Call center quality (2015-2016)
- G. Employee Tools and Engagement (2016)
  - Immersion, call-a-customer
  - Customer-facing employee training program
  - Change management
- H. Journey Mapping (2015-2017)

Not Started

- I. Bill redesign (2017)
- J. Customer Data Analytics (2017)
- K. Regulatory Engagement (2017)
- L. Conditions of service (2016)
- M. Customer communications plan (2016)

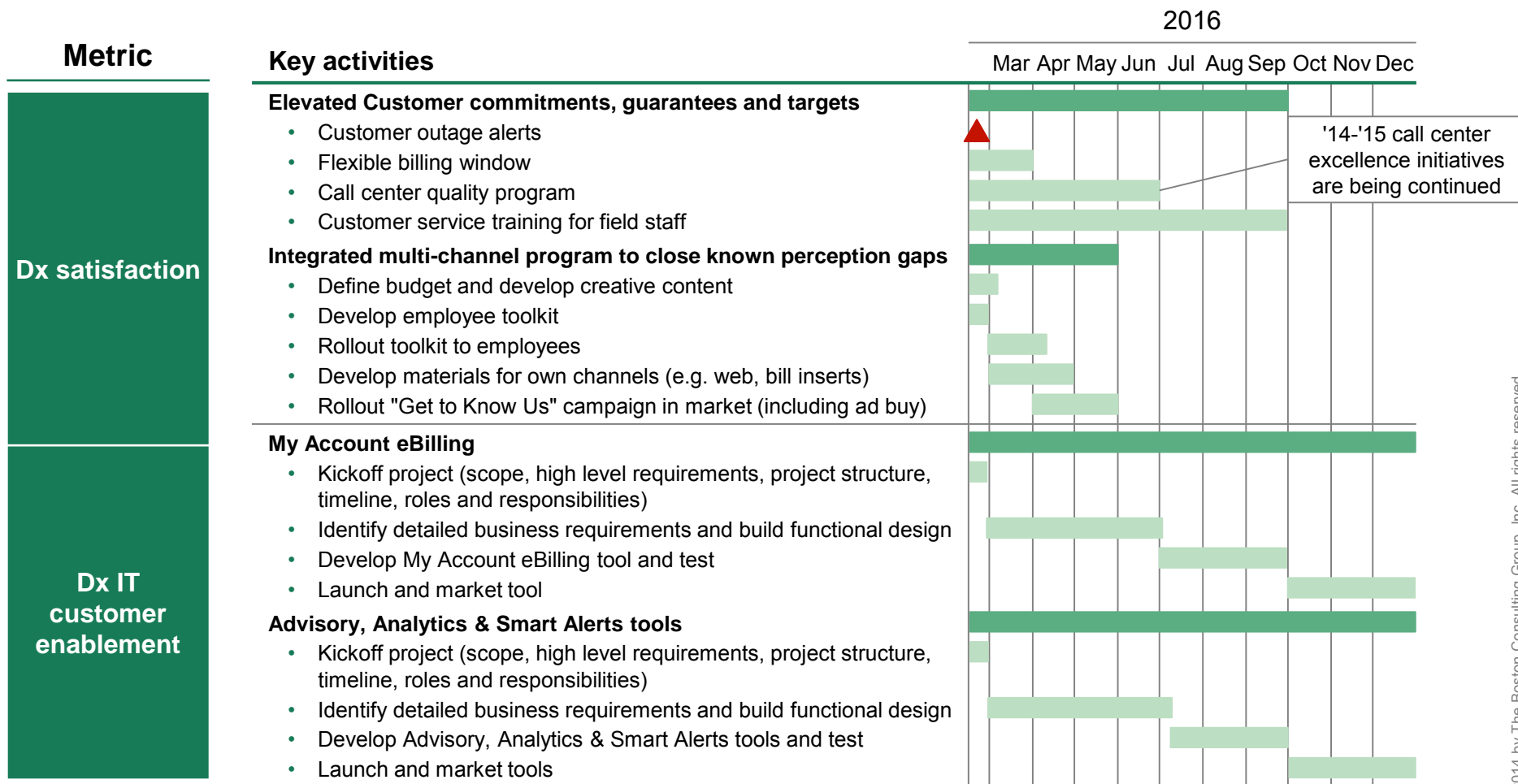
## Cost and expected benefit of in-plan customer initiatives



**Equivalent exercise will be undertaken  
for C&I, LDA and Tx groups**

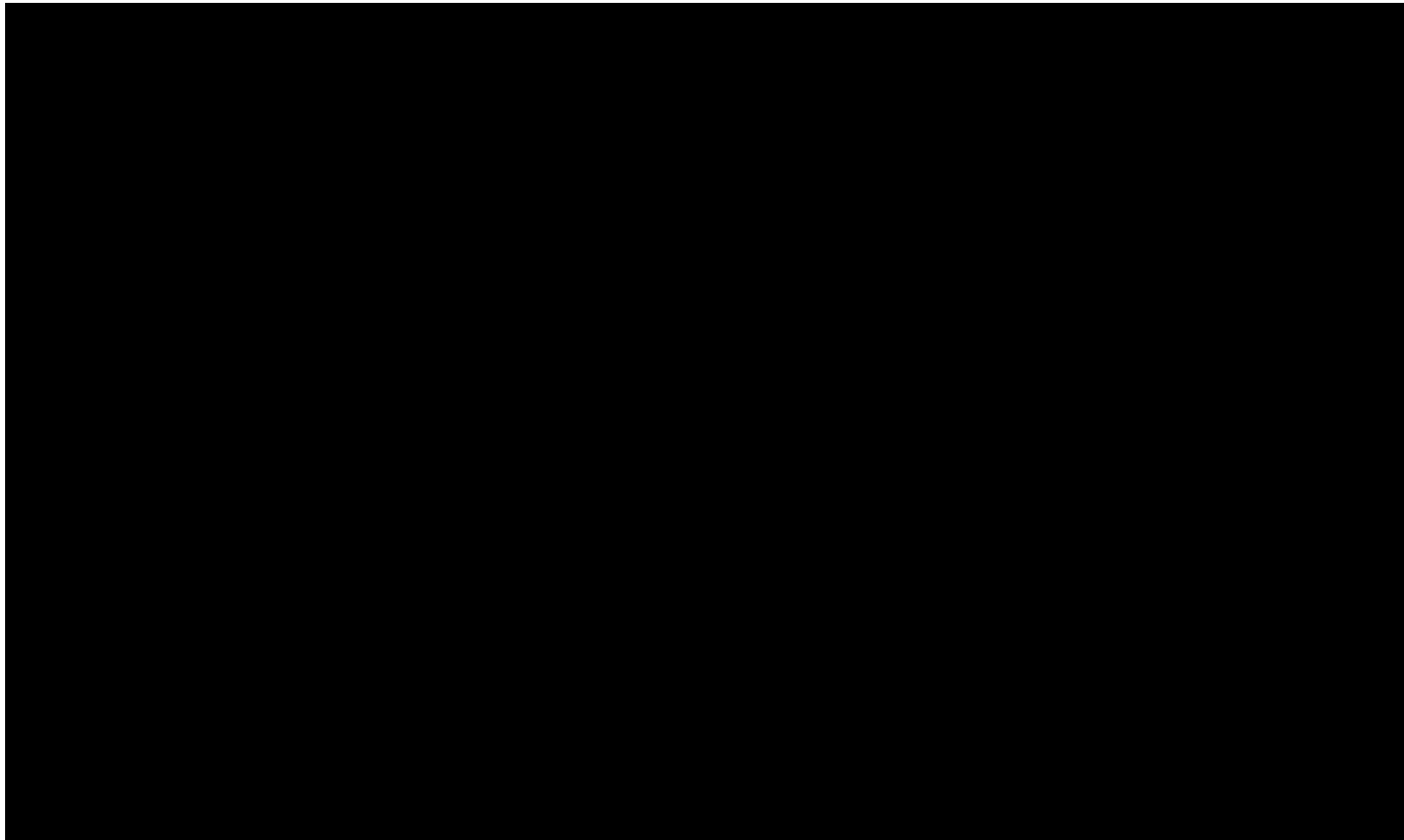
# Plan for 2016 priority initiatives – Dx

Good to Great may identify additional initiatives



# Plan for 2016 priority initiatives – Tx

Good to Great may identify additional initiatives



# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b>	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (2:00 – 2:10)
<b>Regulatory: Tx Filing consultation approach</b>	Oded Hubert	<b>30 min</b> (2:10 – 2:40)
<b>Hydro One performance: Metrics and aspirations</b>		
• Asset management (system performance)	Mike Penstone	<b>25 min</b> (2:40-3:05)
• Customer (service performance)	Rob Quail	<b>15 min</b> (3:05-3:20)
• Capital efficiency	Brad Bowness	<b>15 min</b> (3:20-3:35)
<b>Efficiency: Baseline and Quick Wins</b>		
• Procurement	Gary Schneider	<b>15 min</b> (3:35-3:50)
• Org effectiveness	Andrew Loh (on behalf of Judy McKellar)	<b>15 min</b> (3:50-4:05)
• Labour strategy	Nadine O'Neill	<b>15 min</b> (4:05-4:20)
• O&M efficiency	Jon Rebick	<b>15 min</b> (4:20-4:35)
• Quick Wins	Stefanie Stocco / Frank D'Andrea	<b>15 min</b> (4:35-4:50)
<b>Wrap-up and next steps</b>	Stefanie Stocco	<b>10 min</b> (4:50-5:00)

# Summary: Capital efficiency

The Capital Efficiency work stream has 3 primary objectives:

- **Optimize the time** required to scope, plan, conceptually design, estimate and approve projects
- **Lower overall cost** to detail design, construct and commission projects
- **Reduce variability in scope, cost, and delivery timing** of projects

To accomplish these objectives, the team has identified three priority areas of focus

- Improve current "Stage Gate" process: Identify opportunities to improve current process for scoping, planning, conceptual designing, estimating and approving capital projects
- Update the "Delivery Model": Develop a strategic methodology to assess which portion of the project portfolio should be outsourced, including design of supporting contracting model(s)
- Enhance "Execution Efficiency": Identify prioritized list of areas for improvement across project execution processes (e.g. construction readiness (drawings / outage, staging and resource plan / material), field productivity, handoff to commissioning)

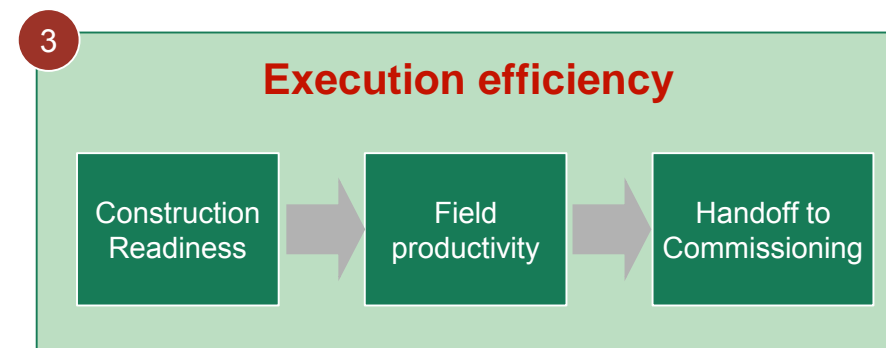
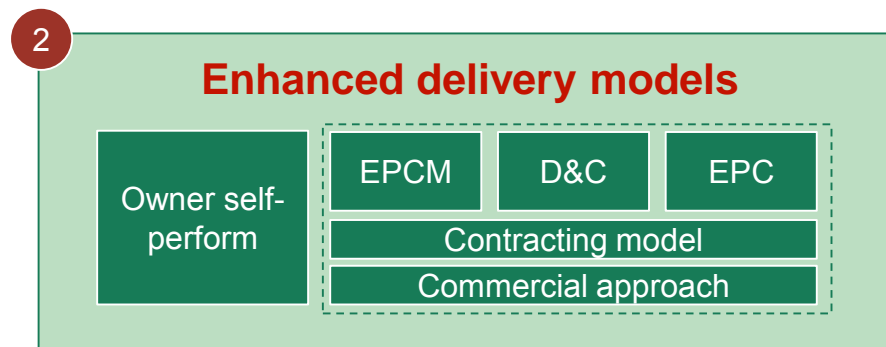
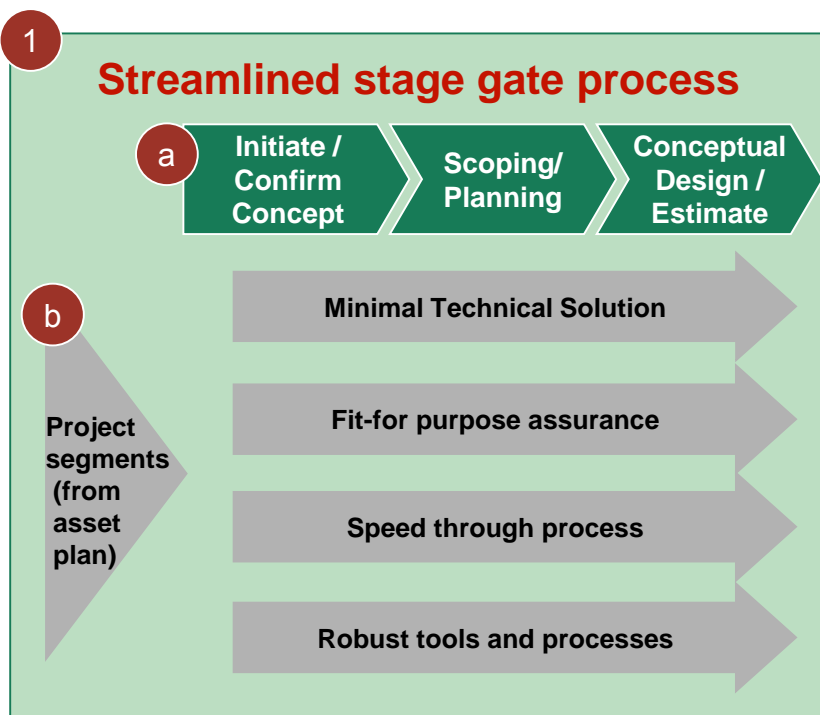
# Three areas of focus for the Capital Efficiency work stream

## Project development

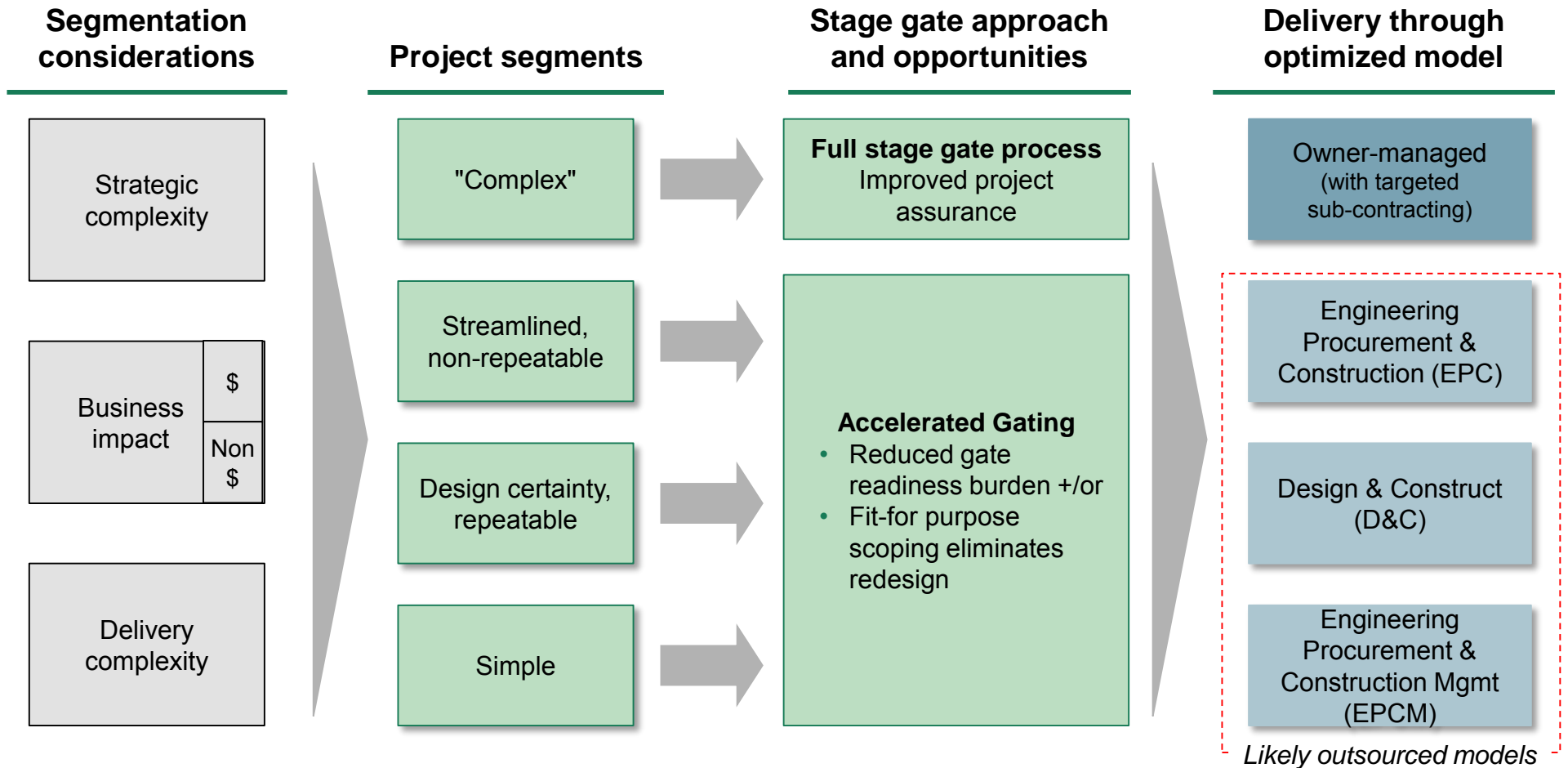
*More (predictable) projects through the pipeline*

## Project delivery

*Enhanced capability to deliver*

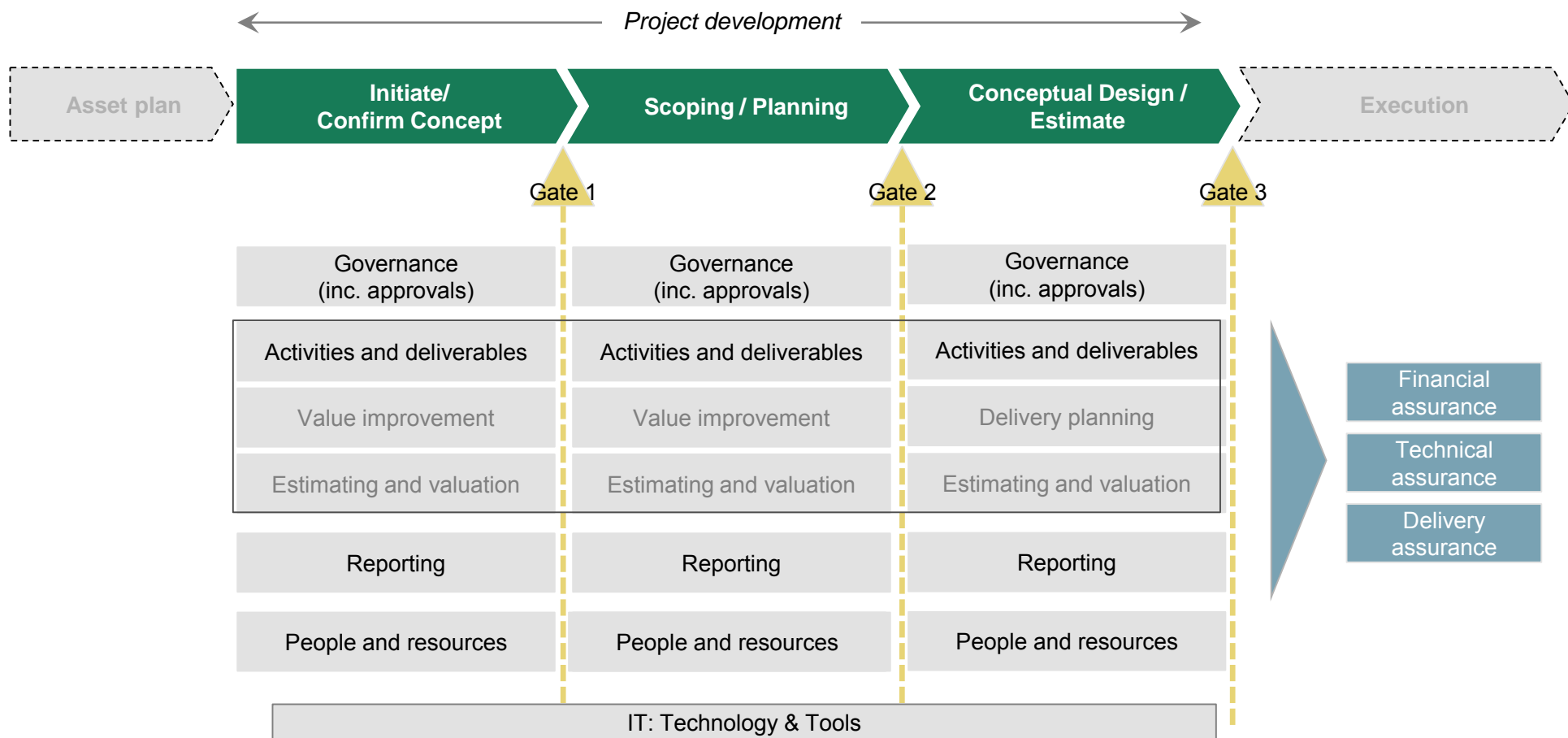


# Segmentation facilitates both a fit-for-purpose gating approach and targeted project delivery model decisions

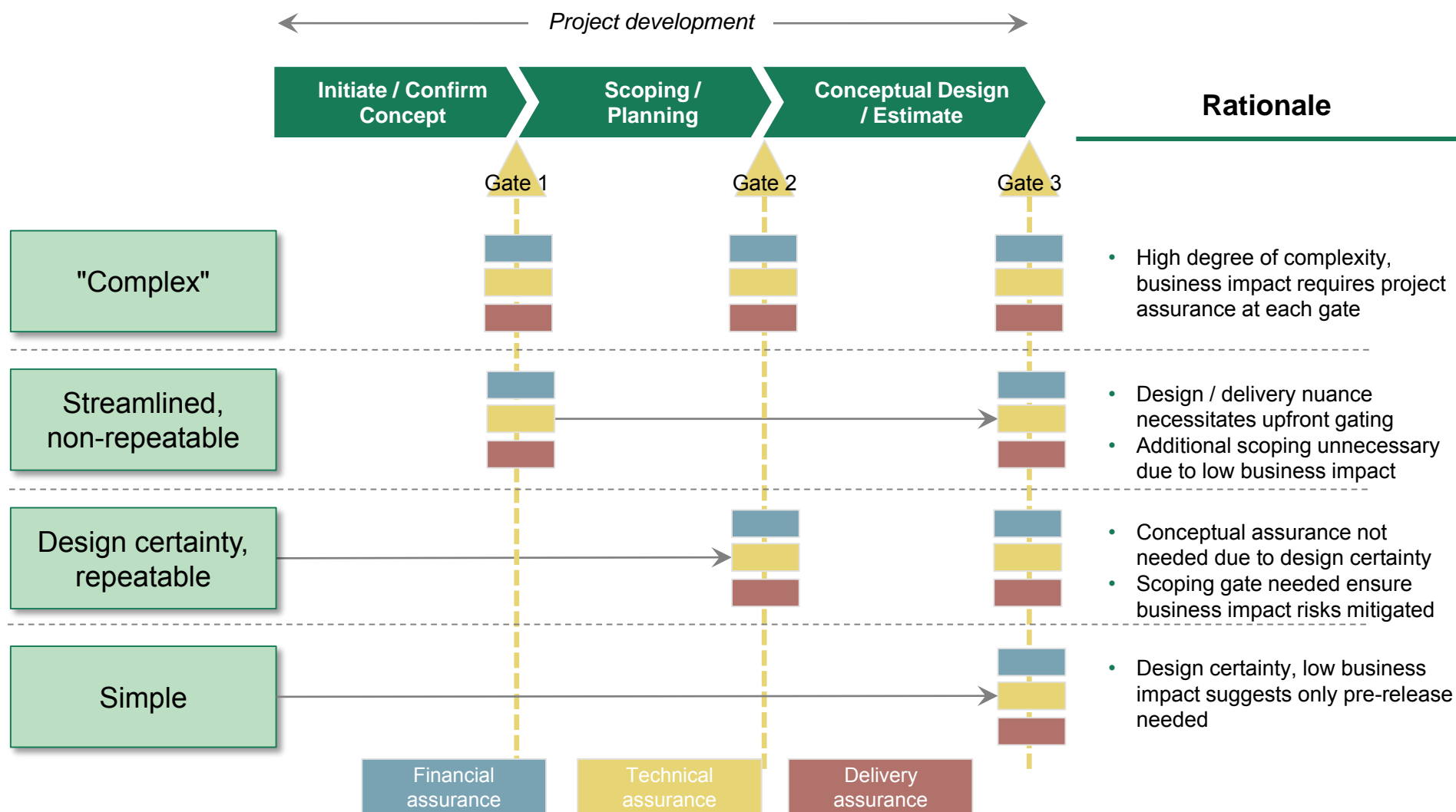


**The team has completed initial segmentation of the project portfolio and will begin developing approach for refinements to stage gate process and delivery model**

# Strengthened three stage gating process proposed



# Fit-for-purpose gating approach by segment



# Variety of appropriate delivery models considered

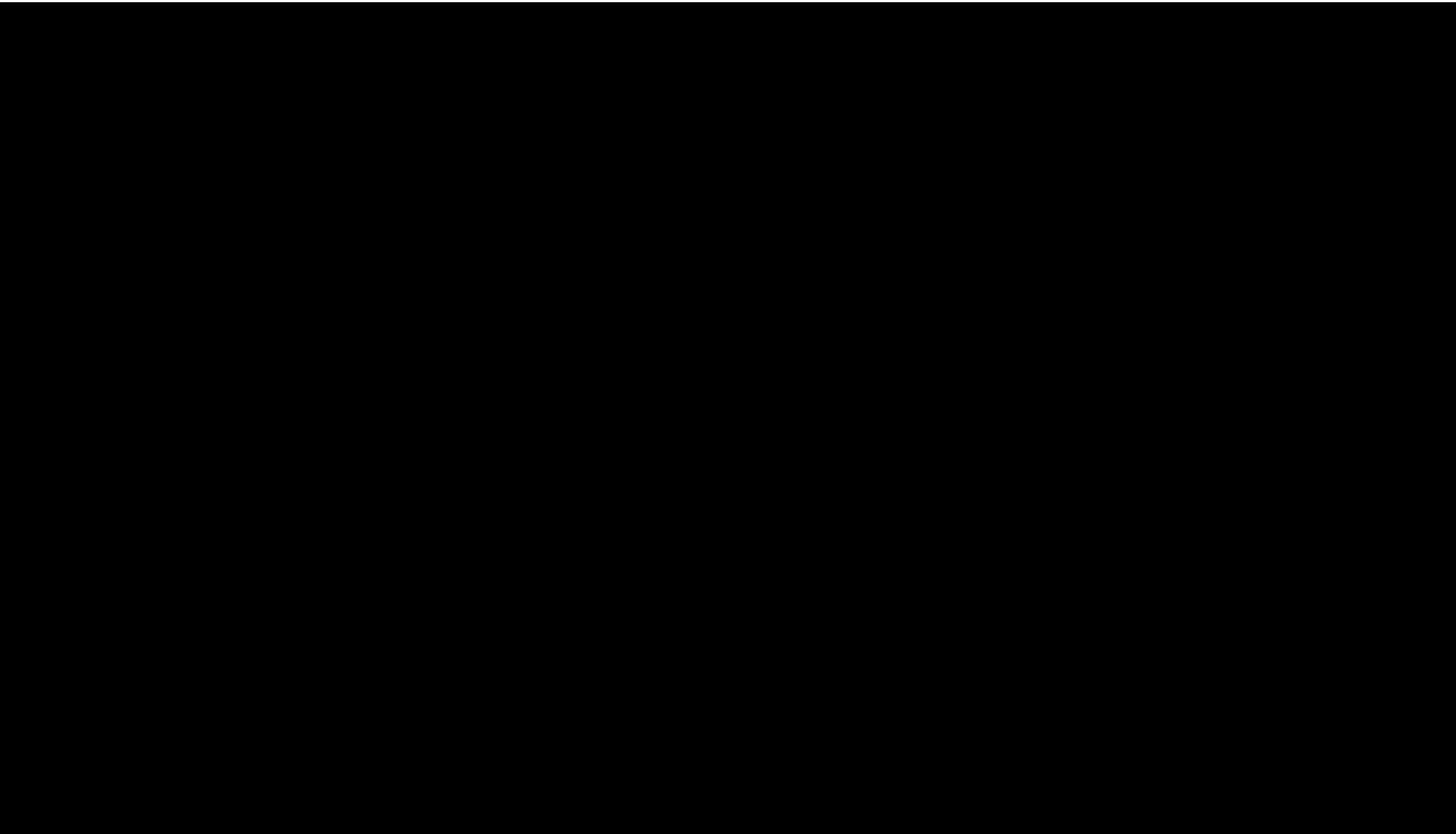
Delivery Activity	Traits	Owner-managed (OM) <sup>1</sup>	Engineering Procurement & Construction Mgmt	Design & Construct	Engineering Procurement & Construction	Build Own Operate / Build Own Operate Transfer
Overall	Typical value driver	System performance	System performance, schedule, cost	Schedule, system performance, cost	Schedule, cost, system performance	Moving scope off balance sheet
Engineering	Ability to influence design	High	High	Up to detailed design	Early design input only	Minimal
Procurement	Ability to influence procurement (e.g. free issue, strategic sourcing)	High	High	Medium	By exception	By exception
Construction	Transfer of productivity risk	Low – in contracting model only	Low – in contracting model only	Medium	High – market dependent	High – market dependent
	Ability to influence constr. methodology	High	High	Medium	Early input only	Low
	Ability to influence contract packaging	High	High	Low - by exception	Low	No
	Ability to influence schedule (e.g. early works, putting on hold)	Yes	Yes	Limited (claim implications)	Limited (claim implications)	Limited (claim implications)
O&M	Ownership of operations	Owner	Owner	Owner	Owner	Transfer over agreed time

Unlikely fit

1. Includes integrated team

# Opportunity to shift delivery model in certain segments

# Initial Tx Capital project segmentation: Detailed breakdown



1. Based on total project size 2. Annualized spend for programs

Good to Great SCM 1 PreRead 9Feb2016.pptx

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b>	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (2:00 – 2:10)
<b>Regulatory: Tx Filing consultation approach</b>	Oded Hubert	<b>30 min</b> (2:10 – 2:40)
<b>Hydro One performance: Metrics and aspirations</b>		
• Asset management (system performance)	Mike Penstone	<b>25 min</b> (2:40-3:05)
• Customer (service performance)	Rob Quail	<b>15 min</b> (3:05-3:20)
• Capital efficiency	Brad Bowness	<b>15 min</b> (3:20-3:35)
<b>Efficiency: Baseline and Quick Wins</b>		
• Procurement	Gary Schneider	<b>15 min</b> (3:35-3:50)
• Org effectiveness	Andrew Loh (on behalf of Judy McKellar)	<b>15 min</b> (3:50-4:05)
• Labour strategy	Nadine O'Neill	<b>15 min</b> (4:05-4:20)
• O&M efficiency	Jon Rebick	<b>15 min</b> (4:20-4:35)
• Quick Wins	Stefanie Stocco / Frank D'Andrea	<b>15 min</b> (4:35-4:50)
<b>Wrap-up and next steps</b>	Stefanie Stocco	<b>10 min</b> (4:50-5:00)

# Procurement: Summary

**The procurement team is working towards identifying opportunities to reduce procurement costs to support Hydro One's growth strategy**

**Procurement spend was bucketed into 22 sourceable categories to establish 2015 baseline and to identify level of controllable spend in each category**

**3 types of efficiency levers are being utilized to determine level of addressable spend in each category and to highlight high potential categories**

**Team has completed initial lever assignment for each category. Next steps will focus on identifying level of addressable spend for each category and initial prioritization**

**At the Feb 25 Steer Co, the team will present its recommendation for categories to be launched as part of Wave 1 in Q1 2016**

# Procured spend baseline: \$2.8B total, \$1.4B controllable

Defined 22 sourceable categories to structure waves of sourcing events

## 2015 Total Spend (\$M)

2,755

**Inergi  
(\$195M)**

**Uncontrollable<sup>1</sup>  
(\$1,200M)**

Taxes,  
Administrative,  
Independent  
Electricity System  
Operator (IESO),  
OEFC Debt  
Retirement,  
OEB Fees,  
Utility Charges

**Controllable  
(\$1,360M):**

**OM&A:  
~\$360M**

**CAPEX;  
~\$1,000M**


Category	Spend (\$M)	Description
<b>Equipment &amp; Hardware</b>	<b>259</b>	Hardware (e.g. cables, fuses, insulators, switches, conductors, etc.)
<b>Fleet</b>	<b>148</b>	Fuel and maintenance services (e.g. ARI contract), and all light and heavy duty vehicles
<b>Engineering Services</b>	<b>135</b>	Cost-plus engineering and project management services and turnkey contracts
<b>Transformers</b>	<b>118</b>	Power, station, pad, pole, and instrument transformers and transformer parts
<b>Construction Services</b>	<b>91</b>	Cost-plus construction services and turnkey contracts
<b>Telecom</b>	<b>73</b>	"Hydro One Telecom" network equipment and corporate telecom services
<b>Equipment Rentals</b>	<b>69</b>	Operated or non-operated equipment ranging from light equipment to cranes
<b>Professional Services</b>	<b>64</b>	Finance, HR, legal, marketing, consulting and other professional services
<b>Staff Augmentation</b>	<b>60</b>	External contract staff utilized across IT, finance, legal, etc.
<b>Facilities Management</b>	<b>51</b>	Upkeep and management of Hydro One properties, primarily Brookfield
<b>Environmental Services</b>	<b>42</b>	Environmental services including hydrovac and remediation services
<b>IT Software</b>	<b>40</b>	Software applications, licenses, maintenance, and support
<b>Meters &amp; Parts</b>	<b>37</b>	Metering equipment and additional parts, primarily Trilliant
<b>IT Hardware</b>	<b>29</b>	Servers, personal computers, cables, and other hardware
<b>Transportation Services</b>	<b>27</b>	Transport and freight costs including trucking, rail, air, and barge
<b>Remotes Supply Fuel</b>	<b>27</b>	Fuel consumed by power generation for Remotes
<b>Wood Poles</b>	<b>20</b>	Wooden utility poles, supplied by Stella Jones
<b>Steel Fabrications</b>	<b>18</b>	Steel fabrications and parts for transmission towers and structures
<b>Travel &amp; Entertainment</b>	<b>17</b>	Air, rail, and vehicle transportation, hotels, and other reimbursable travel expenses
<b>PCT in a box</b>	<b>16</b>	PCT equipment and control panels, primarily by Virelec and Custom Control Panels
<b>Mailing &amp; Courier Services</b>	<b>13</b>	Postage and shipping services primarily for billing
<b>Office Products &amp; Supplies</b>	<b>6</b>	Furniture, printing, and office supplies

**As part of spend cube development, team was able to:**

- review and categorize ~\$160M of previously uncategorized spend
- correct over 350 suppliers that were partially or entirely mis-categorized

1. Items where no procurement event occurs  
Source: Hydro One Jan 1, 2015 – Dec 31, 2015 total spend

# 3 types of levers will be explored to identify addressable spend and to prioritize categories

Lever Type		Description	Select Hydro One examples	
			Category	Lever
1	1a Contract Negotiation	Go to market to negotiate lower cost contracts leveraging competition and volume where possible	Equipment & Hardware	Consolidate spend through a <b>single competitive basket RFP</b> , leveraging distributor scale for General Hardware
	1b Contract Optimization	Identify opportunities to reduce costs in existing or captive contracts	Fleet	
2	Specification or Service Level Rationalization	Lower costs by rationalizing material /component specifications, lowering complexity of goods or by reducing scope of services	Transformers	<b>Standardize / rationalize</b> specifications of high volume transformer components to "fit for purpose" levels
3	Demand or Consumption Controls	Decrease the internal demand or consumption of goods or services	IT Software	<b>Decrease active software licenses</b> across ~60 software suppliers (e.g. remove dormant accounts or functionally duplicative items)

**Hydro One already utilizes many of these levers, but we are exploring where opportunities exist to improve further**

# Potential actions across range of sourcable categories (I/II)

Key next step is to size and validate savings opportunity

	Spend (\$M)	OM&A %	Proposed actions	
Equipment & Hardware	259	5%	General Hardware	<ul style="list-style-type: none"> <li>Assess opportunity to consolidate spend in <b>single competitive RFP</b>, leveraging distributor scale</li> <li>Establish <b>standard catalog pricing</b> (e.g. "off the shelf") for high volume items</li> <li>Investigate <b>spec harmonization</b> to leverage fewer specs at higher volumes</li> <li>Develop policies to <b>reduce P-Card spend</b> and to enforce <b>contract compliance</b> through preferred vendors</li> </ul>
			Electrical Hardware	
			Engineered Equipment	<ul style="list-style-type: none"> <li>Assess opportunity to consolidate spend in <b>single competitive RFP</b>, leveraging distributor scale</li> <li>Investigate opportunities to leverage <b>lowest cost country sourcing</b></li> <li>Utilize <b>volume discount agreements</b> to maximize strategic supplier savings</li> </ul>
Fleet	148	10%		<ul style="list-style-type: none"> <li>Review potential to <b>rationalize light vehicle fleet</b> by utilizing telematics systems</li> </ul>
Engineering Services	135	0%		<ul style="list-style-type: none"> <li>Support development of <b>E&amp;C business model and commercial strategy</b> by informing range and economics of <b>external market supply options vs. current mix</b></li> <li>Investigate opportunities to reduce change order costs by utilizing a <b>budget based cost-plus model with incentives</b> for project execution</li> </ul>
Transformers	118	0%		<ul style="list-style-type: none"> <li>Assess opportunity to <b>launch competitive RFP</b> across sub-categories to consolidate supplier base and leverage scale; develop / enhance <b>strategic supplier contracts</b> where appropriate</li> <li>Review options to <b>standardize / rationalize</b> specifications of high volume transformer components</li> <li>Increase utilization of <b>volume discount agreements</b> to maximize strategic supplier savings</li> </ul>
Construction Services	91	20%		<ul style="list-style-type: none"> <li>Investigate potential to consolidate vendors across regions to <b>leverage volume discounts</b></li> <li>Assess opportunity to <b>launch competitive RFP</b> leveraging "best-of-best" across base rates, overheads, accessorial charges, and profit margins</li> <li>Ensure <b>coordination with Engineering Services</b> business model and commercial strategy</li> </ul>

# Potential actions across range of sourcable categories (I/II/III)

Key next step is to size and validate savings opportunity

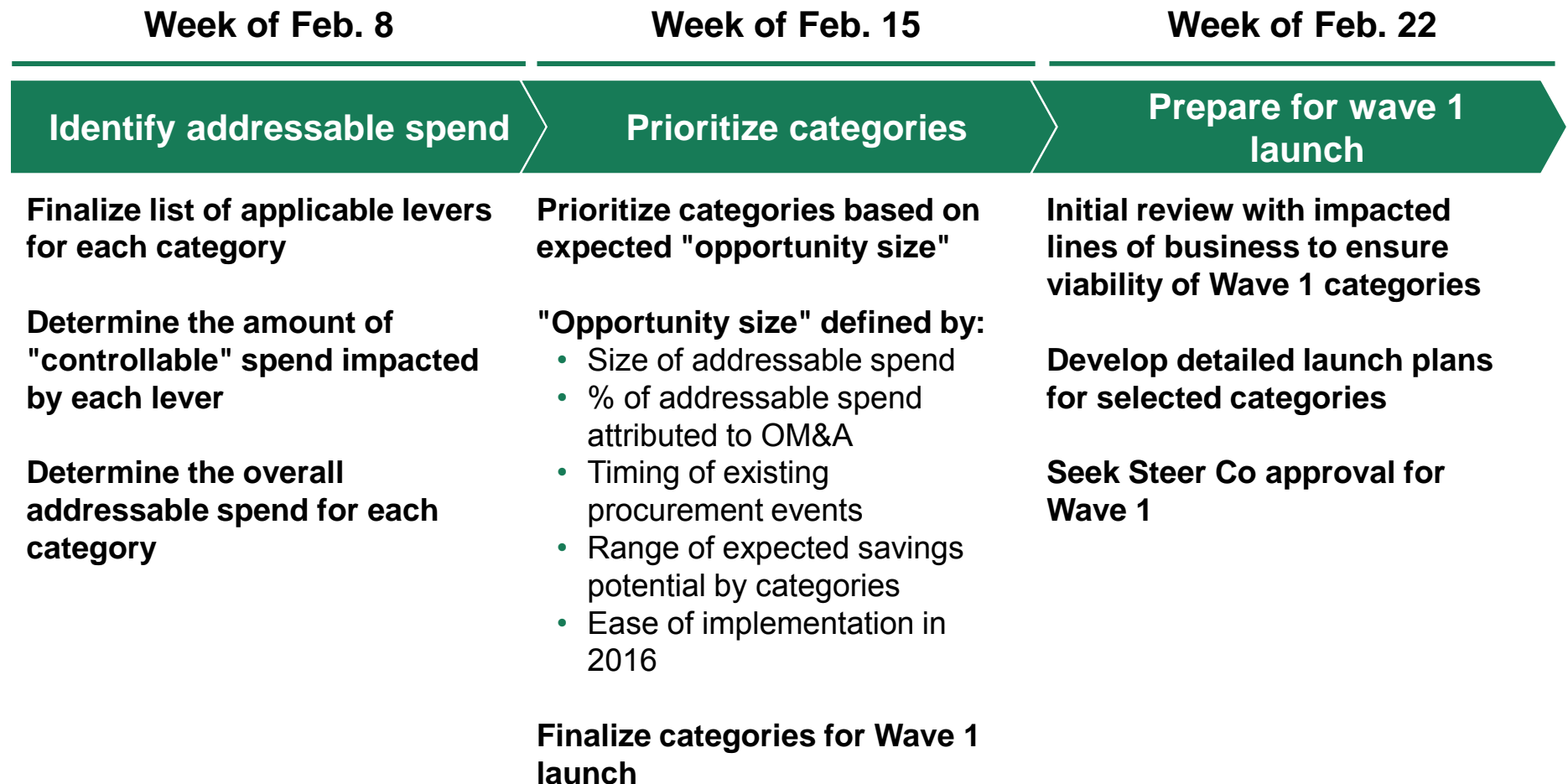
	Spend (\$M)	OM&A %	Proposed actions	
Telecom	73	75%	Corporate Telecom Usage	<ul style="list-style-type: none"> <li>Identify opportunities to <b>disconnect dormant equipment, lines, and services</b></li> <li>Assess <b>telecom policies</b>, e.g., hardware and reimbursable services</li> <li>Assess ability to move to <b>lower cost enhanced services</b> (e.g. enable remote access)</li> </ul>
			Hydro One Telecom Network	<ul style="list-style-type: none"> <li>Determine ability to <b>leverage full volume</b> across "Hydro One Telecom" network to negotiate better rates for carrier services and network equipment</li> </ul>
Equipment Rentals	69	15%		<ul style="list-style-type: none"> <li>Assess opportunity to <b>consolidate vendors</b> and <b>negotiate better rates</b> with preferred suppliers</li> <li>Develop policies to <b>enforce sourcing from preferred vendors</b> to ensure best price</li> <li>Assess <b>utilization of equipment rentals</b> to identify opportunities to decrease demand</li> </ul>
Professional Services	64	95%		
Staff Augmentation	60	20%		<ul style="list-style-type: none"> <li>Review ability to <b>rationalize discretionary spend</b> (as part of "quick wins" stream)</li> </ul>
Facilities Management	51	65%		<ul style="list-style-type: none"> <li><b>[REDACTED]</b></li> <li><b>[REDACTED]</b></li> <li><b>[REDACTED]</b></li> <li>Evaluate opportunity to run <b>competitive RFP</b> on services not provided by <b>[REDACTED]</b></li> </ul>
Environmental Services	42	35%		<ul style="list-style-type: none"> <li>Assess opportunity to <b>launch competitive RFP</b> leveraging "best-of-best" across base rates, overheads, accessorial charges, and profit margins</li> <li>Identify projects or services where it is possible to <b>negotiate fixed prices</b> for well defined work scopes</li> <li>Ensure <b>coordination with Engineering Services</b> business model and commercial strategy</li> </ul>
IT Software	40	85%		<ul style="list-style-type: none"> <li>Assess potential to <b>rationalize software licenses</b> (e.g. dormant accounts or functionally duplicative) across ~60 software suppliers</li> <li>Assess potential to <b>switch to cloud solutions</b> (in particular enterprise applications)</li> </ul>
Meters and Parts	37	20%		<ul style="list-style-type: none"> <li>Limited opportunity due to <b>[REDACTED]</b> contract</li> </ul>

# Potential actions across range of sourcable categories (II/III)

Key next step is to size and validate savings opportunity

	Spend (\$M)	OM&A %	Proposed actions
IT Hardware	29	20%	<ul style="list-style-type: none"> <li>Develop policies to <b>ensure best negotiated vendor rates are utilized</b> and reduce P-Card spend</li> <li>Assess ability to <b>decrease hardware requirements</b> by data center consolidation, data center cloud outsourcing, standardization of servers and platforms, virtualization, and increasing utilization</li> </ul>
Transportation Services	27	20%	<ul style="list-style-type: none"> <li>Assess opportunity to <b>consolidate vendors</b> and <b>negotiate better rates</b> with approved suppliers</li> <li>Assess opportunity to <b>improve utilization</b> (e.g., backhaul) to improve cube volume efficiency</li> <li>Examine ability to <b>improve fuel model structure</b> in trucking contracts based on decomposed rates</li> </ul>
Remotes Supply Fuel	27	100%	<ul style="list-style-type: none"> <li>Limited impact due to remote limitations</li> </ul>
Wood Poles	20	0%	<ul style="list-style-type: none"> <li>Evaluate options to identify competitors and <b>run competitive RFP</b></li> <li>Evaluate options to <b>optimize contract with</b> [REDACTED]</li> <li>Assess potential for <b>warehouse / inventory optimization</b></li> </ul>
Steel Fabrications	18	0%	<ul style="list-style-type: none"> <li>Assess opportunity to <b>consolidate vendors</b> and <b>prenegotiate rates</b> for most common structures and parts</li> <li>Introduce consultation in buying process of less common parts to <b>increase competitiveness</b></li> </ul>
Travel & Entertainment	17	100%	<ul style="list-style-type: none"> <li>Review opportunity to <b>establish preferred vendor agreements</b> with key carriers and travel providers</li> <li>Develop <b>travel &amp; expense policies</b> (e.g. class of fare) that match to benchmark levels</li> <li>Enforce usage of travel portal to <b>ensure travel policy compliance</b></li> </ul>
PCT in a box	16	0%	<ul style="list-style-type: none"> <li>Examine ability to <b>optimize contracts</b> ([REDACTED]) to <b>ensure pricing competitive</b> ("should-cost" benchmarks)</li> </ul>
Mailing & Courier Services	13	100%	<ul style="list-style-type: none"> <li>Accelerate <b>shift to electronic billing</b></li> </ul>
Office Products & Supplies	6	95%	<ul style="list-style-type: none"> <li>Assess opportunity to <b>launch competitive RFP</b> across: Furniture, supplies, printing</li> </ul>
<b>Total</b>	<b>1,360</b>	<b>~25%</b>	

# Path to Feb. 25th steering committee



# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b>	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (2:00 – 2:10)
<b>Regulatory: Tx Filing consultation approach</b>	Oded Hubert	<b>30 min</b> (2:10 – 2:40)
<b>Hydro One performance: Metrics and aspirations</b>		
• Asset management (system performance)	Mike Penstone	<b>25 min</b> (2:40-3:05)
• Customer (service performance)	Rob Quail	<b>15 min</b> (3:05-3:20)
• Capital efficiency	Brad Bowness	<b>15 min</b> (3:20-3:35)
<b>Efficiency: Baseline and Quick Wins</b>		
• Procurement	Gary Schneider	<b>15 min</b> (3:35-3:50)
• Org effectiveness	Andrew Loh (on behalf of Judy McKellar)	<b>15 min</b> (3:50-4:05)
• Labour strategy	Nadine O'Neill	<b>15 min</b> (4:05-4:20)
• O&M efficiency	Jon Rebick	<b>15 min</b> (4:20-4:35)
• Quick Wins	Stefanie Stocco / Frank D'Andrea	<b>15 min</b> (4:35-4:50)
<b>Wrap-up and next steps</b>	Stefanie Stocco	<b>10 min</b> (4:50-5:00)

# People baseline: ~\$1.4B labour across ~8,300 headcount

Based on regular + non-regular + outsourced employee base







		Regular only <sup>1</sup>		Regular + non-regular <sup>2</sup>		Regular + non-regular + outsourced <sup>3</sup>		
		\$M <sup>5</sup>	Headcount <sup>6</sup>	\$M <sup>5</sup>	Headcount <sup>6</sup>	\$M <sup>5</sup>	Headcount <sup>6</sup>	Validation
Corporate functions	IT <sup>10</sup>	32.0	165	32.8	175	114.8	475	✓ <sup>6</sup>
	Finance <sup>7</sup>	22.1	126	23.2	142	38.7	239	✓
	Health, Safety and Env.	33.8	185	34.6	196	34.8	197	✓
	Supply Chain	7.2	44	8.1	60	41.9	148	✓
	HR <sup>8</sup>	9.5	58	10.0	66	10.0	66	✓
	Real Estate	7.6	48	8.7	63	9.0	65	✓
	Corporate Relations <sup>9</sup>	5.8	33	6.6	46	6.6	46	✓
	Other <sup>4</sup>	22.3	102	22.7	110	23.5	114	✓
Corp. functions		140.3	761	146.8	858	279.3	1,350	
Operations	Lines and Forestry	449.2	2,329	484.4	2,822	484.4	2,822	
	Construction	35.4	196	153.6	1,540	153.6	1,540	
	Stations	236.7	1,210	245.8	1,345	245.8	1,345	
	Fleet	12.3	68	14.8	99	57.8	390	✓
	Engineering	62.1	353	64.2	383	64.3	384	
	Planning	37.9	211	39.7	239	44.1	257	
	Customer Service	25.7	134	32.9	208	32.9	208	
	Remote Comm.	9.9	46	10.4	52	10.4	52	
	Operations	869.1	4,547	1,045.7	6,688	1,093.3	6,998	
Total		\$1,009.4M	5,308	\$1,192.6M	7,546	\$1,372.7M	8,348	
<div><div>+ \$183M 2,238 HC</div><div>+ \$180M 801 HC</div><div>+ \$363M 3,040 HC</div></div>								Excludes expected non-regular hires of ~2000 in peak months

1. Includes Regular and Executive employees only 2. Includes all employee types: Regular, Executive, Casual, Temporary and Probationary employees as of Jan. 15 2016 3. Adds Inergi and staff augmentation to H1 total for all employee types 4. Includes Strategy, Risk, Pension, Business Performance, Legal, Board Relations, Regulatory and Executive 5. Fully loaded people cost including all additional pay, pension and benefits 6. Headcount represents people within functions as of Jan. 15 2016 6. IT baseline validation underway 7. Excludes Regulatory, which is allocated to Other 8. Excludes Health, Safety and Env. 9. Excludes customer service 10. Excludes Telecom

Note: Data as of Jan. 15 2016. Includes employees on LOA. Relief and rotations allocated to function where employee sits as of Jan. 15 2016. Does not include vacant positions. Telecom excluded from total. HC refers to Headcount.

Source: Hydro One, BCG Analysis

# Org effectiveness analysis being completed

	Spans & Layers	FTE benchmarking	Effectiveness diagnostic
	Assess and benchmark spans of control of people managers to identify areas of focus for mgmt consolidation	Conduct benchmarking of support ratios to identify focus areas for efficiency assessment	Identify pain points and specific actions to improve org. effectiveness and achieve productivity gains
Corporate Functions			
Operations			 <p>Effectiveness diagnostic for Operation on management structure only. Field workforce covered by other work streams:</p> <ul style="list-style-type: none"> <li>• Asset management</li> <li>• Customer</li> <li>• O&amp;M efficiency</li> <li>• Capital efficiency</li> </ul>

# What to expect next

## Sequence of upcoming org. effectiveness workshops

		Discuss opportunities Feb 15-19	Develop "end state" plan Feb 21-24	Develop 2016-2020 plan Feb 29-Mar 9
<b>Objectives:</b>		<ul style="list-style-type: none"> <li>Discuss and validate baseline, org analysis, and benchmarks</li> <li>Discuss productivity opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Discuss and refine "end state" view of potential actions and headcount impact</li> </ul>	<ul style="list-style-type: none"> <li>Prepare 2016-2020 view of potential based on considerations for capabilities, severance, and labour contracts</li> </ul>
Function	Headcount <sup>2</sup>			
Corporate Functions	IT	486	To be scheduled	To be scheduled
	Finance	207	To be scheduled	To be scheduled
	HS&E	191	To be scheduled	To be scheduled
	Supply Chain	126	To be scheduled	To be scheduled
	HR	91	To be scheduled	To be scheduled
	Real Estate	68	To be scheduled	To be scheduled
	Corp. Relations	46	To be scheduled	To be scheduled
	Other <sup>1</sup>	121	N/A	N/A
Operations	Lines & Forestry	2,823	To be scheduled	To be scheduled
	Construction	1,543	To be scheduled	To be scheduled
	Stations	1,346	To be scheduled	To be scheduled
	Fleet	465	To be scheduled	To be scheduled
	Engineering	383	To be scheduled	To be scheduled
	Planning	239	To be scheduled	To be scheduled
	Cust. Service	208	To be scheduled	To be scheduled
	Remote Comm.	52	N/A	N/A

### SCM 2 (Feb 25)

Summarize end-state view of org. effectiveness potential

### SCM 3 (Mar 11)

Summarize 2016-2020 view of org. effectiveness potential

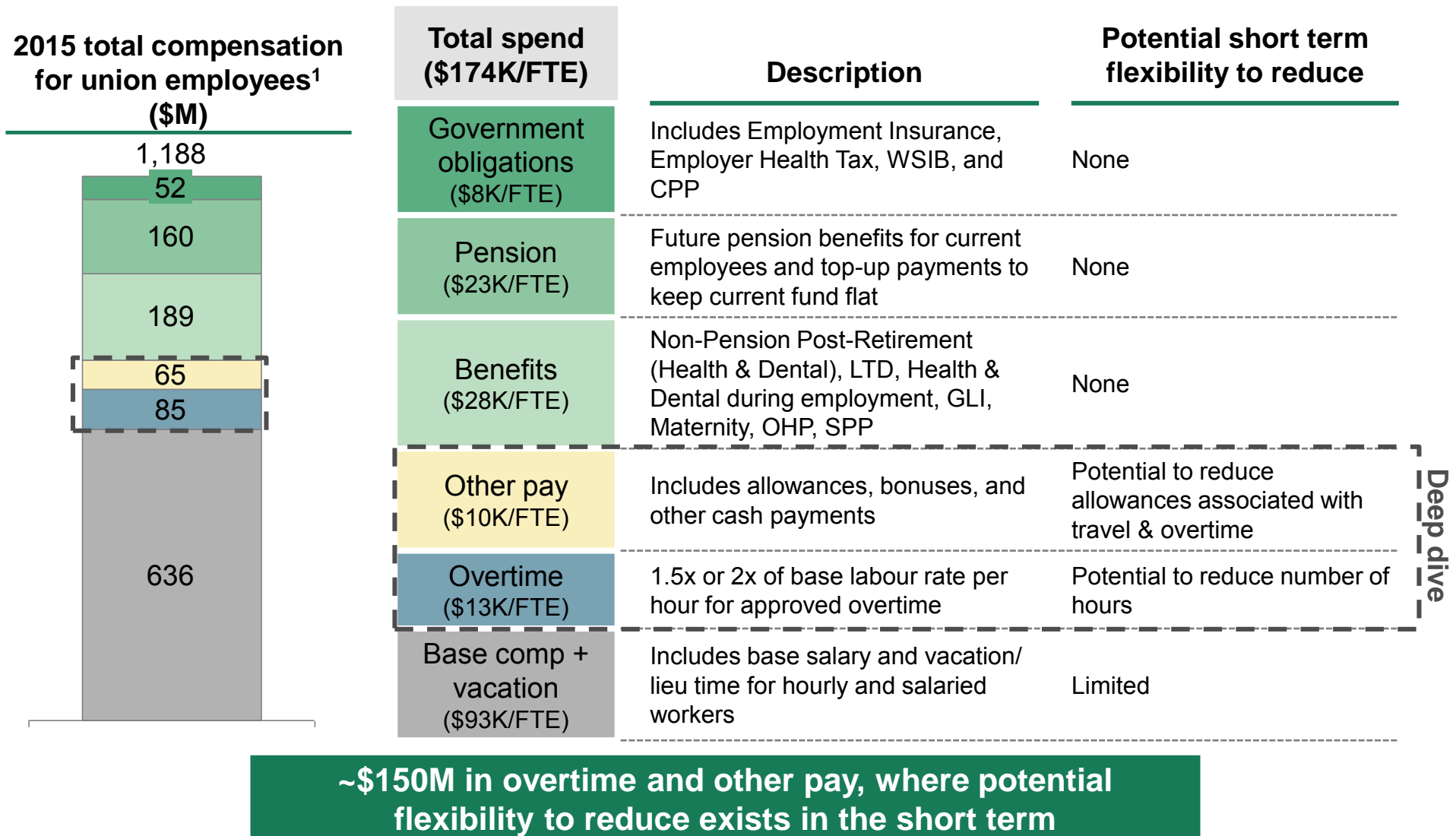
1. Includes Strategy, Risk, Pension, Business Performance, Legal, Board Relations, Regulatory and Executive 2. Total headcount include all regular, non-regular and outsourced

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b>	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (2:00 – 2:10)
<b>Regulatory: Tx Filing consultation approach</b>	Oded Hubert	<b>30 min</b> (2:10 – 2:40)
<b>Hydro One performance: Metrics and aspirations</b>		
• Asset management (system performance)	Mike Penstone	<b>25 min</b> (2:40-3:05)
• Customer (service performance)	Rob Quail	<b>15 min</b> (3:05-3:20)
• Capital efficiency	Brad Bowness	<b>15 min</b> (3:20-3:35)
<b>Efficiency: Baseline and Quick Wins</b>		
• Procurement	Gary Schneider	<b>15 min</b> (3:35-3:50)
• Org effectiveness	Andrew Loh (on behalf of Judy McKellar)	<b>15 min</b> (3:50-4:05)
• Labour strategy	Nadine O'Neill	<b>15 min</b> (4:05-4:20)
• O&M efficiency	Jon Rebick	<b>15 min</b> (4:20-4:35)
• Quick Wins	Stefanie Stocco / Frank D'Andrea	<b>15 min</b> (4:35-4:50)
<b>Wrap-up and next steps</b>	Stefanie Stocco	<b>10 min</b> (4:50-5:00)

# Unionized labour: \$1.2B unionized labour spend in 2015

Two potential areas for policies deep-dive: Overtime and Other pay



1. Includes all employees, including regulars, casuals, and probationary employees across PWU, Society, and all trades including H1 telecom, remotes, HONI, and HOI, but excluding MCP.  
Source: Hydro One HR Payroll data per employee, pulled Jan 26, 2016

# Overtime: 50% of overtime hours (\$44M) Planned and Admin

Both activities with potential to address level of overtime hours used

Type of overtime	Definitions	Overtime hours (000's hours for 2015)				Total (K hrs)	Overtime cost <sup>1</sup> (\$M)	
		Lines & Forestry	Stations & Operating	Eng.	Const- ruction			
Demand	Customer-driven requests that can be completed in a timely manner	82	12	~0	3	98	\$8M	Partially covered by O&M workstream
Emergency	Repairs needed immediately due to storm damage or safety concerns	363	30	~0	5	397	\$32M	
Planned	Overtime not demand nor emergency driven within Hydro One work program	130	118	21	167	434	\$35M	To be further explored
Admin	Overtime not charged directly to a project or not project-related	56	39	2	22	119	\$9M	
External	Work performed outside of Hydro One's boundaries and charged on pass-through basis	1	11	0	0	12	\$1M	
Total		631	208	23	197	1,059	\$85M	

1. Assume \$81/hr for overtime costs based on average spend across all employees for overtime

Source: Hydro One overtime hours vs. total hours December 2015, segmented by business line, BCG analysis

# Potential drivers and approach to identify actions

Potential drivers	Description	Approach to identify potential actions	Potentially actionable?
Inadequate planning	<ul style="list-style-type: none"> <li>Overtime resulting from poor planning and scheduling</li> </ul>	<ul style="list-style-type: none"> <li>Benchmark overtime by zone across relevant functions</li> <li>Assess view over time to normalize for abnormal events</li> <li>Identify best vs. worst practices for labour planning</li> </ul>	✓
Supervisor oversight	<ul style="list-style-type: none"> <li>Lack of oversight on supervisor-level decisions</li> </ul>	<ul style="list-style-type: none"> <li>Benchmark overtime by supervisor across relevant functions</li> <li>Assess view over time to normalize for abnormal events</li> <li>Conduct review of over time approvals and isolate root causes related to supervisor oversight</li> </ul>	✓
Serial users	<ul style="list-style-type: none"> <li>Staff targeting overtime outside of normal conditions</li> </ul>	<ul style="list-style-type: none"> <li>Identify heavy users of overtime</li> <li>Assess view over time to understand consistency of usage</li> <li>Investigate areas of extra-ordinary use (e.g., outside labour policy and/or health &amp; safety guidelines)</li> </ul>	✓
Limited supply of skilled workers	<ul style="list-style-type: none"> <li>Lack of available labour leads to increased overtime</li> </ul>	<ul style="list-style-type: none"> <li>Leverage benchmarking of overtime by zone</li> <li>Assess whether planned overtime is a result of systemic, unaddressable labour shortage vs. labour planning issues</li> </ul>	Unlikely

**Potential actions to be assessed for February 25 SteerCo**

# Our agenda for today



Topic	Lead	Time
<b>Good to Great program update</b>	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (2:00 – 2:10)
<b>Regulatory: Tx Filing consultation approach</b>	Oded Hubert	<b>30 min</b> (2:10 – 2:40)
<b>Hydro One performance: Metrics and aspirations</b>		
• Asset management (system performance)	Mike Penstone	<b>25 min</b> (2:40-3:05)
• Customer (service performance)	Rob Quail	<b>15 min</b> (3:05-3:20)
• Capital efficiency	Brad Bowness	<b>15 min</b> (3:20-3:35)
<b>Efficiency: Baseline and Quick Wins</b>		
• Procurement	Gary Schneider	<b>15 min</b> (3:35-3:50)
• Org effectiveness	Andrew Loh (on behalf of Judy McKellar)	<b>15 min</b> (3:50-4:05)
• Labour strategy	Nadine O'Neill	<b>15 min</b> (4:05-4:20)
• O&M efficiency	Jon Rebick	<b>15 min</b> (4:20-4:35)
• Quick Wins	Stefanie Stocco / Frank D'Andrea	<b>15 min</b> (4:35-4:50)
<b>Wrap-up and next steps</b>	Stefanie Stocco	<b>10 min</b> (4:50-5:00)

# Summary: O&M Efficiency

## **We have completed development of a baseline of all field O&M processes**

- Baseline captures key process areas across Provincial Lines, Forestry and Stations
- Allocates budget and FTEs to each process, broken down by zone
- In addition, we have taken inventory of recently completed, in-flight and planned initiatives

## **Based on initial assessment of spend and opportunity, 3 processes selected for deep dives**

- 
- 
- Stations Preventive Maintenance: Budget of ~\$21M; opportunity to improve planning process

## **For each process, the team is conducting deep dives along two dimensions:**

1. Planning, scheduling and workforce strategy
2. Execution of day-to-day work activities

**Over the next four weeks, will build on early progress to identify, validate and quantify potential improvement opportunities in these areas**

# Three process areas selected for deep dive on basis of spend and preliminary validation of opportunities

Deep dive processes compose  
~40% of total O&M spend

Department	Process	Cost 2015 (\$MM)	2015 % of total O&M	Rationale for deep dive
<b>3</b> Stations	Preventive Maintenance - Planned	21.2	4%	Large spend; Opportunity in outage planning; work planning & scheduling; synergies w/corrective maint.
Lines	Cable Locates	20.8	4%	
Forestry	Tx Brush Control	17.8	4%	
Stations	Corrective Maintenance - Demand	16.0	3%	
Stations	Corrective Maintenance - Planned	13.0	3%	
Lines	Disconnect/Reconnect	12.7	3%	
Lines	O&M Costs - Storm Response	12.3	3%	
<b>1b</b> Forestry	Dx Brush Control	7.7	2%	Large historical & planned spend (\$23.9 MM in 2014; can be evaluated in conjunction with Dx Line Clearing)
All	Other	210.6	43%	
All	Total	487.6	100%	

☐ Selected for deep dive

# Deep dive analysis will help to validate and quantify preliminary hypotheses in each area

*Planning, scheduling and workforce strategy*

Process	Main Hypotheses	Approach to test hypotheses
1 Dx Line Clearing & Brush Control		
2 Trouble Calls		
3 Stations Preventive Maintenance		

# Field visits kicked off to diagnose execution efficiency

## Execution of day-to-day work activities

### Activities for execution diagnostic

#### Build robust process map of day-to-day activities of field workers (lineman, forester, maintenance tech) through interviews

- Obtain input from multiple levels of field organization ("do-ers" and supervisors)
- Identify time spent on each activity and highlight process pain points
- Test and validate opportunities from previous diagnostic work such as M2M, KPMG study

#### Conduct field observations to validate process maps and assess use of best practices

- Observe pain points encountered in the field and sources of non-value-added time (e.g. travel time, rework, etc.)
- Observe use of best practices such as standard work, 5S, visual mgmt, and kitting
- Gather insights from field workers regarding daily challenges, potential improvements

### Plan for field engagement

#### 1 Dx Line Clearing & Brush Control

- ✓ Execution process mapping (2/3)
  - Initial field visit – Barrie (2/11)
  - Follow-up field visits to observe crews and processes in action (TBD)




#### 2 Trouble Calls

- ✓ Initial field visit and execution process mapping – London (2/5)
  - Follow-up field visits to observe crews and processes in action (TBD)

#### 3 Stations Preventive Maintenance

- ✓ Initial field visit and execution process mapping – Barrie (2/9)
  - Follow-up field visits to observe crews and processes in action (TBD)

# Next 3 weeks focused on defining & sizing preliminary opportunities for the next SteerCo (Feb 25)

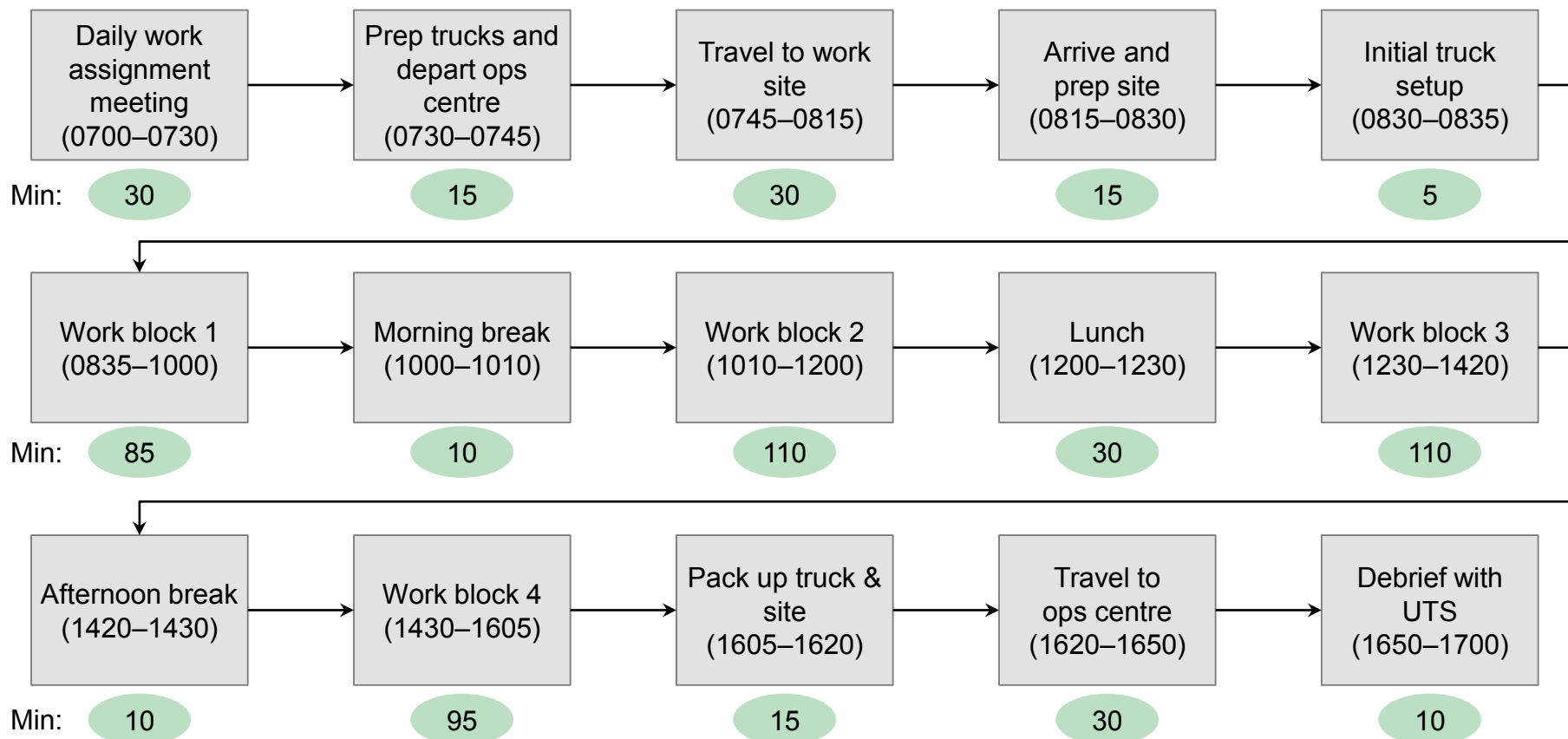
	Week 4 Feb 8 - 12	Week 5 Feb 15 - 19	Week 6 Feb 22 - 26
1 Dx Line Clearing & Brush Control			<ul style="list-style-type: none"> <li>Refine/challenge execution opportunities</li> <li>Refine/challenge outsourcing and labour mix opportunities and strategy</li> </ul>
2 Trouble Calls	<ul style="list-style-type: none"> <li>Complete initial trouble call analysis and define next steps</li> <li>Conduct initial field visit to build execution process map and observe work practices at ops center</li> </ul>	<ul style="list-style-type: none"> <li>Develop scenarios to adjust shift schedules to reduce overtime</li> <li>Assess opportunities to triage calls and reduce overtime</li> <li>Assess opportunities to reduce trouble crew standby time/crew size</li> </ul>	<ul style="list-style-type: none"> <li>Refine/challenge execution opportunities</li> <li>Refine/challenge shift schedule and call triage opportunities</li> <li>Refine/challenge trouble crew scheduling and size</li> </ul>
3 Stations Preventive Maintenance	<ul style="list-style-type: none"> <li>Complete PM analysis to identify critical equipment for further evaluation and define next steps</li> <li>Finalize execution map and observations from field visit on 2/5</li> <li>Map estimation process</li> </ul>	<ul style="list-style-type: none"> <li>Analyze causes of outage planning disruption</li> <li>Analyze opportunities for work bundling during outages</li> <li>Follow up field visit (TBD) and observe execution practices for critical equipment</li> </ul>	<ul style="list-style-type: none"> <li>Refine/challenge execution opportunities (incl. adherence to standard processes)</li> <li>Refine/challenge outage planning opportunities</li> <li>Refine/Challenge estimation process opportunities</li> </ul>
Deliverables	 <ul style="list-style-type: none"> <li>Preliminary execution maps for Trouble calls &amp; Stations PM</li> <li>Preliminary Trouble call analysis</li> <li>Preliminary prev maint analysis</li> <li>Synthesis of initial stations field oppty</li> </ul>	<ul style="list-style-type: none"> <li>Synthesis of forestry field oppty</li> <li>Forestry labour oppty and strategy</li> <li>Synthesis of trouble calls field oppty</li> <li>Trouble call resource optimization</li> <li>Opportunities to reduce outage planning disruptions &amp; bundle work</li> <li>Stations estimation process map and pain points</li> </ul>	<ul style="list-style-type: none"> <li>Preliminary forestry opportunities and sizing</li> <li>Preliminary trouble calls opportunities and sizing</li> <li>Preliminary preventive maintenance opportunities and sizing</li> </ul>

SteerCo  
Meetings
  
2/9

  
2/25

# Typical day for a forester performing Dx line clearing

Preliminary



**Next step is to observe work practices in the field and gather additional input on pain points and lost time**

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b>	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (2:00 – 2:10)
<b>Regulatory: Tx Filing consultation approach</b>	Oded Hubert	<b>30 min</b> (2:10 – 2:40)
<b>Hydro One performance: Metrics and aspirations</b>		
• Asset management (system performance)	Mike Penstone	<b>25 min</b> (2:40-3:05)
• Customer (service performance)	Rob Quail	<b>15 min</b> (3:05-3:20)
• Capital efficiency	Brad Bowness	<b>15 min</b> (3:20-3:35)
<b>Efficiency: Baseline and Quick Wins</b>		
• Procurement	Gary Schneider	<b>15 min</b> (3:35-3:50)
• Org effectiveness	Andrew Loh (on behalf of Judy McKellar)	<b>15 min</b> (3:50-4:05)
• Labour strategy	Nadine O'Neill	<b>15 min</b> (4:05-4:20)
• O&M efficiency	Jon Rebick	<b>15 min</b> (4:20-4:35)
• Quick Wins	Stefanie Stocco / Frank D'Andrea	<b>15 min</b> (4:35-4:50)
<b>Wrap-up and next steps</b>	Stefanie Stocco	<b>10 min</b> (4:50-5:00)

# Four "quick wins" initiatives being pursued

	What is included	Nature of opportunity	Total baseline	
			OM&A	Capital
<b>Inergi</b> (D'Andrea)	<ul style="list-style-type: none"> <li>Base charge (resource unit volume x base unit price or fixed fee)</li> <li>Transformation projects</li> </ul>	<ul style="list-style-type: none"> <li>Eliminate or reduce base charges (low-value or no longer required)</li> <li>Can take up to 35% reduction on RUs without "penalty"</li> </ul>	\$129M	\$16M
<b>Corporate projects &amp; IT</b> (Penny)	<ul style="list-style-type: none"> <li>Total capital and OM&amp;A budgets of corporate projects for various LOBs</li> <li>~70% non-discretionary (e.g. OEB driven, project underway w/ value card)</li> <li>Also includes non-Inergi 3<sup>rd</sup> party spend</li> </ul>	<ul style="list-style-type: none"> <li>Cancel or delay projects without clear value card</li> <li>Reduce charges for non-Inergi 3<sup>rd</sup> parties (no longer required)</li> </ul>	\$72M	\$138M
<b>Other discretionary</b> (Scott)	<ul style="list-style-type: none"> <li>Professional services: Finance, IT, HR, Legal, etc. (\$34M total<sup>1</sup>)</li> <li>Staff augmentation (\$27M total<sup>1</sup>)</li> <li>R&amp;D and memberships (\$7M total<sup>1</sup>)</li> </ul>	<ul style="list-style-type: none"> <li>Eliminate or reduce scope of services (low-value or no longer required)</li> </ul>	\$37M	\$31M
<b>LDC Integration</b> (TBD/Stocco)	Scope and opportunity not yet defined			

1. Includes OM&A and Capital spend; Note: may be some overlap in spend between categories (e.g. Inergi spend or staff augmentation roles within individual corporate project budgets)

# Emerging view of "quick win" opportunities

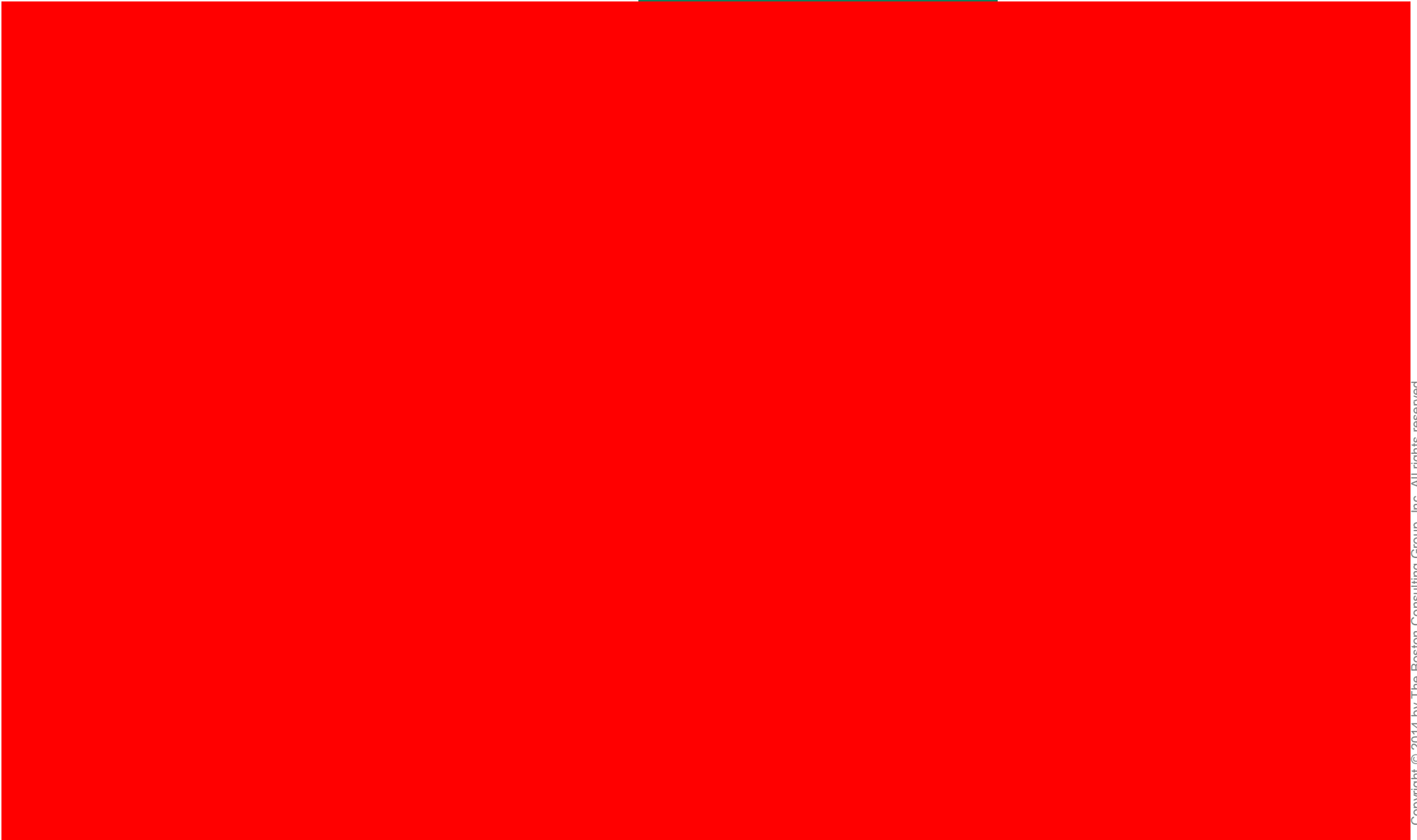
\$7.9M in 2016 in-year savings identified

	Recommended		Under review		Not recommended		Not yet assessed		Total
	OM&A	Capital	OM&A	Capital	OM&A	Capital	OM&A	Capital	
Inergi	\$4.8M	\$1.4M	\$5.0M	-	-	-	\$118.4M	\$14.6M	~\$145M
Corporate projects & IT	\$1.7M	-	-	-	\$68.3M	\$77.6M	\$1.2M	\$61.0M	~\$210M
Other discretionary	-	-	-	-	-	-	\$36.9M	\$30.8M	~\$68M
LDC Integration	-	-	-	-	-	-	Scope and opportunity not yet defined		TBD
\$6.5M in OM&A & \$1.4M in Capital savings identified for immediate action		\$5M in potential OM&A savings identified for further review		\$68.3M in OM&A and \$77.6M capital found to be non-discretionary		\$156.5M in OM&A and \$106.4M in capital still to be assessed			

# Proposed reductions in Inergi and other 3<sup>rd</sup> party scope

Recommendations of LOB managers for SteerCo review

For Steerco approval



# Other opportunities requiring further review

Note: run-rate savings estimates presented below are very preliminary

Opportunity	LOB	Approximate run-rate savings	What is required to achieve
[Redacted]			
Develop additional "Smart Forms" to reduce number of complex data management transactions by Inergi	PAY	~\$0.2M	<ul style="list-style-type: none"> <li>Create business case and secure funding for development work</li> </ul>
In-source vendor relationship management for top 40 contracts	S2P	TBD	<ul style="list-style-type: none"> <li>Further analysis to understand costs and competencies required to do work internally</li> </ul>
[Redacted]			

Next step to investigate these further while identifying additional "Quick Win" opportunities

1. Some overlap with savings with retail exception reductions

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b>	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (2:00 – 2:10)
<b>Regulatory: Tx Filing consultation approach</b>	Oded Hubert	<b>30 min</b> (2:10 – 2:40)
<b>Hydro One performance: Metrics and aspirations</b>		
• Asset management (system performance)	Mike Penstone	<b>25 min</b> (2:40-3:05)
• Customer (service performance)	Rob Quail	<b>15 min</b> (3:05-3:20)
• Capital efficiency	Brad Bowness	<b>15 min</b> (3:20-3:35)
<b>Efficiency: Baseline and Quick Wins</b>		
• Procurement	Gary Schneider	<b>15 min</b> (3:35-3:50)
• Org effectiveness	Andrew Loh (on behalf of Judy McKellar)	<b>15 min</b> (3:50-4:05)
• Labour strategy	Nadine O'Neill	<b>15 min</b> (4:05-4:20)
• O&M efficiency	Jon Rebick	<b>15 min</b> (4:20-4:35)
• Quick Wins	Stefanie Stocco / Frank D'Andrea	<b>15 min</b> (4:35-4:50)
<b>Wrap-up and next steps</b>	Stefanie Stocco	<b>10 min</b> (4:50-5:00)

# Did we accomplish what we set out to accomplish?

## What would make for a great session

A short presentation of your content

A real discussion vs. a "marketing pitch"

Full engagement and participation from all

Peer review, questions, and input

Decisions on key issues

## What we would like to avoid

Not enough time for discussion

Avoiding the tough questions ... particularly for the key decisions we need to make

Getting too far into the weeds

Putting off key decisions or not having a path to resolve in a timely manner

### Three key decisions for today:

- ☐ Regulatory: Approval of transmission customer consultation plan
- ☐ Regulatory: Alignment on "Wave 1" invitees
- ☐ Quick wins: Approve \$9.2M in quick wins ready for execution

## Where we are we headed next

Next two weeks' focus			
SteerCo #1 Feb 9	SteerCo #2 Feb 25	SteerCo #3 March 11	SteerCo #4 March 21
<b>Regulatory</b> <ul style="list-style-type: none"><li>Review customer needs by segment</li><li>Approve strategic approach to customer consultation (for Tx)</li></ul> <b>Hydro One Performance</b> <ul style="list-style-type: none"><li>Define aspiration, metrics, and targets for performance</li><li>Describe drivers to meet performance targets</li></ul> <b>OM&amp;A Efficiency</b> <ul style="list-style-type: none"><li>Review baseline and benchmark analysis</li><li>Approve quick wins</li></ul>	<b>Regulatory</b> <ul style="list-style-type: none"><li>Review investment scenarios and evidence for consultation</li></ul> <b>Hydro One Performance</b> <ul style="list-style-type: none"><li>Review emerging Capital stage gate and deliver model plan</li><li>Review detailing of near-term Customer initiatives</li></ul> <b>OM&amp;A Efficiency</b> <ul style="list-style-type: none"><li>Review opportunity sizing<ul style="list-style-type: none"><li>Procurement</li><li>Org effectiveness</li><li>Labour policies</li></ul></li><li>Approve Procurement Wave 1</li><li>Approve quick wins</li></ul>	<b>Regulatory</b> <ul style="list-style-type: none"><li>Review emerging findings from Wave 1 consultation</li><li>Approve Wave 2 consultation</li></ul> <b>Hydro One Performance</b> <ul style="list-style-type: none"><li>Review 5 year asset mgmt plan</li><li>Review 2016-2020 Customer plan</li><li>Review proposed Capital stage gate and delivery model</li></ul> <b>OM&amp;A Efficiency</b> <ul style="list-style-type: none"><li>Review 2016-2020 plans<ul style="list-style-type: none"><li>Org effectiveness</li><li>Labour policies</li></ul></li><li>Approve quick wins</li></ul>	Review of materials for 3/31 board meeting



Filed: 2018-06-22  
EB-2017-0049  
Exhibit J 7.1  
Attachment 2  
Page 1 of 83



Filed: 2019-08-28  
EB-2019-0082  
Exhibit JT-1.11  
Attachment 4  
Page 1 of 83

# Good to Great: Assessment of Full Potential

## Steering Committee #2

Feb 25, 2016

THE BOSTON CONSULTING GROUP

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Stefanie Stocco	<b>10 min</b> (9:00-9:10)
<b>Regulatory:</b> Tx Filing consultation materials	Oded Hubert & Mike Penstone	<b>35 min</b> (9:10-9:45)
<b>Service delivery</b>		
• <b>Customer:</b> needs assessment & prioritization of R&SB initiatives	Rob Quail	<b>30 min</b> (9:45-10:15)
• <b>Capital efficiency:</b> delivery model options (rapid update)	Brad Bowness	<b>10 min</b> (10:15-10:25)
<b>OM&amp;A efficiency</b>		
• <b>Procurement:</b> opportunity sizing summary & proposed waves	Gary Schneider	<b>15 min</b> (10:25-10:40)
• <b>Org effectiveness:</b> benchmarks & bottom up sizing summary	Judy McKellar	<b>30 min</b> (10:40-11:10)
• <b>Labour strategy:</b> diagnostic findings (rapid update)	Nadine O'Neill	<b>10 min</b> (11:10-11:20)
• <b>O&amp;M efficiency:</b> initial diagnostic findings (rapid update)	Jon Rebick	<b>10 min</b> (11:20-11:30)
• <b>Quick Wins:</b> confirmed wins to-date & launch of initiative tracking	Stefanie Stocco	<b>10 min</b> (11:30-11:40)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> plan overview & manager's toolkit	Laura Cooke	<b>15 min</b> (11:40-11:55)
• <b>Next steps:</b> SteerCo 3	Stefanie Stocco	<b>5 min</b> (11:55-12:00)

# Where we are we in the process

## Today's focus

SteerCo #1 Feb 9	SteerCo #2 Feb 25	SteerCo #3 March 11	SteerCo #4 March 21
<b>Regulatory</b> <ul style="list-style-type: none"> <li>Review customer needs by segment</li> <li>Approve strategic approach to customer consultation (for Tx)</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>Define aspiration, metrics, and targets for performance</li> <li>Describe drivers to meet performance targets</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>Review baseline and benchmark analysis</li> <li>Approve quick wins</li> </ul>	<b>Regulatory</b> <ul style="list-style-type: none"> <li>Review investment scenarios and evidence for consultation</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>Review emerging Capital stage gate and delivery model plan</li> <li>Review detailing of R&amp;SB Customer initiatives</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>Review opportunity sizing <ul style="list-style-type: none"> <li>Procurement</li> <li>Org effectiveness</li> <li>Labour policies</li> </ul> </li> <li>Review <ul style="list-style-type: none"> <li>Procurement Wave 1</li> <li>Quick wins</li> </ul> </li> </ul> <b>Communications</b> <ul style="list-style-type: none"> <li>Review internal plan and share Manager's Toolkit</li> </ul>	<b>Regulatory</b> <ul style="list-style-type: none"> <li>Updated on emerging findings from Wave 1 consultation</li> <li>Approve Wave 2 consultation</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>Update on Dx investment plan</li> <li>Review large Customer segment initiatives</li> <li>Review proposed Capital stage gate and delivery model</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>Review 2016-2020 full potential <ul style="list-style-type: none"> <li>Procurement</li> <li>Org effectiveness</li> <li>Labour policies</li> <li>O&amp;M efficiency</li> </ul> </li> </ul> <b>Communications</b> <ul style="list-style-type: none"> <li>Review external plan</li> </ul>	<b>Review of materials for 3/31 board meeting, including:</b> <ul style="list-style-type: none"> <li>Key outputs reviewed in previous SteerCo meetings</li> <li>5 year asset management plan</li> <li>Change management approach</li> </ul>

# Program status: Status of 8 core work streams

Workstream	Lead	Status	Status Comments
Regulatory strategy	Oded Hubert	At risk	Progressing against elements of Tx rate filing but distribution of Wave 1 invites has been delayed, putting schedule at risk.
Asset management	Mike Penstone	At risk	Delay in initiation of customer engagement process introducing some risk in developing a customer informed view of Tx investment plan in time for March Board meeting
Customer	Rob Quail	On track	Unmet needs diagnostic and initiative definition complete for R&SB segment. Initial assessment completed for larger customer segments (Tx, LDA, C&I) but additional analysis required for finalizing 2016 priority initiatives.
Capital efficiency	Brad Bowness	On track	Stage gate process opportunities have been identified, with next steps focused on future state. Progress made on delivery model and specifics on go-forward contracting models and commercial approach are next key deliverables.
Procurement	Gary Schneider	On track	Approach to each category defined, with addressable spend and savings potential estimated based on category profile. Initiatives prioritized into 4 waves. Wave 1 to launch immediately.
Org effectiveness	Judy McKellar	On track	Completed baseline, corporate function benchmarking and spans and layers diagnostic. Identified bottom-up opportunities across LoBs and quantified potential gains. Now preparing to do a 2 <sup>nd</sup> wave of assessment in select LOBs.
Labour strategy	Nadine O'Neill	On track	Overtime opportunity assessment completed. Defined path forward to tackle OT through planning & productivity, and communication around 'serial users'. Focus going forward on labour strategy and attrition potential.
O&M efficiency	Jon Rebick	On track	Investigation and sizing completed for a few priority opportunities (e.g. Forestry labour mix, Stations preventive maintenance execution, trouble call overtime) and remaining opportunity sizing and vetting on track for completion by mid-March.

Not started

On track

At risk

Off track

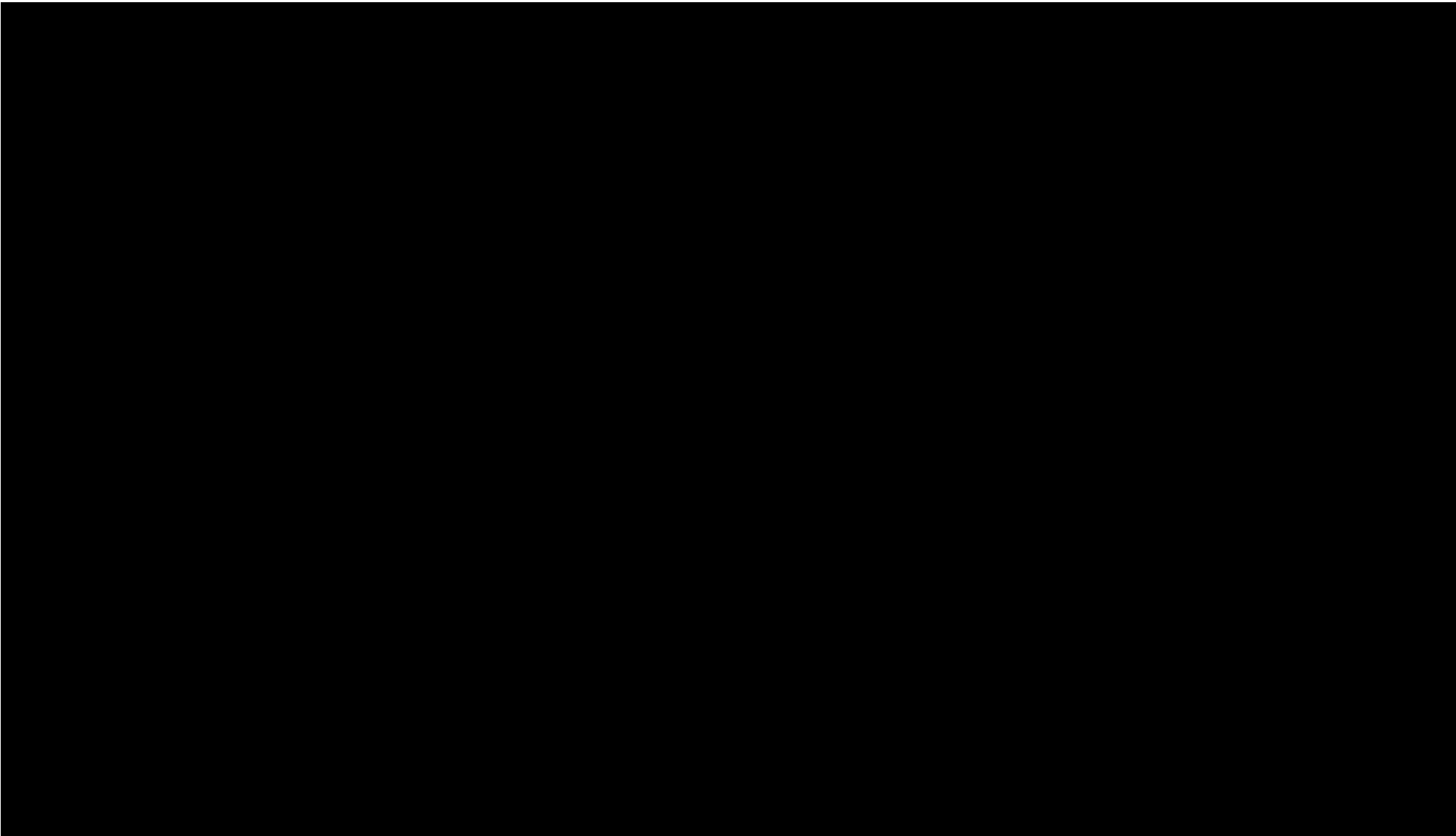
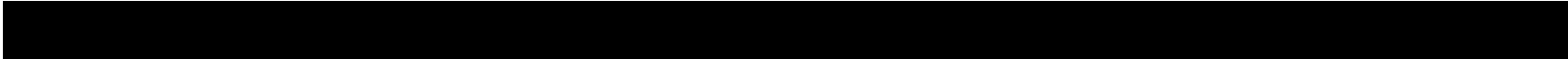


Complete

# Our agenda for today

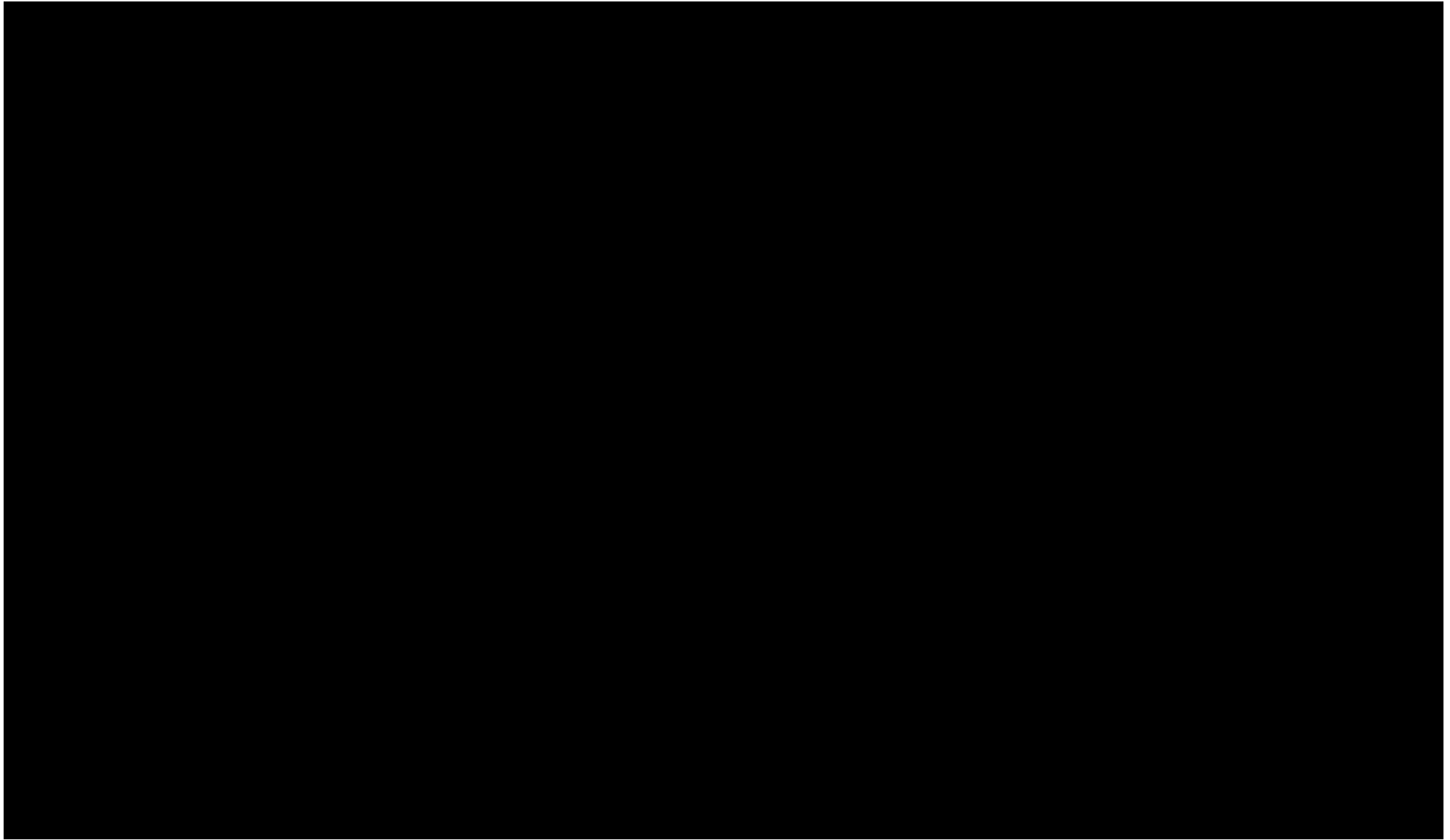
Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (9:00-9:10)
<b>Regulatory:</b> Tx Filing consultation materials	Oded Hubert & Mike Penstone	<b>35 min</b> (9:10-9:45)
<b>Service delivery</b>		
• <b>Customer:</b> needs assessment & prioritization of R&SB initiatives	Rob Quail	<b>30 min</b> (9:45-10:15)
• <b>Capital efficiency:</b> delivery model options (rapid update)	Brad Bowness	<b>10 min</b> (10:15-10:25)
<b>OM&amp;A efficiency</b>		
• <b>Procurement:</b> opportunity sizing summary & proposed waves	Gary Schneider	<b>15 min</b> (10:25-10:40)
• <b>Org effectiveness:</b> benchmarks & bottom up sizing summary	Judy McKellar	<b>30 min</b> (10:40-11:10)
• <b>Labour strategy:</b> diagnostic findings (rapid update)	Nadine O'Neill	<b>10 min</b> (11:10-11:20)
• <b>O&amp;M efficiency:</b> initial diagnostic findings (rapid update)	Jon Rebick	<b>10 min</b> (11:20-11:30)
• <b>Quick Wins:</b> confirmed wins to-date & launch of initiative tracking	Stefanie Stocco	<b>10 min</b> (11:30-11:40)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> plan overview & manager's toolkit	Laura Cooke	<b>15 min</b> (11:40-11:55)
• <b>Next steps:</b> SteerCo 3	Stefanie Stocco	<b>5 min</b> (11:55-12:00)

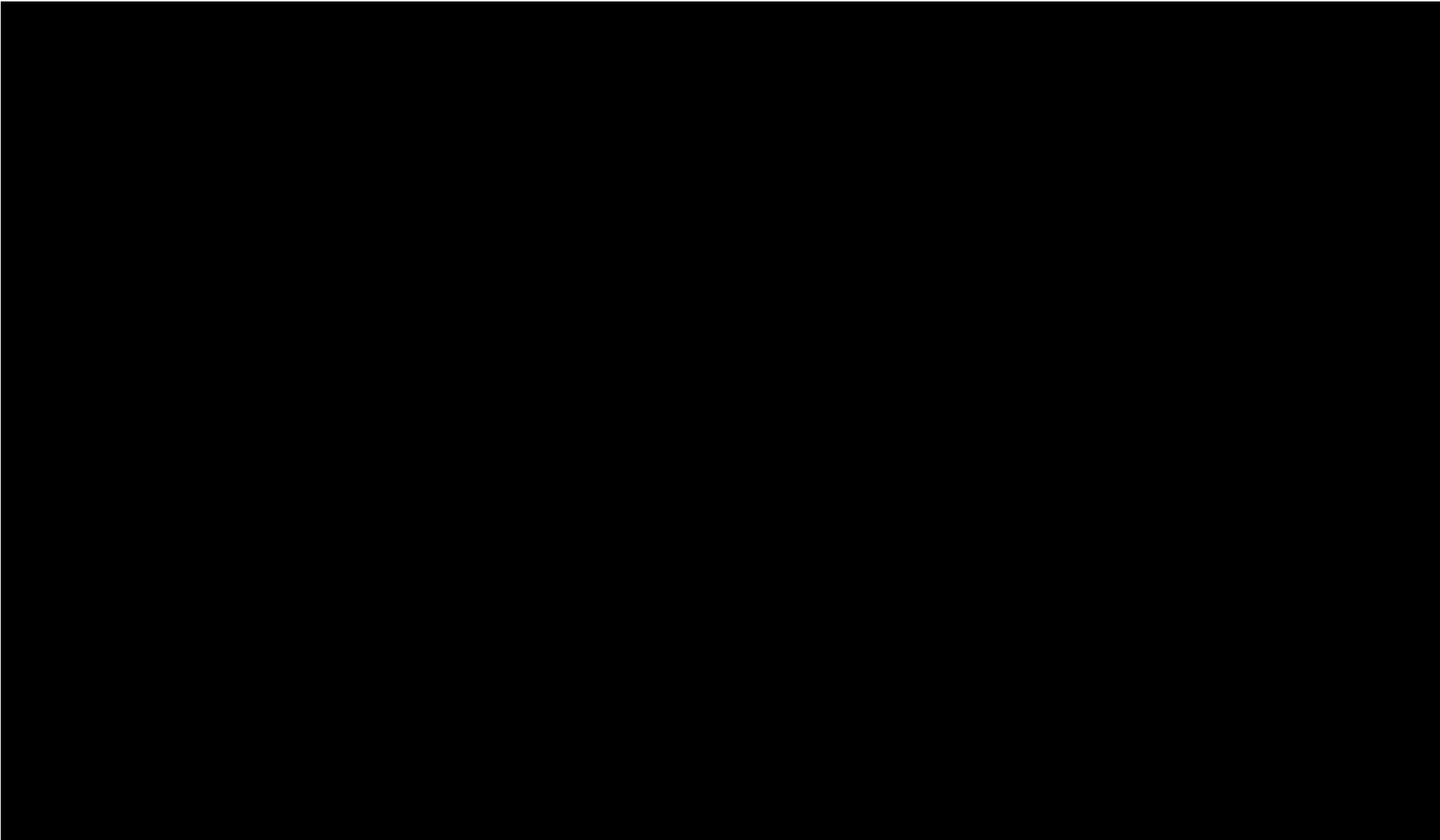
# Update on progress of Tx rate filing



[Redacted]

[Redacted]





[Redacted]

[Redacted]

[REDACTED]

[REDACTED]

[REDACTED]

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (9:00-9:10)
<b>Regulatory:</b> Tx Filing consultation materials	Oded Hubert & Mike Penstone	<b>35 min</b> (9:10-9:45)
<b>Service delivery</b>		
• <b>Customer:</b> needs assessment & prioritization of R&SB initiatives	Rob Quail	<b>30 min</b> (9:45-10:15)
• <b>Capital efficiency:</b> delivery model options (rapid update)	Brad Bowness	<b>10 min</b> (10:15-10:25)
<b>OM&amp;A efficiency</b>		
• <b>Procurement:</b> opportunity sizing summary & proposed waves	Gary Schneider	<b>15 min</b> (10:25-10:40)
• <b>Org effectiveness:</b> benchmarks & bottom up sizing summary	Judy McKellar	<b>30 min</b> (10:40-11:10)
• <b>Labour strategy:</b> diagnostic findings (rapid update)	Nadine O'Neill	<b>10 min</b> (11:10-11:20)
• <b>O&amp;M efficiency:</b> initial diagnostic findings (rapid update)	Jon Rebick	<b>10 min</b> (11:20-11:30)
• <b>Quick Wins:</b> confirmed wins to-date & launch of initiative tracking	Stefanie Stocco	<b>10 min</b> (11:30-11:40)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> plan overview & manager's toolkit	Laura Cooke	<b>15 min</b> (11:40-11:55)
• <b>Next steps:</b> SteerCo 3	Stefanie Stocco	<b>5 min</b> (11:55-12:00)

# Executive summary: Customer

## **Initial assessment of customer needs across segments indicates several areas where Hydro One does well**

- Meeting reliability needs of smaller customers (Residential and Small Business)
- Person-to-person service interactions (i.e., line superintendents, account execs) with large customers (Commercial & Industrial, Large Distribution Accounts, Transmission)

## **Residential and Small Business (R&SB): Analysis of unmet customer needs (surveys, interviews, benchmarks etc.), review of initiatives and prioritization are complete and have identified three priority initiatives:**

### **1. Digital engagement**

- Smart e-billing including alerts, preference center, ability to view and analyze electricity consumption
- My Account and HydroOne.com redesign to enhance self-serve capabilities and user experience

### **2. Bill redesign** to provide a more user-friendly format and make it easier to understand

### **3. Call center enhancements** to elevate agent skills and to improve first call resolution

## **Large customers (C&I, LDA, Tx): An initial draft set of initiatives has been identified, but further analysis is required to finalize 2016 priorities**

## **Additionally, as part of the assessment, the team has discovered two other opportunities:**

- Robust communications plan under development (employee and customer) to reduce gaps between perception and performance
- Gaps in survey questions and data availability are being addressed

## **High level strategic framework for Dx regulatory customer consultation will be developed for SteerCo #4**

# Where we are in the process

	Objectives	Goals	Metrics	Initiatives	Roadmap
	Define the <i>overarching objective</i> for the customer organization	Set specific <i>goals across customer groups</i> that support the objective	Define appropriate <i>metrics to support goals</i>	Identify <i>key customer needs</i> and define <i>initiatives</i> to address unmet needs	<i>Prioritize based on impact and feasibility</i> and build high-level roadmap
R&SB	✓	✓	✓	✓	✓
C&I	✓	✓	✓	✓	✓
Tx	✓	✓	✓	✓	✓
LDA	✓	✓	✓	✓	✓



Complete



Partially complete

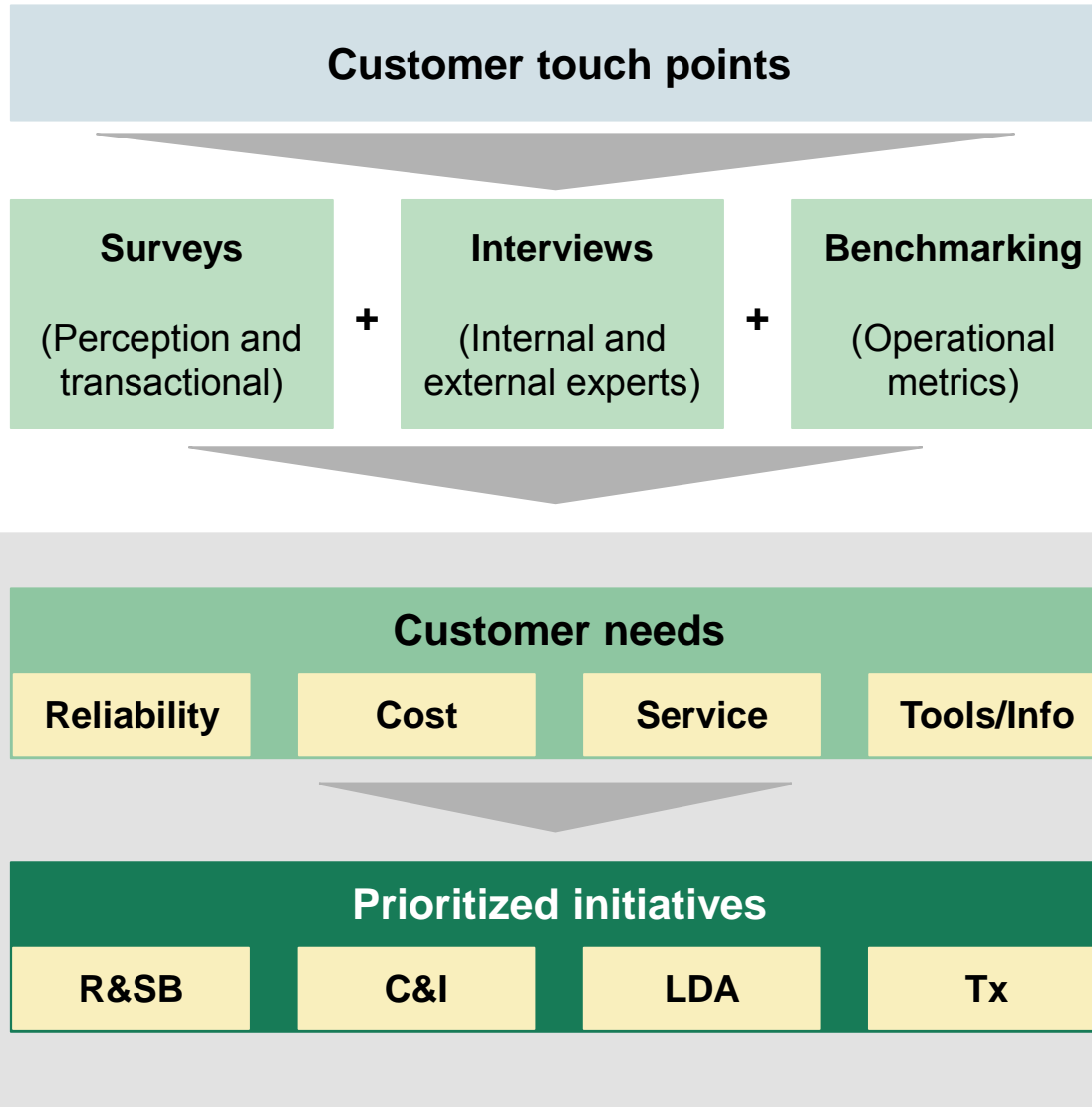
# We used a multipronged approach to define a prioritized list of initiatives for each customer segment

*We mapped the customer journey ...*

*... and leveraged various data sources ...*

*... to identify key needs of our customers ...*

*... and defined initiatives to address unmet needs*



**Informed by key goals of customer care mission**

Deliver customers best "**Value**" for their money

Be "**Easy**" to do business with

Earn and keep our customers' "**Trust**"

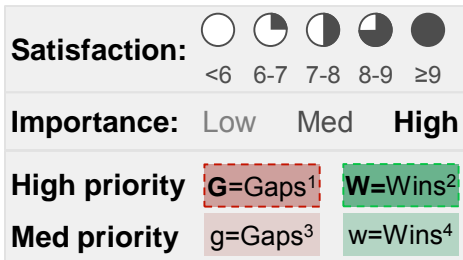
Engage customers in a "**Transparent**" manner

# Identified importance vs. satisfaction gaps by segment

Opportunity to improve on nine of eleven high priority areas and several medium priority areas

Synthesis across sources

## Legend



Customer segment		Dimension	Reliability and power quality	Cost of electricity	Customer Serv.: Self-service	Customer Serv.: Person-to-person	Communication: Outage/incident	Communication: Regular	Billing, payment and collections
Dx	Residential and Small Business (R&SB)	Low	Low	G High	G High <sup>5</sup>	G High	Low	w Med	G High
	Commercial and Industrial (C&I)	Low	Low	g Med	w Med	G High	Low	G High	g Med
	Large Distributor Accounts (LDA)	G High	g Med	g Med <sup>5</sup>	w Med	w Med	w Med	W High	Low
Tx									

1. High importance, low-med satisfaction (<8) 2. High importance, high satisfaction (≥8) 3. Med importance, low satisfaction (<7)

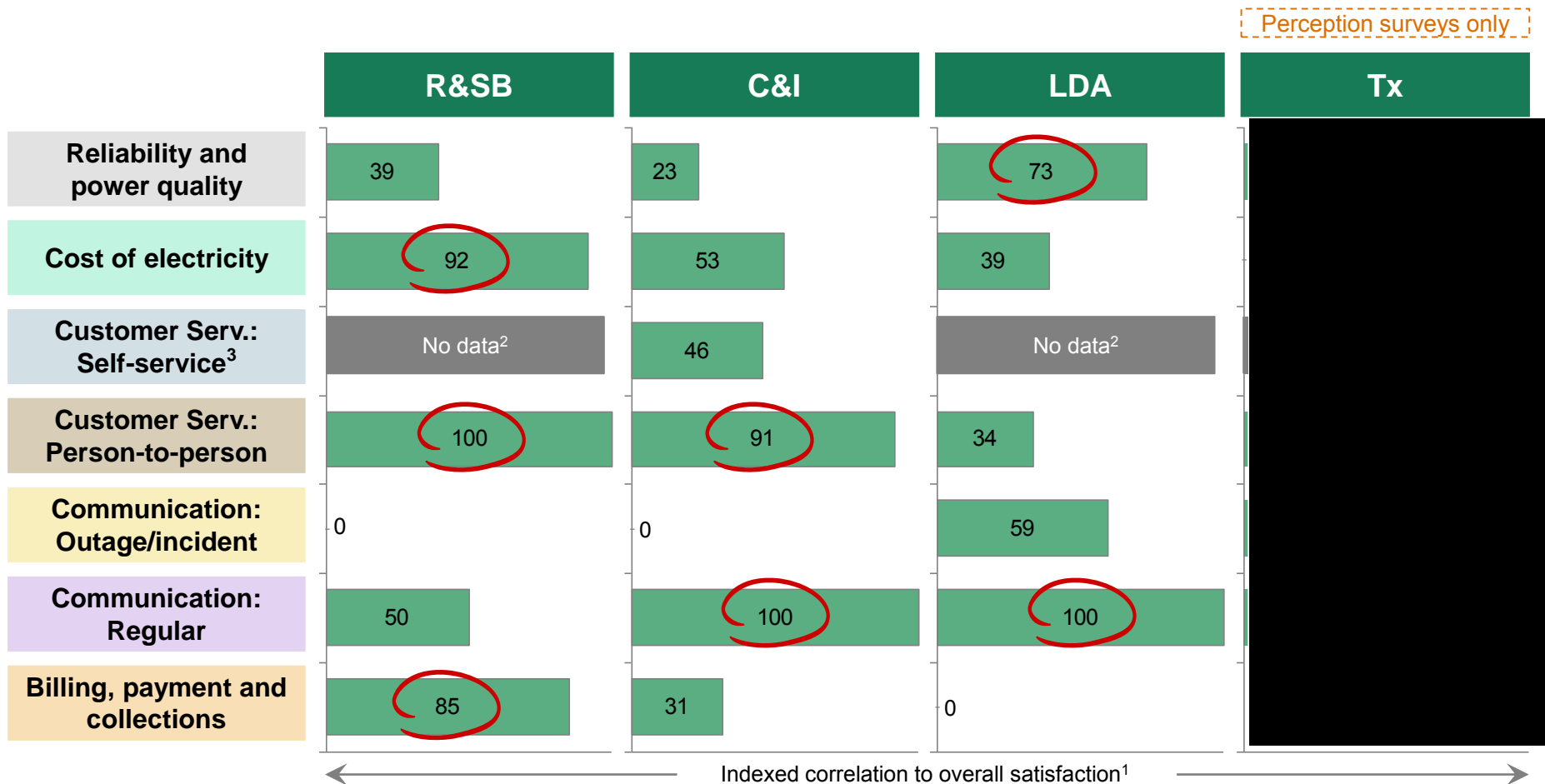
4. Med importance, med-high satisfaction (≥7) 5. Based on interviews and anecdotal evidence

Note: Responses for questions asked on a 5-point scale have been multiplied by 2 to match 10-point scale used for most questions

Source: Hydro One 2015 CSAT surveys for R&SB, C&I, LDA, Tx. Interviews (internal and external experts). Operational Benchmarking. BCG Analysis

# Importance of customer needs varies across dimensions

Perception surveys not currently comprehensive across key dimensions



**Small customers prioritize customer service and cost, larger customers focus on reliability and communications**

1. Importance is derived based on correlation (Pearson's R) between questions within each dimension and overall satisfaction, indexed to 0-100 within each segment 2. No data in perception surveys 3. Self-service channels refer to Hydro One website, My Account, smartphone application, and IVR  
Source: Hydro One 2015 CSAT surveys for R&SB, C&I, LDA, and large Tx. BCG Analysis

# Residential and Small Business (R&SB): Unmet customer needs and supporting proof points (I)

## Unmet needs

### Convenient and capable self-service channels (e.g. web, My Account, mobile app, IVR)

Provide customers with multiple convenient and functional self-serve channels for their routine transactions

### Straightforward bill

Simplify bill design and delivery and provide relevant, value added information on bills

## Key proof points

Customer **self-serve options inadequate** and see low engagement

- **My Account portal:** Limited usage with ~60K unique monthly visitors (~5% of customers); total enrolment ~21% of customers. Only ~7K self-serve transactions annually. Portal **lacks performance and functionality**; and is not mobile optimized
  - **Website:** Website is 5+ years old. Difficult to navigate and lacks functionality and performance. Not integrated well with My Account portal and mobile app due to different internal owners. ~250K unique visitors and relatively flat usage over last 3 years
  - **Mobile app:** Mobile app has **limited functionality and awareness** (outage only). Mobile app has ~250K total downloads (uncertain how many are Hydro One customers). Lacking best in class features such as viewing/paying bill online and usage monitoring
  - **IVR:** Hydro One IVR lacks best in class features such as payment arrangement and auto pay setup, payment confirms and service reconnects. IVR containment rate below best in class performance (48.5% vs. 54%). IVR last updated in 2008.
  - **Notifications:** Lack of proactive notifications (text, auto call) for processes/transactions (e.g. paying bill). Uncertainty on payment receipt **causes anxiety, drives call volumes**
- 
- **eBilling:** Canada Post e-billing has limited adoption (~126K) and **"is bureaucratic and not customer friendly"**. Benchmarks show % of customers using **e-billing lags peers** (12% vs. 26% North American best in class)
  - **Bill format:** Bill understanding is a **significant dissatisfier for customers. Peers (e.g. Toronto Hydro) have a substantially more user friendly bill. Low satisfaction with ease of understanding bill (6.7/10)**, moderate importance to overall satisfaction (0.4)<sup>1</sup>.

1. Hydro One 2015 CSAT/perception survey for R&SB

Note: All average satisfaction scores have been converted to a 10-pt scale

Sources: Hydro One 2015 perception and transactional surveys. Interviews (internal and external experts). BCG Energy Retail Benchmark 2015. BCG analysis and experience.

# Residential and Small Business (R&SB): Unmet customer needs and supporting proof points (II)

## Unmet needs

### Effective call centre issue resolution

Resolve customer issues as quickly as possible and provide the best customer service possible

### Affordable power

Educate customers on their bill and power usage and provide tools / alternative to manage their consumption

## Key proof points

















- **Issue resolution:** Surveys highlight speed to resolve problem ranked as **#2 reason for liking Hydro One customer service**, **#3 reason for disliking it**<sup>1</sup>
  - Benchmarks highlight several opportunities for improvement in call center - **First call resolution (82%) below median (85%)**<sup>2</sup>; **Agents have to pull up multiple screens** to address customer issues; do not have easy access to complete customer history
  - **Agent attitudes:** Friendliness and **helpful attitude ranked as #1** reason for liking Hydro One customer service, and **#1 reason for disliking it**<sup>1</sup>
- 
- **Rates:** **"High rates" is #1 concern** when customers evaluate their satisfaction with Hydro One, making up **~25% of all mentions**<sup>1</sup>
  - **#2 reason for disliking Hydro One Customer Service** cited as “Charges what they charge” – *“Wasn't given any suggestions to lower my cost and the cost is through the roof. The price is astronomical.”*<sup>3</sup>
  - **CDM programs:**
    - **Programs not well publicized to customers as a solution to their energy affordability problems.** Programs not integrated with front line staff, agents not knowledgeable on programs. Managed by third parties
    - Unclear whether programs are impacting significant proportion of customer base
    - **Limited focus on RSB CDM programs** (few new programs since 2010 but 5-6 pilots under development); programs do not offer material monetary savings)
    - **Tools to manage TOU inadequate; only 19K unique users on the TOU portal (~1% of R&SB customers)**

1. Hydro One 2015 CSAT/perception survey for R&SB 2. BCG Energy Retail Benchmark 2015 3. Hydro One CCC Agent transactional survey

Note: All average satisfaction scores have been converted to a 10-pt scale

Sources: Hydro One 2015 perception and transactional surveys. Interviews (internal and external experts). BCG Energy Retail Benchmark 2015. BCG analysis and experience.

# R&SB: Proposed initiatives to address unmet needs

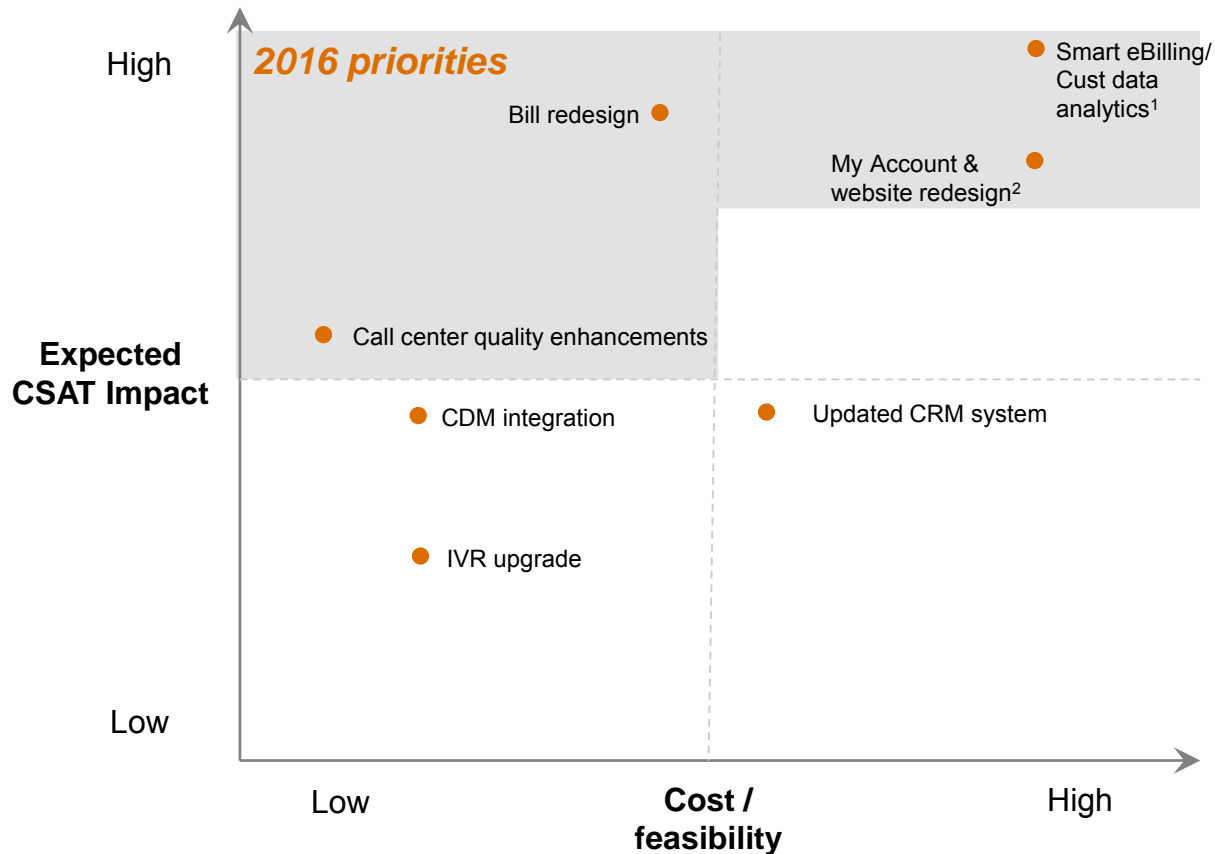
Unmet need	"Deep dive" vignettes follow		Proposed Initiative	Goal addressed	Ops metric to track perf (BIC <sup>1</sup>  Med  H1)	Expected cost/ feasibility	Expected CSAT impact
	Opportunity area	Root cause(s)					
Convenient and capable self-service channels	My Account portal, mobile, Hydro One web	Outdated technology platform; lack of functionality (web & mobile)	Digital engagement – My Account and website	Ease to do business with	% of active My Account users (TBC   60K)	 \$8-12M	 High
	IVR	Current IVR system is complex and lacks advanced features	Upgrade IVR system to introduce additional functionality	Ease to do business with	IVR containment rate (54%  28%  48%)	 \$500K <sup>^2</sup>	 Low
Straightforward bill	Bill format	Current bill format is cumbersome and outdated	Comprehensive bill redesign	Trust	# of annual billing calls per customer (TBC   519K)	 \$4-5M	 High
	Smart e-billing	No effective e-billing solution	Digital engagement – eBilling, alerts, marketing & preference setting	Ease to do business with	% of e-invoices (26%  17%  12%)	 \$6M	 High
Effective call centre issue resolution	Agent skills	Agents not flexible in dealing with customers	Call center quality enhancements (agent training)	Transparent customer engagement	First call resolution (93%  85%  82%)	 <\$1M	 Med
	Agent technology	Agents don't have immediate/easy access to all relevant info to answer queries	Updated CRM system for call center agents	Transparent customer engagement		 \$3-5M <sup>^</sup>	 Med
Affordable power	Usage tools	Insufficient and ineffective tools to manage consumption	Customer data analytics	Value for money	GWH saved (TBC)	 \$4M <sup>*3</sup>	 High
	CDM programs	Insufficient publicity of CDM programs	Integrate CDM programs into call center and digital channels	Value for money	CDM program enrolment (TBC)	 \$250K <sup>^*</sup>	 Med

1. Best In Class. 2. Full IVR overhaul is contemplated in customer roadmap and has an estimated cost of \$5-10M. \$500K estimate encompasses tweaks to existing functionality (i.e. IVR flows) and potentially limited new functionality. 3. Customer data analytics is technically one component of the broader smart e-billing effort, but listed separately here (cost estimate for each component listed separately also).

\* Denotes cost recovery from IESO  
^ Denotes high level preliminary cost estimate

# R&SB: Prioritization of initiatives

Initiatives identified for 2016 based on expected CSAT impact and feasibility



**Initiatives supplemented with robust communications will boost CSAT and help to address customer perception gaps**

1. Listed as separate initiatives on previous slide but technically part of the same project. 2. My Account redesign expected to go live in Q1 2017.

# Well structured communications plan will reduce the gap between perception and performance

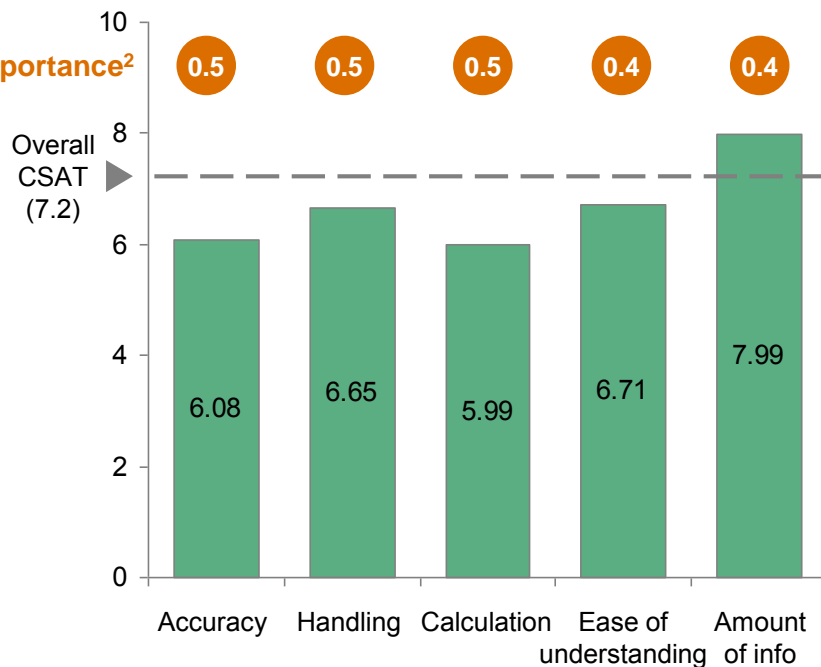
Element	Description
Purpose	<p><b>An opportunity for Hydro One to tell its own story</b></p> <ul style="list-style-type: none"> <li>Engage customers on company's commitment to high performance and customer service</li> <li>Meant to address gap between customer perceptions and H1's performance in key areas <ul style="list-style-type: none"> <li>e.g. billing accuracy</li> </ul> </li> </ul>
Objectives	<p><b>Build public understanding of Hydro One's transformation process</b></p> <ul style="list-style-type: none"> <li>Shift perceptions of H1 from being poorly run to being seen as disciplined and efficient</li> <li>Demonstrate H1's commitment to customer-centricity and desire to be a trusted advisor</li> <li>Humanize the brand by highlighting how employees in local communities are contributing to Hydro One's process of transformation</li> </ul>
Key messages	<p><b>"Get to know (the new) Hydro One"</b></p> <ul style="list-style-type: none"> <li>New leadership and renewed focus on customer service has resulted in significant improvement to Hydro One's performance</li> <li>Hydro One customer service levels are higher than ever before</li> <li>Hydro One has introduced numerous new customer commitments and service guarantees</li> <li>We're investing in new technologies to make the power system more efficient and reliable</li> <li>There is <i>so much</i> behind the scenes work that goes into the delivery of our product / services</li> </ul>

**Communications plan will address brand perceptions, one of the primary drivers of customer satisfaction**

# Deep Dive – Bill redesign: Billing is an important issue for R&SB customers

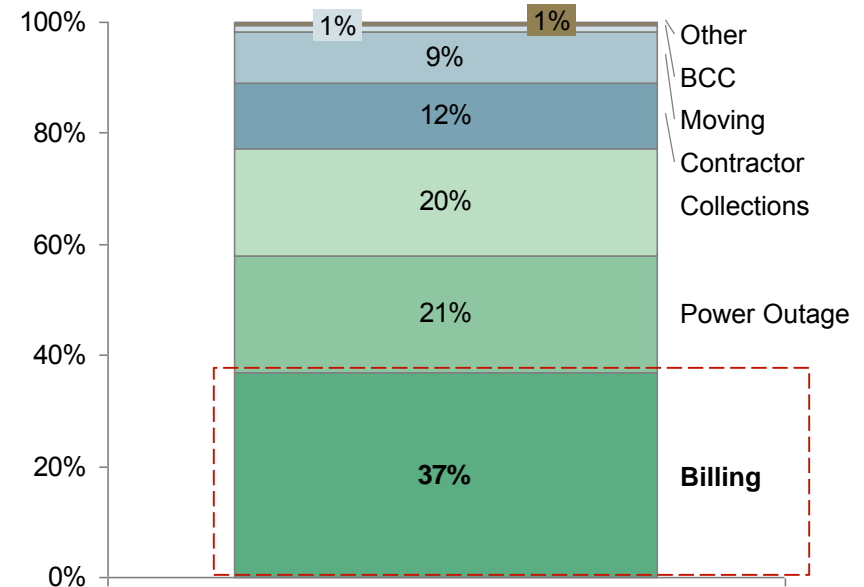
## R&SB satisfaction low across billing topics, especially with important ones

Average CSAT<sup>1</sup>



## Billing makes up 37% of CCC agent-handled call volume

% of agent-handled calls (2015)  
1.40 M



**Challenges with bill understanding could be dragging down accuracy/calculation CSAT, or driving up call volume**

1. All average satisfaction scores have been converted to a 10-pt scale 2. As measured by correlation with overall CSAT  
Source: Hydro One 2015 CSAT/perception survey for R&SB. Hydro One ACD Statistics provided by Ryan Harris Feb 22, 2015

# Hydro One in early stages of billing maturity journey

Two key themes emerge from customers with dissatisfied billing-related inquiries



## Not understanding reasons for high bill

"I feel there is **no reason why the last bill I got was just under \$400**"

"Would like some **explanation as to why my bill was so high**, or some way to tell me what I should be doing to save electricity. It is two seniors"

"We put a **brand new furnace 3 years ago and were told it would be efficient but our bill has gone up since then**"

"I need an explanation why my bill was so high. I told agent **bill in Toronto is less than in my cabin and I don't have an explanation** from them"

"I wanted to find out **what to do about the hydro bill because it was so high**. What we can do to conserve hydro."

## Lack of bill comprehension

"The agent did not explain to me and it took me half and hour or more to get to them. **I want the explanation of my bill**"

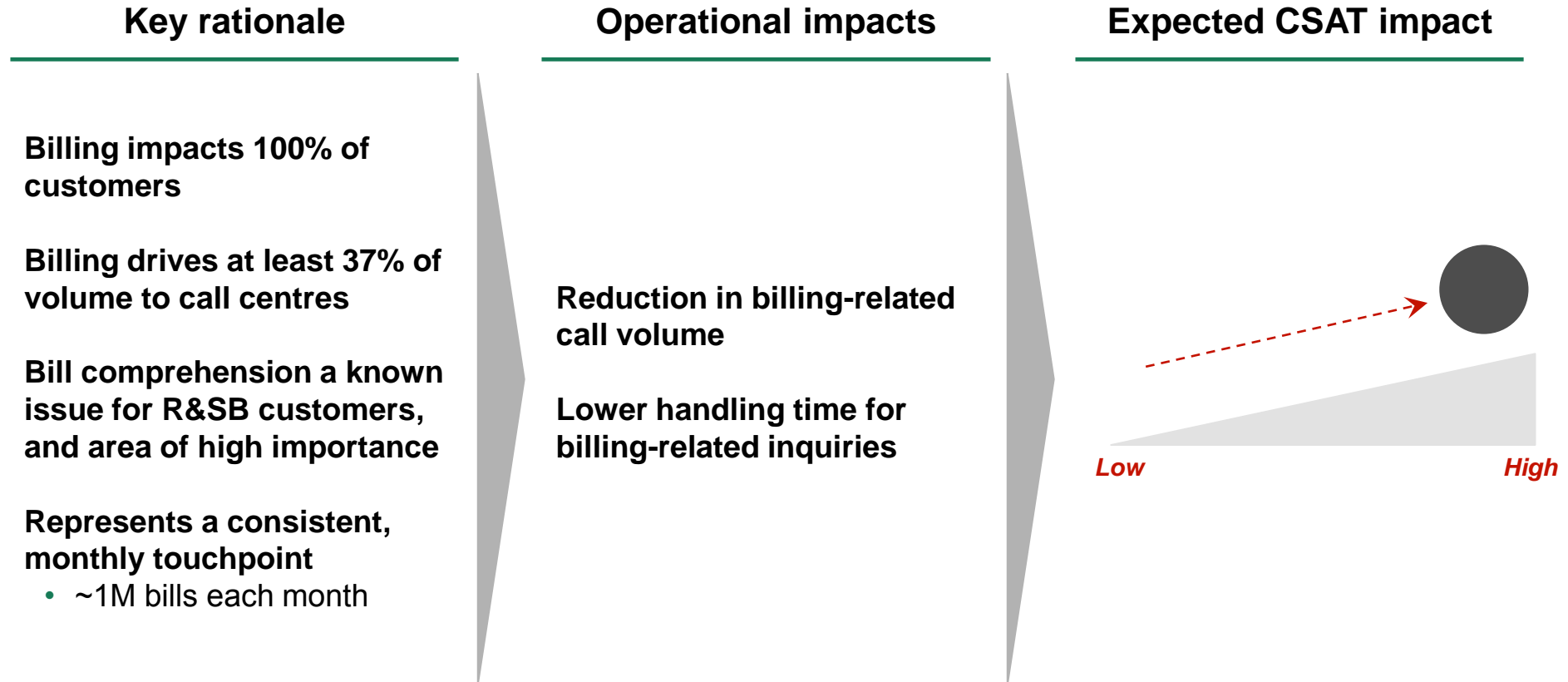
"On one hand, good customer service, they were great. On the other hand, not sure if the system was able to clarify my question. **Unclear billing.**"

"I get frustrated with hydro billing. **Not as clear as it should be**"


"Agent was confusing **had difficulty explaining the bill**. A long drawn out conversation"

"I **don't understand the delivery charge** when it comes through a wire"

# Bill redesign expected to deliver material CSAT impact



# Sample Hydro One bill



Service address:

Your account number: Bill Cycle 11

Billing date: February 4, 2016 Page 1 of 2

**Customer service**

Hydro One Networks Inc.  
PO Box 5700  
Markham, Ontario L3R 1C8

**View your electricity use at**  
[www.HydroOne.com](http://www.HydroOne.com)

For billing and service inquiries, call 1-888-664-9376 Monday to Friday 7:30 a.m. - 8 p.m.

For 24-hour power outages or emergency service, call 1-800-434-1235

Standard Service supplied by Hydro One

**Here's what you owe**

Balance forward	\$0.00
Your new charges	\$240.01
<b>Total amount you owe</b>	<b>\$240.01</b>

The total amount you owe, as indicated on this bill, is due on the billing date. Your payment for this invoice is due on **February 23, 2016** (the Required Payment Date).

If payment is not received by February 23, 2016 (the Required Payment Date), a late payment charge of 1.5% compounded monthly (19.56% per year) will be calculated from the billing date and applied to your next bill.

The Ontario Clean Energy Benefit ends on December 31, 2015. This 10% credit on your bill will no longer apply on electricity you use on or after January 1, 2016.

++ The Debt Retirement Charge was removed for certain residential consumption after December 31, 2015. Learn more at [Ontario.ca/DRC](http://Ontario.ca/DRC).

It just got easier to pay your Hydro One Networks bill. Sign up for epost today to view and pay your bill online. You'll save time, paper and postage. For more details on eBilling, go to [www.HydroOne.com/epost](http://www.HydroOne.com/epost).

For energy efficiency tips to manage your bill visit [www.HydroOne.com/SaveEnergy](http://www.HydroOne.com/SaveEnergy).

Point of Delivery: 11219938


Compare the electricity you are using*	Number of days	Average Daily Electricity Use (kWh)			Average electricity you used per day (kWh)
		On-Peak	Mid-Peak	Off-Peak	
Dec 30, 2015 - Jan 29, 2016	30	6	7	19	32
Nov 28, 2015 - Dec 30, 2015	32	5	6	22	32
Oct 30, 2015 - Nov 28, 2015	29	7	7	19	32
Sep 30, 2015 - Oct 30, 2015	30	7	6	23	36
Aug 29, 2015 - Sep 30, 2015	32	9	6	20	35
Jul 30, 2015 - Aug 29, 2015	30	8	7	22	37
Dec 31, 2014 - Jan 30, 2015	30	6	6	19	32

Please return this slip with your payment. Your account number: **200102542206**

**Total amount you owe \$240.01**

Amount enclosed \$

HYDRO ONE NETWORKS INC.  
PO BOX 4102 STN A  
TORONTO ON M5W 3L3



Service address:

Your account number: Page 2 of 2

**How we calculated your charges**

<b>Balance forward</b>	Amount of your last bill	\$237.61
	Amount we received on January 26, 2016 - thank you	\$237.61 CR
	<b>Balance forward</b>	<b>\$0.00</b>

**Your electricity charges**

Your service type is Residential - Low Density

**Electricity used this billing period**

We read your meter J2401867 on January 29, 2016	096837.2050
We read your meter on December 30, 2015	- 095875.2180
Difference in meter readings	000961.9870
Metered usage in kilowatt-hours (961.9870 x 1) =	961.9870 kWh

Electricity: On-Peak: 185.2350 kWh @ 17.5000 ¢	\$32.42
Mid-Peak: 209.1830 kWh @ 12.8000 ¢	\$26.78
Off-Peak: 567.5690 kWh @ 8.3000 ¢	\$47.11
Delivery	\$100.57
Regulatory Charges	\$8.60
Debt Retirement Charge++	\$0.43
HST (87086-582 I-RT0001)	\$27.81
<b>Total of your electricity charges</b>	<b>\$241.72</b>
Ontario Clean Energy Benefit	\$1.71 CR
<b>New total of your electricity charges</b>	<b>\$240.01</b>

++ Debt Retirement Charge exemption saved you \$6.30.

**Electricity** : This is the cost of the electricity supplied to you during this billing period and is the part of the bill that is subject to competition.

**Delivery** : These are the costs of delivering electricity from generating stations across the Province to Hydro One then to your home or business. This includes the costs to build and maintain the transmission and distribution lines, towers and poles and operate provincial and local electricity systems. A portion of these charges are fixed and do not change from month to month. The rest are variable and increase or decrease depending on the amount of electricity that you use.

The delivery charge also includes costs relating to electricity lost through distributing electricity to your home or business.\* Hydro One collects this money and pays this amount directly to our suppliers.

\*When electricity is delivered over a power line, it is normal for a small amount of power to be consumed or lost as heat. Equipment, such as wires and transformers, consumes power before it gets to your home or business.

**Regulatory Charges** : Regulatory charges are the costs of administering the wholesale electricity system and maintaining the reliability of the provincial grid and include the costs associated with funding Ministry of Energy and Infrastructure conservation and renewable energy programs.

**Debt Retirement Charge** : The debt retirement charge pays down the debt of the former Ontario Hydro.

NOTE: For a detailed explanation of electricity terms, please visit [www.HydroOne.com](http://www.HydroOne.com) or [www.ontarioenergyboard.ca](http://www.ontarioenergyboard.ca).

\*Your consumption is based on metered use. Historically this was based on adjusted use.

# Observations from PowerStream and Toronto Hydro bills

## Key Observations

- **1 page**, with medium-high information density
- Amount due jumps out at top of bill
- Usage data presented in **graphical format**
- **Free of any long-form text**

PowerStream Energy Services  
P.O. Box 95600 RPO Newmarket CTR  
Newmarket ON L3Y 8J8  
Tel. 1-855-952-5280  
Fax: 905-952-5290  
Website: www.powerstreamenergy.com

**PowerStream Energy Services**

Account Number: 0001234500  
Name: JOE SMITH  
Service Address: 100 CITY VIEW 301

Statement Date: April 23, 2015  
Due Date: May 13, 2015  
Bill Type: REGULAR

**Bill at a Glance**  
**\$37.30**

**Monthly usage - Electricity kWh**

Month	kWh
April 16, 2015	41.38
March 15, 2015	124.14
February 15, 2015	82.76
January 15, 2015	124.14
December 16, 2014	165.52
November 16, 2014	165.52

Ontario Clean Energy Benefit takes 10% off the cost of up to 3,000 kWh/month of electricity use. Some exceptions apply, please see Ontario.ca/OCEB or 1-888-668-4636. To learn more about how Ontario is building a strong, clean electricity system, visit Ontario.ca/energyplan.

**Monthly usage - Water Metres<sup>3</sup>**

Month	Metres <sup>3</sup>
April 16, 2015	3.24
March 15, 2015	0.00
February 15, 2015	0.00
January 15, 2015	0.00
December 16, 2014	0.00
November 16, 2014	0.00

**Electric Meter** Number PWST176033  
**Water Meter** 71861601

**Current Reading/Read Date** 00080 / 16-04-15  
**Previous Reading/Read Date** 00079 / 16-03-15  
**Multi** 40

**PREVIOUS BALANCE** \$52.78  
**PAYMENT 03/30/2015** -\$52.78  
**BALANCE FORWARD** \$0.00

CHARGES	RATE	USAGE	AMOUNT
Winter Energy Tier 1	0.088000	40.0000	\$3.52
Delivery Charge			\$15.24
Regulatory Charges			\$0.24
Debt Retirement Charge			\$0.28
<b>Total</b>			<b>\$19.28</b>

WATER CHARGES	RATE	USAGE	AMOUNT
Town Water Block 1	3.454000	3.2400	\$11.19
Water Delivery Charge			\$6.50
<b>Total</b>			<b>\$17.69</b>

**A TOTAL UTILITY CHARGES**

Electricity Charges	\$19.28
Water	\$17.69
<b>Subtotal</b>	<b>\$36.97</b>

**B OTHER CHARGES**

<b>Subtotal</b>	<b>\$0.00</b>
-----------------	---------------

**TOTAL CHARGES (A+B)** **\$36.97**  
HST (803930734 RT0001) \$2.51  
Ontario Clean Energy Benefit -\$2.18  
**Total** **\$37.30**

**Toronto Hydro-Electric System Limited**  
**YOUR ELECTRICITY BILL**

Account Number: 8412201575  
Premise number: 8412201575  
Meter Number: 416.542.8000

Statement Date: Feb 17 2016  
Amount Due: \$72.68  
Due Date: Mar 08 2016  
Amount Paid: \$0.00

Interest will be charged on any amount not received by the due date at the rate of 1.5% compounded monthly (19.56% per annum) from the due date until receipt of such amount and all accrued interest.

Service Location: **Your Electricity Charges**

**Electricity**  
\*\*\*\*Electricity supplied by Toronto Hydro through Standard Supply Service, Billing Inquiries: (416) 542-8000

**Time of use - Winter**

56.202 kWh On-peak (Highest Price) @ \$0.175 / kWh	9.84
28.654 kWh Mid-peak (Mid Price) @ \$0.128 / kWh	3.67
206.144 kWh Off-peak (Lowest Price) @ \$0.063 / kWh	17.11

**Delivery** 31.63  
**Regulatory** 2.07  
**Debt Retirement Charge<sup>1</sup>** 0.00

**Your Total Electricity Charges** **64.32**  
**H.S.T. (H.S.T. Registration)** **8.36**

**Your Previous Charges**  
Amount of last bill: 73.97  
Payment Received Jan 18 2016 - Thank You: 73.97 CR  
**Balance Forward** **0.00**

**Total Amount Due by Mar 08 2016** **\$72.68**

**Compare your daily usage**

Read Date	kWh Usage
10 FEB 16	291
10 JAN 16	326
10 DEC 15	239
10 NOV 15	230
10 OCT 15	284
10 SEP 15	388
10 AUG 15	305
10 JUL 15	238
10 JUN 15	232
10 MAY 15	210
10 APR 15	230
10 MAR 15	340
10 FEB 15	344
10 JAN 15	314
10 DEC 14	300

**Time of use Comparison**

Read Date	Current Period (kWh)	Same Period Last Year (kWh)
10 FEB 16	291	314

Our Conditions of Service document is changing. Learn more at [torontohydro.com/conditions/service](http://torontohydro.com/conditions/service)

**Your electricity usage**

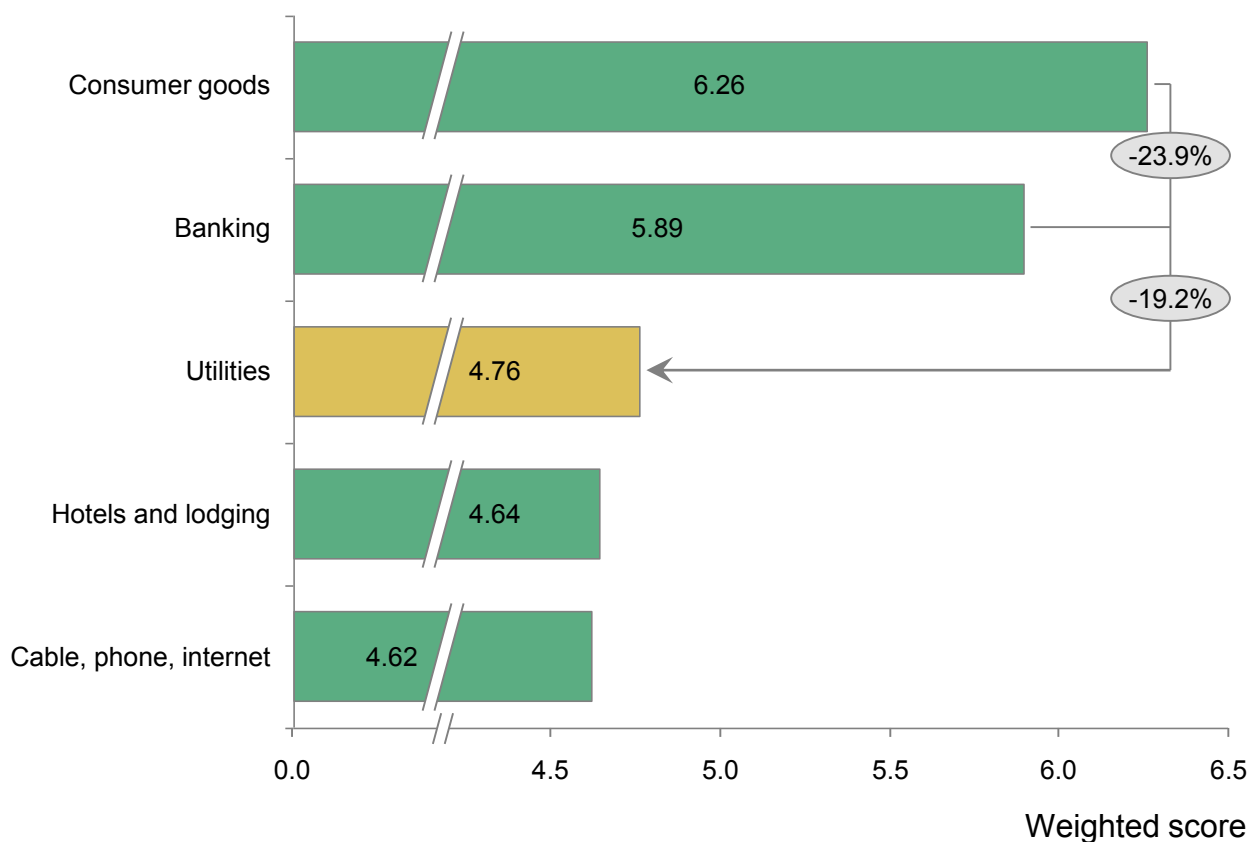
Meter Number	Meter Reading Period	Number of Days	Read Type	Current Reading	Previous Reading	Billing Mult.	kWh Used	Loss Factor Adjustment	Adjusted kWh Used
	JAN 10 2016 TO FEB 10 2016	31	Ad.	4747	4458	1	291	1.0376	301.941

<sup>1</sup> The Debt Retirement Charge was removed for certain residential consumption after Dec. 31, 2015. Learn more at Ontario.ca/DRC. Debt Retirement Charge exemption saved you \$2.04

Source: PowerStream website. Toronto Hydro customer (bill sanitized)

G2G\_SteerCo2\_Feb25\_vF.pptx

# Digital capabilities of utilities considered far behind companies in banking & consumer sector

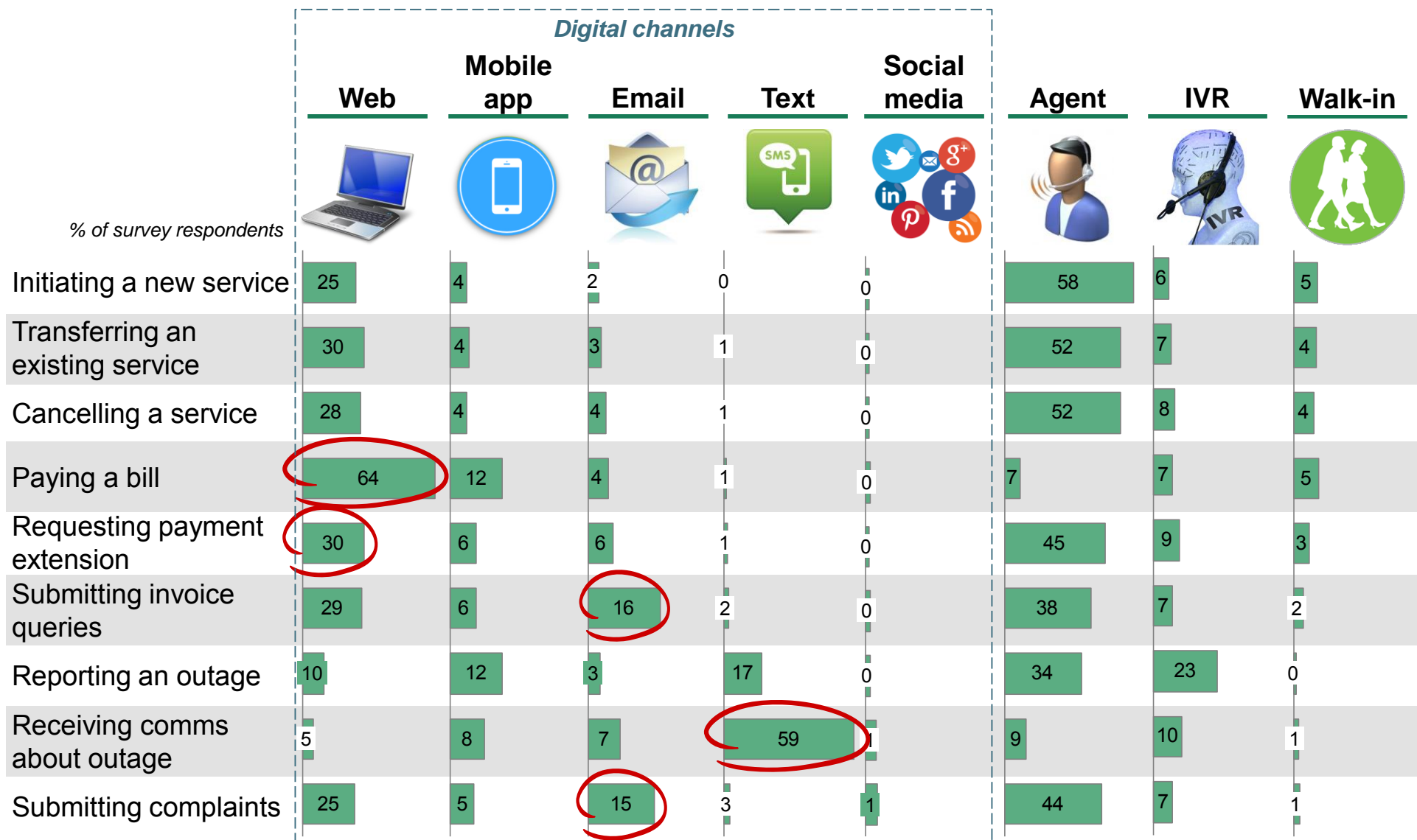


Hydro One's **weak digital offerings & capabilities** potentially **driving** customers towards **non-digital channels**, limiting widespread adoption to-date and **dragging down CSAT**

**All companies are investing to improve digital experience and setting ever increasing customer expectations**

# Customers prefer using digital channels for many interactions

Building this capability could positively impact CSAT



Source: BCG case experience

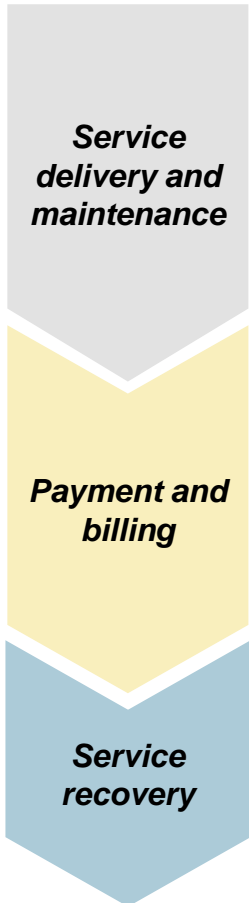
G2G\_SteerCo2\_Feb25\_vF.pptx



















































THE BOSTON CONSULTING GROUP

Draft—for discussion only Page 29 of 83 28

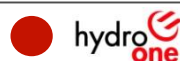
# Outside-in benchmarking confirms Hydro One gaps in digital performance to other utilities & sectors

Further benchmarking of H1 digital channels in appendix



Activity	Description	Digital performance assessment <sup>1</sup>
Service initiation	Ease of service initiation through available digital channels	Poor          Excellent
Service transfer	Ease of service transfer through available digital channels	Poor        Excellent
Service cancellation	Service cancellation through digital channels	Poor          Excellent
Maintenance / technical services	Maintenance / technical services initiation and tracking through digital channels	Poor          Excellent
Billing	Ability to receive bills from digital channels	Poor          Excellent
Bill inquiries	Ability to submit bill inquiries through digital channels	Poor          Excellent
Payment	Ability to pay bills through digital channels	Poor          Excellent
Payment extension	Ability and ease to obtain a payment extension through digital channels	Poor        Excellent
Service renewal	Ability to request service renewal after non-payment through digital channels	Poor        Excellent
Service restoration – inbound from customers	Ability to request service restoration post-emergency through digital channels	Poor        Excellent
Disruption communication – outbound	Level of service provider initiated digital communication with customers during service disruption	Poor        Excellent
Complaints	Customers' ability to use digital channels to submit complains to the service provider	Poor          Excellent

Legend:



<sup>1</sup> Assessments of Centrica, Apple, Amazon and Verizon based on BCG Case Experience

# Commercial and Industrial (C&I): Unmet customer needs and supporting proof points

## Unmet needs

## Key proof points

### Understanding of customers' businesses

Ensure Agents understand customer needs and can adjust approach accordingly

- **Agent training:** Low satisfaction on "Listens to customers, adjusts to meet needs" (5.8/10) and "Demonstrates concerns for customers" (6.2/10), and both have strong importance to overall CSAT (0.6 for both)<sup>1</sup>
- Interviews highlighted that:
  - Agents are **overly transaction focused**
  - **Better understanding of needs, flexibility in call handling** important for C&I customers.

### Tools to enable / aid in decision-making

Empower customers to make sense of their usage data

- **Business portal:** Online portal with usage data growing in use **but not user friendly**
  - **Needs to cater to a broader array of users**
  - There is **no direct link between the usage data and CDM programs**

### Affordable power

Provide tools / alternative to help customers manage consumption

- **Rates:** "**Rates**" most commonly cited issue/need for Hydro One to address in survey (30% of respondents mentioned it), has **moderate importance to overall CSAT (0.4)**<sup>1</sup>

### Accurate bills

Proactively notify customers if affected by known billing issues

- **Bills:** Moderate satisfaction (7.7/10) and importance to overall CSAT (0.4)<sup>1</sup>
- Although billing accuracy is >98% target, **1% of customers can't be issued a bill, have an estimated bill or suffer from defective meter**<sup>2</sup>

1. Hydro One 2015 CSAT/perception survey for C&I 2 Interviews with Hydro One stakeholders Note: All average satisfaction scores have been converted to a 10-pt scale  
Sources: Hydro One 2015 perception survey. Interviews (internal and external experts). BCG Energy Retail Benchmark 2015. BCG analysis and experience.

# Large Distribution Accounts (LDA): Unmet customer needs and supporting proof points

## Unmet needs

### Keeping commitments in a timely manner

Customers see coordinated approach and regular progress

### Reliability and quality

Provides customized and relevant info on investments

### Tools to enable/aid in decision making

Access to real time data and analytics via Biz. portal

### Affordable power

Choice of CDM programs

## Key proof points

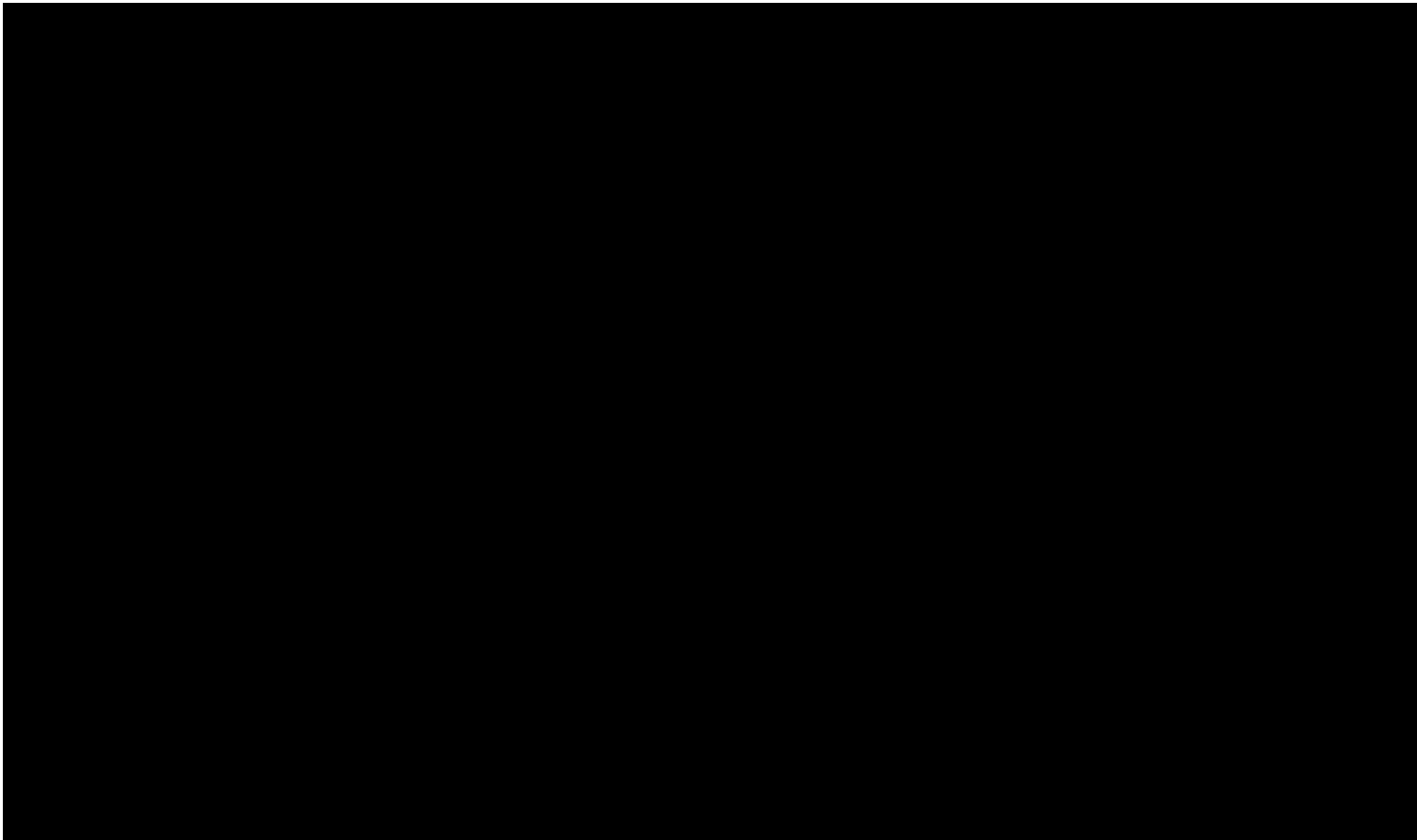
- **Internal processes:** Key processes (e.g. capacity) **require coordination of multiple internal groups**
  - Processes can drag out and no timeline for response provided to customer
- **Stakeholder support:** Surveys highlight low avg. satisfaction of 6.9/10 with decision making, strong importance (0.6) to overall CSAT<sup>1</sup>
  - "Dissatisfied with **overall Hydro One performance**, but I am also sensitive to the fact that our local representatives can only do so much to help us. *If executives are not on board local reps are powerless*" – LDA customer
- **Improved reliability:** "Reliability" is #1 most commonly cited need/issue for Hydro One to address, strong correlation (0.6) to overall satisfaction. "Power quality" 3<sup>rd</sup> most cited<sup>1</sup>
  - e.g., when asked why overall CSAT rating changed during survey: *"I was thinking about how many times the power went out and adding it in my head"*
- **Business portal:** Business customer portal lacks real time data (24-48h delay) to aid decision-making and has performance issues; driven by limitations in Meter Data Management Repository
  - Some customers have engaged third parties to pull real time data off meters because Hydro One can't provide
- **CDM programs:** Surveys indicate low satisfaction (6.8/10) with "providing energy conservation programs" and moderate importance (0.5) to overall satisfaction<sup>1</sup>
- Customers looking for a menu of CDM efforts

1. Hydro One 2015 CSAT/perception survey for LDA

Note: All average satisfaction scores have been converted to a 10-pt scale

Sources: Hydro One 2015 perception survey. Interviews (internal and external experts). Operational Benchmarking. BCG Analysis

# Transmission (Tx):



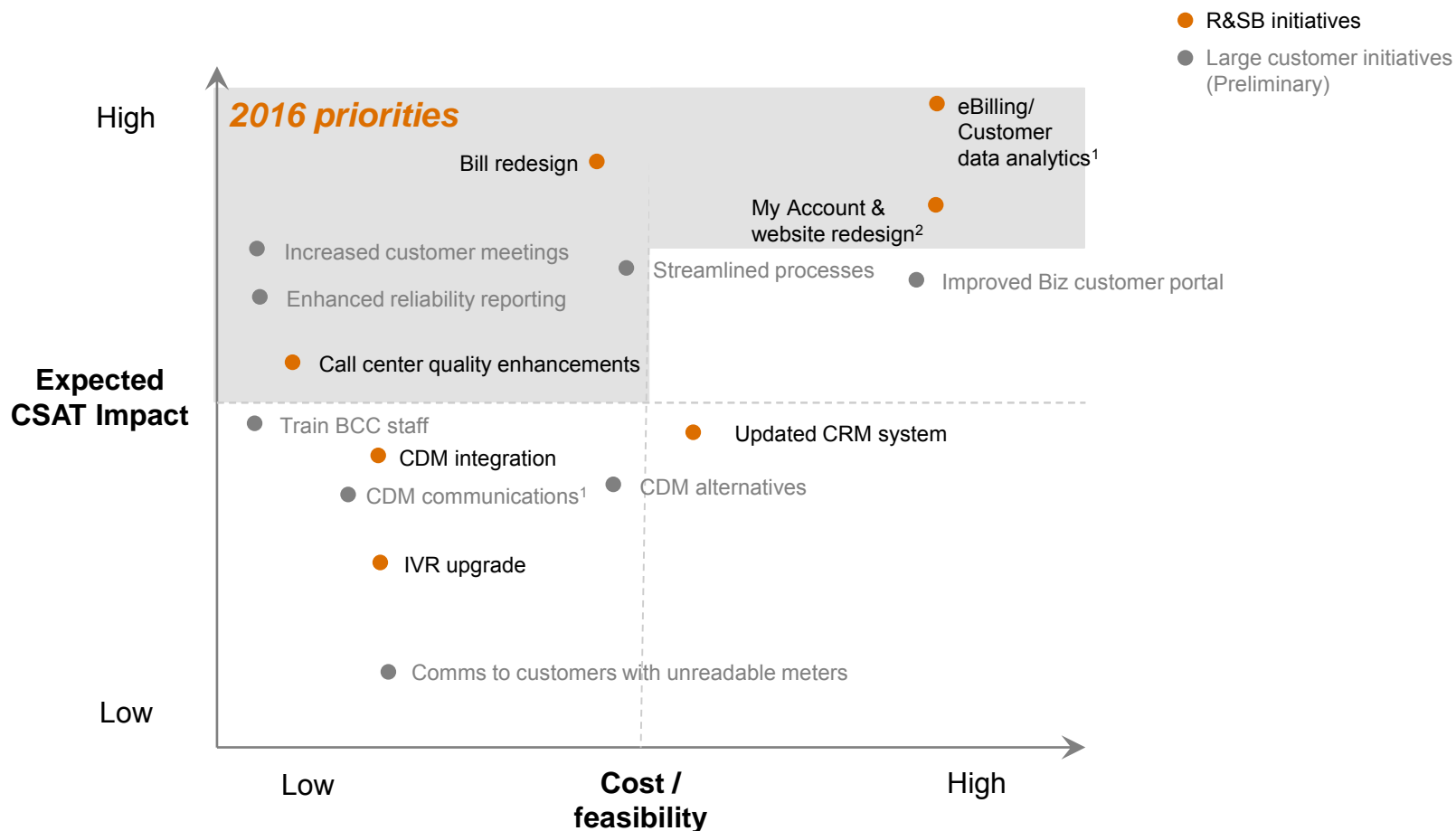
# Large cust: Proposed initiatives to address unmet needs

Preliminary list to be refined in coming weeks

Unmet need	Opportunity area	Root cause(s)	<b>DRAFT</b> Initiative to address	Segment affected	Ops metric to track performance (BIC <sup>1</sup>   Med   H1)	Expected cost / feasibility	Expected CSAT impact
Understanding of customers' business	Agent skills	CC staff transaction focused, inflexible	Training for BCC staff on call handling/large customer needs	C&I	First call resolution (BCC) (93%   85%   73%)		
Tools to enable / aid in decision-making	Web portal	Incompatible internal systems; old technology	Improve business customer portal to facilitate real time usage	C&I, LDA	% of active portal users (TBC)		
Accurate billing	Communications	Can't read meter due to comms capability	Communications / engagement plan for affected customers	C&I	Billing accuracy % (TBC   99%)		
Affordable power	CDM programs	High rates	Comprehensive communications plan around CDM alternatives	C&I, LDA	TBC		
Keeping commitments in timely manner	Process improvements	Complex approval processes; lack of customer focus and accountability	Improve standardized processes/introduce service standards. Inside service desk to support Account Executives	LDA, Tx	% of commitments met (TBC)		
Reliability and quality	Reliability	TBC	Enhanced reporting to customers on reliability performance	LDA, Tx	# of reports per customer (TBC)		
Access to energy conservation programs / customized advice	CDM programs	TBC	Communications program on CDM programs. Explore service opportunities (Tx)	LDA, Tx	# of customer meetings on CDM (TBC)		

1. Best in Class  
Note: CC = Call Centre. TBC = To Be Confirmed  
G2G\_SteerCo2\_Feb25\_vF.pptx

# All segments: preliminary prioritization of initiatives



**Placement of large customer initiatives is preliminary and will be refined further in coming weeks**

1. For Tx, this would first require a change in government directive (no change required for LDA). Feasibility estimated independent of this. 2. My Account redesign expected to go live Q1 2017.

# Next steps

## Deliverables for SteerCo 3

- Defined benchmarks for R&SB operational metrics
- Refined list of initiatives defined for C&I, LDA & Tx customer segments
  - Including performance metrics and assessment of CSAT impact
  - Cost estimates for all initiatives
- Prioritized 2016 plan
  - Prioritization done on full portfolio across all segments

## Deliverables for SteerCo 4

- Final updates to 2016 plan
  - Based on feedback from SteerCo 3
- Quarterly cost and impact profile
- High level implementation planning roadmaps for 2016 plan. For each initiative:
  - Assigned owner, roles and responsibilities
  - 3-5 key milestones
  - Initial planning and implementation timeline
- Define high level framework for Dx regulatory customer consultation plan

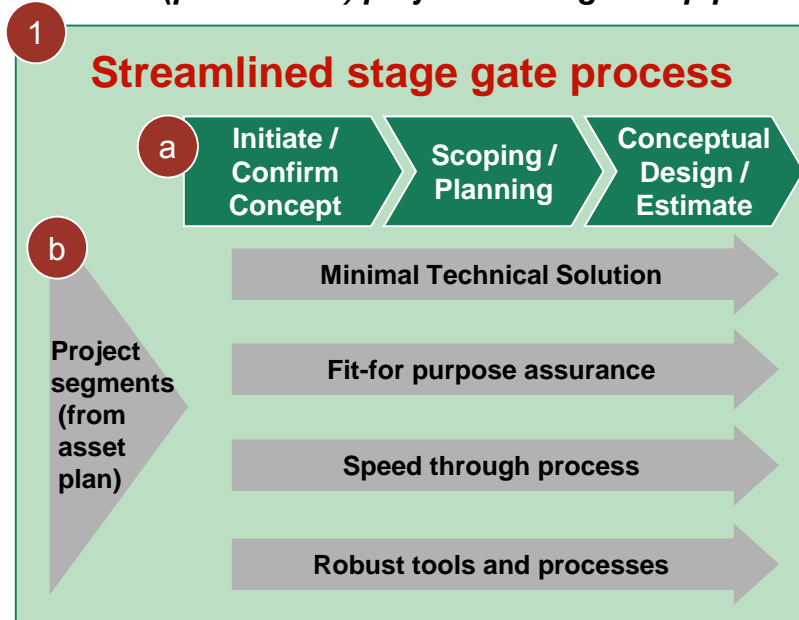
# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (9:00-9:10)
<b>Regulatory:</b> Tx Filing consultation materials	Oded Hubert & Mike Penstone	<b>35 min</b> (9:10-9:45)
<b>Service delivery</b>		
• <b>Customer:</b> needs assessment & prioritization of R&SB initiatives	Rob Quail	<b>30 min</b> (9:45-10:15)
• <b>Capital efficiency:</b> delivery model options (rapid update)	Brad Bowness	<b>10 min</b> (10:15-10:25)
<b>OM&amp;A efficiency</b>		
• <b>Procurement:</b> opportunity sizing summary & proposed waves	Gary Schneider	<b>15 min</b> (10:25-10:40)
• <b>Org effectiveness:</b> benchmarks & bottom up sizing summary	Judy McKellar	<b>30 min</b> (10:40-11:10)
• <b>Labour strategy:</b> diagnostic findings (rapid update)	Nadine O'Neill	<b>10 min</b> (11:10-11:20)
• <b>O&amp;M efficiency:</b> initial diagnostic findings (rapid update)	Jon Rebick	<b>10 min</b> (11:20-11:30)
• <b>Quick Wins:</b> confirmed wins to-date & launch of initiative tracking	Stefanie Stocco	<b>10 min</b> (11:30-11:40)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> plan overview & manager's toolkit	Laura Cooke	<b>15 min</b> (11:40-11:55)
• <b>Next steps:</b> SteerCo 3	Stefanie Stocco	<b>5 min</b> (11:55-12:00)

# Recap: Three focus streams in Capital Efficiency

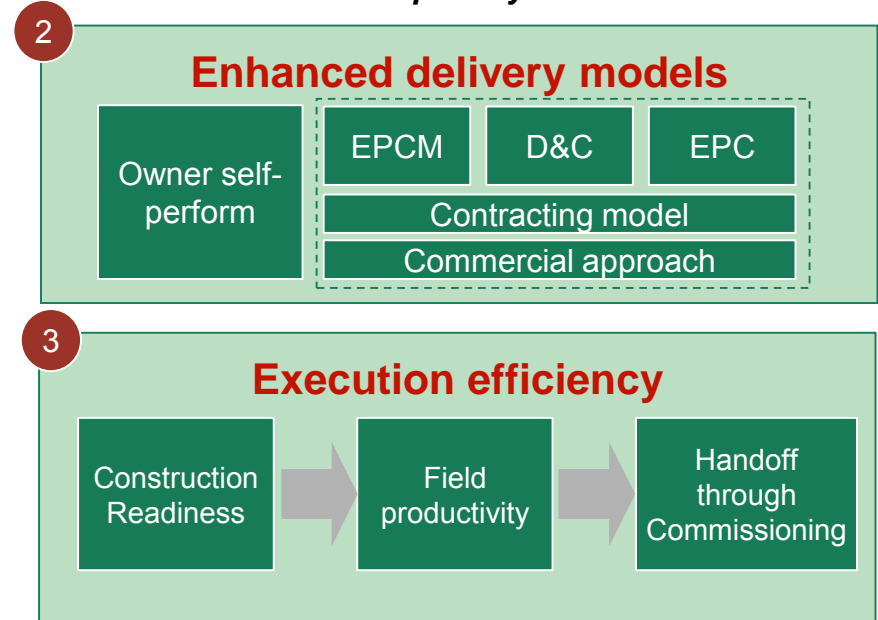
## Project development

*More (predictable) projects through the pipeline*



## Project delivery

*Enhanced capability to deliver*



Objectives of today's discussion

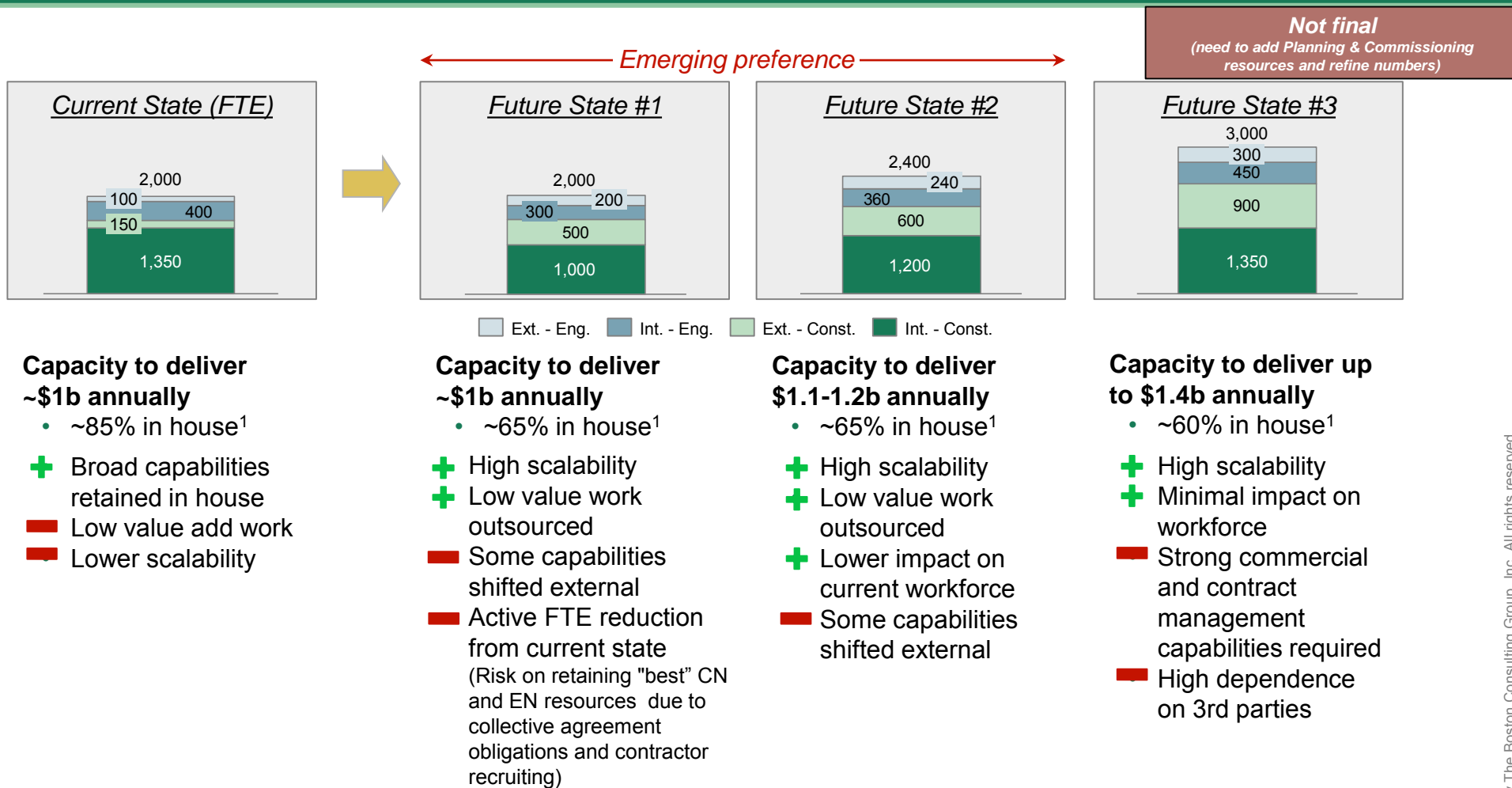
For guidance from the SteerCo

For information

Discuss emerging delivery model changes and implications

Review initial Stage Gate process findings

# For guidance: emerging future state delivery models



**All future states see the retention of internal engineering & direct-hire construction workforces**

1. Includes contract direct trades

# Emerging areas of opportunity from stage gate workshop

*ECS has identified and addressed several pain points across the stage gate process over the past 6-9 months; additional opportunities outlined below will continue to help drive step-change improvement in project cycle time*

Description	Impact
<b>1</b> Earlier scoping and planning to optimize execution and confirm regulatory submission accuracy	<b>Reduced variability across projects</b> <ul style="list-style-type: none"> <li>Goal to have all projects through BEST phase ahead of rate filings</li> </ul>
<b>2</b> Update and formalize deliverables and requirements for approval at each stage gate <ul style="list-style-type: none"> <li>Consistent "master" list of documents</li> <li>Clear guidelines for required levels of accuracy</li> </ul>	<b>Improved approval time between gates</b> <ul style="list-style-type: none"> <li>Clear decision based on adherence to requirements</li> </ul> <b>Reduced variability across projects</b>
<b>3</b> Establish cross-functional, Director-level "Project Committee" to approve projects at each gate <ul style="list-style-type: none"> <li>Oversight across project lifecycle</li> <li>Alignment on strategic fit, risks, etc. across departments</li> </ul>	<b>Reduced amount of "re-work"</b> <ul style="list-style-type: none"> <li>Directors afforded visibility early in project lifecycle</li> </ul>
<b>4</b> Institute "fit-for-purpose" gating approach <ul style="list-style-type: none"> <li>Reduced gate readiness burden for select projects / project segments based on established criteria</li> </ul>	<b>Improved project delivery time</b> <b>Reduced amount of "re-work"</b> <ul style="list-style-type: none"> <li>Clear incentive to meet establish criteria necessary to qualify for accelerated gating</li> </ul>

**Identified opportunities address Capital Efficiency objectives to *optimize timing* and *reduce variability* of projects**

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (9:00-9:10)
<b>Regulatory:</b> Tx Filing consultation materials	Oded Hubert & Mike Penstone	<b>35 min</b> (9:10-9:45)
<b>Service delivery</b>		
• <b>Customer:</b> needs assessment & prioritization of R&SB initiatives	Rob Quail	<b>30 min</b> (9:45-10:15)
• <b>Capital efficiency:</b> delivery model options (rapid update)	Brad Bowness	<b>10 min</b> (10:15-10:25)
<b>OM&amp;A efficiency</b>		
• <b>Procurement:</b> opportunity sizing summary & proposed waves	Gary Schneider	<b>15 min</b> (10:25-10:40)
• <b>Org effectiveness:</b> benchmarks & bottom up sizing summary	Judy McKellar	<b>30 min</b> (10:40-11:10)
• <b>Labour strategy:</b> diagnostic findings (rapid update)	Nadine O'Neill	<b>10 min</b> (11:10-11:20)
• <b>O&amp;M efficiency:</b> initial diagnostic findings (rapid update)	Jon Rebick	<b>10 min</b> (11:20-11:30)
• <b>Quick Wins:</b> confirmed wins to-date & launch of initiative tracking	Stefanie Stocco	<b>10 min</b> (11:30-11:40)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> plan overview & manager's toolkit	Laura Cooke	<b>15 min</b> (11:40-11:55)
• <b>Next steps:</b> SteerCo 3	Stefanie Stocco	<b>5 min</b> (11:55-12:00)

# Executive summary: Procurement

## Estimating procurement opportunity at \$37 - 83M

- Represents 5-11% of ~\$770M addressable spend (vs \$1.4B total spend) across 27 sourceable categories

**For each category, defined the approach / lever set and estimated gains based on benchmarks, starting point, category profile, vendor landscape and insight from the procurement team**

## Proposing to tackle the opportunity in 4 waves

- Wave 1 – launching now (\$11-24M): transformers, general hardware, staff augmentation, IT software, and professional services<sup>1</sup>
- Wave 2 – launching end Q2 (\$8-20M): engineered hardware, engineering and EPC services, construction services, and real estate
- Wave 3 – launching end Q3 (\$7-18M): electrical hardware, equipment rentals, enviro. services, and telecom
- Wave 4 – launching end Q4 (\$9-16M): fleet, IT hardware, construction materials, office supplies, travel & entertainment

**Prioritization into waves takes into account gain vs ease, readiness and interdependencies, range of levers (for capability embedment), and resource availability**

1. (as part of "quick wins" workstream)

# Procured spend baseline: \$2.8B total, \$1.4B controllable

Defined 27 sourceable categories to structure effort

2015 Total Spend (\$M)	Category	Spend (\$M)	Description
2,755	Fleet	148	Fuel and maintenance services (e.g. [REDACTED] contract), and all light and heavy duty vehicles
<b>Inergi (\$195M)</b>	Electrical Hardware	120	Hardware relevant to utilities (bare conductor, line hardware, fasteners, connectors, etc.)
<b>Uncontrollable<sup>1</sup> (\$1,190M)</b>	Transformers	118	Power, station, pad, pole, and instrument transformers and transformer parts
Taxes, Independent Electricity System Operator (IESO), OEF Debt Retirement, OEB Fees, Utility Charges	EPC services	115	Services provided across the full scope of engineering, procurement, and construction
	Construction Services	91	Cost-plus construction services and turnkey contracts
	Engineered Hardware	74	Heavily engineered hardware (circuit breakers, insulators, switches, fuses, etc.)
	Telecom	72	"Hydro One Telecom" network equipment and corporate telecom services
	Professional Services	64	Finance, HR, legal, marketing, consulting and other professional services
	Equipment Rentals	63	Operated or non-operated equipment ranging from light equipment to cranes
	Staff Aug.	60	External contract staff utilized across IT, finance, legal, etc.
	Facilities Mgmt.	51	Upkeep and management of Hydro One properties, primarily [REDACTED]
	Enviro. Services	42	Environmental services including hydrovac and remediation services
	Meters and Parts	37	Metering equipment and additional parts, primarily [REDACTED]
	IT Software	36	Software applications, licenses, maintenance, and support
	General Hardware	35	General "off the shelf" equipment and parts
	Construction Materials	32	Raw materials primarily used for construction (concrete, rebar, lumber, etc.)
	IT Hardware	29	Servers, personal computers, cables, and other hardware
	Transport Services	27	Transport and freight costs including trucking, rail, air, and barge
	Remotes Supply Fuel	27	Fuel consumed by power generation for Remotes
	Engineering Services	20	Cost-plus engineering and project management services
	Real Estate	20	All yearly costs for owned or leased properties
	Wood Poles	20	Wooden utility poles, supplied by [REDACTED]
	Steel Fabs.	18	Steel fabrications and parts for transmission towers and structures
	Travel & Ent.	17	Air, rail, and vehicle transportation, hotels, and other reimbursable travel expenses
	PCT in a box	16	PCT equipment and control panels, primarily by [REDACTED] and [REDACTED]
	Mailing & Courier	13	Postage and shipping services primarily for billing
	Office Products	6	Furniture, printing, and office supplies
<b>Controllable (\$1,370M):</b>			
<b>OM&amp;A: ~\$370M</b>			
<b>CAPEX; ~\$1,000M</b>			

1. Items where no procurement event occurs

Source: Hydro One Jan 1, 2015 – Dec 31, 2015 total spend

G2G\_SteerCo2\_Feb25\_vF.pptx

# Procurement: total opportunity \$37 - 83M

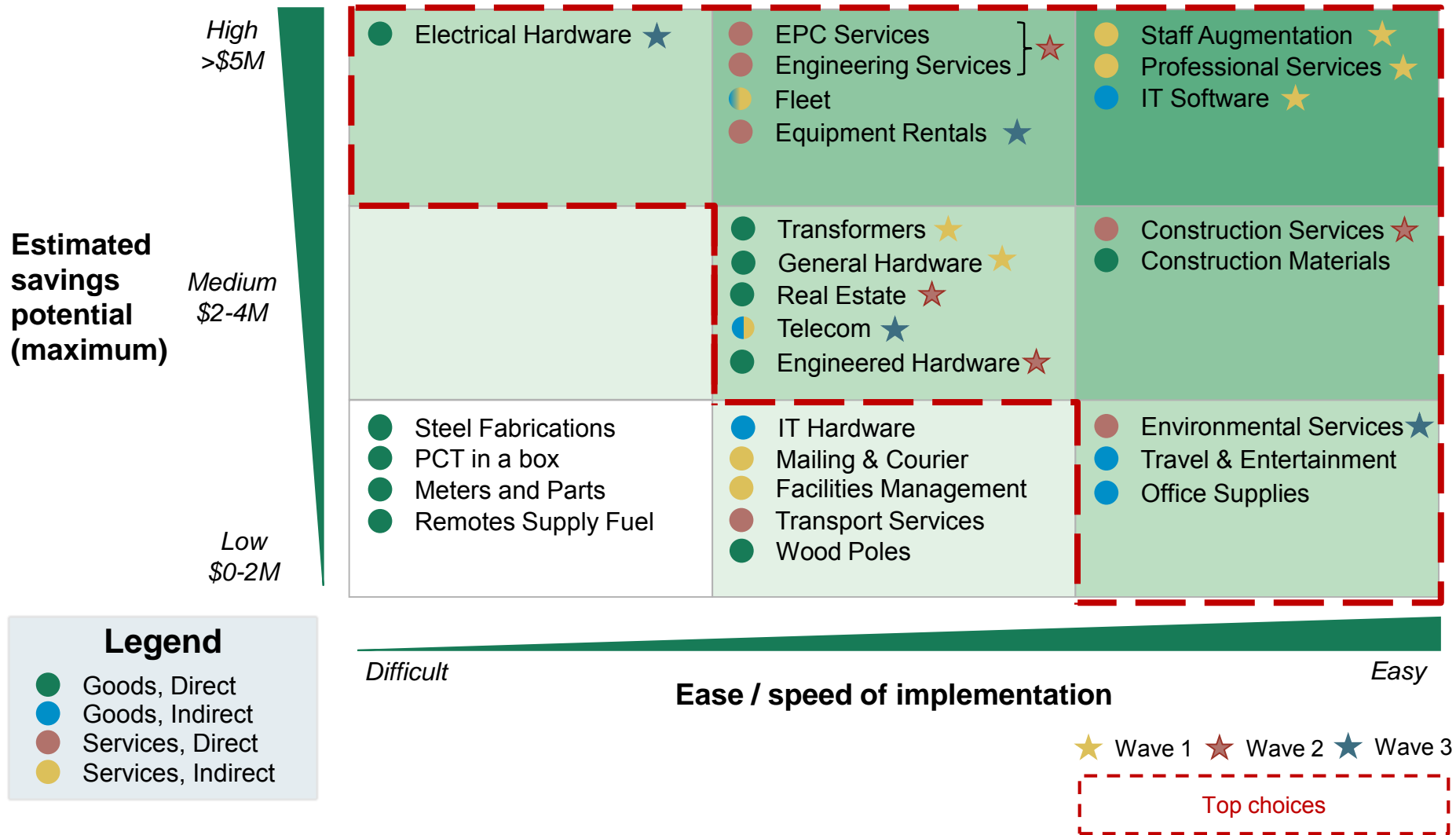
Represents 5-11% savings potential on addressable spend of \$768M

Category	OM&A (%)	Spend (\$M)	Add. (\$M)	Savings (%)	Savings Potential (\$M)
Electrical Hardware	5%	120	62	5 - 15	3  9
EPC Services	0%	115	55	10 - 15	6  8
Engineering Services	0%	20	20	10-15	2  3
Fleet	10%	148	112	5 - 7	6  8
Staff Aug.	20%	60	45	5 - 15	2  7
Professional Services	95%	64	26	10 - 20	3  5
Equipment Rentals	15%	63	50	5 - 10	3  5
IT Software	85%	36	30	5 - 15	2  5
Transformers	0%	118	42	5 - 10	2  4
Construction Services	10%	91	70	2 - 5	1  4
General Hardware	20%	35	22	10 - 15	2  3
Real Estate	100%	20	20	5 - 15	1  3
Construction Materials	5%	32	27	5 - 10	1  3
Telecom	75%	72	50	0 - 5	3
IT Hardware	20%	29	15	5 - 15	1  2
Enviro. Services	35%	42	22	5 - 10	1  2
Engineered Hardware	0%	74	20	5 - 10	1  2
Travel & Ent.	100%	17	8	10 - 20	1  2
Mailing & Courier	100%	13	12	0 - 10	1
Facilities Mgmt.	65%	51	10	0 - 10	1
Wood Poles	0%	20	20	0 - 5	1
Transport Services	20%	27	9	5 - 10	1
Steel Fabs.	0%	18	18	0 - 5	1
Office Supplies	95%	6	3	5 - 15	0
PCT in a box	0%	16	0	0	0
Meters and Parts	20%	37	0	0	0
Remotes Supply Fuel	100%	27	0	0	0
<b>Total</b>	<b>26%</b>	<b>1371</b>	<b>768</b>	<b>5 - 11</b>	<b>37 - 83</b>

Source: Hydro One Jan 1, 2015 – Dec 31, 2015 total spend, BCG analysis

# Prioritization waves: potential vs ease

Waves 1 and 2 address goods and services with the highest potential



# Proposed prioritization in 4 waves

Start with transformers, general hardware, IT software, staff aug. (IT), professional services

## Considerations for prioritization

### Gains vs Ease/Speed

### Readiness & interdependencies

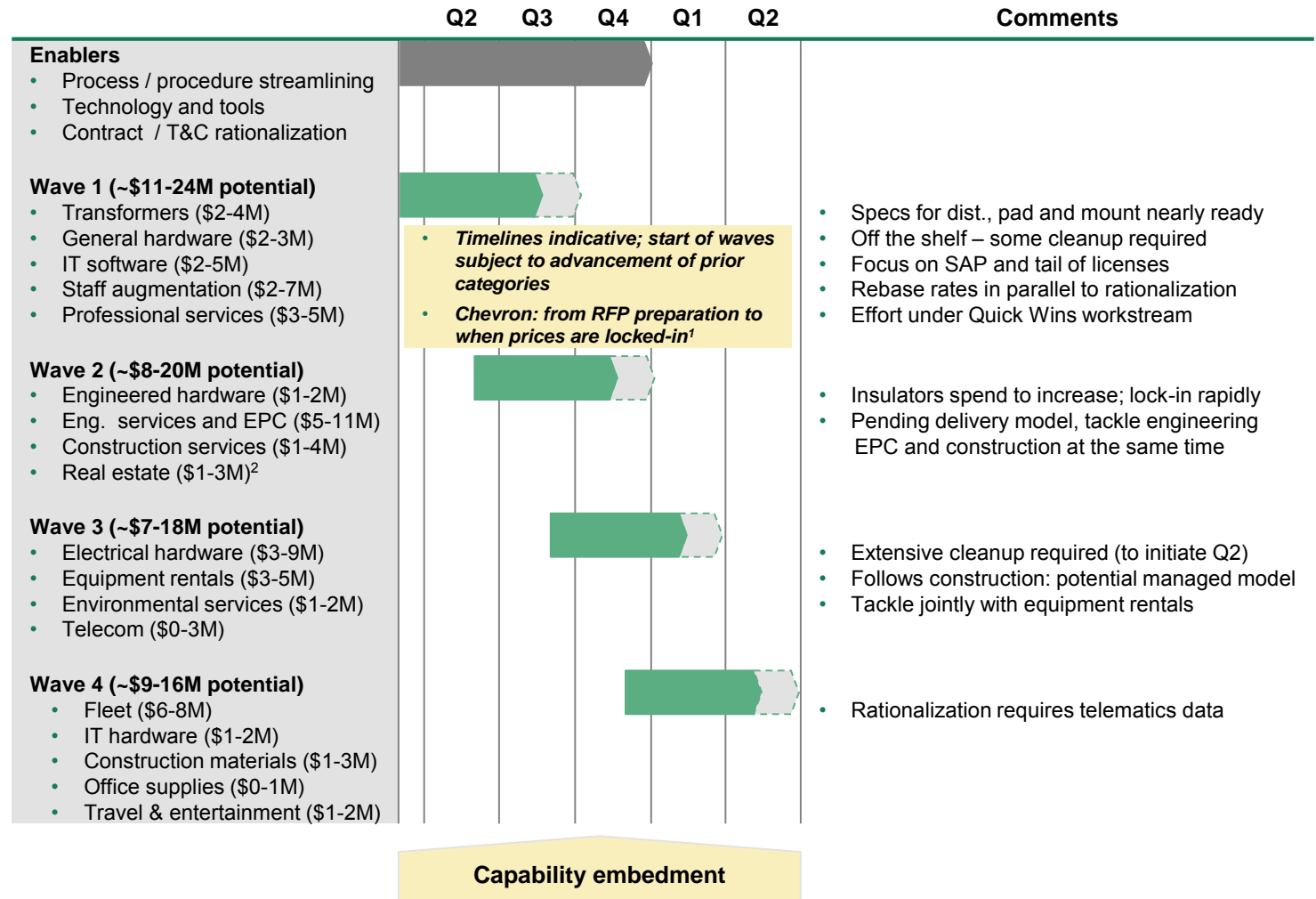
- E.g. Cleanup for electrical hardware;
- Delivery model for EPC services

### Resources availability

- E.g. Eng. input for transformers, electrical and engineered hardware

### Diversity of levers for embedment

- RFP vs tear down
- Engineered vs off-shelf
- Demand levers, e.g. rationalization



- Specs for dist., pad and mount nearly ready
- Off the shelf – some cleanup required
- Focus on SAP and tail of licenses
- Rebase rates in parallel to rationalization
- Effort under Quick Wins workstream

- Insulators spend to increase; lock-in rapidly
- Pending delivery model, tackle engineering EPC and construction at the same time

- Extensive cleanup required (to initiate Q2)
- Follows construction: potential managed model
- Tackle jointly with equipment rentals

- Rationalization requires telematics data

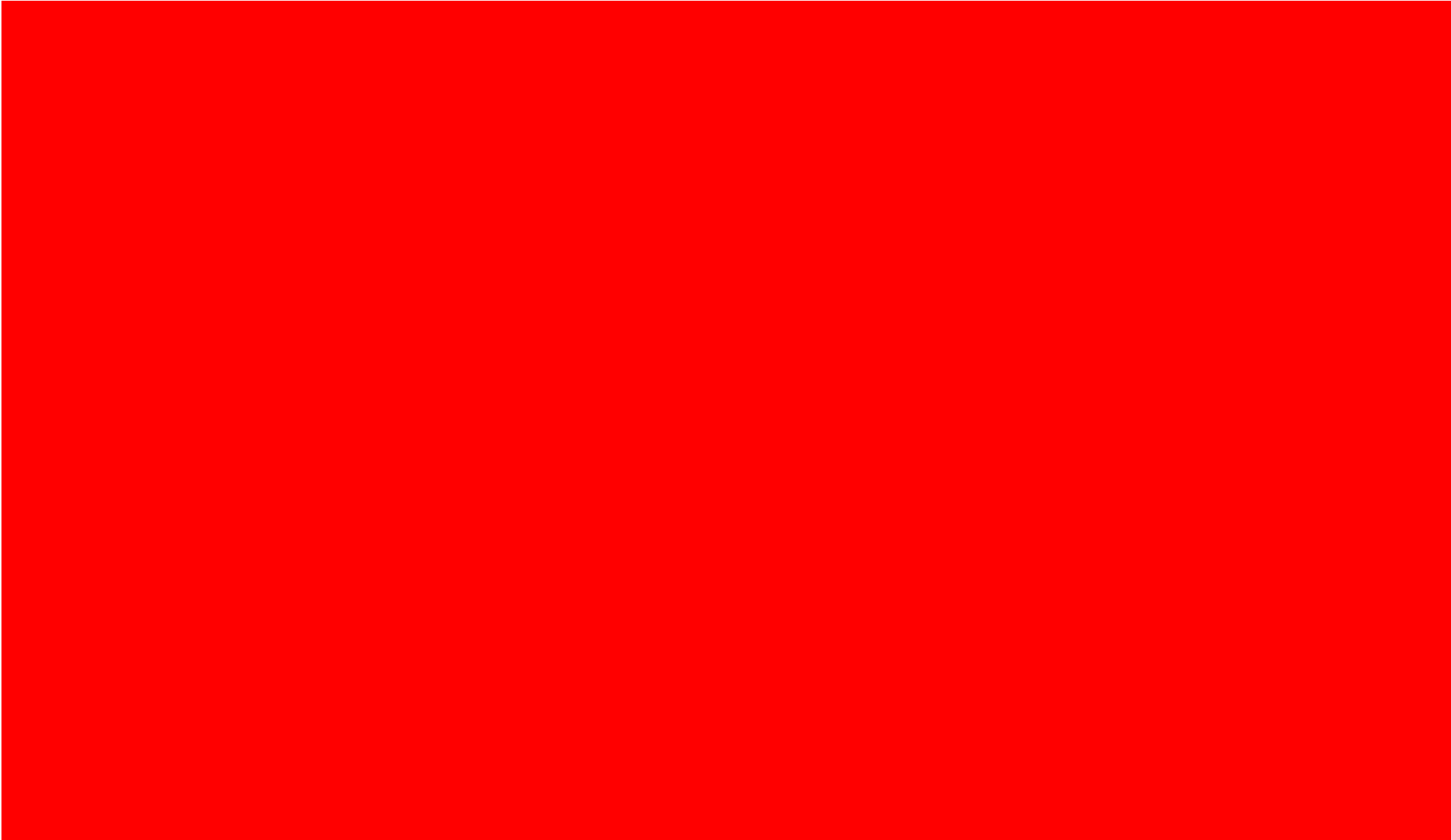
1. Preparation for categories requiring more extensive cleanup to be initiated ahead; contract finalization may extend beyond proposed timelines

2. Timeline for real estate savings impact might be longer subject to timing of redeployment and current leases

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (9:00-9:10)
<b>Regulatory:</b> Tx Filing consultation materials	Oded Hubert & Mike Penstone	<b>35 min</b> (9:10-9:45)
<b>Service delivery</b>		
• <b>Customer:</b> needs assessment & prioritization of R&SB initiatives	Rob Quail	<b>30 min</b> (9:45-10:15)
• <b>Capital efficiency:</b> delivery model options (rapid update)	Brad Bowness	<b>10 min</b> (10:15-10:25)
<b>OM&amp;A efficiency</b>		
• <b>Procurement:</b> opportunity sizing summary & proposed waves	Gary Schneider	<b>15 min</b> (10:25-10:40)
• <b>Org effectiveness:</b> benchmarks & bottom up sizing summary	Judy McKellar	<b>30 min</b> (10:40-11:10)
• <b>Labour strategy:</b> diagnostic findings (rapid update)	Nadine O'Neill	<b>10 min</b> (11:10-11:20)
• <b>O&amp;M efficiency:</b> initial diagnostic findings (rapid update)	Jon Rebick	<b>10 min</b> (11:20-11:30)
• <b>Quick Wins:</b> confirmed wins to-date & launch of initiative tracking	Stefanie Stocco	<b>10 min</b> (11:30-11:40)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> plan overview & manager's toolkit	Laura Cooke	<b>15 min</b> (11:40-11:55)
• <b>Next steps:</b> SteerCo 3	Stefanie Stocco	<b>5 min</b> (11:55-12:00)

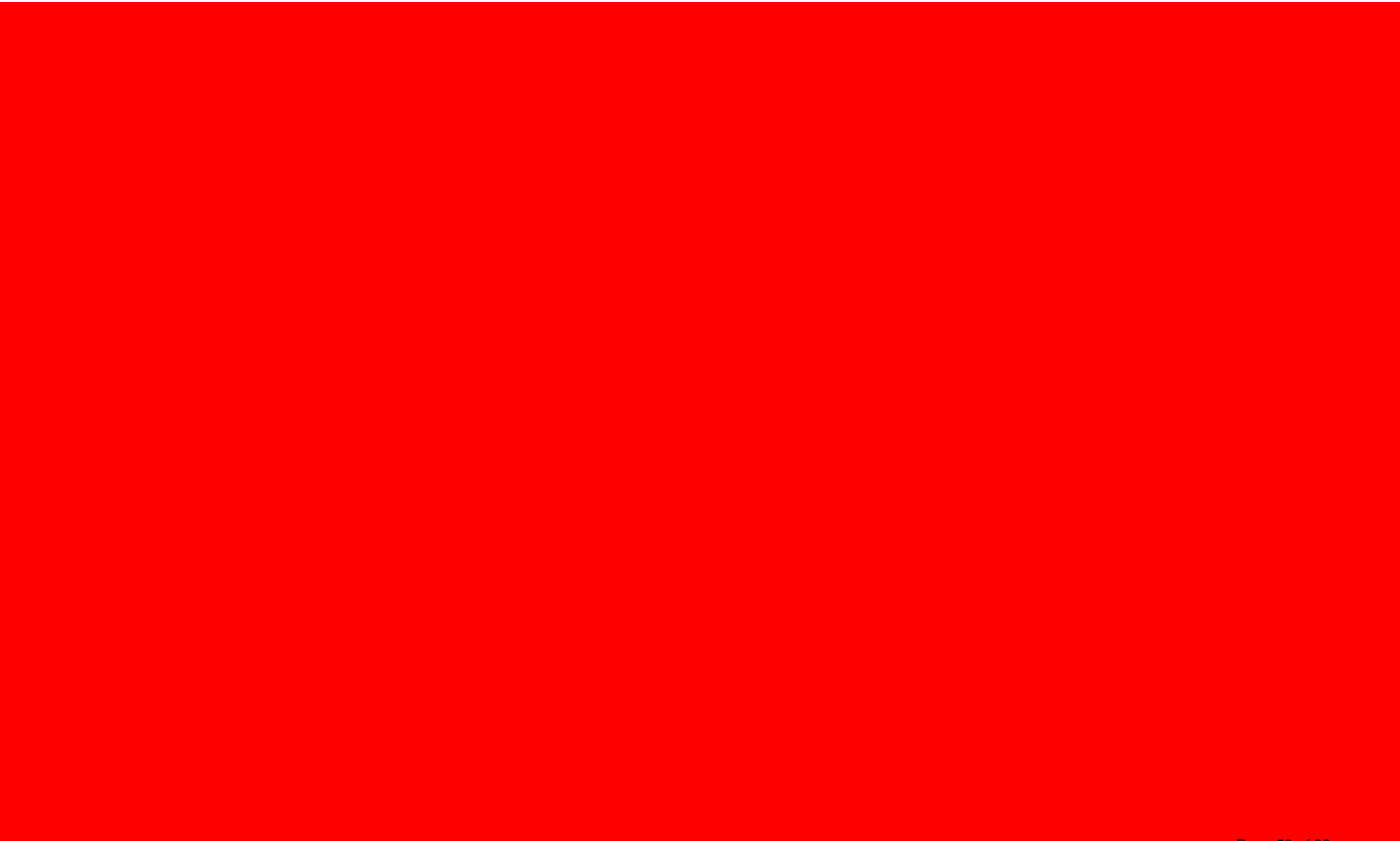
# Executive summary: Org effectiveness



[Redacted]

[Redacted]

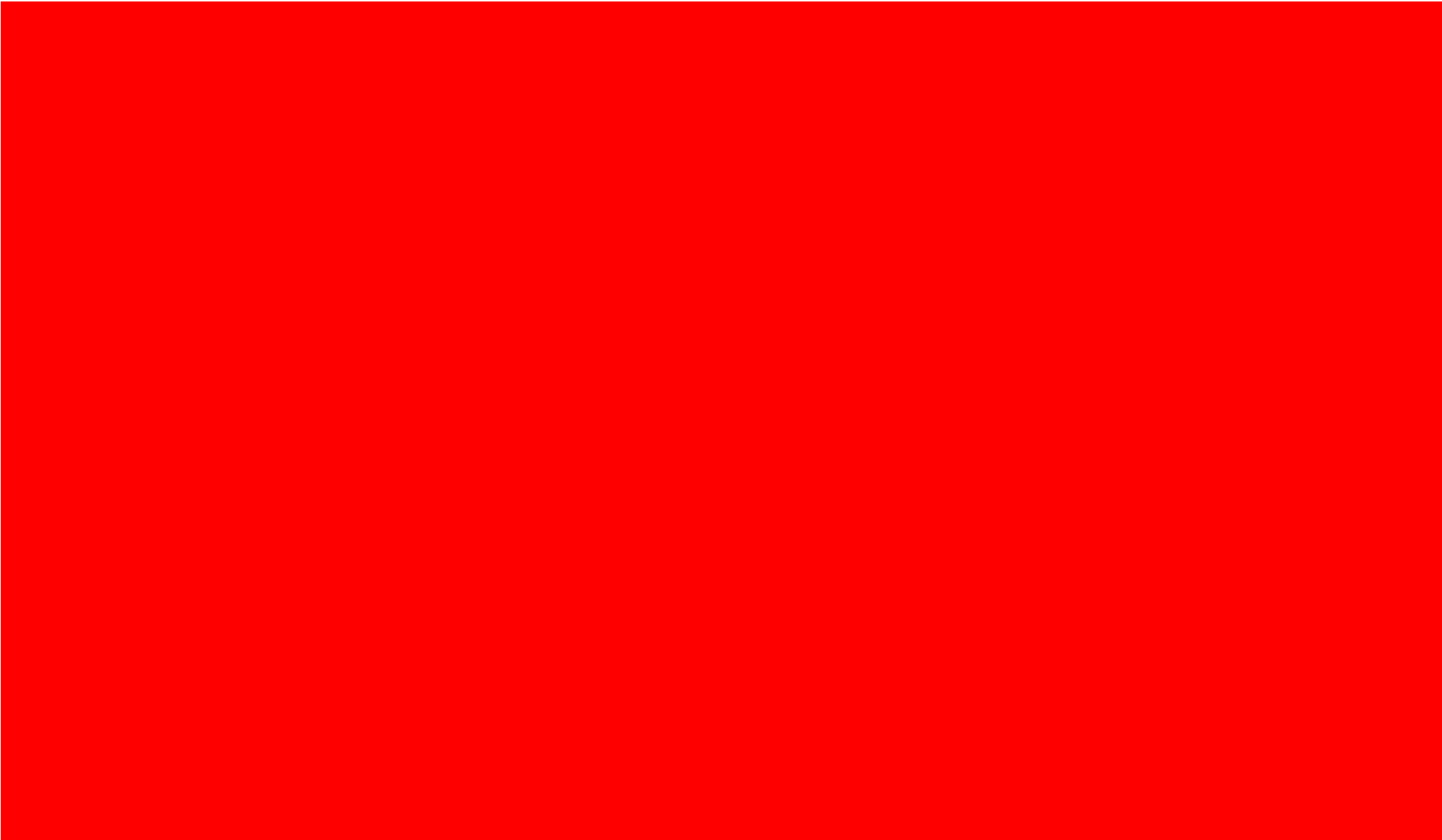
----- 7



[Redacted]

[Redacted]

[Redacted]

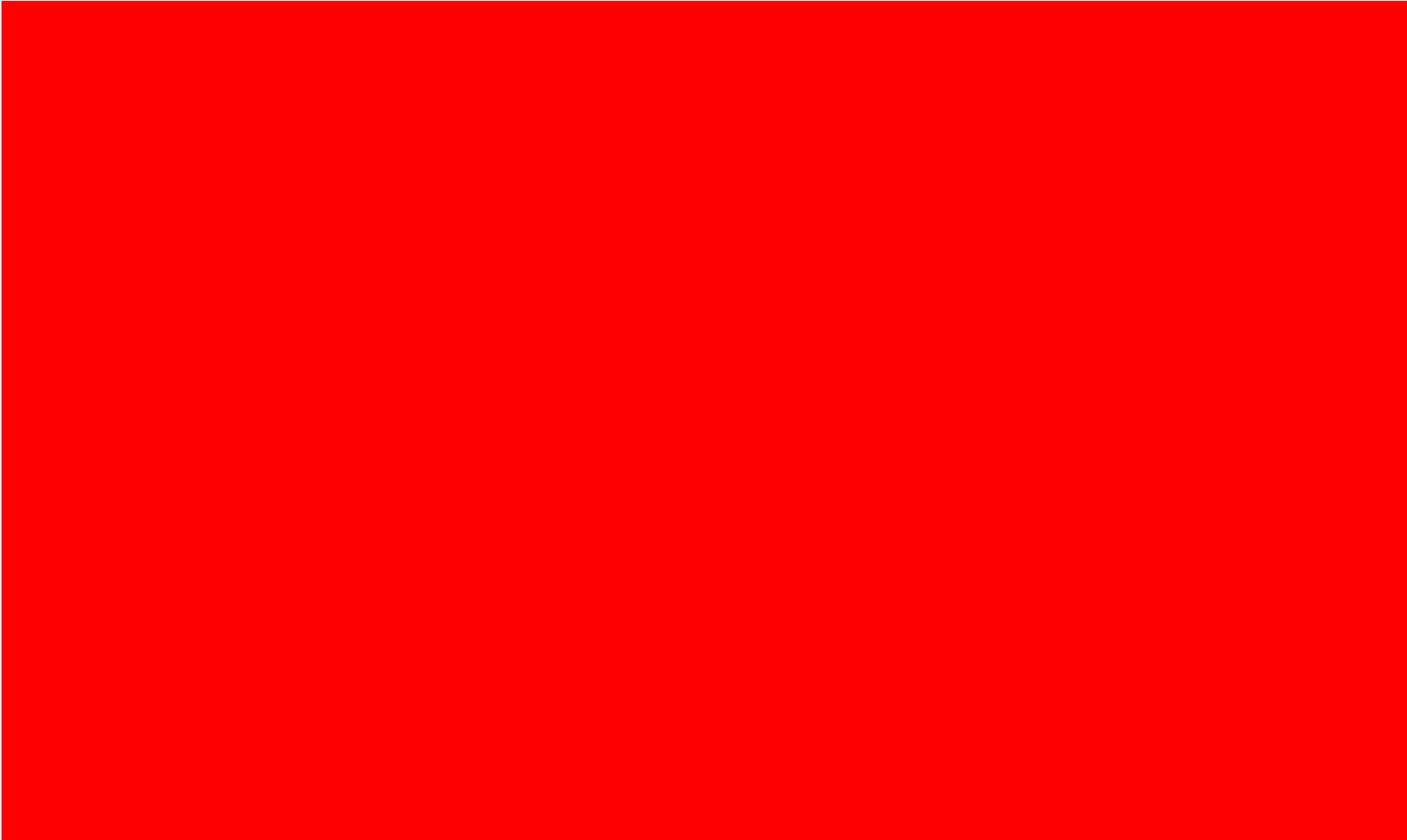


[Redacted]

[Redacted]

[Redacted]

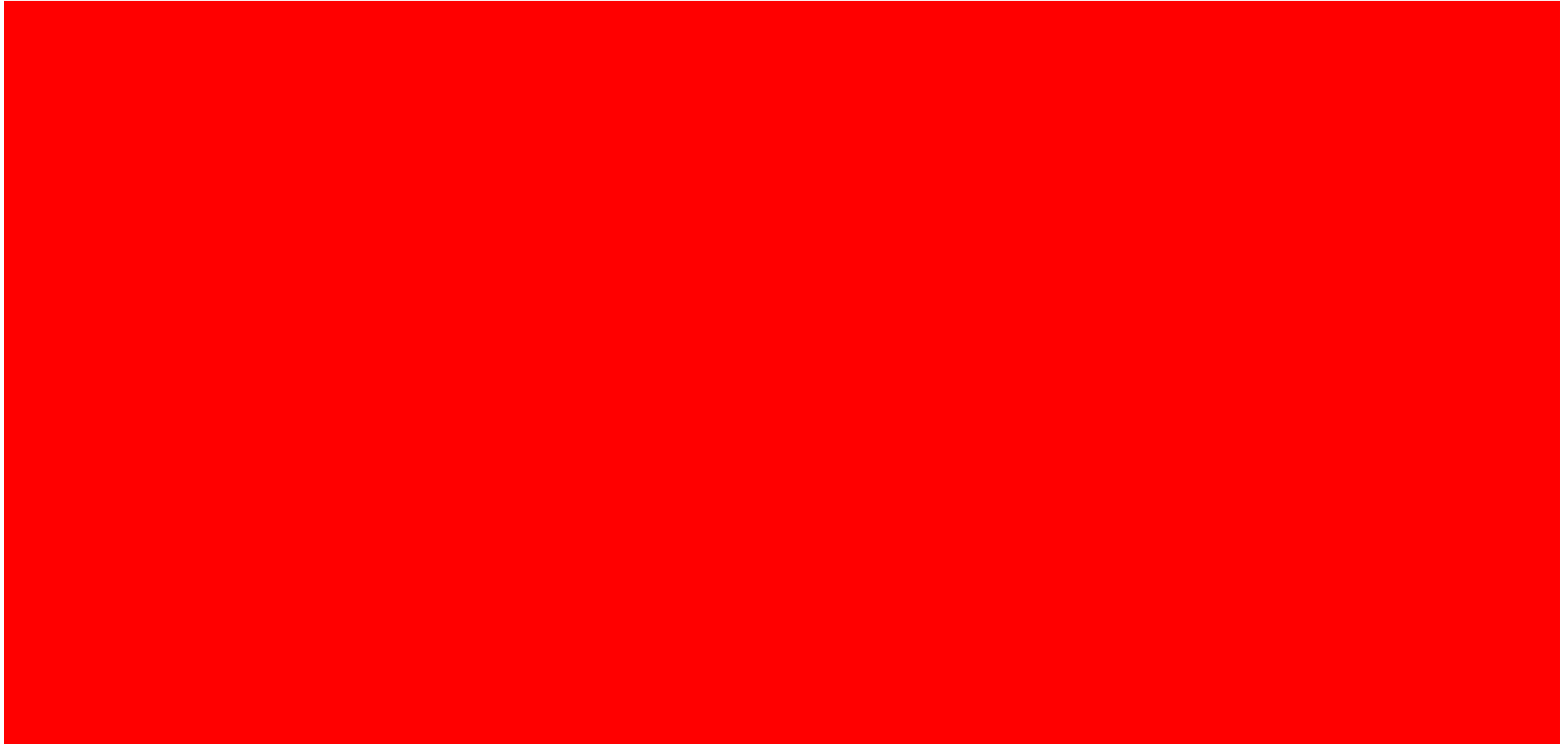
# Path forward

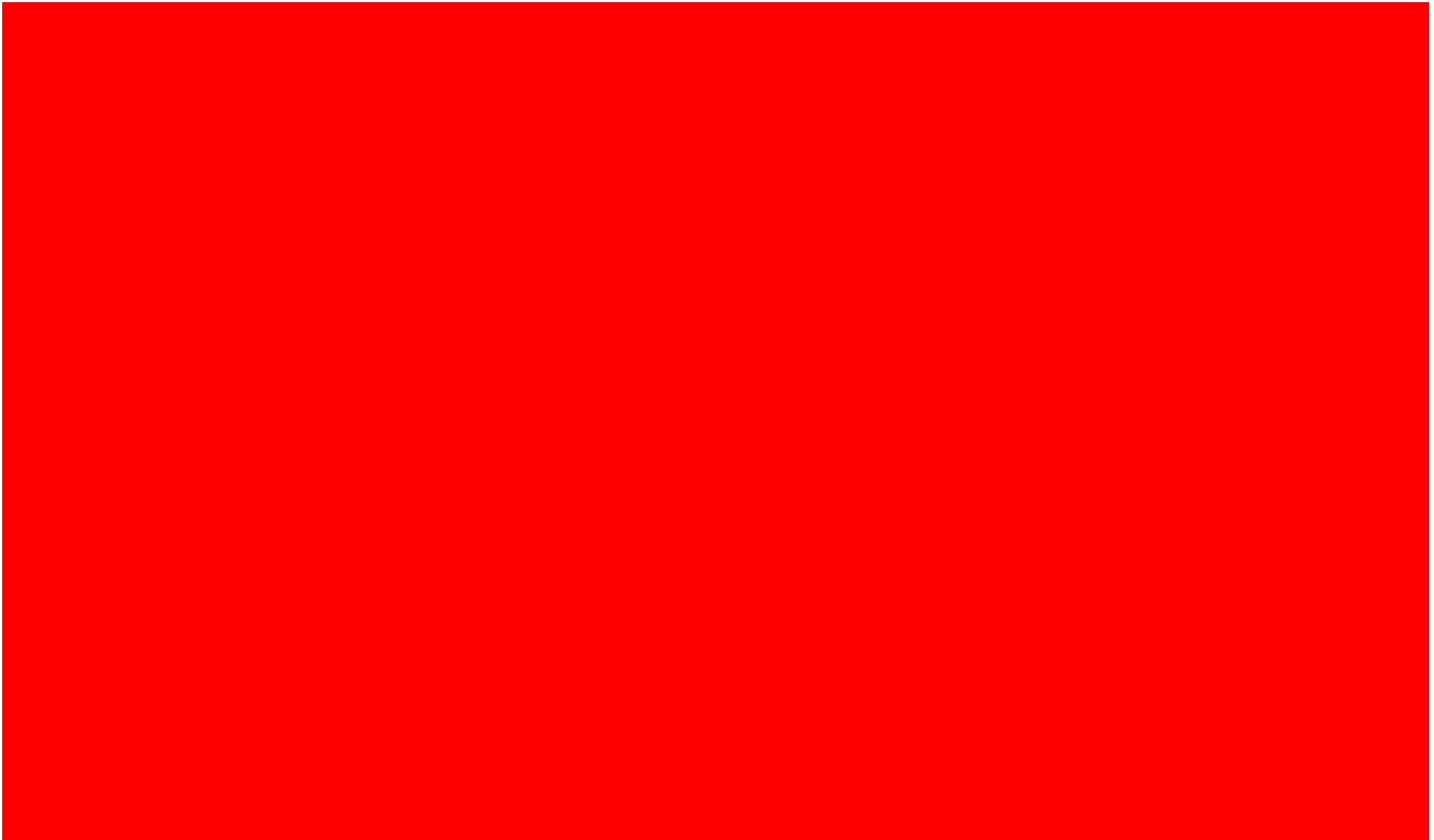


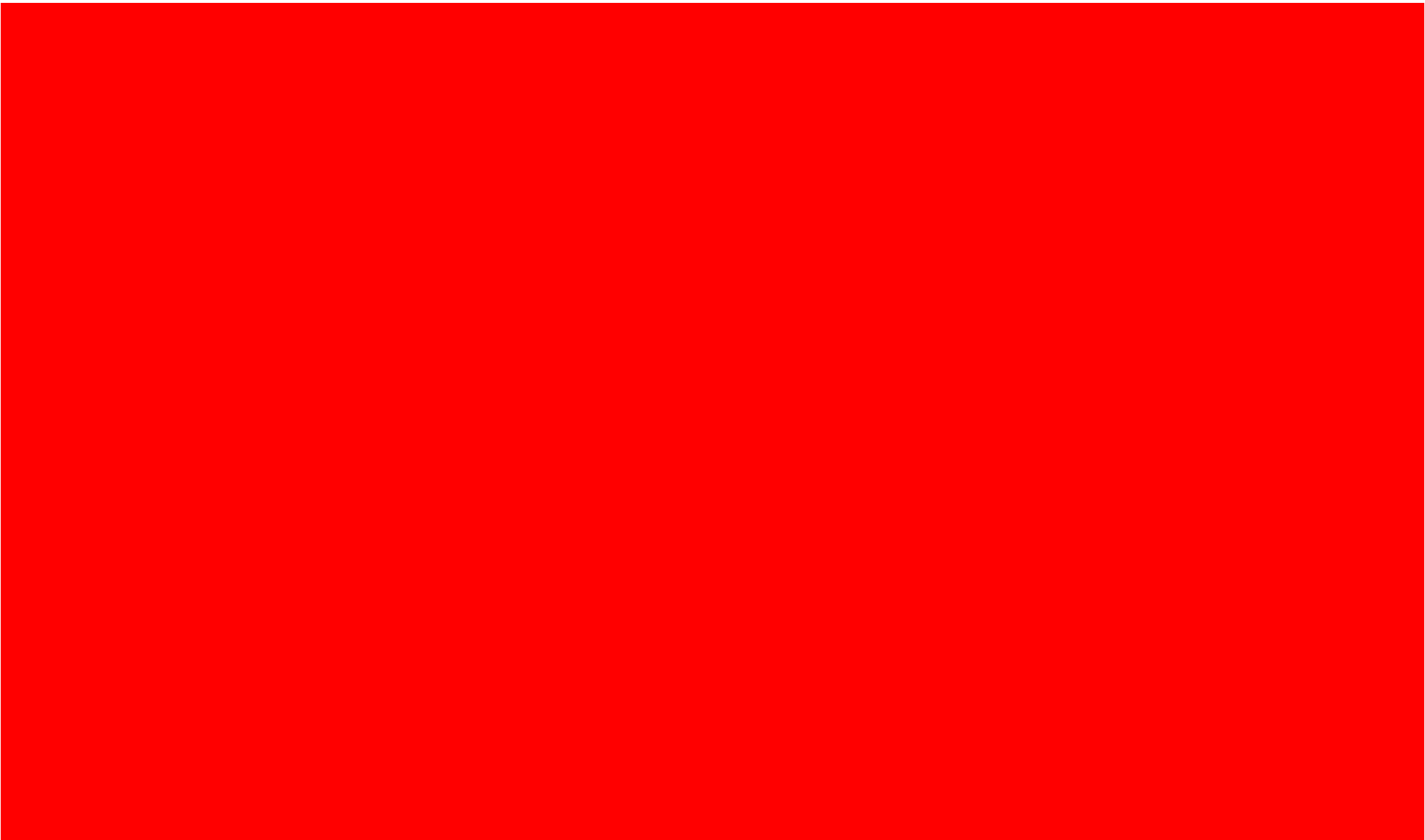
# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (9:00-9:10)
<b>Regulatory:</b> Tx Filing consultation materials	Oded Hubert & Mike Penstone	<b>35 min</b> (9:10-9:45)
<b>Service delivery</b>		
• <b>Customer:</b> needs assessment & prioritization of R&SB initiatives	Rob Quail	<b>30 min</b> (9:45-10:15)
• <b>Capital efficiency:</b> delivery model options (rapid update)	Brad Bowness	<b>10 min</b> (10:15-10:25)
<b>OM&amp;A efficiency</b>		
• <b>Procurement:</b> opportunity sizing summary & proposed waves	Gary Schneider	<b>15 min</b> (10:25-10:40)
• <b>Org effectiveness:</b> benchmarks & bottom up sizing summary	Judy McKellar	<b>30 min</b> (10:40-11:10)
• <b>Labour strategy:</b> diagnostic findings (rapid update)	Nadine O'Neill	<b>10 min</b> (11:10-11:20)
• <b>O&amp;M efficiency:</b> initial diagnostic findings (rapid update)	Jon Rebick	<b>10 min</b> (11:20-11:30)
• <b>Quick Wins:</b> confirmed wins to-date & launch of initiative tracking	Stefanie Stocco	<b>10 min</b> (11:30-11:40)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> plan overview & manager's toolkit	Laura Cooke	<b>15 min</b> (11:40-11:55)
• <b>Next steps:</b> SteerCo 3	Stefanie Stocco	<b>5 min</b> (11:55-12:00)

# Executive summary: Labour strategy

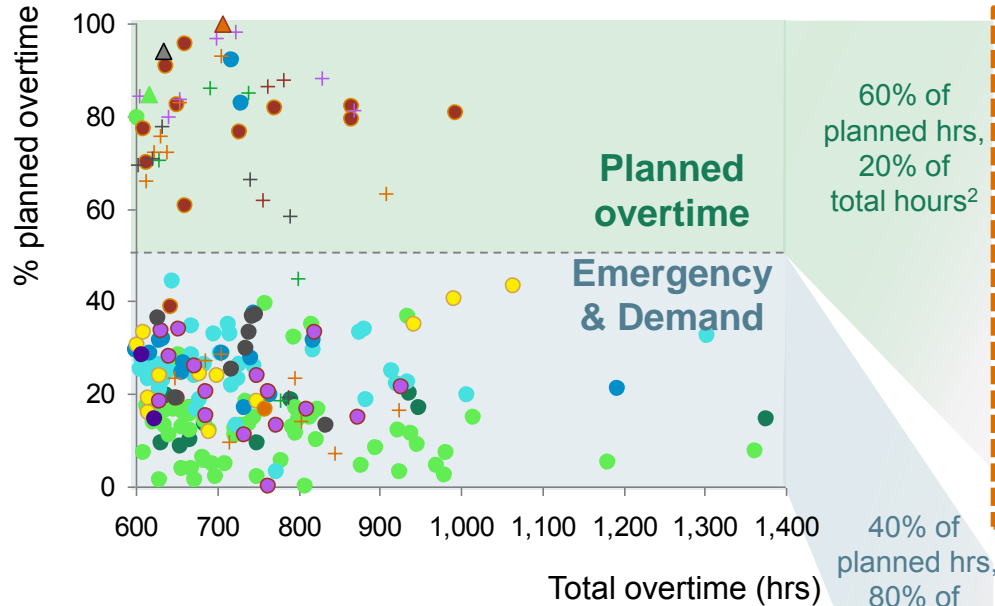






# Serial users' planned overtime accounts for 60% of planned hours; focus of effort on understanding top users

Highest serial users have a very high percentage of emergency-driven work<sup>1</sup>



Provincial lines	Stations
● DIST ZONE 1A	+ BRUCE MTCE
● DIST ZONE 1B	+ CMS
● DIST ZONE 2	+ CTRL ONT MTC
● DIST ZONE 3A	+ GTA MTCE
● DIST ZONE 3B	+ NIAGARA MTCE
● DIST ZONE 4	
● DIST ZONE 5	
● DIST ZONE 6	
● DIST ZONE 7	
● DIST ZONE 8	
Const/Eng	
▲ PRTC ENG&DSN	
▲ STN NORTH LN	
▲ STN SOUTH	

Top 10 serial users per section



















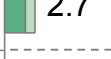








Name	Overtime (hrs)	Section	Team
...	995	LINES&FRSTRY	DIST ZONE 8
...	908	STNS & OPER	CTRL ONT MTC
...	868	STNS & OPER	BRUCE MTCE
...	867	LINES&FRSTRY	DIST ZONE 8
...	866	LINES&FRSTRY	DIST ZONE 8
...	830	STNS & OPER	BRUCE MTCE
...	789	STNS & OPER	NIAGARA MTCE
...	782	STNS & OPER	GTA MTCE
...	772	LINES&FRSTRY	DIST ZONE 8
...	762	STNS & OPER	GTA MTCE







Focus on this group





Name	Overtime (hrs)	Section	Team
...	1377	LINES&FRSTRY	DIST ZONE 1A
...	1363	LINES&FRSTRY	DIST ZONE 5
...	1303	LINES&FRSTRY	DIST ZONE 3A
...	1194	LINES&FRSTRY	DIST ZONE 6
...	1182	LINES&FRSTRY	DIST ZONE 5
...	1066	LINES&FRSTRY	DIST ZONE 4
...	1017	LINES&FRSTRY	DIST ZONE 5
...	1007	LINES&FRSTRY	DIST ZONE 3A
...	992	LINES&FRSTRY	DIST ZONE 4
...	982	LINES&FRSTRY	DIST ZONE 5

1. Individual users with >600 hours of overtime in 2015. 2. On total hours worked by serial users. Source: Overtime by employee by type of work for 2015, pulled February 11, 2016.

# "Other pay": most important spend categories not addressable in the short-term

2015 Spend by payroll category (\$M)			Drivers		Short-term addressability	
			Description	Demand Contract		
Board		18.6	Board payments for travel			Regulated by current contracts and union-driven referral process
Casual Vacation Payout		18.3	Trades seasonal benefits/vacation			Regulated by casual employee contracts and directly tied to number of hours worked
Travel		3.9	Travel payments			Regulated by casuals contracts and union-driven referral process
Relief Pay		3.3	Additional work duties payment			Very small potential in the short-term due to size and current fragmentation of relief pay
Lump Sum		3.0	Add'l pay instead of raises			Regulated by current contracts; not ongoing
On-Call Allowance		2.8	Premium for being on call			Small potential and not addressable in the short-term due to contract constraints
Vacation Payout		2.7	Unused vacation/bonus			Regulated by current contracts and unaddressable in the short term
Travel Time		2.7	Time for travel to work locations			Regulated by current contracts and based on travel to work sites based on distance
Other		10.2	Other bonuses, severance, pay			Regulated by current contracts and unaddressable in the short term

 PWU   
  CUSW   
  LIUNA  
 Society   
  EPSCA   
  PWU HH

Weight  Addressable/little potential   
 Addressable  Not addressable 

Source: 2015 HR payroll by employee pulled as of January 26, 2016.

G2G\_SteerCo2\_Feb25\_vF.pptx

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (9:00-9:10)
<b>Regulatory:</b> Tx Filing consultation materials	Oded Hubert & Mike Penstone	<b>35 min</b> (9:10-9:45)
<b>Service delivery</b>		
• <b>Customer:</b> needs assessment & prioritization of R&SB initiatives	Rob Quail	<b>30 min</b> (9:45-10:15)
• <b>Capital efficiency:</b> delivery model options (rapid update)	Brad Bowness	<b>10 min</b> (10:15-10:25)
<b>OM&amp;A efficiency</b>		
• <b>Procurement:</b> opportunity sizing summary & proposed waves	Gary Schneider	<b>15 min</b> (10:25-10:40)
• <b>Org effectiveness:</b> benchmarks & bottom up sizing summary	Judy McKellar	<b>30 min</b> (10:40-11:10)
• <b>Labour strategy:</b> diagnostic findings (rapid update)	Nadine O'Neill	<b>10 min</b> (11:10-11:20)
• <b>O&amp;M efficiency:</b> initial diagnostic findings (rapid update)	Jon Rebick	<b>10 min</b> (11:20-11:30)
• <b>Quick Wins:</b> confirmed wins to-date & launch of initiative tracking	Stefanie Stocco	<b>10 min</b> (11:30-11:40)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> plan overview & manager's toolkit	Laura Cooke	<b>15 min</b> (11:40-11:55)
• <b>Next steps:</b> SteerCo 3	Stefanie Stocco	<b>5 min</b> (11:55-12:00)

# Executive summary: O&M Efficiency

## **Opportunity assessment has progressed well along all three process deep dive areas**

- Held brainstorming sessions with team to identify priority areas of opportunities
- Conducted field visits to observe execution activities and understand potential efficiencies
- Performed analysis on forestry labour, trouble calls, and stations maintenance work orders



## **Majority of identified opportunities are directly dependent on reaching agreements with labour unions**

- Severity of required changes could impact if and when they can be made and what savings are captured
- We have begun evaluating the implications and will be assessing risk and mitigating actions, which we plan on sharing at the next Steering Committee meeting

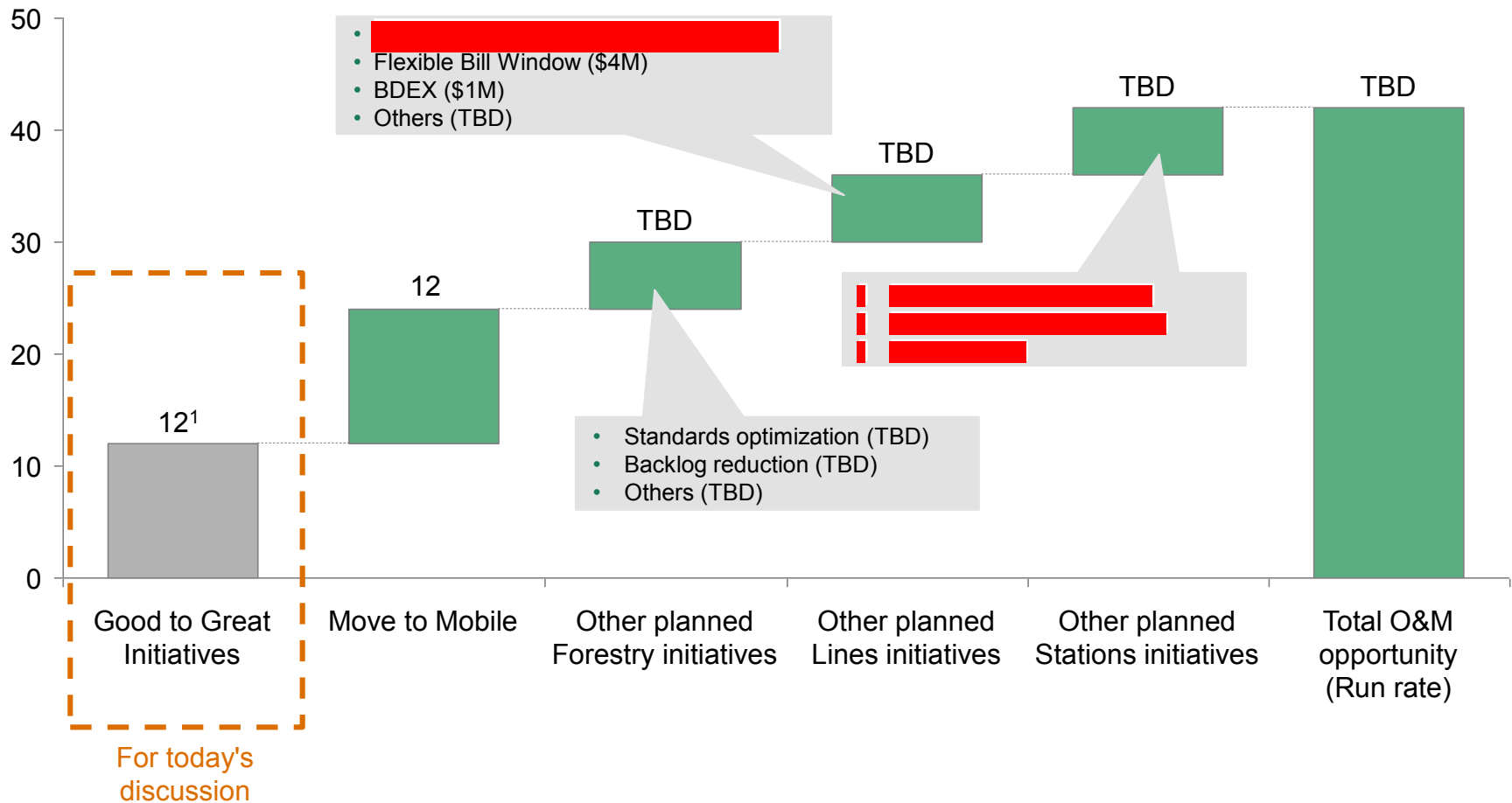
# Analysis to date has been supplemented with field visits and interviews

Visit	Activities	Initial observations
Forestry (Barrie/ Orillia)	<ul style="list-style-type: none"> <li>Attended morning work planning meeting</li> <li>Interviewed Superintendent, ops centre manager, UTS2</li> <li>Visited 4 active work sites and interviewed provincial foresters</li> </ul>	<b>Work efficiency</b> <ul style="list-style-type: none"> <li>May be room to <b>improve time out of the door</b> in mornings (all departments)</li> <li>Stations has good standard work processes in place, but <b>application of the processes may not be consistent</b> in all ops centres</li> </ul>
Lines (Barrie)	<ul style="list-style-type: none"> <li>Interviewed crew members – regional maintainer and UTS3</li> <li>Viewed shop and equipment</li> <li>Interviewed RLS and ops manager</li> </ul>	<b>Equipment</b> <ul style="list-style-type: none"> <li><b>Reliability issues with bucket trucks</b> in Lines and Forestry</li> <li><b>New boom design less efficient</b> for Forestry work</li> </ul>
Stations (Buchanan)	<ul style="list-style-type: none"> <li>Interviewed GOFM and UTS2</li> </ul>	<b>Training and capabilities</b> <ul style="list-style-type: none"> <li>May be <b>some gaps in the training program for lines apprentices</b>, particularly in troubleshooting</li> </ul>
		<b>Teaming and Leadership</b> <ul style="list-style-type: none"> <li>Generally good morale; <b>crew members feel Hydro One is a great place to work</b></li> <li><b>Administrative tasks can draw supervisors away</b> from working with crews</li> </ul>

**Initial field visits yielded useful insights, but opportunity assessment would require additional time in the field and more detailed studies**

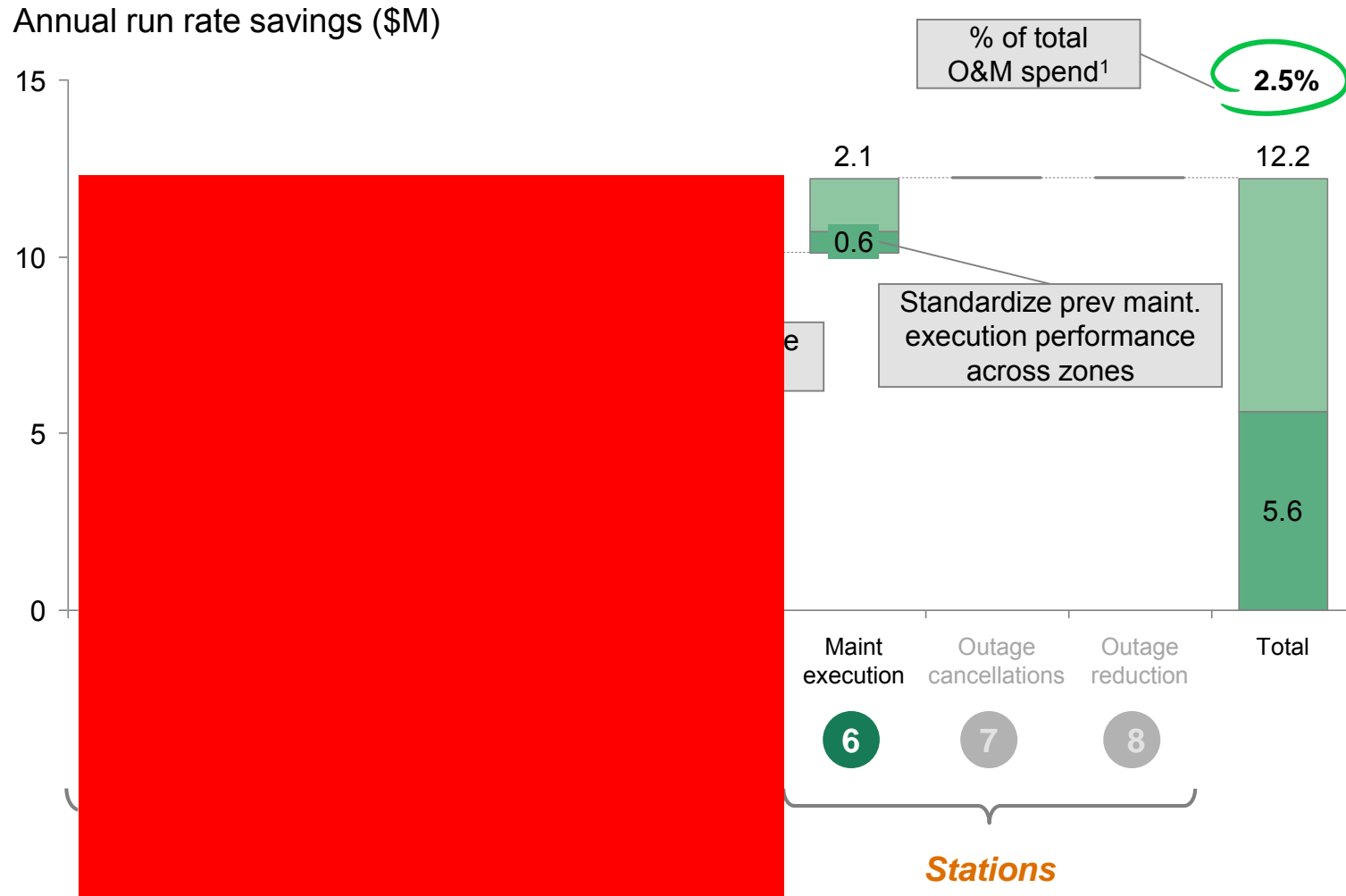
# Good to Great initiatives will supplement other O&M initiatives that are planned or being developed

Total run rate savings potential, \$M



1. High-range savings for opportunities defined so far

# ~\$6-12M of potential savings quantified; further opportunities to be sized and validated



# Over next several weeks, will investigate and size additional opportunities and prepare for path forward after March

## SteerCo 3

---

### **Define additional savings opportunities in forestry, stations and lines**

- Validate savings/value opportunities
- Complete sizing of opportunities

### **Frame initial labour strategy implications and risks**

## SteerCo 4

---

### **Detail labour strategy including risk mitigation plan**

### **Finalize "size of prize" for all initiatives**

### **Prioritize top initiatives for implementation**

### **Create roadmap and timeline to realize savings and capture value**

### **Draft plan forward for prioritized initiatives**

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (9:00-9:10)
<b>Regulatory:</b> Tx Filing consultation materials	Oded Hubert & Mike Penstone	<b>35 min</b> (9:10-9:45)
<b>Service delivery</b>		
• <b>Customer:</b> needs assessment & prioritization of R&SB initiatives	Rob Quail	<b>30 min</b> (9:45-10:15)
• <b>Capital efficiency:</b> delivery model options (rapid update)	Brad Bowness	<b>10 min</b> (10:15-10:25)
<b>OM&amp;A efficiency</b>		
• <b>Procurement:</b> opportunity sizing summary & proposed waves	Gary Schneider	<b>15 min</b> (10:25-10:40)
• <b>Org effectiveness:</b> benchmarks & bottom up sizing summary	Judy McKellar	<b>30 min</b> (10:40-11:10)
• <b>Labour strategy:</b> diagnostic findings (rapid update)	Nadine O'Neill	<b>10 min</b> (11:10-11:20)
• <b>O&amp;M efficiency:</b> initial diagnostic findings (rapid update)	Jon Rebick	<b>10 min</b> (11:20-11:30)
• <b>Quick Wins:</b> confirmed wins to-date & launch of initiative tracking	Stefanie Stocco	<b>10 min</b> (11:30-11:40)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> plan overview & manager's toolkit	Laura Cooke	<b>15 min</b> (11:40-11:55)
• <b>Next steps:</b> SteerCo 3	Stefanie Stocco	<b>5 min</b> (11:55-12:00)

# ~\$6.1M of "quick wins" in-year net savings confirmed

~\$7.0M 2016 in-year savings offset by ~\$0.9M upfront costs

	① Confirmed ✓		② Final review underway ✓		③ Under review ?		④ Not recommended ✗		Total (\$M)
	OM&A (\$M)	Capital (\$M)	OM&A (\$M)	Capital (\$M)	OM&A (\$M)	Capital (\$M)	OM&A (\$M)	Capital (\$M)	
Inergi	4.1	1.2	-	-	123.9	14.6	-	-	~145
Corporate projects & IT	1.7	-	1.2	14.9	-	29.1	68.3	94.6	~210
Other discretionary	-	-	-	3.1	31.5	8.7	5.1	19.0	~68
LDC Integration	-	-	-	-	Scope and opportunity not yet defined		-	-	TBD
<div>Net in year savings of \$6.1M</div> <div>\$5.8M in OM&amp;A &amp; \$1.2M in Capital savings identified for immediate implementation</div>									
			\$1.2M in OM&A & \$18.0M in Capital savings tentatively identified, final validation in progress		\$155.4M OM&A & \$52.4M in Capital savings under review		\$73.4M in OM&A & \$113.6M capital found to be non-discretionary		

~60% categorized as a deferred<sup>1</sup> cost

1. Deferred cost corresponding to 2016 budget being spent in 2017 instead

## Quick Wins implementation progress tracked by TMO

## Initiative tracker

- Provide a consolidated overview of initiative implementation progress
- Provide an overview of realized savings to date categorized by
  - LoB
  - Type of cost
  - Initiative leader
  - Executive Sponsor

**TMO**  
**(Adam Pappas)**

## Weekly

Last updated on		Weekly, February 23, 2016		hydro one																									
Description of initiative																		Opportunity sizing (\$M)											
Initiative #	Is Inaug?	Initiative sponsor	Initiative Leader	Module	LoB	Cost type (L OMA)	Description	Resource Unit	Cost Centre	Expected Cost	Revenue Savings	YE savings	Q1 2016 savings	Q2 2016 savings	Q3 2016 savings	Q4 2016 savings	Total YE 2016 (all savings)	Initiative Phase	Initiative due										
1.1	Y	Colin Penny	Lincoln Frost Hart of Rob Howard	Quickwatts	ISD	1	Reduce infrastructure costs by optimising lighting & storage	Tim 1-4 Storage 2. Warehouse 3. Distribution 4. Distribution	NCMH 75	5	0.00	5.180	5.180	5	0.00	0.00	0.00	5.180	2	On track									
1.5	Y	Colin Penny	Lincoln Frost Hart of Rob Howard	Quickwatts	ISD	1	Reduce infrastructure costs by optimising - Project investments	2. Warehouse 3. Distribution 4. Distribution	NCMH 75	5	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	2	On track									
1.1	Y	Colin Penny	Lincoln Frost Hart of Rob Howard	Quickwatts	ISD	1	Reduce infrastructure costs by decommissioning infrastructure & SAs	2. Warehouse 3. Distribution 4. Distribution	NCMH 75	5	0.00	0.00	0.00	5	0.00	0.00	0.00	0.00	2	On track									
2.1	Y	Colin Penny	Lincoln Frost Hart of Rob Howard	Quickwatts	ISD	1	Renegotiate contracts to reduce hourly energy rate for new substations	ACM ME Rpt	NCMH 75	5	-	5	-0.040	5	0.00	0.00	0.00	0.00	2	On track									
3	Y	Gary Schneider	Rob Barend	Quickwatts	SOP	0.2	Optimise waste based output and spend analysis that is adding value	7228	5	0.00	5.170	5.160	5	0.00	0.00	0.00	5.160	2	On track										
4.1	Y	Colin Penny	Lincoln Frost Hart of Rob Howard	Quickwatts	ISD	1	Reduce noise environment budget (single budget)	CMH001 40	5	-	0.006	0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track									
5	Y	Karin Neumann	Rose Lum	Quickwatts	Play	1	Improve printing of pay stubs for management and Society employees	N/A	5	-	0.004	0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track									
6	Y	Colin Penny	Lincoln Frost Hart of Rob Howard	Quickwatts	ISD	1	Reduction unnecessary complexity in SAP to drive reduction in support costs	ADM Sava	NCMH 75	5	0.00	0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track									
7	Y	Colin Penny	Lincoln Frost Hart of Rob Howard	Quickwatts	ISD	1	Advocate service requests	MS Sava	NCMH 75	5	0.00	0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track									
8	Y	Rob Quill	William Cheng	Quickwatts	SET	1	Service request agreed upon 30% reduction of energy Manager (75) supporting Settlements with 30% supporting 30% supporting	7055	5	-	0.000	0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track									
9.1.1	Y	Karin Neumann	Arthur McQuibban	Quickwatts	FSA	1	Cancel transformation projects not delivering value or no longer needed - Command center	N/A	5	-	0.000	0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track									
9.1.2	Y	Rob Quill	Rose Lum	Quickwatts	Play	1	Cancel transformation projects not delivering value or no longer needed - Command center	N/A	5	-	0.000	0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track									
9.1.3	Y	Gary Schneider	Rob Barend	Quickwatts	SOP	0.2	Cancel transformation projects not delivering value or no longer needed - Command center	N/A	7228	5	-	0.000	0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track								
9.1.4	Y	Rob Quill	William Cheng	Quickwatts	SET	1	Cancel transformation projects not delivering value or no longer needed - Command center	7055	5	-	0.000	0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track									
9.1	Y	Karin Neumann	Rose Lum	Quickwatts	FSA	1	Cancel transformation projects not delivering value or no longer needed - Mobile Pay Advice Session	N/A	5	-	0.000	0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track									
9.1	Y	Gary Schneider	Rob Barend	Quickwatts	Supply Chain	0.2	Cancel transformation projects not delivering value or no longer needed - Mobile Pay Advice Session	N/A	7228	5	-	0.004	0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track								
2.5	N	Colin Penny	TSD	Quickwatts	ISD	1	Renegotiate contracts to reduce cost of 3rd party services	N/A	5	0.00	5.180	5.180	5	0.00	0.00	0.00	0.00	5.180	2	On track									
2.1	N	Colin Penny	TSD	Quickwatts	ISD	1	Renegotiate contracts to reduce cost of 3rd party services	N/A	5	-	5.180	5.180	5.180	5	0.00	0.00	0.00	0.00	5.180	2	On track								
4.5	N	Colin Penny	Lincoln Frost Hart of Rob Howard	Quickwatts	ISD	1	Renegotiate contracts to reduce cost of 3rd party services	N/A	5	-	5	-0.000	0.000	5	0.00	0.00	0.00	0.00	2	On track									
Validation process includes sign-																													

- Fields in the tracker include,**
- Savings achieved by quarter
  - Initiative leader, sponsor, etc.
  - Savings type
  - Cost centre
  - Key milestones dates

# Detailed breakdown of confirmed net savings

~\$6.1M 2016 in-year and ~\$7.9M run-rate

	2016 in-year (\$M) (OM&A+Capital)		Net run rate savings (\$M)	2016 Quarterly Savings (\$M)				Initiative Leader
	Savings	Cost		Q1	Q2	Q3	Q4	
<b>1 Reduce infrastructure costs by</b>	2.5	0.15	2.35					Lincoln Frost-Hunt / Rob Hosford
• Optimizing backup & storage	1.5	0.05	1.45					
• Optimizing project environments	0.5	0.05	0.45					
• Decommissioning infrastructure & DBs	0.5	0.05	0.45					
<b>2 Renegotiate contracts to reduce</b>	1.9	0.03	1.9					Lincoln Frost-Hunt
• Hourly Inergi rate for minor enhancements	0.4	-	0.4					
• Cost of 3rd party licenses & maintenance	0.5	0.03	0.475					
• Mobility services	1	-	1					
<b>3 Eliminate event-based support and spend analysis that is adding no value</b>	1.3	0.75 <sup>1</sup>	0.55					Rob Berardi
<b>4 Reduce minor enhancement budget</b>	1	-	1					Lincoln Frost-Hunt
• Inergi budget	0.8	-	0.8					
• Non-inergi budget	0.2	-	0.2					
<b>5 Suppress printing of pay stubs for management and Society employees</b>	0.1	-	0.1					Rose Lum
<b>6</b>								William Cheng
<b>7 Cancel transformation projects not delivering value or no longer needed</b>	0.1	-	0.1					Arthur McGlashan/ Rose Lum/ William Cheng/ Rob Berardi/
• Command Center	0.03	-	0.03					
• Mobile Pay Advice Stream	0.03	-	0.03					
• Mobile Receipting	0.04	-	0.04					
<b>Total</b>	<b>7.0</b>	<b>0.9</b>	<b>6.1</b>					

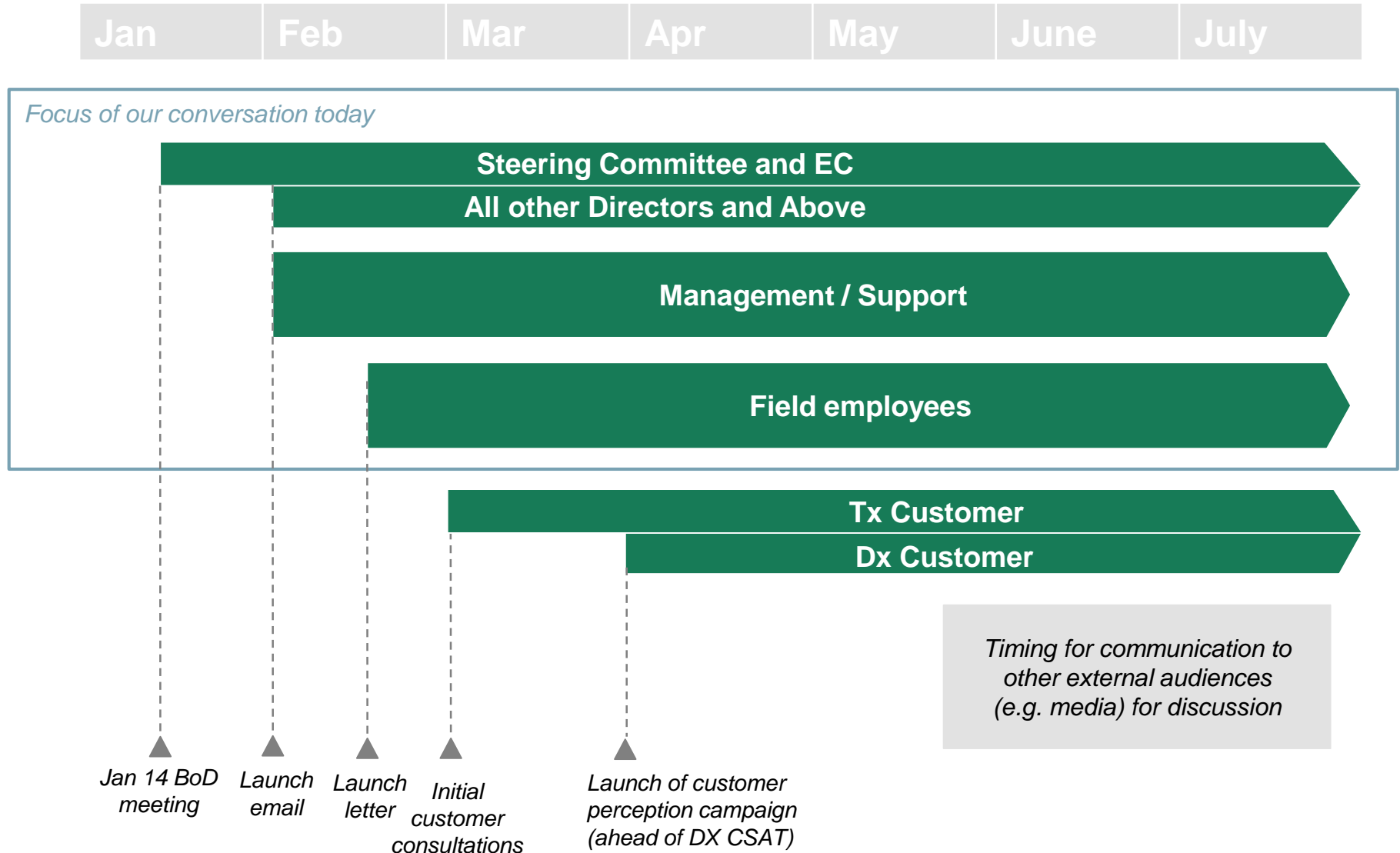
Additional fields documented to track initiative progress (e.g. date of completion, savings by quarter, LoB, type of cost, key milestones, etc.)

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (9:00-9:10)
<b>Regulatory:</b> Tx Filing consultation materials	Oded Hubert & Mike Penstone	<b>35 min</b> (9:10-9:45)
<b>Service delivery</b>		
• <b>Customer:</b> needs assessment & prioritization of R&SB initiatives	Rob Quail	<b>30 min</b> (9:45-10:15)
• <b>Capital efficiency:</b> delivery model options (rapid update)	Brad Bowness	<b>10 min</b> (10:15-10:25)
<b>OM&amp;A efficiency</b>		
• <b>Procurement:</b> opportunity sizing summary & proposed waves	Gary Schneider	<b>15 min</b> (10:25-10:40)
• <b>Org effectiveness:</b> benchmarks & bottom up sizing summary	Judy McKellar	<b>30 min</b> (10:40-11:10)
• <b>Labour strategy:</b> diagnostic findings (rapid update)	Nadine O'Neill	<b>10 min</b> (11:10-11:20)
• <b>O&amp;M efficiency:</b> initial diagnostic findings (rapid update)	Jon Rebick	<b>10 min</b> (11:20-11:30)
• <b>Quick Wins:</b> confirmed wins to-date & launch of initiative tracking	Stefanie Stocco	<b>10 min</b> (11:30-11:40)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> plan overview & manager's toolkit	Laura Cooke	<b>15 min</b> (11:40-11:55)
• <b>Next steps:</b> SteerCo 3	Stefanie Stocco	<b>5 min</b> (11:55-12:00)

# Audiences to be engaged over time

Focus in near-term is on employee engagement



# Employee engagement strategy: "Let's Get Great"

## Strategic Narrative

Hydro One is on a transformation journey to Greatness and employees are the ones who will make it happen. The new reality means we need to change, adapt, and also brings with it opportunity.

## Strategies

### Phase 1: Educate, Engage, Energize (Pre May 6)

- Launch Good to Great with a focus on mapping the journey
- Create storytelling content that builds employee confidence, earns trust and changes the conversation
- Multiply all tactics through a broad range of channels

### Phase 2: Include (Post May 6)

- Create Team Get Great so employees can connect emotionally with change
- Empower internal advocates for change
- Extended leadership conversations with employees

### Phase 3: Recognize (Post strategy definition)

- Establish an employee recognition program that recognizes "Great" work
- Empower internal advocates for change
- Create heroes out of employees and celebrate their contribution throughout Hydro One

**Near-term strategy**  
(to be reviewed today)

**More detailed narrative and key messages articulated in accompanying word document**

# Communication objectives and key messages

	Objective	Example of key messages
<b>Educate</b>	<ul style="list-style-type: none"> <li>Share the <b>"What, why, how?"</b></li> <li>Build awareness and understanding of the transformation process that is underway within Hydro One</li> </ul>	"Starting from a position of strength, we are going to build on the Hydro One platform together to create the leading utility business in North America, a globally admired top-tier company."
<b>Engage</b>	<ul style="list-style-type: none"> <li>Explain <b>"What's in it for me?"</b></li> <li>Foster a sense of ownership, collaboration and engagement in process</li> </ul>	"You're no longer an employee, you're an owner. Ownership now means that as a team, we must literally run it LIKE we own it...because we do."
<b>Energize</b>	<ul style="list-style-type: none"> <li>Describe <b>"What does success look like?"</b></li> <li>Create a picture of what Great will look and feel like - leverage Quick Wins to show early successes, tangible impact</li> </ul>	"Success will mean that our logo will become a symbol of customer commitment, business discipline and a source of pride for not only employees, but Canadians."

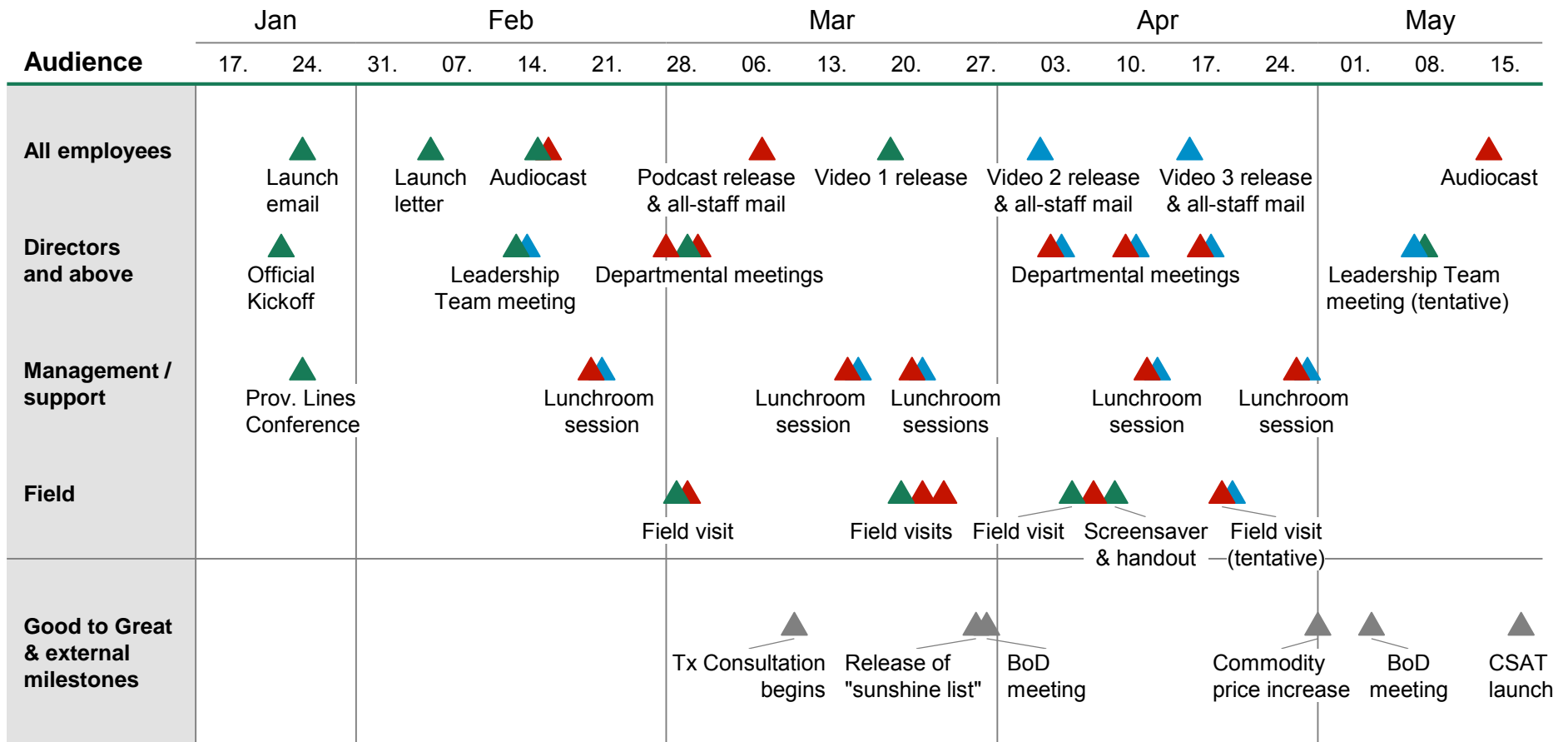
# Message segmentation by audience

Audience	How we want them to feel	Examples of how we will adapt message
Directors and above	<ul style="list-style-type: none"> <li>Well-informed and "in-the-loop"</li> <li>Motivated (and obligated) to step up</li> <li>Uncomfortable (a little) but ready for challenge</li> </ul>	"Ownership means a shift to a performance culture that measures and rewards success in a new way"
Management / support	<ul style="list-style-type: none"> <li>Empowered</li> <li>Supported in role as manager</li> </ul>	"Hydro One's success is directly linked to your success as a manager and the success of your team"
Field employees	<ul style="list-style-type: none"> <li>Proud and motivated</li> <li>Informed but not overwhelmed by details</li> </ul>	"You're no longer an employee, you're an owner. Ownership now means that as a team, we must literally run it LIKE we own it...because we do."

# Key communications channels by target audience

Audience	Channel	Owner	Cadence	Objectives
All employees	Mail	Mayo	Monthly	<ul style="list-style-type: none"> <li>Educate with program updates</li> <li>Reach all employees</li> </ul>
	Video, audio, podcasts	Mayo	Bi-weekly (1 podcast, 3 videos, 2 audiocasts)	<ul style="list-style-type: none"> <li>Educate (generate awareness)</li> <li>Energize by sharing reflections on field visits</li> </ul>
Directors and above	Departmental meetings	Work stream leads	Monthly	<ul style="list-style-type: none"> <li>WIFM: work stream specific progress updates</li> </ul>
	Leadership team meetings	Mayo, work stream leads	Quarterly	<ul style="list-style-type: none"> <li>Educate, engage and energize by sharing program and work stream progress updates</li> </ul>
Management / support	Lunchroom sessions	Mayo, work stream lead	A few sessions each month with different leads	<ul style="list-style-type: none"> <li>Engage with high-level work stream specific updates</li> </ul>
Field employees	Field visits	Mayo, work stream leads	Every 2-3 weeks	<ul style="list-style-type: none"> <li>Educate and engage with "on the ground" updates for field</li> <li><i>External</i>: local media outreach</li> </ul>
	Local updates	Local management	Linked to key comms releases	<ul style="list-style-type: none"> <li>Provide local context and create a conversation on Good to Great</li> </ul>
	Screensaver and Handouts	Mayo	After April field visit	<ul style="list-style-type: none"> <li>Reinforce awareness of key messages</li> <li>Reach all employees</li> </ul>

# Internal communications plan (Feb to May)



## Legend:

- ▲ Educate – what, how, why?
- ▲ Engage – what's in it for me?
- ▲ Energize – what does success look like?

# Plan supported by strong communications infrastructure

## Manager's Toolkit to ensure message consistency

- Prepare managers to speak to their DRs and answer FAQs
- Updates sent to managers with release of each video

## Amplification of message to ensure maximum penetration

- Load all content to HydroNet homepage and dedicated Good to Great site

## Formal mechanisms to collect feedback and ideas

- Dedicated inbox at [G2G@HydroOne.com](mailto:G2G@HydroOne.com) for employee feedback, questions, and ideas – with commitment to acknowledge or respond within 1 day
- Enabled "comments" section (moderated) on Intranet site

## Continuous monitoring of employee engagement and message traction

- Engagement analytics: email open rates, audiocast and podcast listenership, Intranet visits
- Online surveys of employees

# Managing threats to communications success

Critical that we respond to external and internal messages that undermine objectives

## What are potential threats to communications effort?

- Employees fearful of change and assuming negative impacts
- Sharing of misinformation
- Feelings that safety takes a back seat to shareholder interests
- Media coverage of customer service and corporate missteps
- Employee use of social media to discuss the work underway

## How will we address them with Issue Management Approach?

- Strategic approach developed for top issues identified and attempt made to counter them with the communications plan
- Ensure that information is shared broadly and transparently, making it easy
- Provide key messaging for managers to ensure consistency of message across the business
- Media Relations will continue to closely monitor media coverage of the company and will move to rapidly correct and defend the corporation where necessary.

# Next steps

## **Finalize workback schedule for Good to Great near-term comms**

- With executive support and approval, each of the individual tactics will be assigned and mapped (February 25)
- Dedicated micro site on HydroNet will be developed (February 25)

## **Develop creative approach for external customer perception campaign**

- A creative brief has been developed and is now under consideration jointly with Customer Service
- Formal workback schedule and budgeting to be developed (Feb. 25)
- Creative concepts submitted for review (March 3)

## **Begin larger brand analysis and mapping next steps**

- PR firm of record, Weber Shandwick is engaged and will begin work to provide a strategic framework for supporting the shift in perception of Hydro One's brand (Meeting with senior team early March)

# Manager's toolkit contains key messages and FAQs

Initial version distributed yesterday – first refresh can be expected by March 22

## What is in the toolkit?

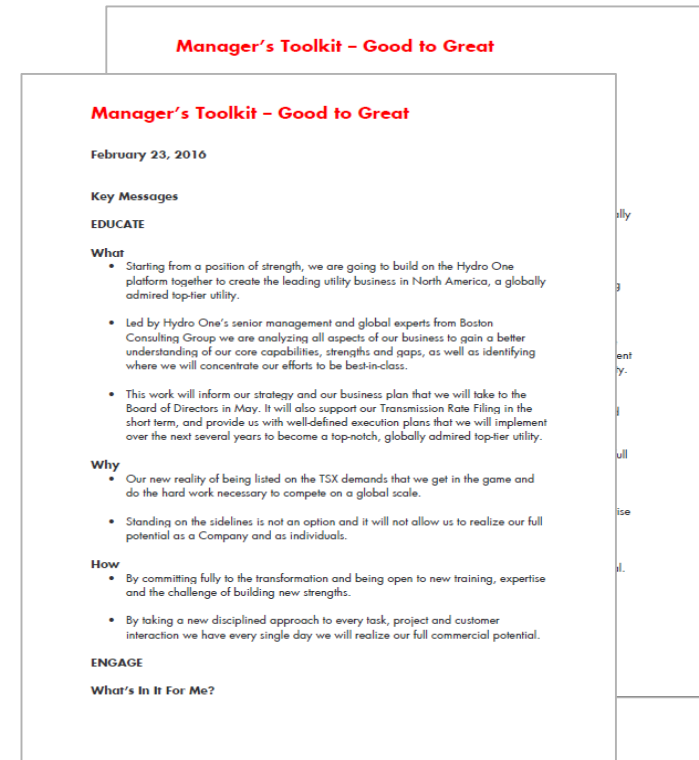
- Key messages on "Good to Great"
- How to access a compendium of key Good to Great communications materials issued to date
- FAQs

## How should I use this information?

- To help explain the Good to Great program to your team
- To answer questions from your team on transformation and what it means for them and for Hydro One
- Not to be used with external audiences

## Will it be updated?

- First version distributed with today's pre-read
- Refresh of toolkit distributed with release of videos (~once every 3 weeks) or as needed



Please share feedback and suggestions with  
communications team ([daffyd.roderick@HydroOne.com](mailto:daffyd.roderick@HydroOne.com))

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Mayo Schmidt & Stefanie Stocco	<b>10 min</b> (9:00-9:10)
<b>Regulatory:</b> Tx Filing consultation materials	Oded Hubert & Mike Penstone	<b>35 min</b> (9:10-9:45)
<b>Service delivery</b>		
• <b>Customer:</b> needs assessment & prioritization of R&SB initiatives	Rob Quail	<b>30 min</b> (9:45-10:15)
• <b>Capital efficiency:</b> delivery model options (rapid update)	Brad Bowness	<b>10 min</b> (10:15-10:25)
<b>OM&amp;A efficiency</b>		
• <b>Procurement:</b> opportunity sizing summary & proposed waves	Gary Schneider	<b>15 min</b> (10:25-10:40)
• <b>Org effectiveness:</b> benchmarks & bottom up sizing summary	Judy McKellar	<b>30 min</b> (10:40-11:10)
• <b>Labour strategy:</b> diagnostic findings (rapid update)	Nadine O'Neill	<b>10 min</b> (11:10-11:20)
• <b>O&amp;M efficiency:</b> initial diagnostic findings (rapid update)	Jon Rebick	<b>10 min</b> (11:20-11:30)
• <b>Quick Wins:</b> confirmed wins to-date & launch of initiative tracking	Stefanie Stocco	<b>10 min</b> (11:30-11:40)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> plan overview & manager's toolkit	Laura Cooke	<b>15 min</b> (11:40-11:55)
• <b>Next steps:</b> SteerCo 3	Stefanie Stocco	<b>5 min</b> (11:55-12:00)

# Next steps: agenda for next SteerCo meeting

SteerCo #1 Feb 9	SteerCo #2 Feb 25	<i>Focus of next SteerCo</i> SteerCo #3 March 11	SteerCo #4 March 21
<b>Regulatory</b> <ul style="list-style-type: none"> <li>Review customer needs by segment</li> <li>Approve strategic approach to customer consultation (for Tx)</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>Define aspiration, metrics, and targets for performance</li> <li>Describe drivers to meet performance targets</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>Review baseline and benchmark analysis</li> <li>Approve quick wins</li> </ul>	<b>Regulatory</b> <ul style="list-style-type: none"> <li>Review investment scenarios and evidence for consultation</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>Review emerging Capital stage gate and delivery model plan</li> <li>Review detailing of R&amp;SB Customer initiatives</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>Review opportunity sizing               <ul style="list-style-type: none"> <li>Procurement</li> <li>Org effectiveness</li> <li>Labour policies</li> </ul> </li> <li>Review               <ul style="list-style-type: none"> <li>Procurement Wave 1</li> <li>Quick wins</li> </ul> </li> </ul> <b>Communications</b> <ul style="list-style-type: none"> <li>Review internal plan and share Manager's Toolkit</li> </ul>	<b>Regulatory</b> <ul style="list-style-type: none"> <li>Review emerging findings from Wave 1 consultation</li> <li>Approve Wave 2 consultation</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>Review draft Dx investment plan</li> <li>Review large Customer segment initiatives</li> <li>Review proposed Capital stage gate and delivery model</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>Review 2016-2020 full potential               <ul style="list-style-type: none"> <li>Procurement</li> <li>Org effectiveness</li> <li>Labour policies</li> <li>O&amp;M efficiency</li> </ul> </li> </ul> <b>Communications</b> <ul style="list-style-type: none"> <li>Review external plan</li> </ul>	<b>Review of materials for 3/31 board meeting, including:</b> <ul style="list-style-type: none"> <li>Key outputs reviewed in previous SteerCo meetings</li> <li>Holistic 5 year asset management plan</li> <li>Change management approach</li> </ul>



Filed: 2018-06-22  
EB-2017-0049  
Exhibit J 7.1  
Attachment 3  
Page 1 of 62



Filed: 2019-08-28  
EB-2019-0082  
Exhibit JT-1.11  
Attachment 5  
Page 1 of 62

# Good to Great: Assessment of Full Potential Steering Committee #3

March 11, 2016

THE BOSTON CONSULTING GROUP


# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Stefanie Stocco	<b>10 min</b> (1:00-1:10)
<b>Regulatory:</b> rapid update on response from Tx customers (Wave 1)	Oded Hubert	<b>10 min</b> (1:10-1:20)
<b>Service delivery</b>		
• <b>Asset management:</b> rapid framing of Dx investment scenarios	Mike Penstone	<b>15 min</b> (1:20-1:35)
• <b>Capital efficiency:</b> deep dive on capital strategy to deliver plan	Brad Bowness	<b>45 min</b> (1:35-2:20)
<b>Efficiency</b>		
• Emerging view: Full potential and framework for timing of Labour & Outsourcing opportunities	BCG	<b>20 min</b> (2:20-2:40)
• <b>SG&amp;A effectiveness:</b> rapid update on Wave 2 sizing	Judy McKellar	<b>10 min</b> (2:40-2:50)
• <b>O&amp;M efficiency:</b> deep dive on savings levers and opportunity size	Jon Rebick	<b>30 min</b> (2:50-3:20)
• <b>Quick Wins:</b> confirmed wins to-date	Frank D'Andrea & Colin Penny	<b>5 min</b> (3:20-3:25)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> update	Laura Cooke	<b>20 min</b> (3:25-3:45)
• <b>Next steps:</b> outline for 3/31 BoD materials and plan for SteerCo 4	Stefanie Stocco	<b>15 min</b> (3:45-4:00)

# Where we are we in the process

SteerCo #1 Feb 9	SteerCo #2 Feb 25	Today's focus		SteerCo #4 March 21
<b>Regulatory</b> <ul style="list-style-type: none"> <li>Review customer needs by segment</li> <li>Approve strategic approach to customer consultation (for Tx)</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>Define aspiration, metrics, and targets for performance</li> <li>Describe drivers to meet performance targets</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>Review baseline and benchmark analysis</li> <li>Approve quick wins</li> </ul>	<b>Regulatory</b> <ul style="list-style-type: none"> <li>Review investment scenarios and evidence for consultation</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>Review emerging Capital stage gate and delivery model plan</li> <li>Review detailing of R&amp;SB Customer initiatives</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>Review opportunity sizing               <ul style="list-style-type: none"> <li>Procurement</li> <li>Org effectiveness</li> <li>Labour policies</li> </ul> </li> <li>Approve               <ul style="list-style-type: none"> <li>Procurement Wave 1</li> <li>Quick wins</li> </ul> </li> </ul> <b>Communications</b> <ul style="list-style-type: none"> <li>Review internal plan and share Manager's Toolkit</li> </ul>	<b>SteerCo #3 March 11</b> <b>Regulatory</b> <ul style="list-style-type: none"> <li>Updated on emerging findings from Wave 1 consultation</li> <li>Approve Wave 2 consultation</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>Update on Dx investment plan</li> <li>Review large Customer segment initiatives</li> <li>Review proposed Capital stage gate and delivery model</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>Review 2016-2020 full potential               <ul style="list-style-type: none"> <li>Procurement</li> <li>Org effectiveness</li> <li>Labour policies</li> <li>O&amp;M efficiency</li> </ul> </li> </ul> <b>Communications</b> <ul style="list-style-type: none"> <li>Review external plan</li> </ul>		<b>Review of materials for 3/31 board meeting, including:</b> <ul style="list-style-type: none"> <li>Key outputs reviewed in previous SteerCo meetings</li> <li>5 year asset management plan</li> <li>Stakeholder management approach</li> <li>Change management approach</li> </ul>

# Program status: Status of 8 core work streams

Workstream	Lead	Status	Status Comments
<b>Regulatory strategy</b>	Oded Hubert	<b>At risk</b>	<i>Progressing well against key Tx filing requirements, implementing increased project controls as we get closer to filing date. Customer consultation planning: 12 Wave 1 consultations and 5 Wave 2 consultations (21 customers) scheduled in March. Of these, ~15 should be complete by the BoD posting deadline of March 24, so findings can be included in material.</i>
<b>Asset management</b>	Mike Penstone	<b>At risk</b>	<i>Limited potential to incorporate customer input on Tx capital plan prior to 3/16 deadline, but sufficient customer input expected prior to BoD. In process of building out Dx investment scenarios based on "toolkit" and input from asset mgmt org.</i>
<b>Customer</b>	Rob Quail	<b>On track</b>	<i>List of initiatives, ops metrics and prioritization completed for all customer segments. Roadmap definition completed for priority R&amp;SB initiatives. Preliminary roadmap development for large customers in flight and expected to be completed by SteerCo 4.</i>
<b>Capital efficiency</b>	Brad Bowness	<b>On track</b>	<i>Looking forward to guidance / input on near-final stage gate and delivery model recommendations at SteerCo 3. Execution efficiency workshop held with Construction, Commissioning, and P&amp;C; priority areas of opportunity collaboratively identified.</i>
<b>Procurement</b>	Gary Schneider		<i>Assessment phase complete; defined 4 waves to achieve impact. Launch of wave 1 underway.</i>
<b>SG&amp;A effectiveness</b>	Judy McKellar	<b>On track</b>	<i>Deeper dives on 4 functions (Finance, HS&amp;E, IT and Supply Chain) completed. Exploring clerical opportunities within Ops LoBs. On track to map opportunities in short, medium and long-term for SteerCo 4. Merging into Labour strategy.</i>
<b>Labour strategy</b>	Nadine O'Neill	<b>On track</b>	<i>Framework to assess timing of people and outsourcing opportunities complete. Mapping of opportunities to be completed by SteerCo 4.</i>
<b>O&amp;M efficiency</b>	Jon Rebick	<b>On track</b>	<i>All opportunity sizing is complete, including identifying potential unconstrained savings ranges and associated FTE impacts (where applicable). Started to analyze potential labour / other constraints in achieving the savings and will propose a glide path at SteerCo 4.</i>

Not started

On track

At risk

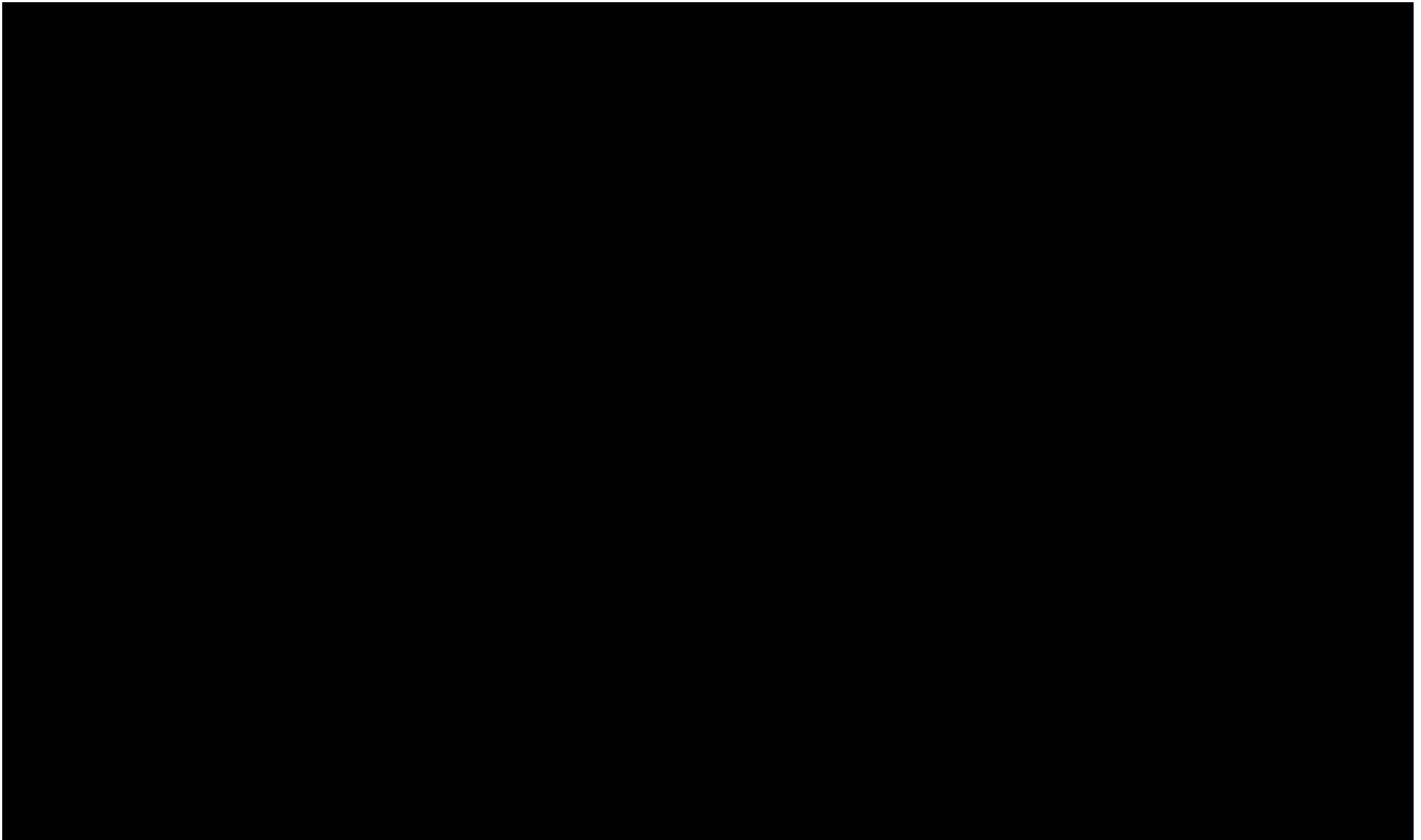
Off track

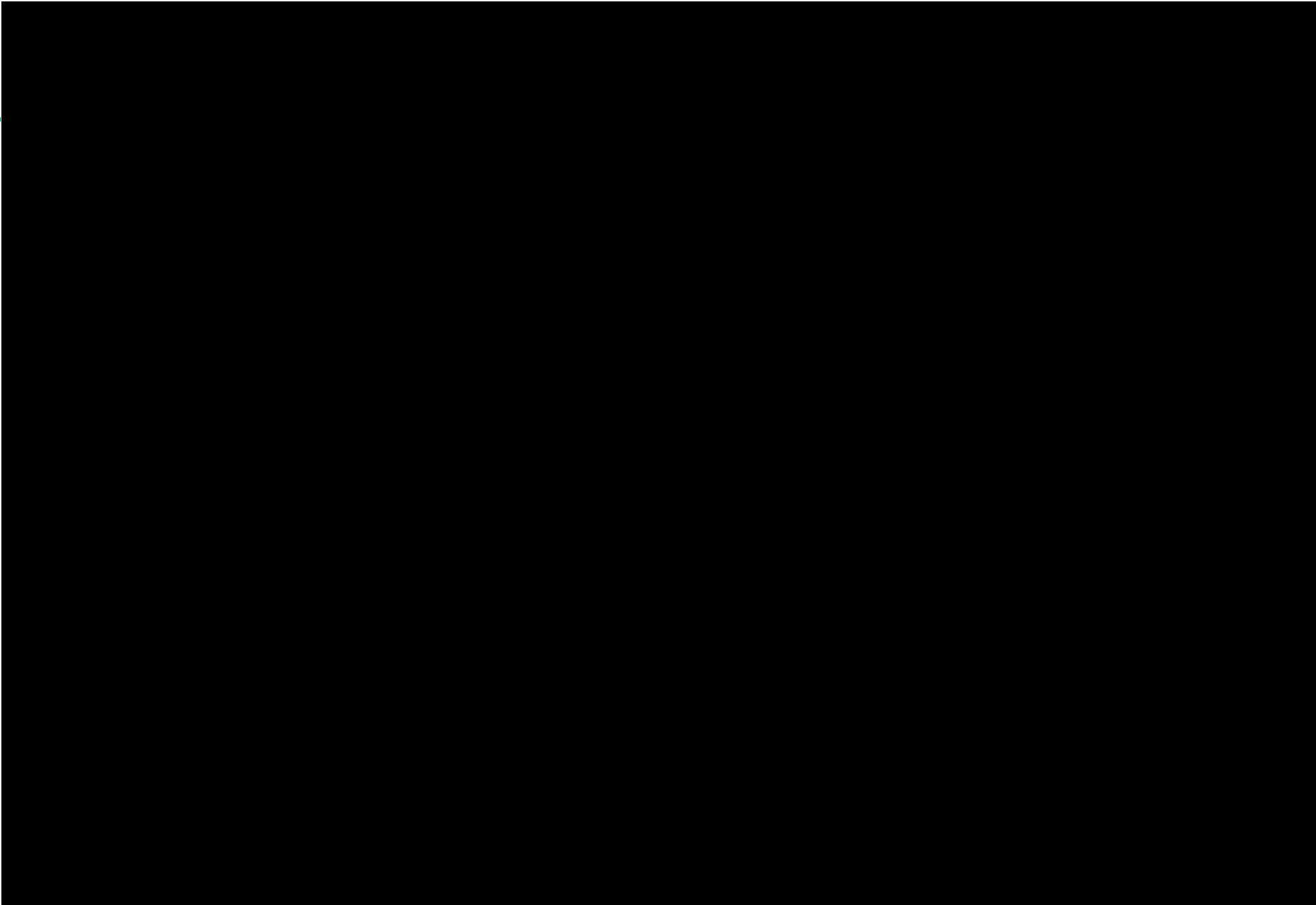
 Complete

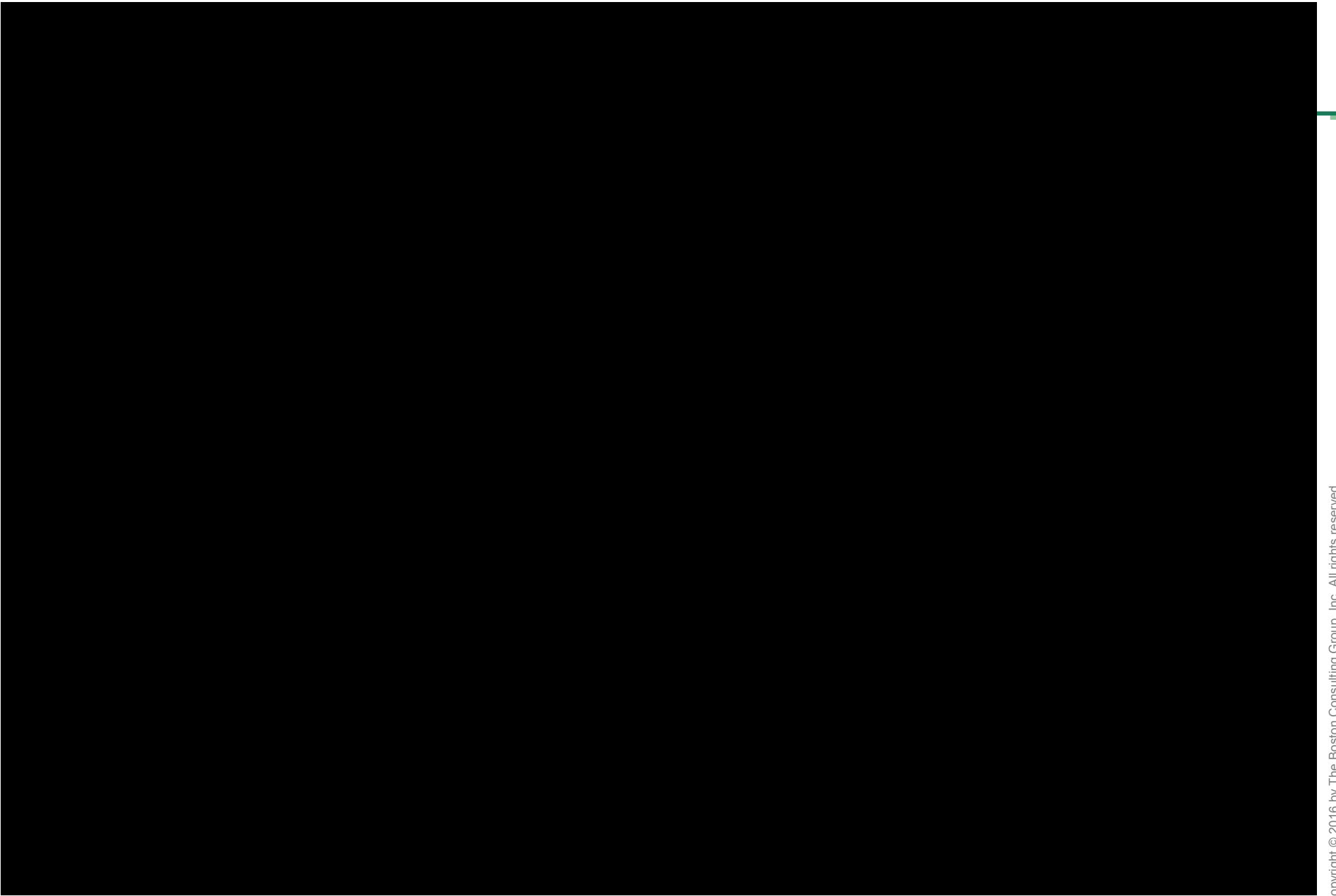
# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Stefanie Stocco	<b>10 min</b> (1:00-1:10)
<b>Regulatory:</b> rapid update on response from Tx customers (Wave 1)	Oded Hubert	<b>10 min</b> (1:10-1:20)
<b>Service delivery</b>		
• <b>Asset management:</b> rapid framing of Dx investment scenarios	Mike Penstone	<b>15 min</b> (1:20-1:35)
• <b>Capital efficiency:</b> deep dive on capital strategy to deliver plan	Brad Bowness	<b>45 min</b> (1:35-2:20)
<b>Efficiency</b>		
• Emerging view: Full potential and framework for timing of Labour & Outsourcing opportunities	BCG	<b>20 min</b> (2:20-2:40)
• <b>SG&amp;A effectiveness:</b> rapid update on Wave 2 sizing	Judy McKellar	<b>10 min</b> (2:40-2:50)
• <b>O&amp;M efficiency:</b> deep dive on savings levers and opportunity size	Jon Rebick	<b>30 min</b> (2:50-3:20)
• <b>Quick Wins:</b> confirmed wins to-date	Frank D'Andrea & Colin Penny	<b>5 min</b> (3:20-3:25)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> update	Laura Cooke	<b>20 min</b> (3:25-3:45)
• <b>Next steps:</b> outline for 3/31 BoD materials and plan for SteerCo 4	Stefanie Stocco	<b>15 min</b> (3:45-4:00)

# Overview of Tx Filing Status









# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Stefanie Stocco	<b>10 min</b> (1:00-1:10)
<b>Regulatory:</b> rapid update on response from Tx customers (Wave 1)	Oded Hubert	<b>10 min</b> (1:10-1:20)
<b>Service delivery</b>		
• <b>Asset management:</b> rapid framing of Dx investment scenarios	Mike Penstone	<b>15 min</b> (1:20-1:35)
• <b>Capital efficiency:</b> deep dive on capital strategy to deliver plan	Brad Bowness	<b>45 min</b> (1:35-2:20)
<b>Efficiency</b>		
• Emerging view: Full potential and framework for timing of Labour & Outsourcing opportunities	BCG	<b>20 min</b> (2:20-2:40)
• <b>SG&amp;A effectiveness:</b> rapid update on Wave 2 sizing	Judy McKellar	<b>10 min</b> (2:40-2:50)
• <b>O&amp;M efficiency:</b> deep dive on savings levers and opportunity size	Jon Rebick	<b>30 min</b> (2:50-3:20)
• <b>Quick Wins:</b> confirmed wins to-date	Frank D'Andrea & Colin Penny	<b>5 min</b> (3:20-3:25)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> update	Laura Cooke	<b>20 min</b> (3:25-3:45)
• <b>Next steps:</b> outline for 3/31 BoD materials and plan for SteerCo 4	Stefanie Stocco	<b>15 min</b> (3:45-4:00)

# Update regarding framing of development for Dx investment scenarios

**Key gaps to address in build-out of Dx plan aligned with RRFE include integration of customer preferences and establishing clear links between program spend and improved outcomes**

**Propose varying project prioritization approach for foundational (ie., non-discretionary) spend relative to spend focused on enhancement**

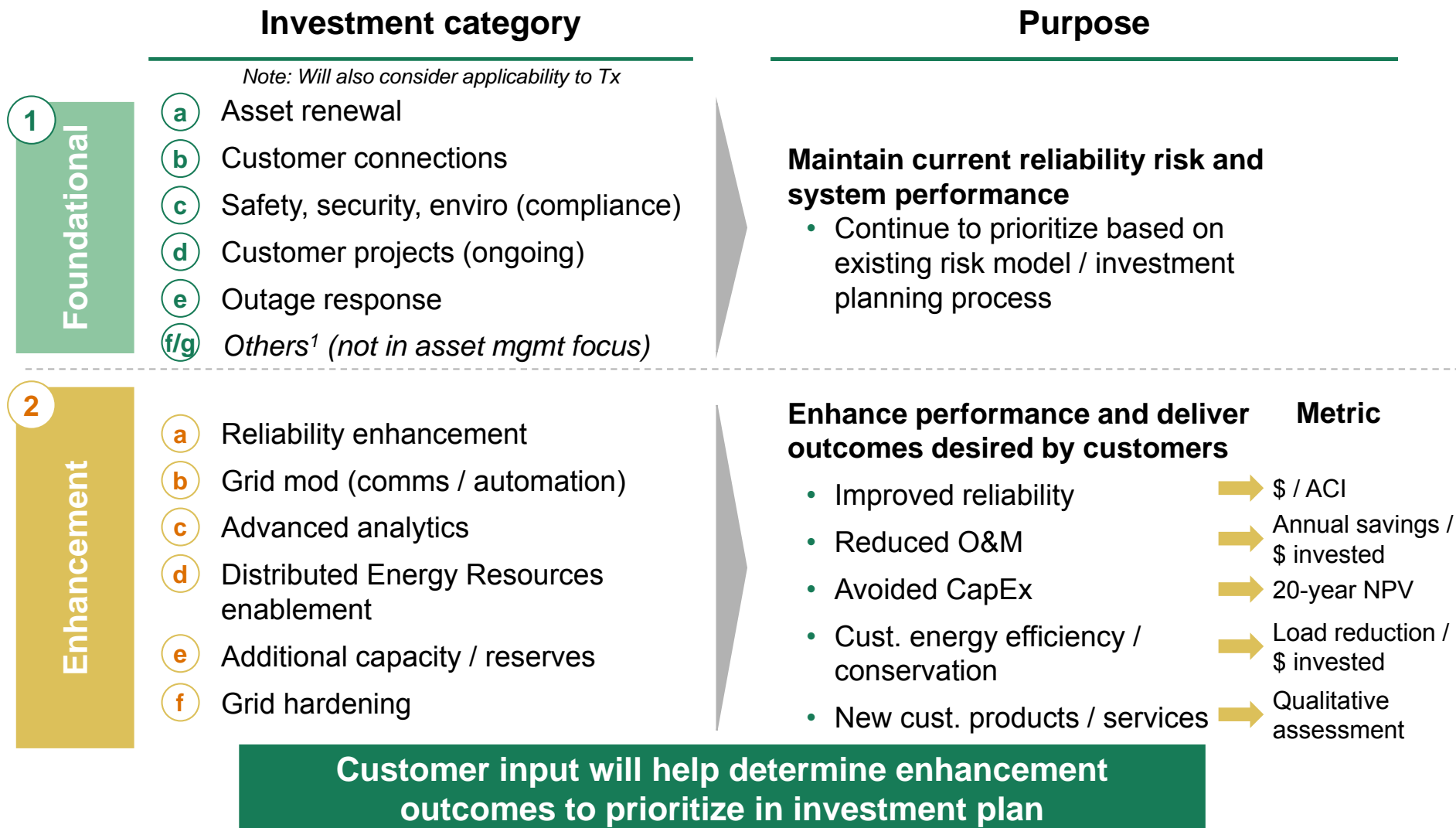
- Foundational spend: Maintain current reliability and risk of reliability – continue to prioritize based on risk within existing planning tools
- Enhancement spend: Focus on most cost effective options for delivering outcomes desired by customers – tie programs to specific outcomes (e.g., reliability improvement, avoided CapEx, O&M reduction)
- Need to eventually determine how best to integrate enhancement spend prioritization within existing tools

**Initial work has highlighted several opportunities that may more effectively deliver against targeted outcomes**

- Vegetation management: Opportunity to reduce costs of maintaining ROW, while deploying technology solutions to enhance reliability
- Grid modernization: Deployment of smart, controllable devices on grid can drive reliability improvement as well as operational efficiencies
- Worst performing feeder program: Addresses major outage drivers on feeders with highest concentration of customer outages

**Team will synthesize findings into Dx investment scenarios for review at SCM #4**

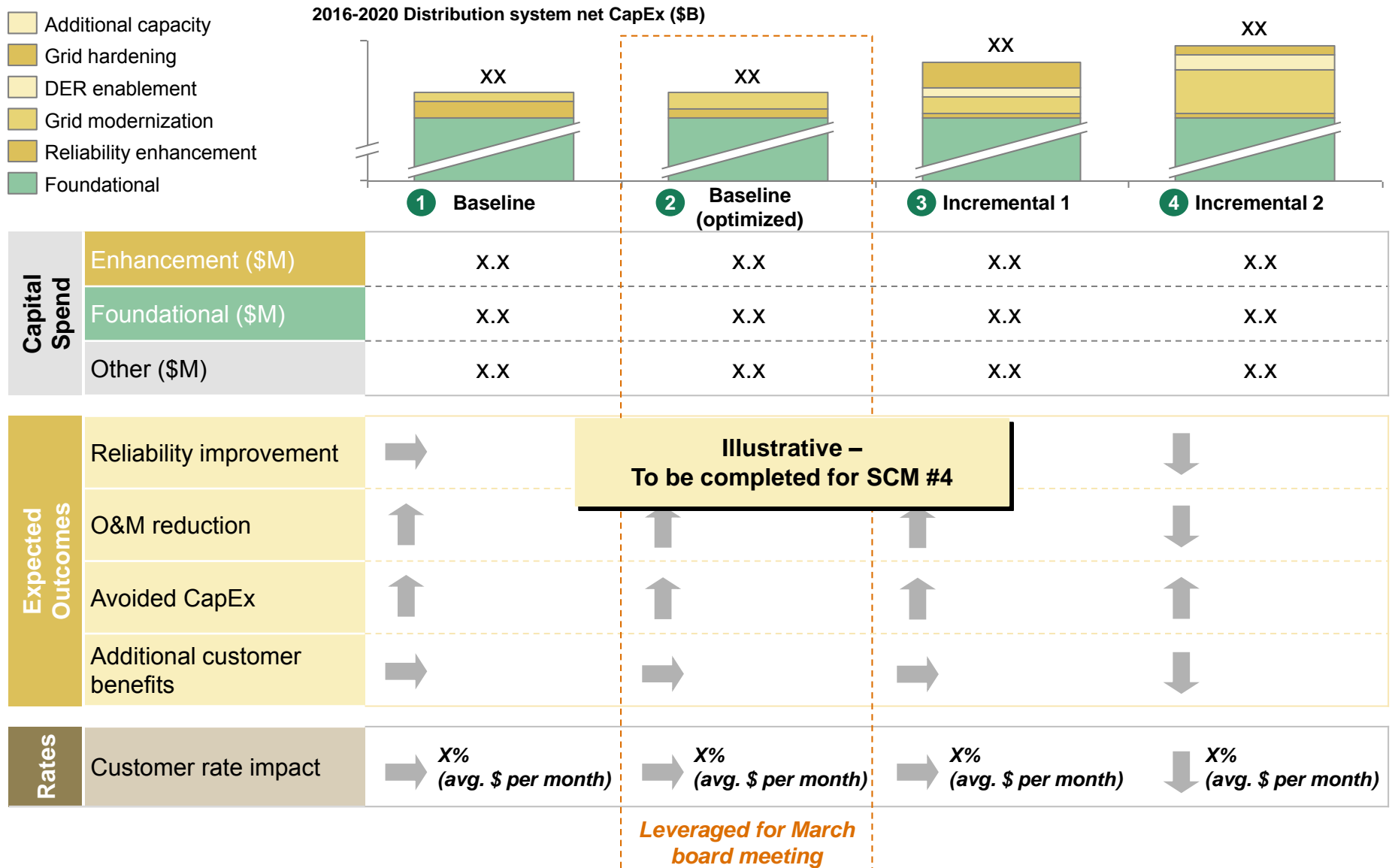
# Investments segmented into foundational and enhancement categories with different purposes



1. Others include e.g. Facilities and Enterprise IT, which are not directly related to network assets

Note: Foundational investments are those that are required for Hydro One to continue to deliver safe, reliable, and efficient service to all customers

# Target output will be Dx scenario outcomes that can be used in preparation for Dx rate filing



# Backup: Summary of 5-year CapEx budget

Out of total \$237M enhancement CapEx, \$108M for smart grid and rest in "Mixed"

## ***Dx Sustainment and Development – Capital***

Existing spend category	Investment driver name	2016-2020 budget (\$M)	New spend category	Key perf. impacts
Sustainment <i>Total: \$1,719M</i>	Wood Pole Replacement	499.1	Foundational <i>Total: \$1,005M</i>	Grid modernization and asset spend to reduce O&M and improve reliability
	Trouble Calls & Storm Damage	318.9		
	Joint Use and Relocations	135.3		
	PCB Transformer Replacement	51.8		
	Distributing & Regulating Stations	341.9	Mixed <i>Foundational: \$935M Enhancement: \$129M</i>	
	Lines	245.1		
	Metering	126.8		
Development <i>Total: \$1,072M</i>	System Capability Reinforcement	350.0	Foundational <i>Total: \$614M</i>	Grid modernization to reduce O&M and improve reliability
	New Load Connection Upg/Cancel/Meters	582.8		
	Distribution Generation Connection	29.6		
	Customer Power Quality (Dx)	1.0		
	Wholesale Metering	0.1		
	Smart Grid	108.0	Enhancement <i>Total: \$108M</i>	

# Backup: Summary of 5-year OM&A budget

\$97M enhancement OM&A in total; part of vegetation management seen as enhancement

## *Dx Sustainment and Development – O&M*

Existing spend category	Investment driver name	2016-2020 budget (\$M)	New spend category	Key perf. impacts
Sustainment <i>Total: \$1,702M</i>	Trouble Calls Customer Locates & Disconn	478.5	Foundational <i>Total: \$946M</i>	Improved reliability via strategic trim and hazard tree removal
	Line Maintenance and Repair	115.5		
	Distributing and Regulating Stations	99.3		
	PCB Test and Destruction	77.7		
	Other Services	77.2		
	Customer Meters	55.4		
	Land Assessment and Remediation	25.1		
	Telecom Monitoring and Control	14.6		
	Protection, Control and Telecom Maintenance	2.7		
	Vegetation Management	756.7	Mixed <i>Foundational: \$739M Enhancement: \$18M</i>	
Development <i>Total: \$105M</i>	Engineering and Technical Services	13.7	Foundational <i>Total: \$26M</i>	Smart grid and DER programs deliver improved reliability, energy efficiency, and new products
	Distributed Generation Connections	11.2		
	Customer Power Quality and Smart Metering	1.5		
	Smart Grid	55.0	Enhancement <i>Total: \$79M</i>	
	Standards Program	16.8		
	Distribution RD&D	15.0		
	Conservation and demand management	1.9		

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Stefanie Stocco	<b>10 min</b> (1:00-1:10)
<b>Regulatory:</b> rapid update on response from Tx customers (Wave 1)	Oded Hubert	<b>10 min</b> (1:10-1:20)
<b>Service delivery</b>		
• <b>Asset management:</b> rapid framing of Dx investment scenarios	Mike Penstone	<b>15 min</b> (1:20-1:35)
• <b>Capital efficiency:</b> deep dive on capital strategy to deliver plan	Brad Bowness	<b>45 min</b> (1:35-2:20)
<b>Efficiency</b>		
• Emerging view: Full potential and framework for timing of Labour & Outsourcing opportunities	BCG	<b>20 min</b> (2:20-2:40)
• <b>SG&amp;A effectiveness:</b> rapid update on Wave 2 sizing	Judy McKellar	<b>10 min</b> (2:40-2:50)
• <b>O&amp;M efficiency:</b> deep dive on savings levers and opportunity size	Jon Rebick	<b>30 min</b> (2:50-3:20)
• <b>Quick Wins:</b> confirmed wins to-date	Frank D'Andrea & Colin Penny	<b>5 min</b> (3:20-3:25)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> update	Laura Cooke	<b>20 min</b> (3:25-3:45)
• <b>Next steps:</b> outline for 3/31 BoD materials and plan for SteerCo 4	Stefanie Stocco	<b>15 min</b> (3:45-4:00)

# Executive summary: Capital efficiency

## Improved capital delivery capability but a larger program is forecast in future

- [REDACTED]
- [REDACTED]
- [REDACTED]

## Predictably delivering the investment plan will require improvements and changes to our current model

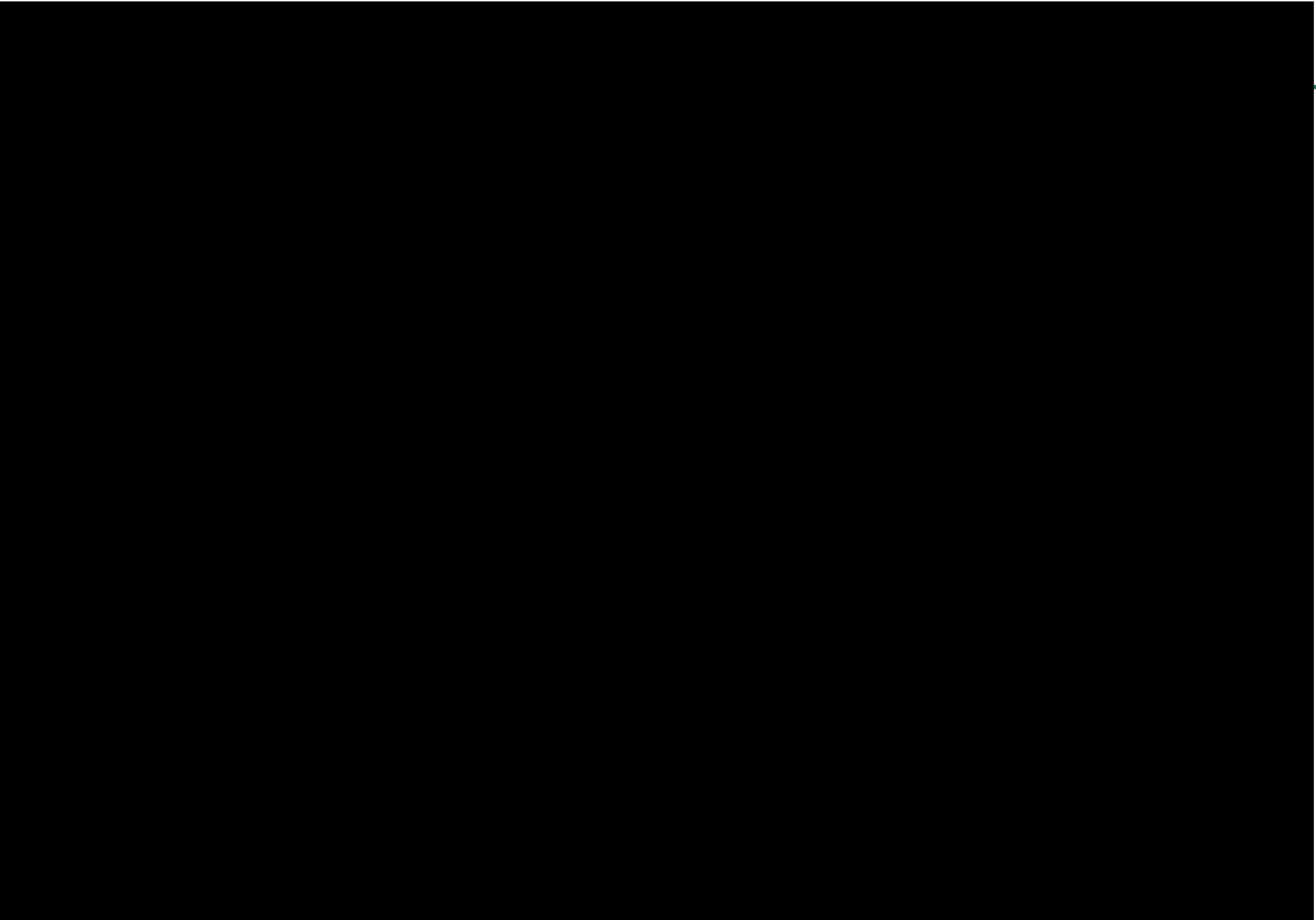
- Improved readiness of project program – ahead of external communication and construction – is required
- Expansion of external delivery models in select areas to rapidly scale and improve flexibility and performance
- A stronger gating mechanism that provides greater transparency, with more robust processes

## Several implementation challenges will need to be overcome

- Retaining an engaged workforce and positive working relationships
- Ensure the in-house skill mix reflects the new balance of work
- Successful strategic go-to-market to protect and capture value
- Union jurisdiction challenges related to incremental tower-coating, insulator replacements

# Our ability to deliver capital projects has been improving

**Capital delivery is now better placed to deliver a larger investment plan than in previous years**



# Closing the "readiness gap" is a priority

# Several benefits to "backing up" / extending current capital project cycle by one year

[Redacted]

[Redacted]

[Redacted]

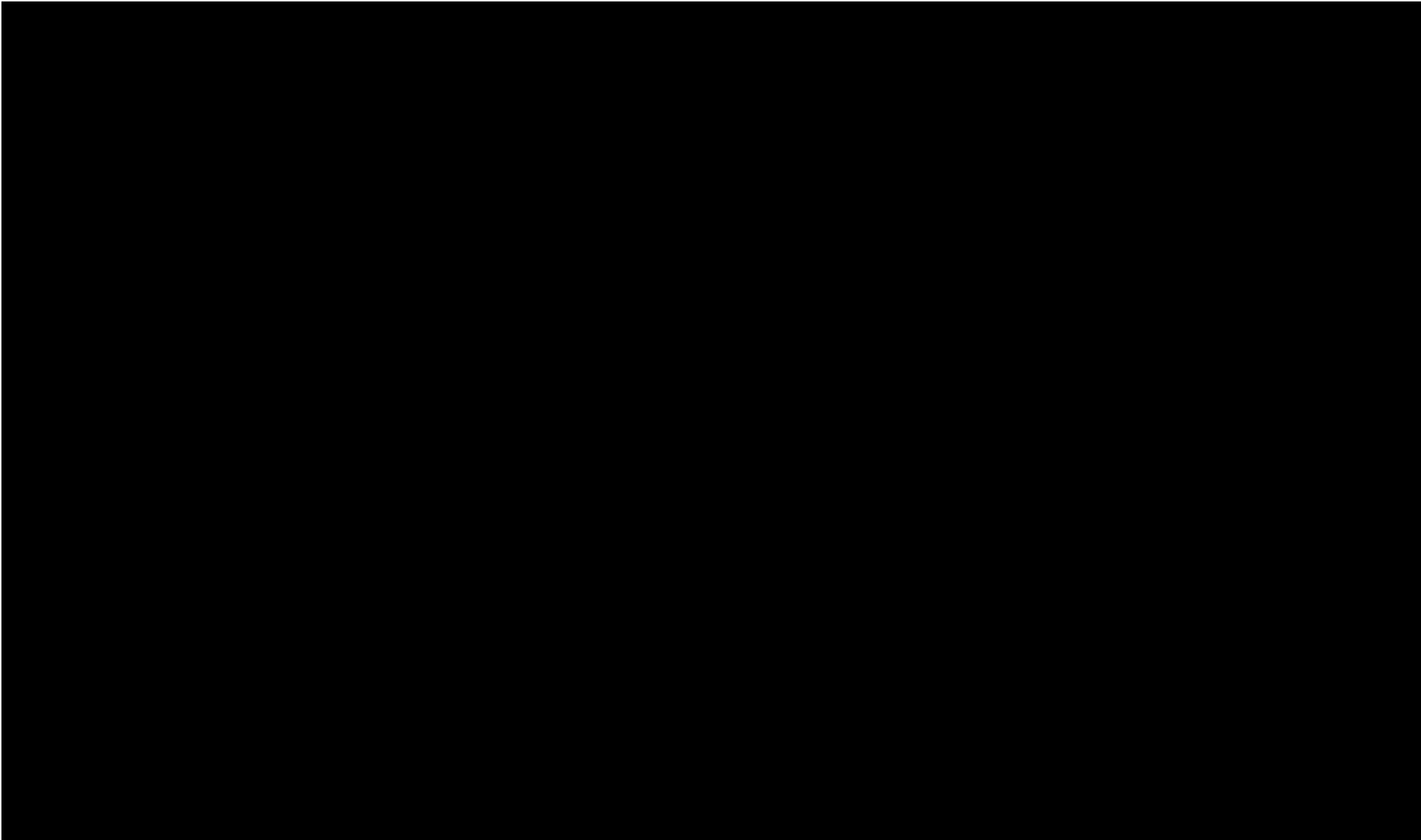
[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]



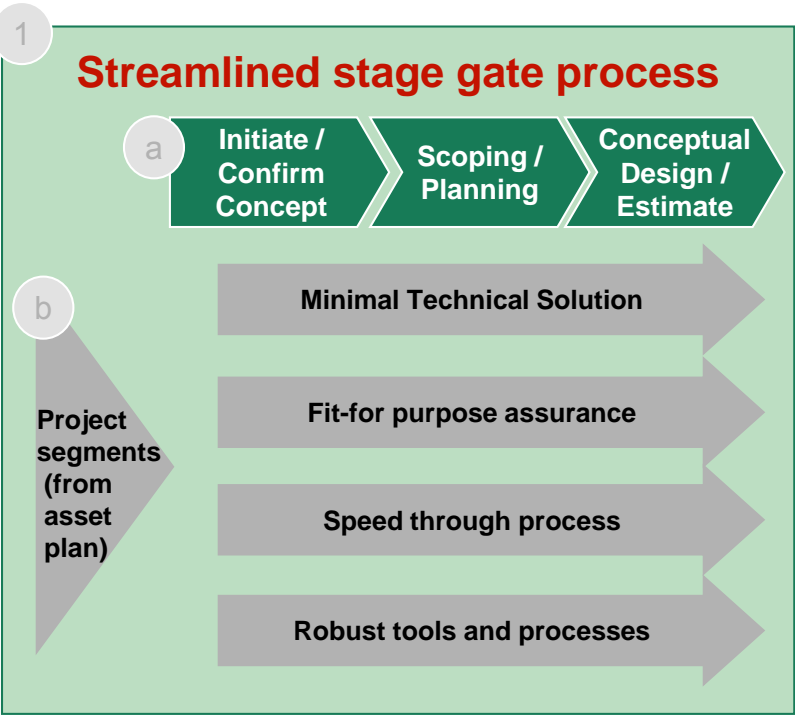
[Redacted]

[Redacted]

# Next steps: Execution efficiency update at SteerCo 4

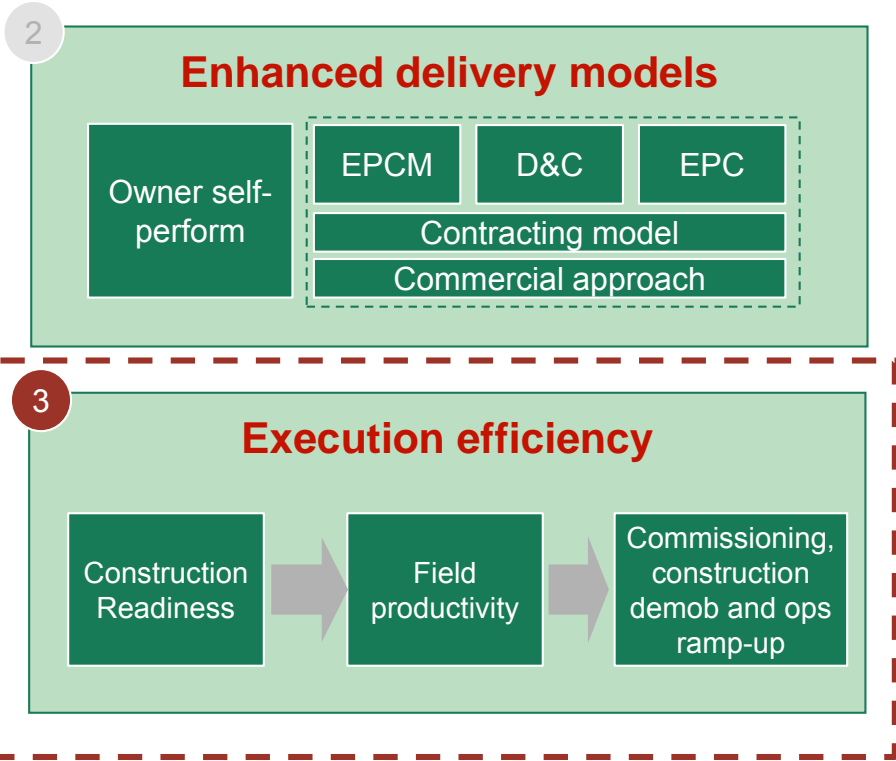
## Project development

*More (predictable) projects through the pipeline*



## Project delivery

*Enhanced capability to deliver*



# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Stefanie Stocco	<b>10 min</b> (1:00-1:10)
<b>Regulatory:</b> rapid update on response from Tx customers (Wave 1)	Oded Hubert	<b>10 min</b> (1:10-1:20)
<b>Service delivery</b>		
• <b>Asset management:</b> rapid framing of Dx investment scenarios	Mike Penstone	<b>15 min</b> (1:20-1:35)
• <b>Capital efficiency:</b> deep dive on capital strategy to deliver plan	Brad Bowness	<b>45 min</b> (1:35-2:20)
<b>Efficiency</b>		
• Emerging view: Full potential and framework for timing of Labour & Outsourcing opportunities	BCG	<b>20 min</b> (2:20-2:40)
• <b>SG&amp;A effectiveness:</b> rapid update on Wave 2 sizing	Judy McKellar	<b>10 min</b> (2:40-2:50)
• <b>O&amp;M efficiency:</b> deep dive on savings levers and opportunity size	Jon Rebick	<b>30 min</b> (2:50-3:20)
• <b>Quick Wins:</b> confirmed wins to-date	Frank D'Andrea & Colin Penny	<b>5 min</b> (3:20-3:25)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> update	Laura Cooke	<b>20 min</b> (3:25-3:45)
• <b>Next steps:</b> outline for 3/31 BoD materials and plan for SteerCo 4	Stefanie Stocco	<b>15 min</b> (3:45-4:00)

# Capital and OM&A baseline: \$2.8B

Being addressed through 3 efficiency initiatives

	2015 baseline (\$B)			3 work streams to identify savings opportunities	
	Capital	OM&A	Total	Work stream	Description (example levers)
Procured spend	~0.9	~0.5	~1.4	1 Procurement	<ul style="list-style-type: none"> <li>Specifications and service level rationalization to benchmark levels</li> <li>Controlling demand or consumption levels</li> <li>Fact-driven approach to competitive bids and negotiations</li> </ul>
People & Inergi spend					
Total					

# Emerging summary of full potential

Up to \$174-220M unconstrained value identified to-date (vs. 2015 baseline)

	(\$M)	Capital	OM&A	Total
Procured spend	1 Procurement	29 - 59	8 - 24	37 - 83
People & Inergi spend				



**View of potential over time (e.g., impact of labour & outsourcing constraints) to be developed by SteerCo 4**

1. Net of \$5M overlap between SG&A and O&M related to Move to Mobile

[Redacted text block]

[Redacted text block]

[Large redacted content area]

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Stefanie Stocco	<b>10 min</b> (1:00-1:10)
<b>Regulatory:</b> rapid update on response from Tx customers (Wave 1)	Oded Hubert	<b>10 min</b> (1:10-1:20)
<b>Service delivery</b>		
• <b>Asset management:</b> rapid framing of Dx investment scenarios	Mike Penstone	<b>15 min</b> (1:20-1:35)
• <b>Capital efficiency:</b> deep dive on capital strategy to deliver plan	Brad Bowness	<b>45 min</b> (1:35-2:20)
<b>Efficiency</b>		
• Emerging view: Full potential and framework for timing of Labour & Outsourcing opportunities	BCG	<b>20 min</b> (2:20-2:40)
• <b>SG&amp;A effectiveness:</b> rapid update on Wave 2 sizing	Judy McKellar	<b>10 min</b> (2:40-2:50)
• <b>O&amp;M efficiency:</b> deep dive on savings levers and opportunity size	Jon Rebick	<b>30 min</b> (2:50-3:20)
• <b>Quick Wins:</b> confirmed wins to-date	Frank D'Andrea & Colin Penny	<b>5 min</b> (3:20-3:25)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> update	Laura Cooke	<b>20 min</b> (3:25-3:45)
• <b>Next steps:</b> outline for 3/31 BoD materials and plan for SteerCo 4	Stefanie Stocco	<b>15 min</b> (3:45-4:00)

[Redacted]

[Redacted]

[Redacted]

# Our agenda for today

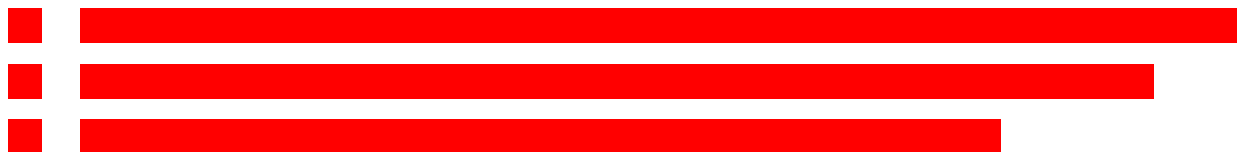
Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Stefanie Stocco	<b>10 min</b> (1:00-1:10)
<b>Regulatory:</b> rapid update on response from Tx customers (Wave 1)	Oded Hubert	<b>10 min</b> (1:10-1:20)
<b>Service delivery</b>		
• <b>Asset management:</b> rapid framing of Dx investment scenarios	Mike Penstone	<b>15 min</b> (1:20-1:35)
• <b>Capital efficiency:</b> deep dive on capital strategy to deliver plan	Brad Bowness	<b>45 min</b> (1:35-2:20)
<b>Efficiency</b>		
• Emerging view: Full potential and framework for timing of Labour & Outsourcing opportunities	BCG	<b>20 min</b> (2:20-2:40)
• <b>SG&amp;A effectiveness:</b> rapid update on Wave 2 sizing	Judy McKellar	<b>10 min</b> (2:40-2:50)
• <b>O&amp;M efficiency:</b> deep dive on savings levers and opportunity size	Jon Rebick	<b>30 min</b> (2:50-3:20)
• <b>Quick Wins:</b> confirmed wins to-date	Frank D'Andrea & Colin Penny	<b>5 min</b> (3:20-3:25)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> update	Laura Cooke	<b>20 min</b> (3:25-3:45)
• <b>Next steps:</b> outline for 3/31 BoD materials and plan for SteerCo 4	Stefanie Stocco	<b>15 min</b> (3:45-4:00)

# Executive Summary

## O&M Efficiency team has identified up to \$35M in unconstrained savings, incremental to business plan

- ~\$26M of savings are from new opportunities identified as part of "Good to Great" program
- \$9M of savings are from planned Forestry initiatives
- Additionally, ~\$27M savings from Lines, Stations and M2M have already been built into business plan

## Improvement opportunities comprise six initiatives across Forestry, Lines, and Stations

- 
- 4) Deploy fault indicators at strategic locations (~\$0.2 – 0.8M)
  - 5) Standardize execution of preventative maintenance across zones (~\$1.0 – 3.5M)
  - 6) Reduce cancellations of planned outages (~\$0.9 – 1.3M)

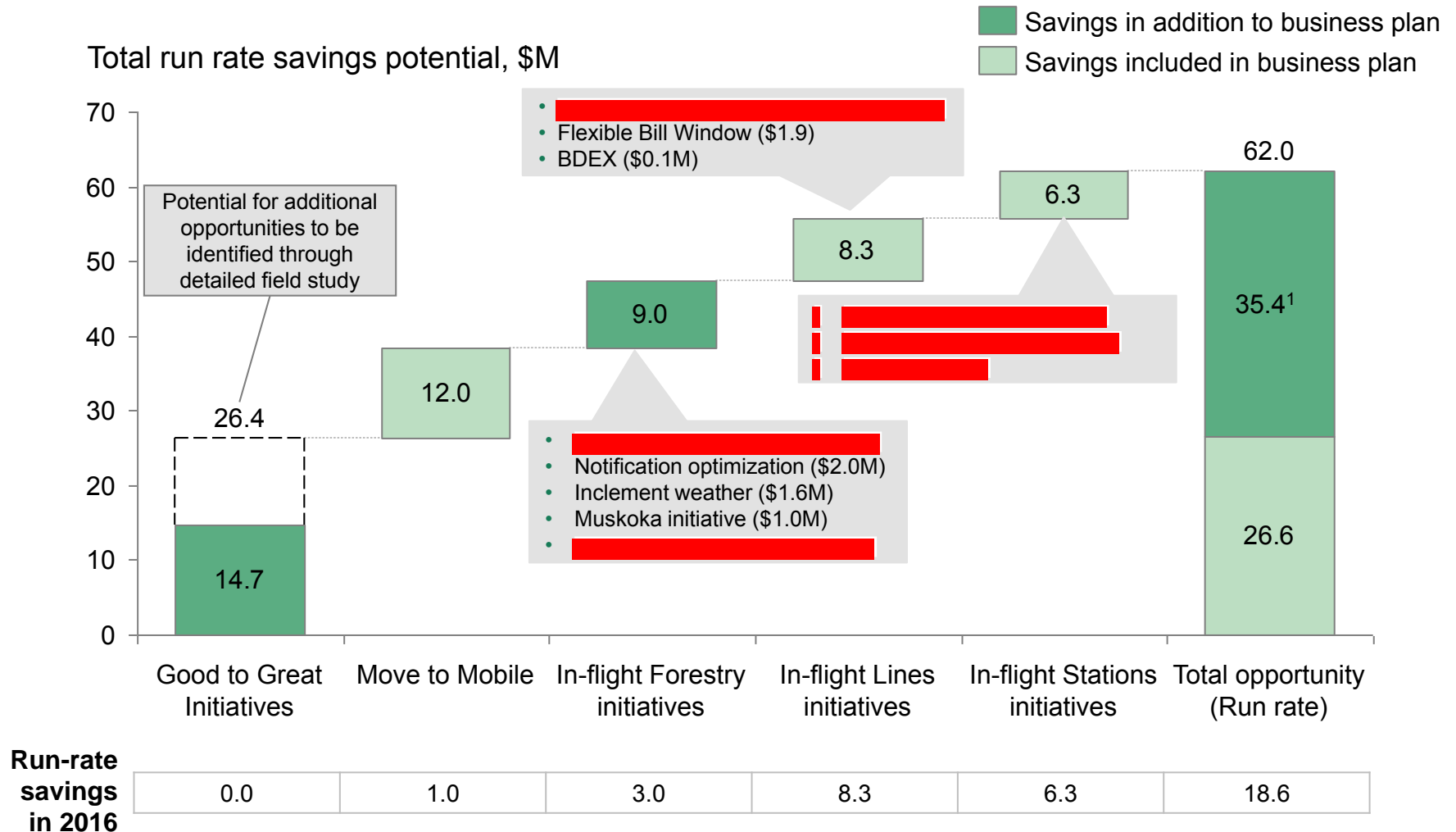
## Success of majority of opportunities is directly dependent on some level of negotiations with unions

- Severity of required changes could impact if, when and how savings are captured
- We have started to review potential levers to apply in contract bargaining to realize labour savings

## Next steps focus on implementation planning, including definition of glide path to realize savings

- Assess risk and mitigating actions associated with labour implications for identified opportunities
- Plan for detailed "deep dives" on each opportunity to develop implementation plans (through April)
- Define plan for additional field visits to explore additional efficiency opportunities

# Good to Great opportunities will supplement other initiatives that are planned or being developed

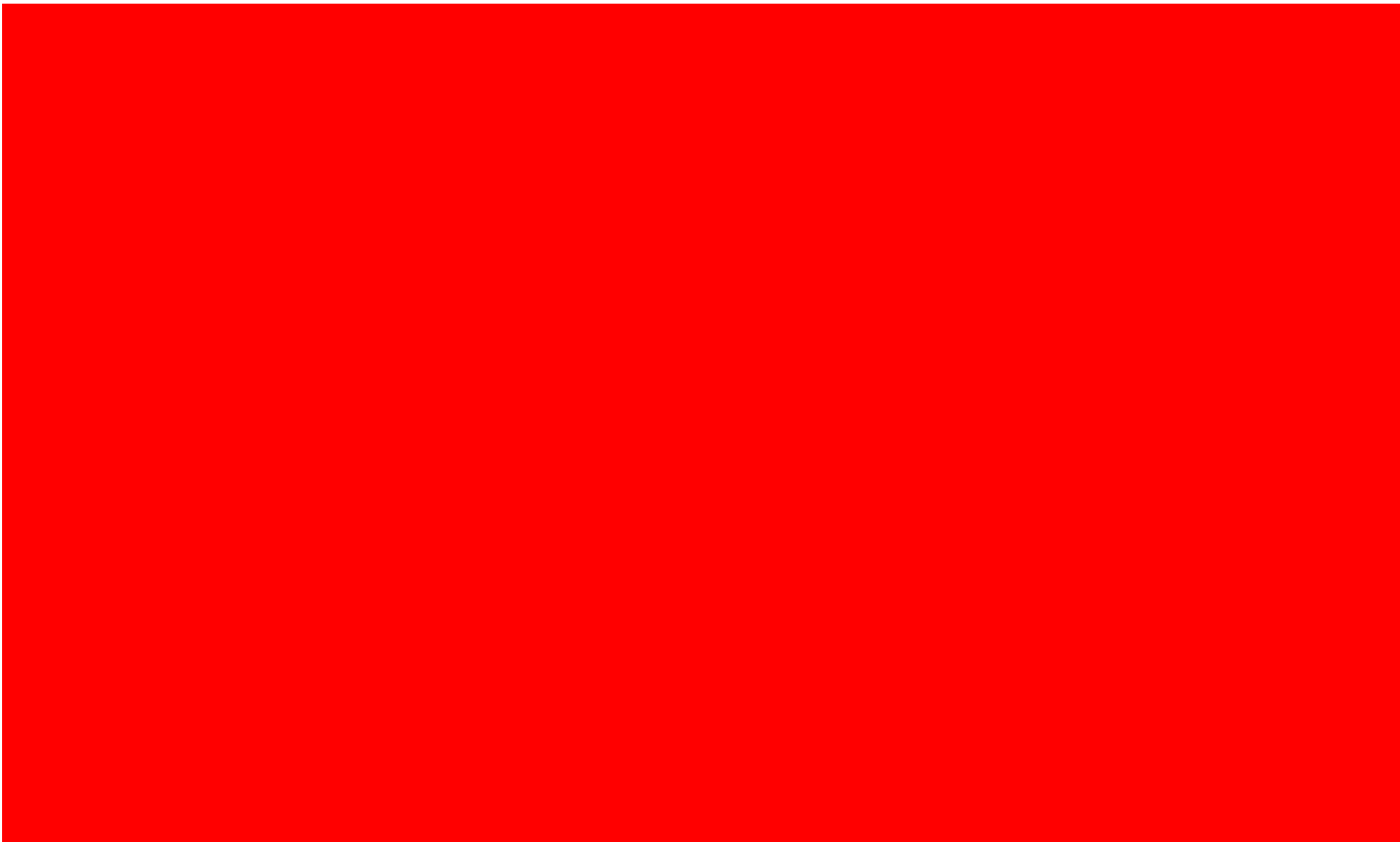


1. Includes high range of Good to Great opportunity sizing

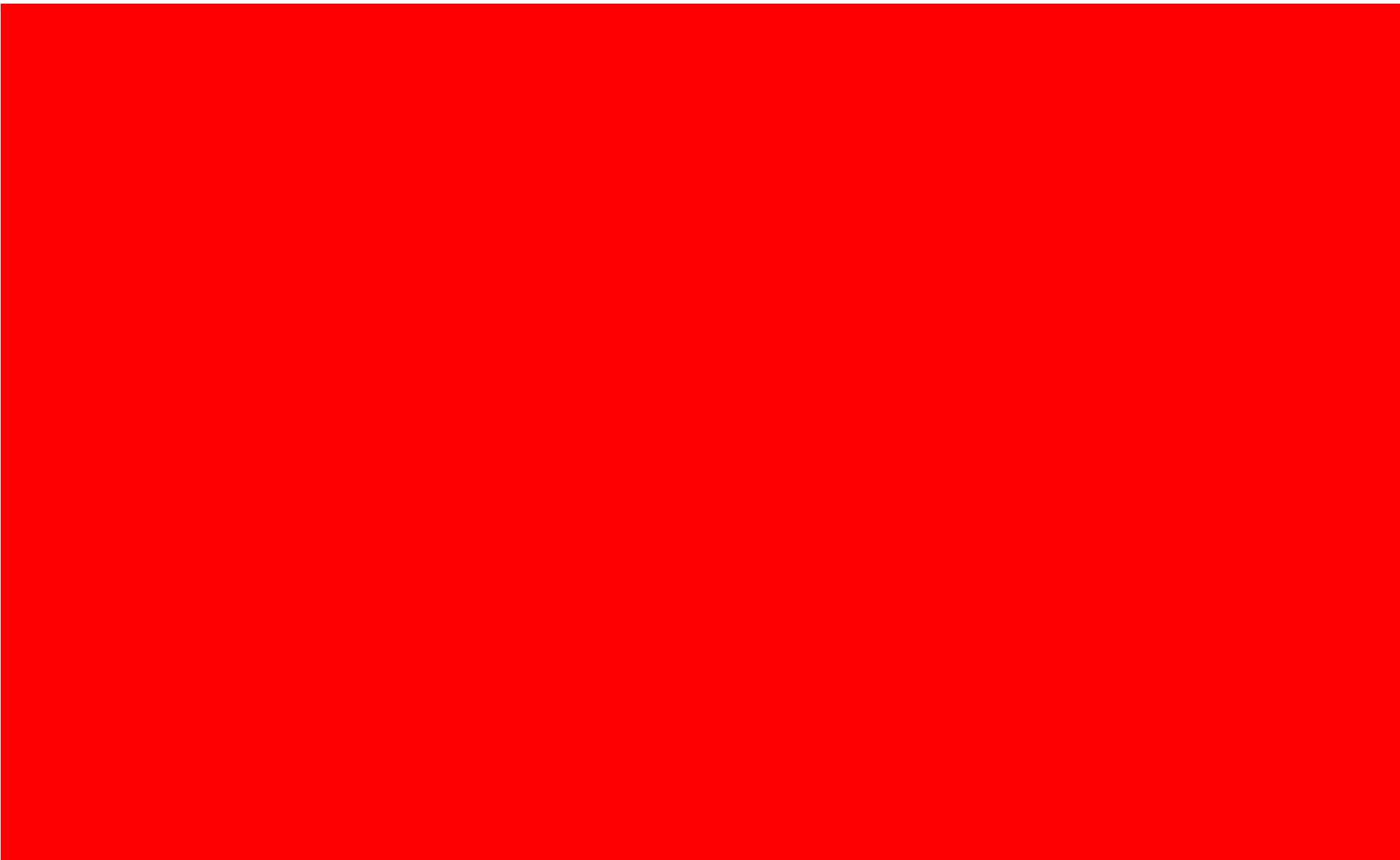
[Redacted]

[Redacted]

[Redacted]











# Relatively small investment in fault indicators could reduce time to resolve trouble calls, deliver \$0.2 – 0.8M in savings

## Use of fault indicators can reduce time to locate and resolve trouble calls

### Fault indicators provide many time saving benefits when locating faults:

- Overall reduced reclosing & sectionalizing
- Midpoint feeder sectionalizing narrows search area on long spans
- Use at taps can show crews which direction to proceed
- Use at dips and risers indicates whether to look at underground or overhead lines
- Use at off-road access points can eliminate need to search in

### Fault indicators also offer potential for reliability impact from SAIDI improvement

## Strategic deployment could save \$0.2 - \$0.8M in overtime costs

	M-Class		F-Class	
# of feeders w/fault indicators deployed	136 <sup>3</sup>		338 <sup>4</sup>	
Avg # of sets per feeder	2		2	
Cost per set (\$)¹	800		800	
Capital investment (\$M)	~0.75			
	Min	Max	Min	Max
# of OT calls impacted⁵	640	820	1630	2070
Time saved per call (hr)	0.5	1.5	0.5	1.5
OT cost (\$/hour)²	185	185	185	185
OT savings (\$M)	0.05	0.23	0.15	0.57
Total OT savings (\$M)	0.2 – 0.8			

**Deployment of fault indicators should be considered in context of long-term grid modernization efforts**

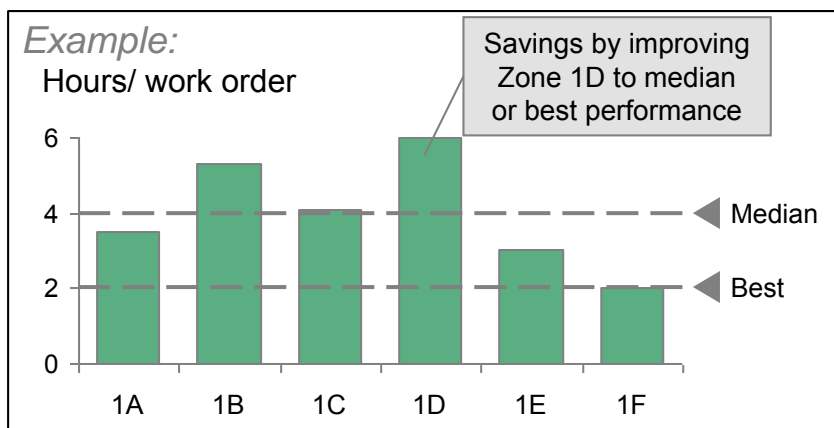
1. Cost for set of 3 non-communicating Horstmann fault indicators 2. 2X hourly overtime base rate for 2 journeymen and hourly cost of fuel and depreciation for TWE 3. Approximately 25% of M-Class feeders, selected based on # of trouble calls 4. Approximately 13% of F-Class feeders, selected based on # of trouble calls and likelihood that fault indicators will be beneficial 5. Min and max number of calls impacted based on 75 – 95% of the actual number of relevant 2015 calls on feeders where fault indicators are proposed for deployment

# Standardizing stations preventive maintenance across zones could save \$1 – 3.5M

## Performed internal benchmarking to assess prev maintenance opportunity

### Analyzed major preventive maintenance work across zones

- Compared avg. actual work time for each package
- Calculated estimated work hours saved by achieving median, best performance in all zones

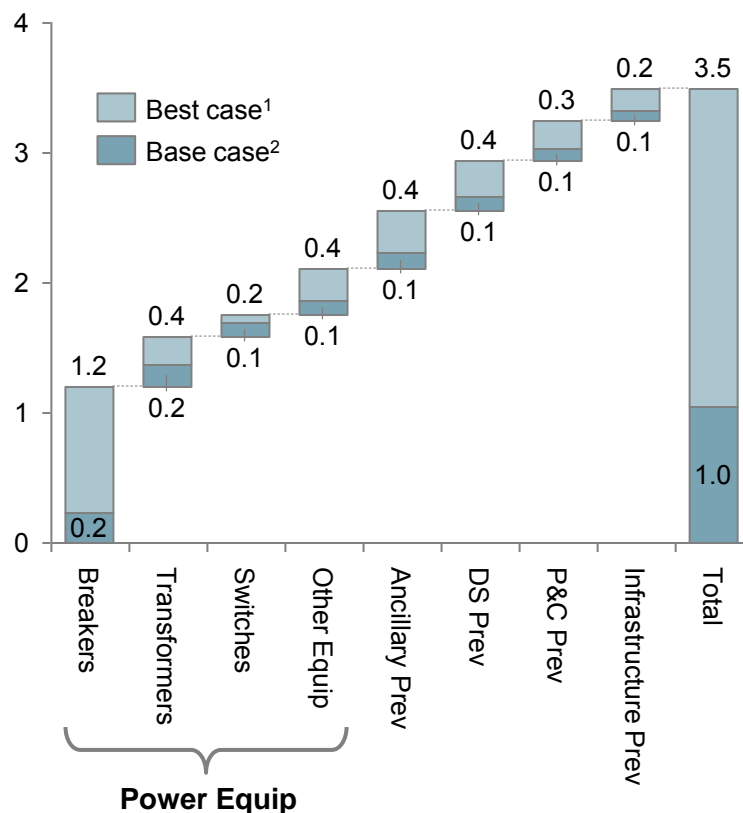


### Potential drivers of variance across zones include

- Lack of adherence to standard work processes
- Difference in crew training/capabilities
- Challenging geographic locations (e.g. travel time)
- Improper time reporting (data quality issue)

## Bottom-up estimate indicates \$1.0 – 3.5M in potential savings

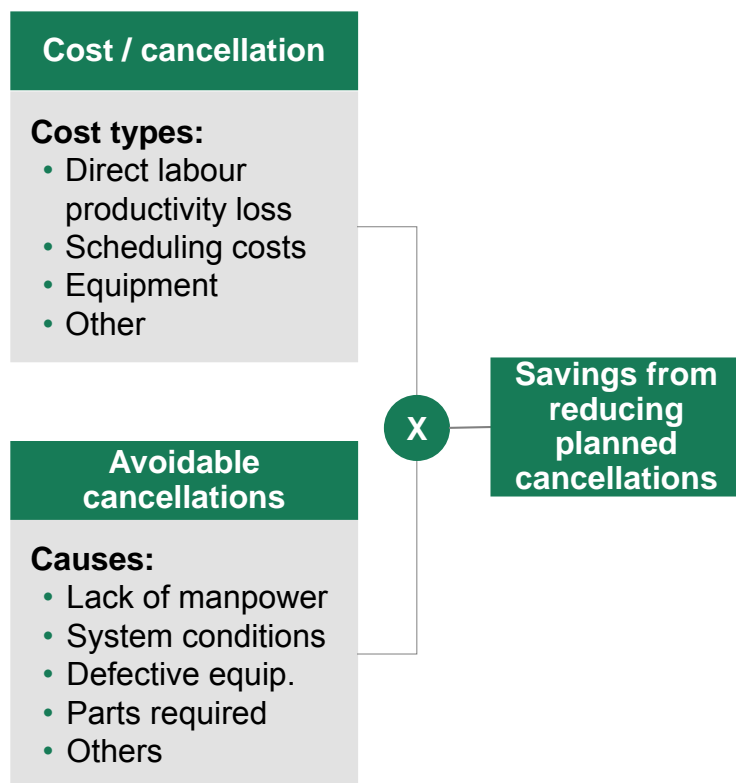
### Preventive maintenance savings, \$M



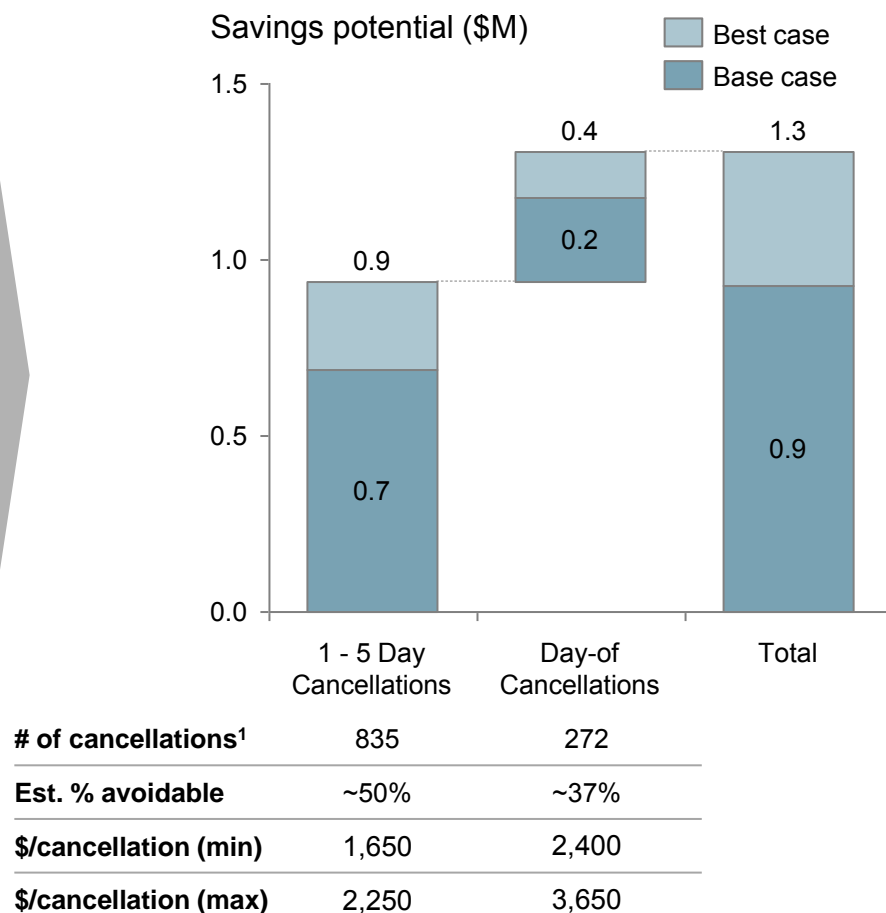
1. Best case indicates potential savings from closing gap to best performing zone 2. Base case indicates potential savings from closing gap to median performance

# Reducing cancellations of planned outages can save \$0.9 – 1.3M in outage planning, scheduling and other costs

## Assessed proportion of avoidable cancellations and cancellation costs



## Estimate ~\$0.9 – 1.3M in saving potential from avoided cancellations



1. # of outage cancellations in 2015

[Redacted content]

[Redacted content]

# Analysis to date has been supplemented with field visits and interviews

Visit	Activities	Initial observations
Forestry (Barrie/ Orillia)	<ul style="list-style-type: none"> <li>Attended morning work planning meeting</li> <li>Interviewed Superintendent, ops centre manager and UTS2</li> <li>Visited 4 active work sites and interviewed provincial foresters</li> </ul>	<b>Work efficiency</b> <ul style="list-style-type: none"> <li>May be room to <b>improve time out of the door</b> in mornings (all departments)</li> <li>Stations has good standard work processes in place, but <b>application of the processes may not be consistent</b> in all ops centres</li> </ul>
Lines (Barrie)	<ul style="list-style-type: none"> <li>Viewed shop and equipment</li> <li>Interviewed crew members – regional maintainer and UTS3</li> <li>Interviewed RLS, ops manager, and superintendent</li> <li>Interviewed business manager and sr. planning technician</li> <li>Interviewed OGCC manager of operations and grid ops supervisor</li> </ul>	<b>Equipment</b> <ul style="list-style-type: none"> <li><b>Reliability issues with bucket trucks</b> in Lines and Forestry</li> <li><b>New boom design less efficient</b> for Forestry work</li> </ul> <b>Training and capabilities</b> <ul style="list-style-type: none"> <li>May be <b>some gaps in the training program for lines apprentices</b>, particularly in troubleshooting</li> </ul>
Stations (Buchanan & Barrie)	<ul style="list-style-type: none"> <li>Interviewed GOFM and UTS2</li> <li>Interviewed OGCC manager of operating planning</li> </ul>	<b>Teaming and Leadership</b> <ul style="list-style-type: none"> <li>Generally good morale; <b>crew members feel Hydro One is a great place to work</b></li> <li><b>Administrative tasks can draw supervisors away</b> from working with crews</li> </ul>

**Initial field visits yielded useful insights, but opportunity assessment would require additional time in the field and more detailed studies**

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Stefanie Stocco	<b>10 min</b> (1:00-1:10)
<b>Regulatory:</b> rapid update on response from Tx customers (Wave 1)	Oded Hubert	<b>10 min</b> (1:10-1:20)
<b>Service delivery</b>		
• <b>Asset management:</b> rapid framing of Dx investment scenarios	Mike Penstone	<b>15 min</b> (1:20-1:35)
• <b>Capital efficiency:</b> deep dive on capital strategy to deliver plan	Brad Bowness	<b>45 min</b> (1:35-2:20)
<b>Efficiency</b>		
• Emerging view: Full potential and framework for timing of Labour & Outsourcing opportunities	BCG	<b>20 min</b> (2:20-2:40)
• <b>SG&amp;A effectiveness:</b> rapid update on Wave 2 sizing	Judy McKellar	<b>10 min</b> (2:40-2:50)
• <b>O&amp;M efficiency:</b> deep dive on savings levers and opportunity size	Jon Rebick	<b>30 min</b> (2:50-3:20)
• <b>Quick Wins:</b> confirmed wins to-date	Frank D'Andrea & Colin Penny	<b>5 min</b> (3:20-3:25)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> update	Laura Cooke	<b>20 min</b> (3:25-3:45)
• <b>Next steps:</b> outline for 3/31 BoD materials and plan for SteerCo 4	Stefanie Stocco	<b>15 min</b> (3:45-4:00)

# ~\$5.4M confirmed net savings in 2016 (\$6.7M run-rate)

All initiatives being tracked to guarantee implementation progress

		2016 in-year (\$M) (OM&A+Capital)			Net run rate savings (\$M)	Status	Impact will begin?	Inergi related?	Risk/Consideration
		Savings	Cost	Net savings					
1	Reduce infrastructure costs by	2.5	0.15	2.35	3.2				Leverage standard contractual RRC methodology. Reduce size of backup archives by moving to 'daily incremental and monthly full' in non-prod/project environments
	• Optimizing backup & storage	1.5	0.05	1.45	1.8	●	Q2	Y	
	• Optimizing project environments	0.5	0.05	0.45	0.7	●	Q2	Y	
	• Decommissioning infrastructure & DBs	0.5	0.05	0.45	0.7	●	Q2	Y	
2	Renegotiate contracts to reduce	1.9	0.03	1.9	2.3				No risk to overall delivery of enhancements
	• Hourly Inergi rate for minor enhancements	0.4	-	0.4	-	●	Q2	Y	
	• Cost of 3rd party licenses & maintenance	0.5	0.03	0.475	1	✓	Q1	N	
	• Mobility services	1	-	1	1.3	✓	Q1	N	
3	Reduce minor enhancement budget	1	-	1	1				Will focus on areas with large capital investment to reduce minor enhancement spend
	• Inergi budget	0.8	-	0.8	0.96	✓	Q1	Y	
	• Non-inergi budget	0.2	-	0.2	-	✓		N	
5	Cancel transformation projects not delivering value or no longer needed	0.1	-	0.1	0.1				Savings are being realized – no further action required
	• Command Center	0.03	-	0.03	0.03	✓	Q1	Y	
	• Mobile Pay Advice Stream	0.03	-	0.03	0.03	✓	Q1	Y	
	• Mobile Receipting	0.04	-	0.04	0.04	✓	Q1	Y	
Total		5.6	0.2	5.4	6.7				

xx: budget adjustment has been communicated to finance

xx: budget adjustment has NOT been communicated to finance

✓ Completed ● On track

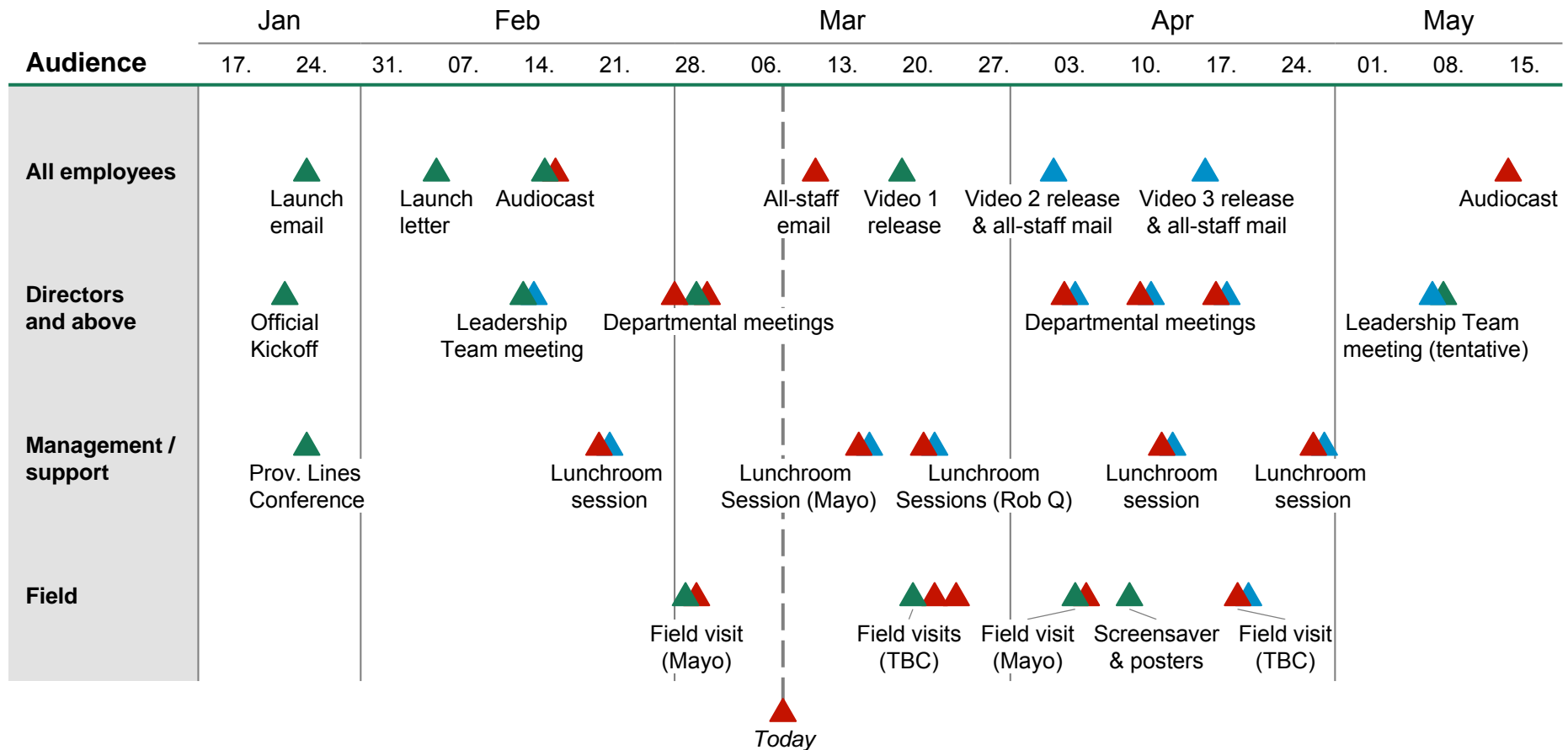
● At risk

● Off track

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Stefanie Stocco	<b>10 min</b> (1:00-1:10)
<b>Regulatory:</b> rapid update on response from Tx customers (Wave 1)	Oded Hubert	<b>10 min</b> (1:10-1:20)
<b>Service delivery</b>		
• <b>Asset management:</b> rapid framing of Dx investment scenarios	Mike Penstone	<b>15 min</b> (1:20-1:35)
• <b>Capital efficiency:</b> deep dive on capital strategy to deliver plan	Brad Bowness	<b>45 min</b> (1:35-2:20)
<b>Efficiency</b>		
• Emerging view: Full potential and framework for timing of Labour & Outsourcing opportunities	BCG	<b>20 min</b> (2:20-2:40)
• <b>SG&amp;A effectiveness:</b> rapid update on Wave 2 sizing	Judy McKellar	<b>10 min</b> (2:40-2:50)
• <b>O&amp;M efficiency:</b> deep dive on savings levers and opportunity size	Jon Rebick	<b>30 min</b> (2:50-3:20)
• <b>Quick Wins:</b> confirmed wins to-date	Frank D'Andrea & Colin Penny	<b>5 min</b> (3:20-3:25)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> update	Laura Cooke	<b>20 min</b> (3:25-3:45)
• <b>Next steps:</b> outline for 3/31 BoD materials and plan for SteerCo 4	Stefanie Stocco	<b>15 min</b> (3:45-4:00)

# Where are we today: internal communications plan



## Legend:

- ▲ Educate – what, how, why?
- ▲ Engage – what's in it for me?
- ▲ Energize – what does success look like?

# Communications update: Peterborough field visit

- Discussed "Good to Great" with 15 employees selected as future leaders from Lines, Forestry, Stations and Construction
- Held a Town Hall with 70 employees at the Peterborough Ops Centre
- Conducted field visits with Lines and Forestry crews
- First video to "go-live" on March 22 – comms plan in place to distribute through various channels



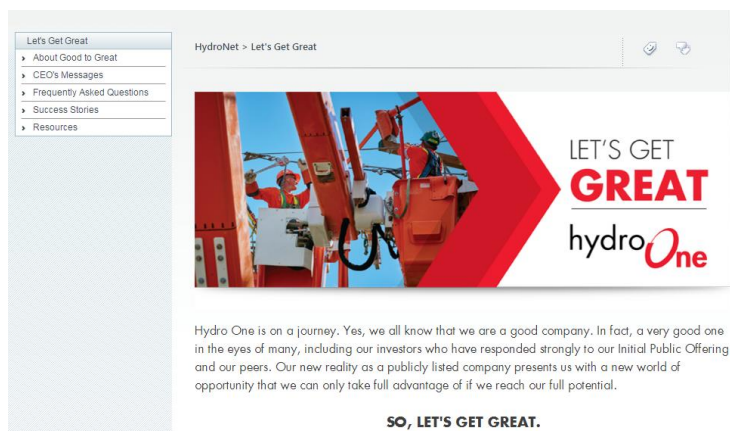
Quote from a Field Manager:

*"For the first time in my career I feel like I'm incredibly excited about the future of this company and where we can go. I think people are scared of change, but hearing Mayo helped me understand that change is going to bring a lot of opportunity"*

**Key themes: Hydro One is strong; Opportunities are bigger than you think; We all have a role to play in order to win**

# Communications update: Other recent and upcoming events

## Good to Great HydroNet site is live



### Good to Great site went live on March 7 with:

- Description of Good to Great program
- FAQs
- Photographs and stories from Peterborough Field Visit
- [G2G@HydroOne.com](mailto:G2G@HydroOne.com) email for feedback

## Lunchroom sessions are scheduled

**Goal:** To spark conversations about Change and share change work already underway

- e.g. customer service initiatives, approach to customer consultation, procurement policies, etc.

**Dates:** March 18 + 2-3 sessions in April/May

**Format:** Small-group informal lunchroom conversation with a HydroOne leader

**What communications team will provide:** Conversation starters, key messages and promotion of event.

**What we need from you:** Volunteers for sessions

**We want your feedback (e.g. what you are hearing from employees, what could we do better, new FAQs)**

# Our agenda for today

Topic	Lead	Time
<b>Good to Great program update</b> (including Safety Moment)	Stefanie Stocco	<b>10 min</b> (1:00-1:10)
<b>Regulatory:</b> rapid update on response from Tx customers (Wave 1)	Oded Hubert	<b>10 min</b> (1:10-1:20)
<b>Service delivery</b>		
• <b>Asset management:</b> rapid framing of Dx investment scenarios	Mike Penstone	<b>15 min</b> (1:20-1:35)
• <b>Capital efficiency:</b> deep dive on capital strategy to deliver plan	Brad Bowness	<b>45 min</b> (1:35-2:20)
<b>Efficiency</b>		
• Emerging view: Full potential and framework for timing of Labour & Outsourcing opportunities	BCG	<b>20 min</b> (2:20-2:40)
• <b>SG&amp;A effectiveness:</b> rapid update on Wave 2 sizing	Judy McKellar	<b>10 min</b> (2:40-2:50)
• <b>O&amp;M efficiency:</b> deep dive on savings levers and opportunity size	Jon Rebick	<b>30 min</b> (2:50-3:20)
• <b>Quick Wins:</b> confirmed wins to-date	Frank D'Andrea & Colin Penny	<b>5 min</b> (3:20-3:25)
<b>Wrap-up and next steps</b>		
• <b>Communications:</b> update	Laura Cooke	<b>20 min</b> (3:25-3:45)
• <b>Next steps:</b> outline for 3/31 BoD materials and plan for SteerCo 4	Stefanie Stocco	<b>15 min</b> (3:45-4:00)

# Draft March 31 Board of Directors discussion outline

Topic	Content
<b>Introduction and summary</b>	<ul style="list-style-type: none"> <li>Strategic framework</li> <li>Objectives for today vs. future sessions</li> <li>Executive summary</li> </ul>
<b>Service delivery:</b>	
<ul style="list-style-type: none"> <li>Voice of the customer</li> </ul>	<ul style="list-style-type: none"> <li>Customer segmentation</li> <li>Needs and priorities vs. level of satisfaction</li> <li>Implications for system investment plan and customer service roadmap</li> </ul>
<ul style="list-style-type: none"> <li>System investment plan</li> </ul>	<ul style="list-style-type: none"> <li>Summary 5-year system investment plan (and range)</li> <li>Tx investment plan scenarios</li> <li>Supporting analysis on Tx plan</li> <li>Tx filing process update</li> <li>Emerging feedback from Tx customer consultation</li> <li>Dx investment plan draft</li> <li>Supporting analysis on Dx plan draft</li> <li>Implications of investment plan on customer bill impact (and range of sensitivities)</li> </ul>
<ul style="list-style-type: none"> <li>Capital strategy</li> </ul>	<ul style="list-style-type: none"> <li>Summary of improvements to project governance process to improve predictability &amp; effective capacity</li> <li>Segmentation of projects by capital delivery (e.g., outsourcing) models and impact on effective capacity</li> <li>Implications for ability to deliver system investment plan and contingencies still to be validated in April (e.g., labour constraints and E&amp;C market capacity)</li> </ul>
<ul style="list-style-type: none"> <li>Customer service roadmap</li> </ul>	<ul style="list-style-type: none"> <li>Summary customer service roadmap by segment: Residential &amp; Small business vs. Commercial &amp; Industrial vs. Large Distribution vs. Transmission</li> </ul>

Topic	Content
<b>Efficiency</b>	
<ul style="list-style-type: none"> <li>Full potential summary</li> </ul>	<ul style="list-style-type: none"> <li>Baseline summary: Capital vs. OM&amp;A, Procurement vs. SG&amp;A and O&amp;M people spend</li> <li>Efficiency full potential summary: 2018+</li> <li>Emerging view on timing: 2016 vs. 2017 vs. 2018+</li> <li>Impact executed to-date</li> </ul>
<ul style="list-style-type: none"> <li>Procurement</li> </ul>	<ul style="list-style-type: none"> <li>Summary of procurement opportunities being tackled across 4 waves</li> <li>Approach and levers for Wave 1</li> </ul>
<ul style="list-style-type: none"> <li>O&amp;M efficiency</li> </ul>	<ul style="list-style-type: none"> <li>Summary of O&amp;M opportunities identified to-date</li> <li>Sample analyses</li> <li>Plan to explore tool time opportunity</li> </ul>
<ul style="list-style-type: none"> <li>SG&amp;A effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>Summary of SG&amp;A opportunities by source of value and representative actions by function</li> <li>Summary of systemic effectiveness issues and plan to address in longer-term reorganization effort</li> </ul>
<b>Customer bill vs. shareholder value tradeoff</b>	<ul style="list-style-type: none"> <li>Summary view of: <ul style="list-style-type: none"> <li>Customer bill impact of investment plan net of efficiency full potential opportunity</li> <li>Versus emerging view of shareholder value</li> </ul> </li> </ul>
<b>Change mgmt approach</b>	<ul style="list-style-type: none"> <li>Key elements of change mgmt approach: <ul style="list-style-type: none"> <li>Capabilities and enablement</li> <li>Performance management and culture</li> </ul> </li> <li>Context of overall journey and plan to shift to execution post-May to drive efficiency, enable org</li> <li>Emerging view of core competencies and key priorities for execution phase</li> </ul>
<b>Stakeholder mgmt. approach</b>	<ul style="list-style-type: none"> <li>Summary of key objectives to address by stakeholder</li> <li>Summary of key stakeholder imperatives to address in near-term</li> </ul>

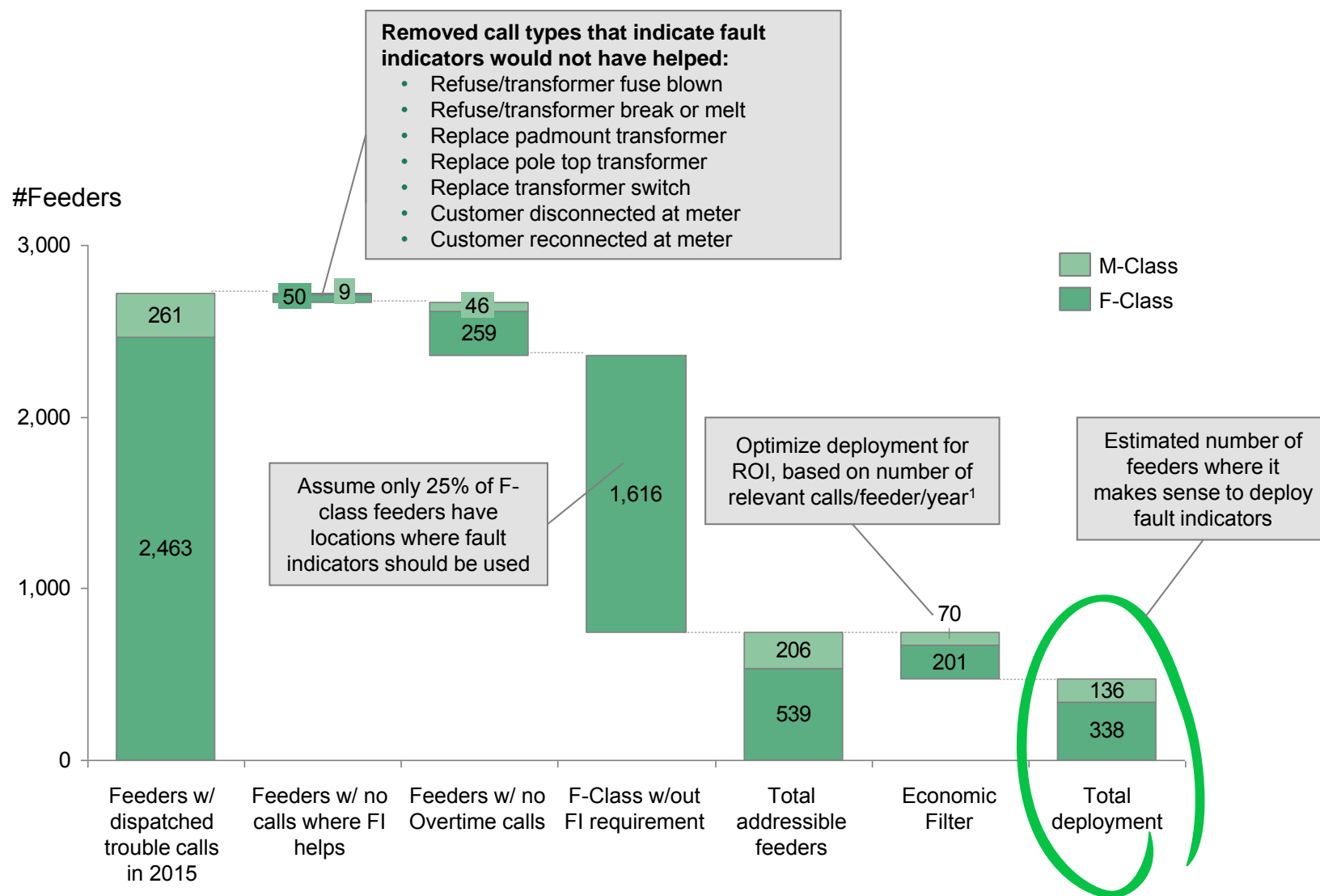
# Next steps: agenda for next SteerCo meeting

SteerCo #1 Feb 9	SteerCo #2 Feb 25	SteerCo #3 March 11	<b><i>Focus of next Steerco</i></b> <div> <b>SteerCo #4 March 21</b>   <b>Review of materials for 3/31 board meeting, including:</b> <ul style="list-style-type: none"> <li>□ Key outputs reviewed in previous SteerCo meetings</li> <li>□ 5 year asset management plan</li> <li>□ Stakeholder management approach</li> <li>□ Change management approach</li> </ul> </div>
<b>Regulatory</b> <ul style="list-style-type: none"> <li>□ Review customer needs by segment</li> <li>□ Approve strategic approach to customer consultation (for Tx)</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>□ Define aspiration, metrics, and targets for performance</li> <li>□ Describe drivers to meet performance targets</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>□ Review baseline and benchmark analysis</li> <li>□ Approve quick wins</li> </ul>	<b>Regulatory</b> <ul style="list-style-type: none"> <li>□ Review investment scenarios and evidence for consultation</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>□ Review emerging Capital stage gate and delivery model plan</li> <li>□ Review detailing of R&amp;SB Customer initiatives</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>□ Review opportunity sizing <ul style="list-style-type: none"> <li>• Procurement</li> <li>• Org effectiveness</li> <li>• Labour policies</li> </ul> </li> <li>□ Approve <ul style="list-style-type: none"> <li>• Procurement Wave 1</li> <li>• Quick wins</li> </ul> </li> </ul> <b>Communications</b> <ul style="list-style-type: none"> <li>□ Review internal plan and share Manager's Toolkit</li> </ul>	<b>Regulatory</b> <ul style="list-style-type: none"> <li>□ Updated on emerging findings from Wave 1 consultation</li> <li>□ Approve Wave 2 consultation</li> </ul> <b>Service delivery</b> <ul style="list-style-type: none"> <li>□ Update on Dx investment plan</li> <li>□ Review large Customer segment initiatives</li> <li>□ Review proposed Capital stage gate and delivery model</li> </ul> <b>OM&amp;A efficiency</b> <ul style="list-style-type: none"> <li>□ Review 2016-2020 full potential <ul style="list-style-type: none"> <li>• Procurement</li> <li>• Org effectiveness</li> <li>• Labour policies</li> <li>• O&amp;M efficiency</li> </ul> </li> </ul> <b>Communications</b> <ul style="list-style-type: none"> <li>□ Review external plan</li> </ul>	

## "O&M Efficiency" - APPENDIX



# Backup: Filtered trouble calls to identify where fault indicators would have OT impact and be most economical



1. Set full capital cost recovery horizon at 1 year, given max savings scenario (~3-4 years given min savings scenario)

# Fault indicators are simple to deploy and can save time in a variety of scenarios

**Fault indicators are simple to install and relatively inexpensive**



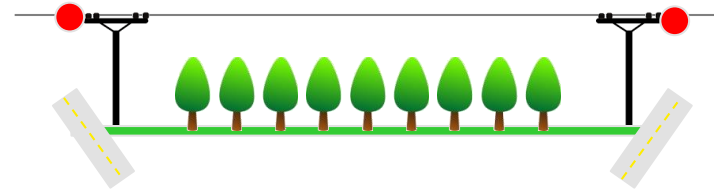
Fault indicators can be installed by one man with a hot stick in only a few minutes, with no need for an outage

**Significant benefits can come with a relatively small investment**

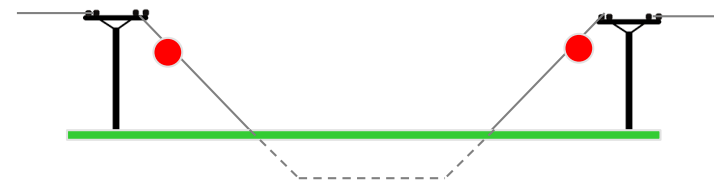
- Set of 3 (for 3 phases) non-communicating fault indicators costs ~\$800
- Communicating fault indicators cost about 2x as much, but could be integrated w/DMS

**Several situations present ideal opportunities to deploy fault indicators**

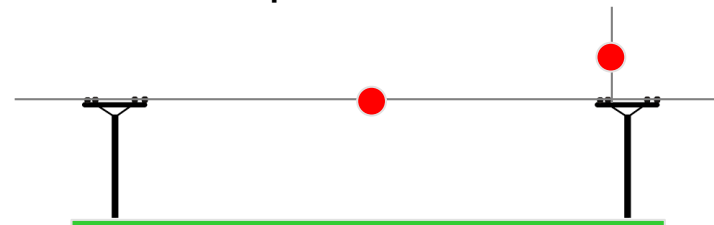
**Long off-road sections of feeders**



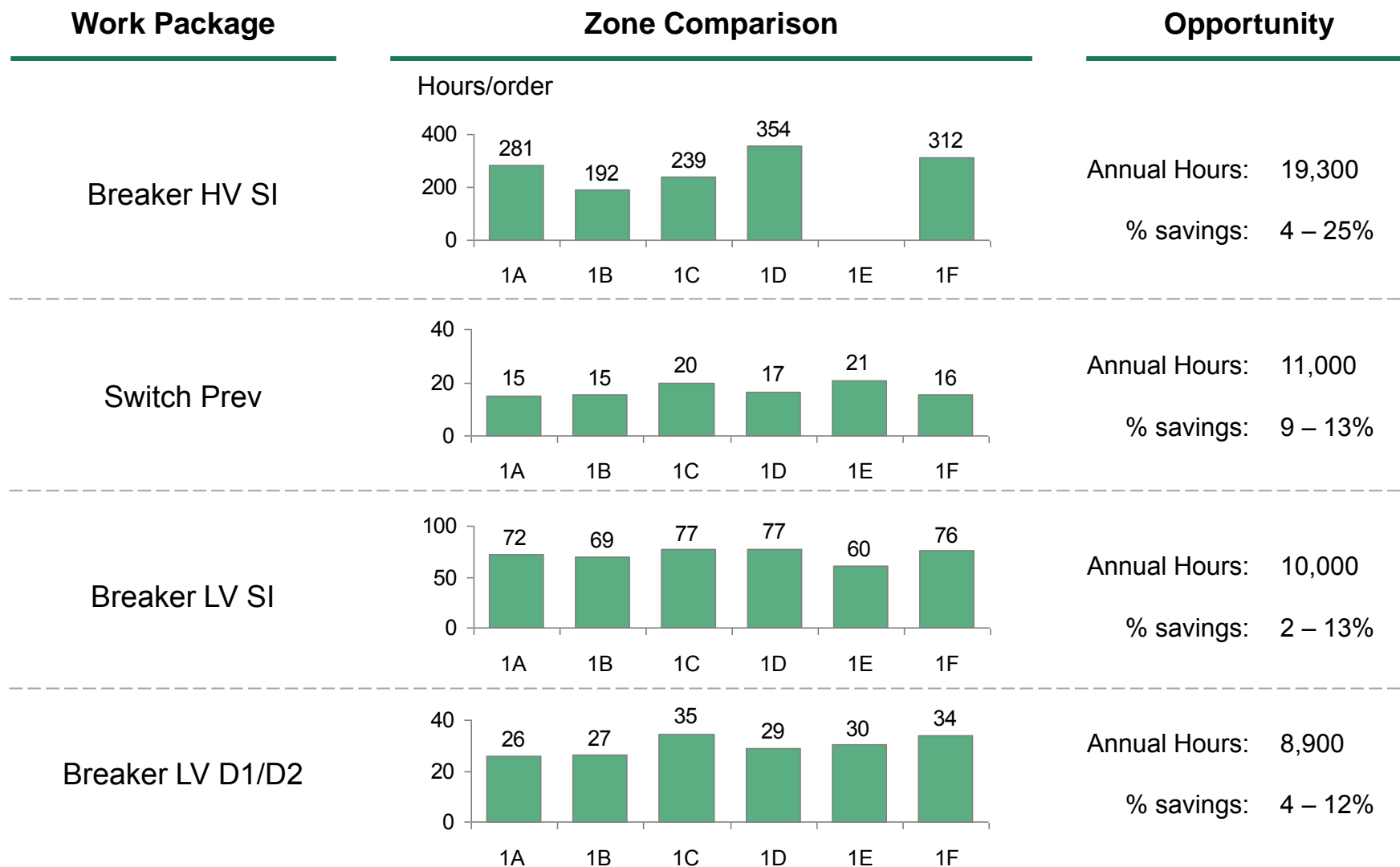
**Dips & risers**



**Mid-feeder and at taps on M-Class**

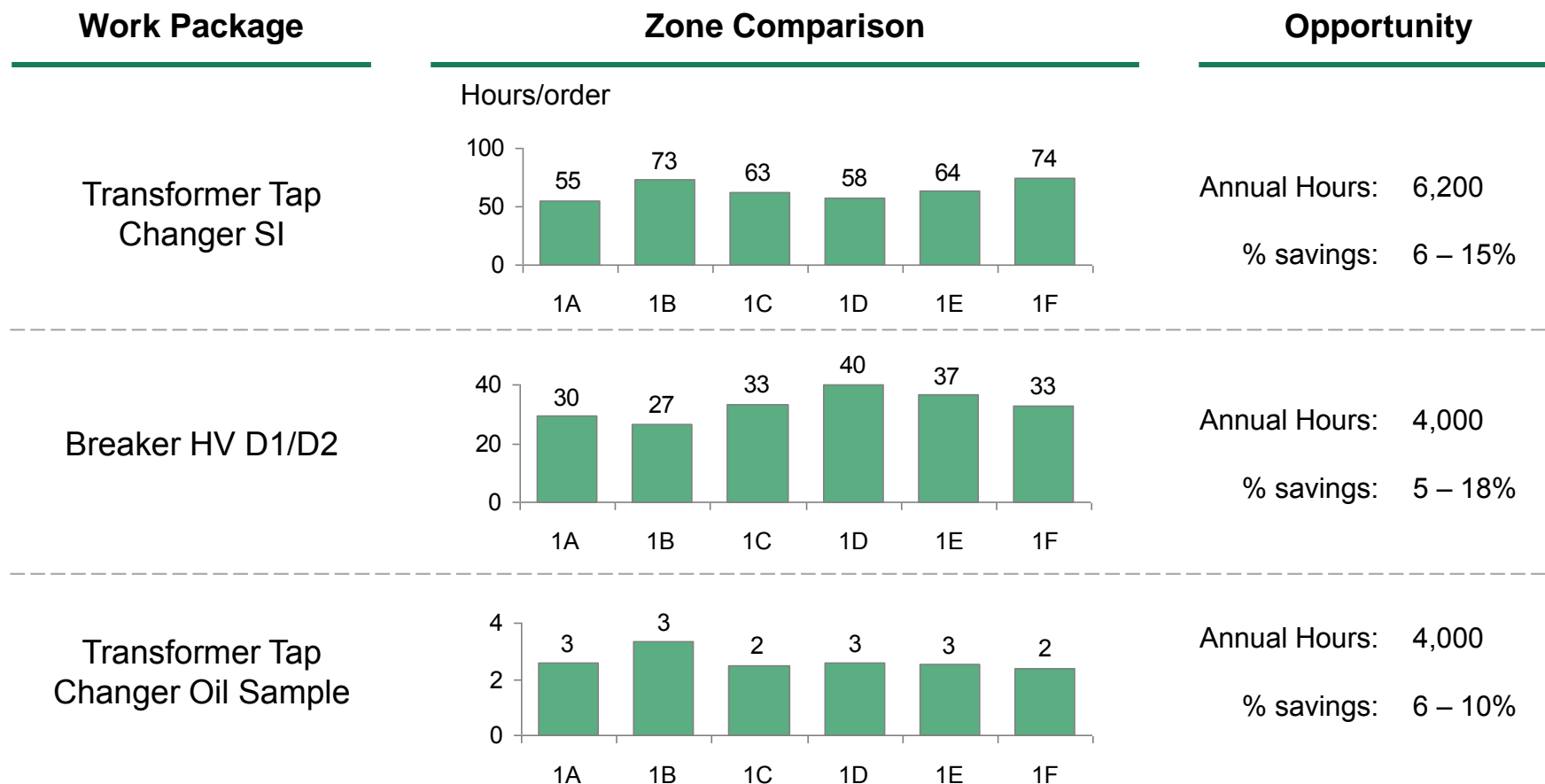


# Backup: Top preventive maintenance work packages<sup>1</sup> (I/II)



1. Power equipment preventive only. Additional analysis performed for other prev maintenance categories

# Backup: Top preventive maintenance work packages<sup>1</sup> (II/II)

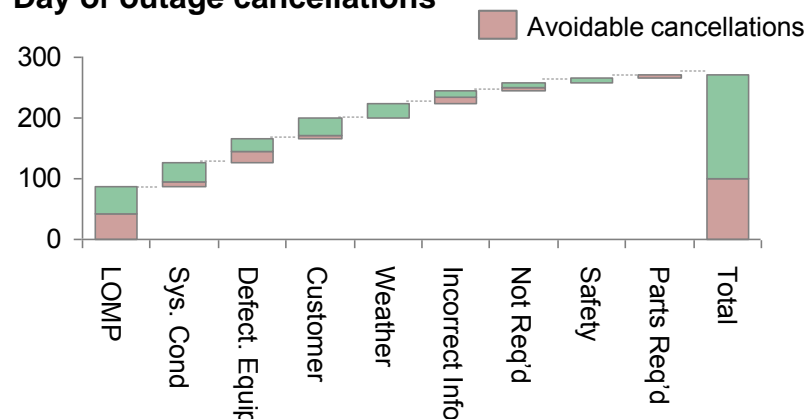


1. Power equipment preventive only. Additional analysis performed for other prev maintenance categories

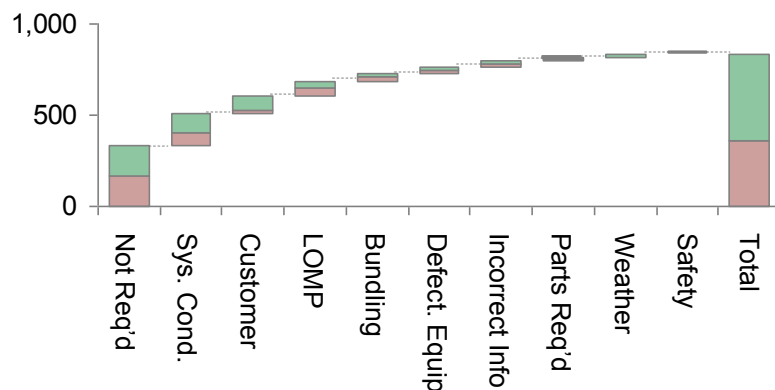
# Backup: Outage cancellation opportunity estimated by sampling causes and building view of cost per cancellation

## Sampled NOMs slips to assess potential to reduce cancellations across categories

### Day of outage cancellations



### 1 – 5 day outage cancellations



## Built bottom-up view of costs associated with outage cancellations<sup>1</sup>

		Day-of		1-5 day	
		Min	Max	Min	Max
Labour	Direct labour - lost productivity	900	1900	300	700
	OGCC scheduling	650	750	650	750
	Stations scheduling	350	450	350	450
Equipment & Other	Equipment	500	500	350	350
	Room & board	0	50	0	0
Total (\$/cancel.)		2400	3650	1650	2250

1. More granular analysis performed than shown here: evaluated labour time lost, equipment, and other costs for both complex and simple outages and created weighted costs to apply to both day-of and 1-5 day cancellations. Numbers shown are rounded.



Filed: 2018-06-22  
EB-2017-0049  
Exhibit J 7.1  
Attachment 4  
Page 1 of 70



Filed: 2019-08-28  
EB-2019-0082  
Exhibit JT-1.11  
Attachment 6  
Page 1 of 70

# Good to Great Program

## Steering Committee #4: Board Draft

**Scrub for acronyms to be completed**

March 21, 2016

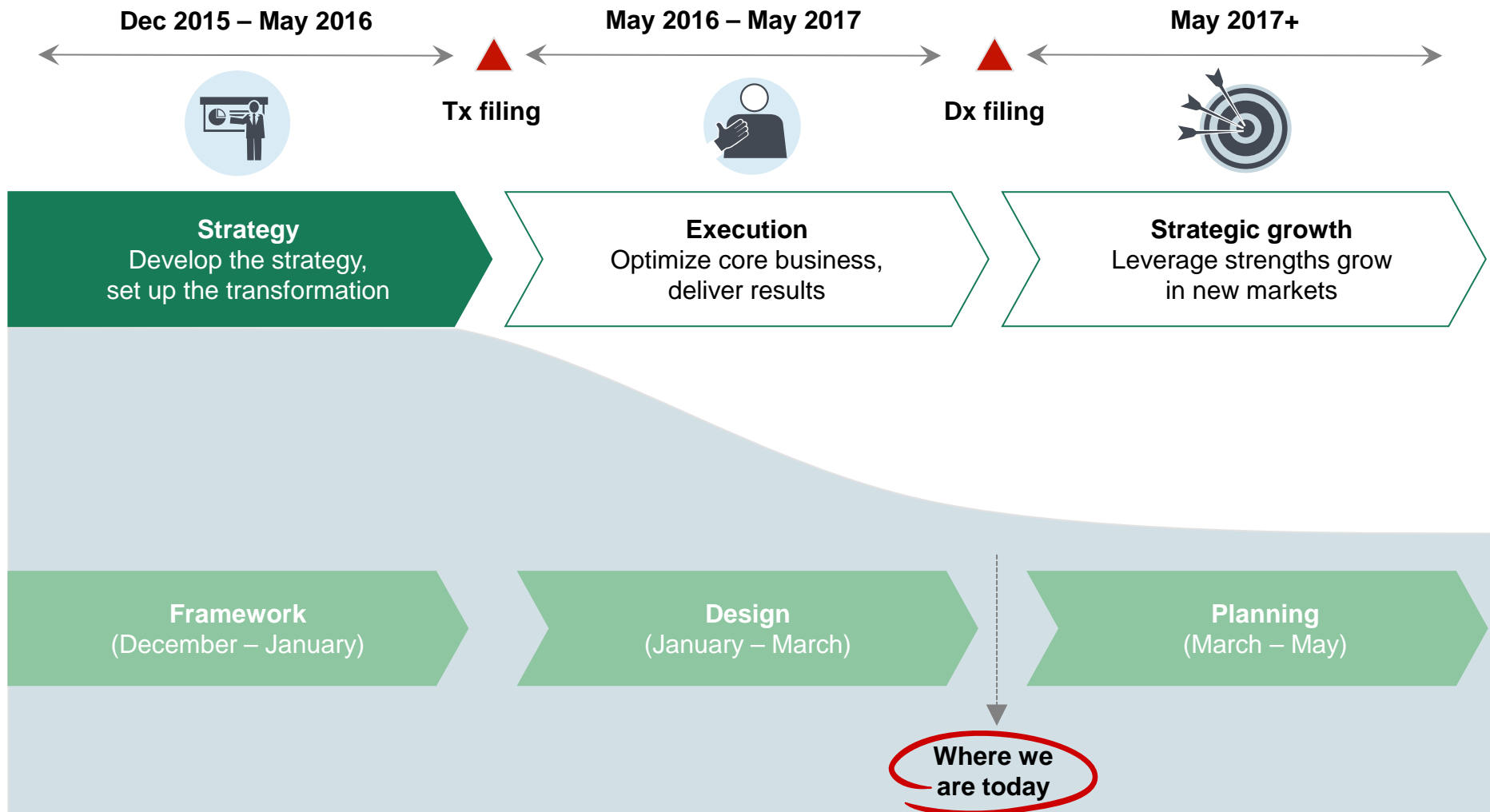
THE BOSTON CONSULTING GROUP

# Our agenda for today

Topic	Lead	Time
<b>Introduction and summary</b>	Mayo Schmidt & Stef Stocco	<b>30 mins</b> (9:00-9:30)
<b>Service delivery</b>		<b>75 mins</b> (9:30-10:45)
• Voice of the customer	BCG	15
• System investment plan and Tx filing update	Mike Penstone & Oded Hubert	30
• Capital delivery strategy	Brad Bowness	20
• Customer service roadmap	Rob Quail	10
<b>Efficiency</b>		<b>60 mins</b> (10:45-11:45)
• Full potential summary	Mike Vels	20
• Procurement	Gary Schneider	10
• O&M efficiency	John Rebick	10
• SG&A effectiveness	Judy McKellar	5
• Timing of O&M efficiency and SG&A effectiveness opportunities	Judy McKellar	15
<b>Path forward: Looking ahead to execution phase</b>	Mayo Schmidt	<b>15 mins</b> (11:45-12:00)

# Context: Where we are in the longer-term journey

Just completed Design, now Planning for Execution



# Objectives for today vs. upcoming sessions

January 14

March 31 (Today)

May 6

August TBD

Board  
meeting  
agendas

## Review strategic framework

- Baseline trajectory
- Strategic framework
- Strawman strategy and transformation sequence
- Plan to finalize strategy and launch transformation

## Review draft of 5-year strategy

- Voice of the customer
- System investment plan
- Capital delivery strategy
- Customer service roadmap
- Efficiency opportunity

## Confirm direction of Tx filing

- Investment plan and supporting evidence
- Customer input
- Bill impact

*Focus for today*

## Approve

- 5-year strategy (including impact – if any – of innovation & technology)
- 5-year business plan
- Transmission filing

## Review execution plan

- Portfolio of initiatives to achieve strategy
- Milestones, metrics & targets
- Governance process
- Tracking mechanism

## Update on Good to Great execution

## Discuss short list of strategic growth options for investigation

- [Redacted]
- [Redacted]

Board  
education  
agendas

## Provide overview of Innovation & technology landscape

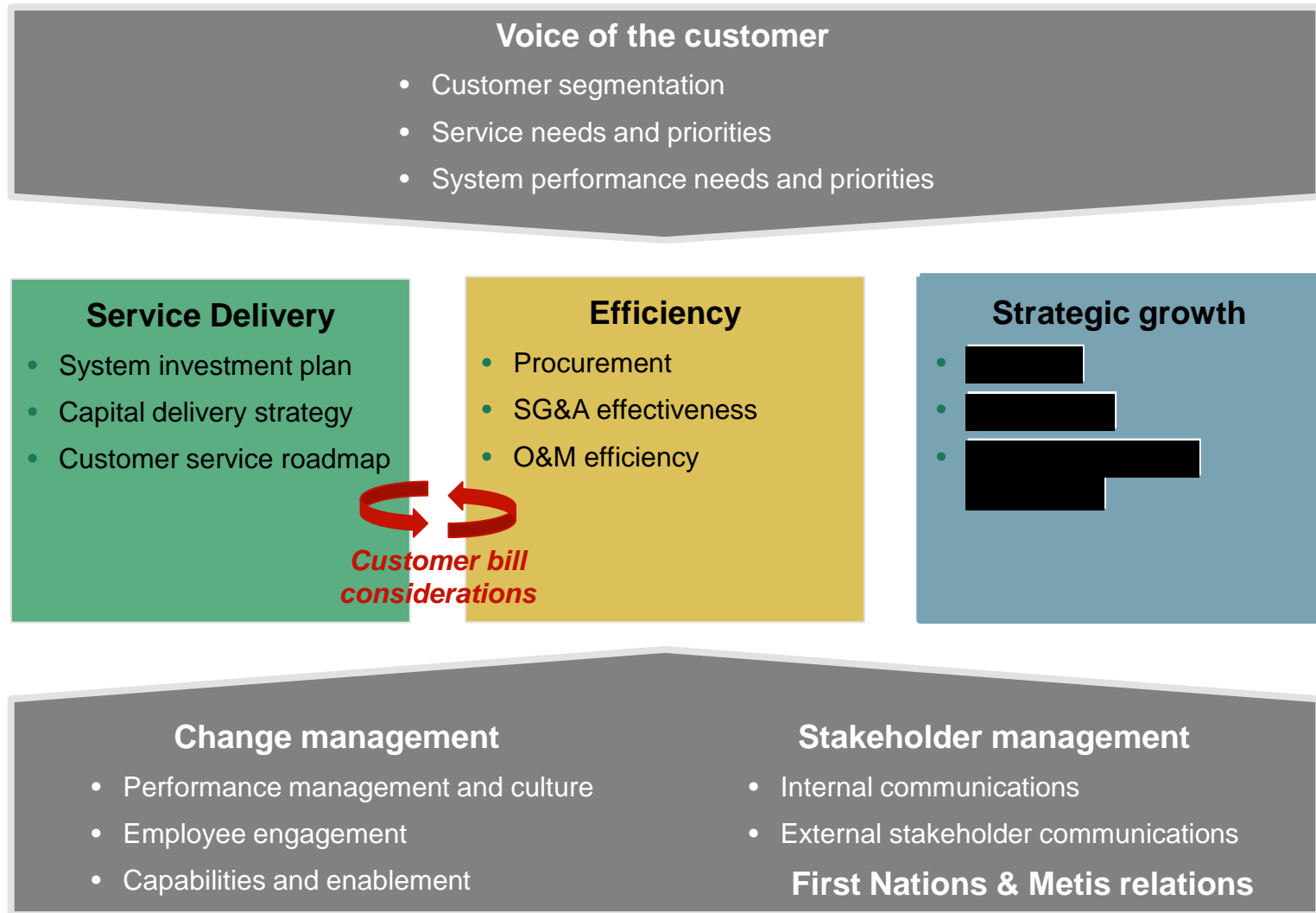
- [Redacted]

## Provide overview of Ontario LDC opportunity

- [Redacted]
- [Redacted]

## Provide overview of strategic growth market landscape

# Strategic framework



# Executive summary (I)

## Started with "voice of the customer" to inform both our system investment plan and customer service roadmap

- Range of sources: Surveys, interviews, benchmarks, consultations
- Segment-specific priorities: Residential & Small Business, Commercial & Industrial, Large Distribution, Transmission

## Current view of system investment plan ramps up to incremental **\$560M** capex/year vs planned **\$1.7B** by 2021

- [REDACTED]
- 5-year Dx scenarios targeting customer and technology priorities to be tested summer 2016 ahead of 2017 filing
- Plans consider ability to execute on-time, on-budget (labour constraints still to be validated)

- [REDACTED]  
[REDACTED]  
[REDACTED]

## Customer service roadmap developed to address unmet needs of core segments and drive satisfaction levels

- Residential & Small Business: Call centre enhancements, digital engagement, bill redesign
- Commercial & Industrial: Business call centre training, conservation & demand management marketing
- Large Distribution Accounts: Outage performance communication, conservation & demand management marketing
- Transmission: Improved service processes & support, investment plan communications

## Executive summary (II)

### **OM&A and capital efficiency opportunities have been identified with potential to offset customer bill impact**

- Total run rate potential of ~\$100M OM&A and ~\$120M capital savings identified on \$2.8B 2015 spend base
- Execution requirements still to be assessed and will need to consider implications of growing work program
- Gradual realization expected over 3+ years with tail end subject to labour and Inergi contract outcomes
- ~\$7M (mostly OM&A) already in execution and locked into 2016 financials

### **12 focus areas will be critical to execution success over the next year**

- Service delivery: Executing Dx rate filing, effectively planning and delivering work programs, customer initiatives
- Efficiency: Delivering impact and enabling organization through execution of procurement, O&M, and org initiatives
- Enablers: Putting appropriate stakeholder, change, and program mgmt measures in place to support transformation

### **Investigation of strategic growth opportunities (i.e., M&A) still a core focus, with intention to intensify once execution of service delivery and efficiency program well underway**

- [REDACTED]
- [REDACTED]

# Our agenda for today

Topic	Lead	Time
<b>Introduction and summary</b>	Mayo Schmidt & Stef Stocco	<b>30 mins</b> (9:00-9:30)
<b>Service delivery</b>		<b>75 mins</b> (9:30-10:45)
• Voice of the customer	BCG	15
• System investment plan and Tx filing update	Mike Penstone & Oded Hubert	30
• Capital delivery strategy	Brad Bowness	20
• Customer service roadmap	Rob Quail	10
<b>Efficiency</b>		<b>60 mins</b> (10:45-11:45)
• Full potential summary	Mike Vels	20
• Procurement	Gary Schneider	10
• O&M efficiency	John Rebick	10
• SG&A effectiveness	Judy McKellar	5
• Timing of O&M efficiency and SG&A effectiveness opportunities	Judy McKellar	15
<b>Path forward: Looking ahead to execution phase</b>	Mayo Schmidt	<b>15 mins</b> (11:45-12:00)

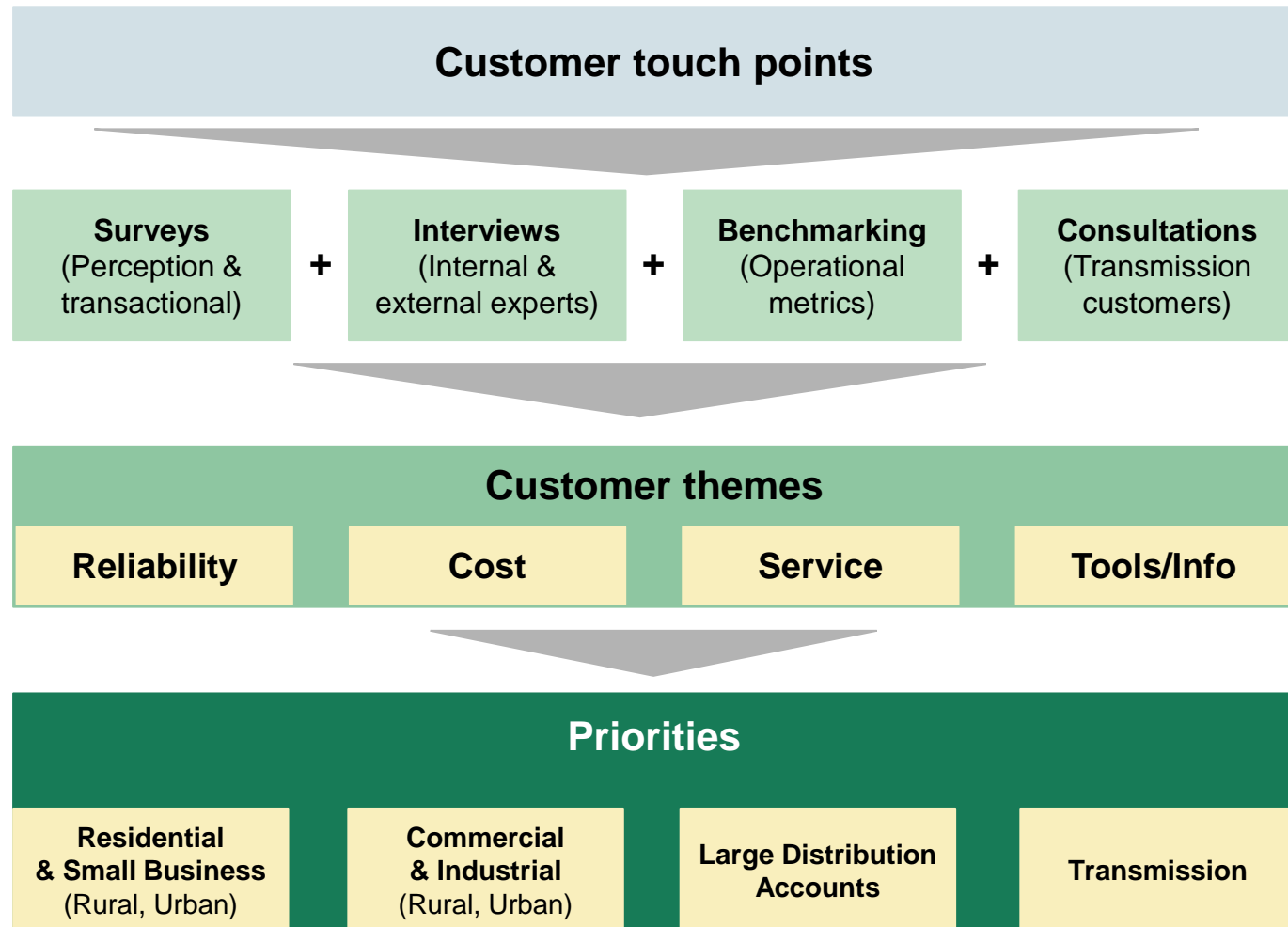
# We used a multipronged approach to identify key customer themes and associated priorities

*We mapped the customer journey ...*

*... and leveraged various data sources ...*

*... to identify key themes ...*

*... and priorities for each customer segment*



# Key themes highlight expectations related to both system performance and customer service

Customer segment	Key themes
Residential & Small Business	<ul style="list-style-type: none"> <li>Customers' key concern is <i>affordability of power</i></li> <li>Customers want <i>issues resolved effectively</i> in interactions with call centre</li> <li><i>Easy to understand paper bill</i> is an important driver of satisfaction</li> <li>Customers want <i>convenient and capable self serve channels</i> for routine actions</li> <li><i>Reliability</i> matters for customers, especially in urban areas</li> </ul>
Commercial & Industrial	<ul style="list-style-type: none"> <li>Customers want <i>single point of contact</i> and consistent service experience</li> <li><i>Cost is key concern</i>; better communication of conservation programs needed</li> <li><i>Desire for reliability on par</i> with neighboring Local Distribution Companies for urban areas</li> <li>Customers seek <i>better online tools</i> to assist with decisions on energy management</li> </ul>
Large Distribution Accounts	<ul style="list-style-type: none"> <li><i>Reliability and power quality</i> (and proactive communication on them) is important</li> <li><i>Cost is key concern</i>; better communication of conservation programs needed</li> <li>Customers expect a <i>coordinated approach</i> and regular communications</li> </ul>
Transmission	<ul style="list-style-type: none"> <li>[REDACTED]</li> <li>[REDACTED]</li> <li>[REDACTED]</li> <li>[REDACTED]</li> </ul>







Source: Survey analysis, interviews with Hydro One stakeholders and external experts, internal and external benchmarking.

# Back-up: Proof points supporting key themes (I/III)

Customer segment	Key themes	Proof points	Satisfaction on key dimension <sup>2</sup>
Residential & Small Business	<u>Affordable power</u>	<ul style="list-style-type: none"> <li>"High rates" is #1 concern when customers evaluate their satisfaction with Hydro One, making up ~25% of all mentions<sup>1</sup></li> <li>Conservation and demand management programs and tools not well publicized or integrated with call centre or digital channels</li> </ul>	<p>Cost of electricity</p>
	<u>Effective call centre issue resolution</u>	<ul style="list-style-type: none"> <li>Surveys highlight speed to resolve problem #2 reason for liking Hydro One customer service, #3 reason for disliking it<sup>1</sup></li> <li>Agents can't easily access customer history; multiple screens required for issue resolution; inconsistent feedback on agents</li> </ul>	<p>Person to person customer service</p>
	<u>Straightforward bills</u>	<ul style="list-style-type: none"> <li>Bill understanding is a significant dissatisfier, peers (e.g. Toronto Hydro) have user friendly bill</li> <li>Low adoption of Canada Post e-billing (~111K); not customer friendly. Adoption lags peers (9% vs. 38% best-in-class)</li> </ul>	<p>Billing, payment and collections</p>
	<u>Convenient and capable self-service channels</u>	<ul style="list-style-type: none"> <li>My Account portal only used by ~5% of customers; lacks performance and functionality; not mobile optimized</li> <li>Website 5+ years old; difficult to navigate and not well integrated with My Account; 250K unique visitors; flat usage</li> <li>Mobile app is outage only; lacks best in class features such as viewing/paying bill online and usage monitoring</li> <li>Interactive voice response lacks key features; containment rate (48.5%) lags best-in-class peers (54%)</li> </ul>	<p>Self-serve customer service</p>
	<u>Reliability &amp; power quality</u>	<ul style="list-style-type: none"> <li>Urban customers concerned about reliability and power quality – customers in service territory bordering competitors (e.g. Toronto Hydro) aware of competitors' superior reliability</li> </ul>	<p>Reliability &amp; power quality</p>

1. Hydro One 2015 CSAT/perception survey . 2. Source: H1 2015 CSAT surveys for R&SB, C&I, LDA, Tx. Interviews (internal and external experts). Ops Benchmarking.

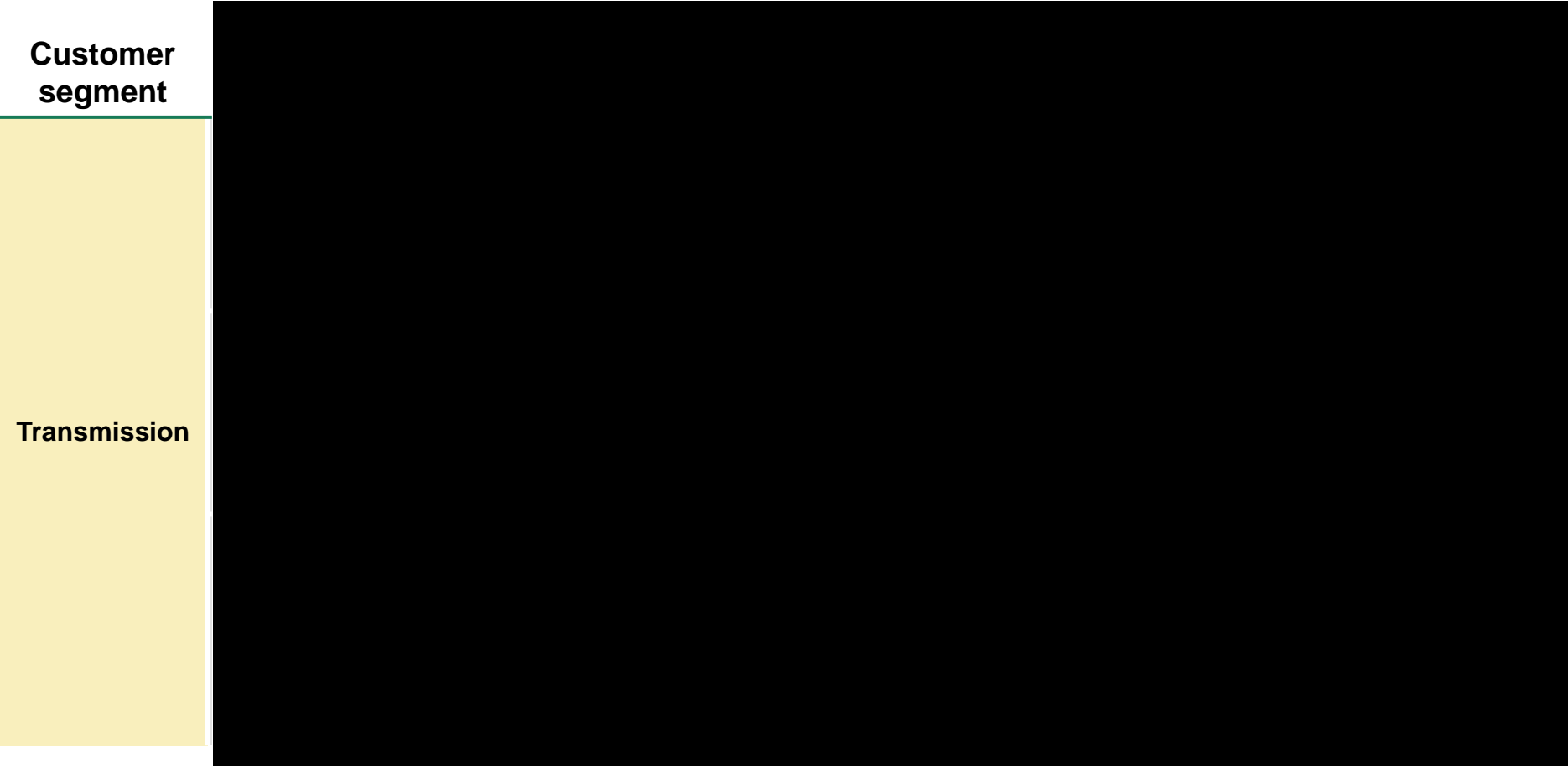
# Back-up: Proof points supporting key themes (II/III)

Customer segment	Key themes	Proof points	Satisfaction on key dimension <sup>2</sup>
Commercial & Industrial	<u>Single contact to resolve issues</u>	<ul style="list-style-type: none"> <li>Inergi Business Call Centre transactional; <b>low satisfaction on listening to customers</b> (5.8/10), <b>demonstrating concern</b> (6.2/10); both important to satisfaction (0.6)<sup>1</sup></li> <li>Large <b>chains do not have designated account rep</b> (have limited phone support); many U.S. utilities have key account manager</li> <li><b>Internal business call centre is resource constrained</b> and lacks formalized processes and issue tracking</li> </ul>	 <p>The way H1 communicates with customers</p>  <p>Person to person customer service</p>
	<u>Affordable power</u>	<ul style="list-style-type: none"> <li>"Rates" most commonly cited issue/need for Hydro One to address in survey (30% of respondents mentioned it)<sup>1</sup></li> <li><b>Information on relevant conservation/demand management programs not readily available</b>; some customers don't have access to usage data/ programs</li> </ul>	 <p>Cost of electricity</p>
	<u>Reliability and quality</u>	<ul style="list-style-type: none"> <li>Customers <b>concerned about reliability &amp; power quality</b> – some customers have chosen to become customers of competitor Local Distribution Companies in Hydro One service territory</li> </ul>	 <p>Reliability and power quality</p>
Large Distribution Accounts	<u>Reliability and quality</u>	<ul style="list-style-type: none"> <li>"Reliability" #1 most commonly cited need/issue to address, strong correlation (0.6) to satisfaction. "Power quality" 3<sup>rd</sup> most cited.<sup>1</sup> Some customers, esp. in urban areas have chosen to become customer of competitor Local Distribution Companies</li> <li><b>Customers seeking proactive communications around reliability</b></li> </ul>	 <p>Reliability and power quality</p>
	<u>Affordable power</u>	<ul style="list-style-type: none"> <li><b>Low satisfaction (6.8/10) with providing conservation programs</b> with moderate importance (0.5) to overall satisfaction<sup>1</sup></li> <li><b>Customers continue to look for and understand conservation programs</b>; some steps taken to increase awareness</li> </ul>	 <p>Cost of electricity</p>

1. Hydro One 2015 CSAT/perception survey for C&I and LDA customers (respectively).

2. Source: H1 2015 CSAT surveys for R&SB, C&I, LDA, Tx. Interviews (internal and external experts). Ops Benchmarking.

# Back-up: Proof points supporting key themes (III/III)



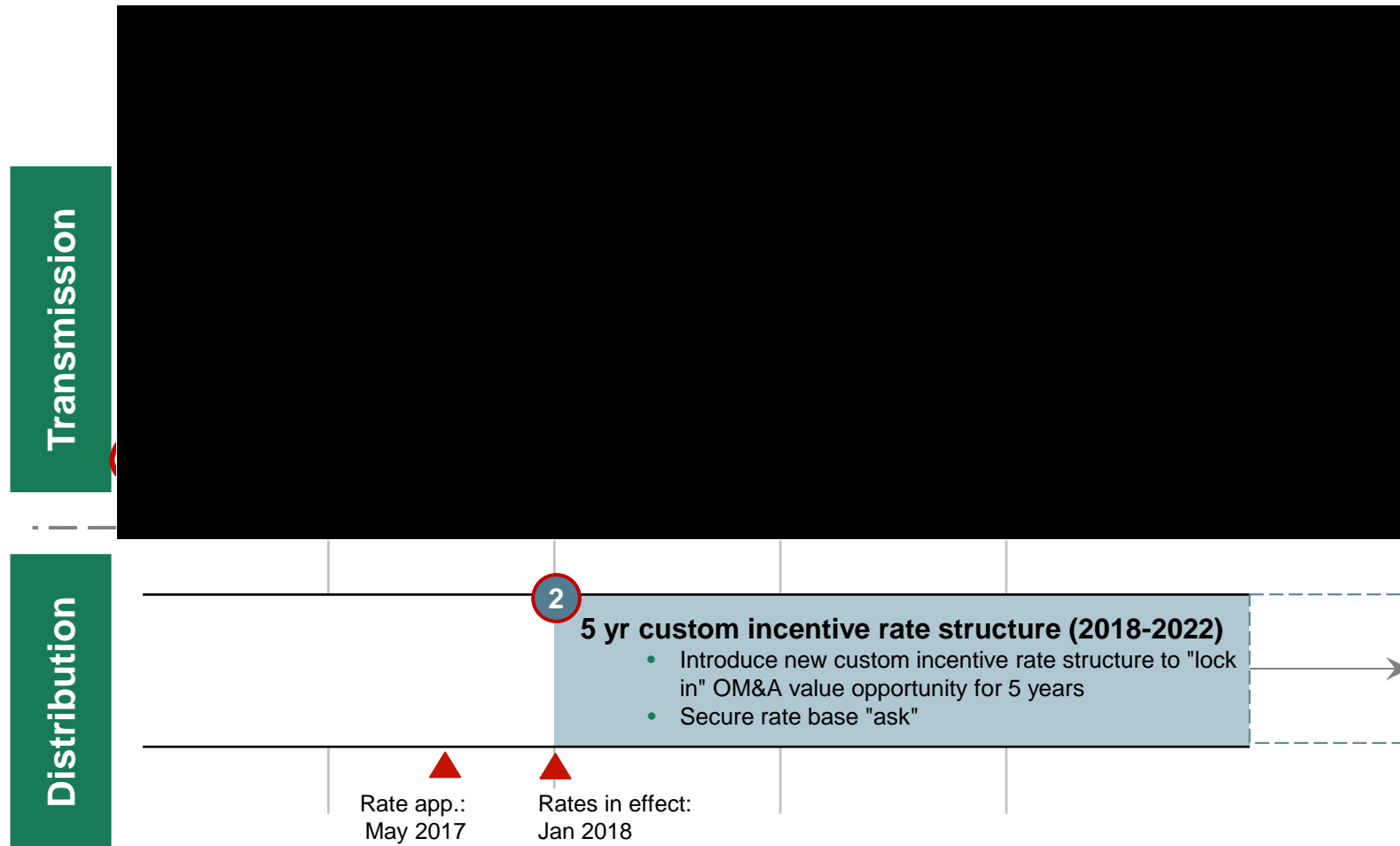
1. Source: H1 2015 CSAT surveys for R&SB, C&I, LDA, Tx. Interviews (internal and external experts). Ops Benchmarking.

# Our agenda for today

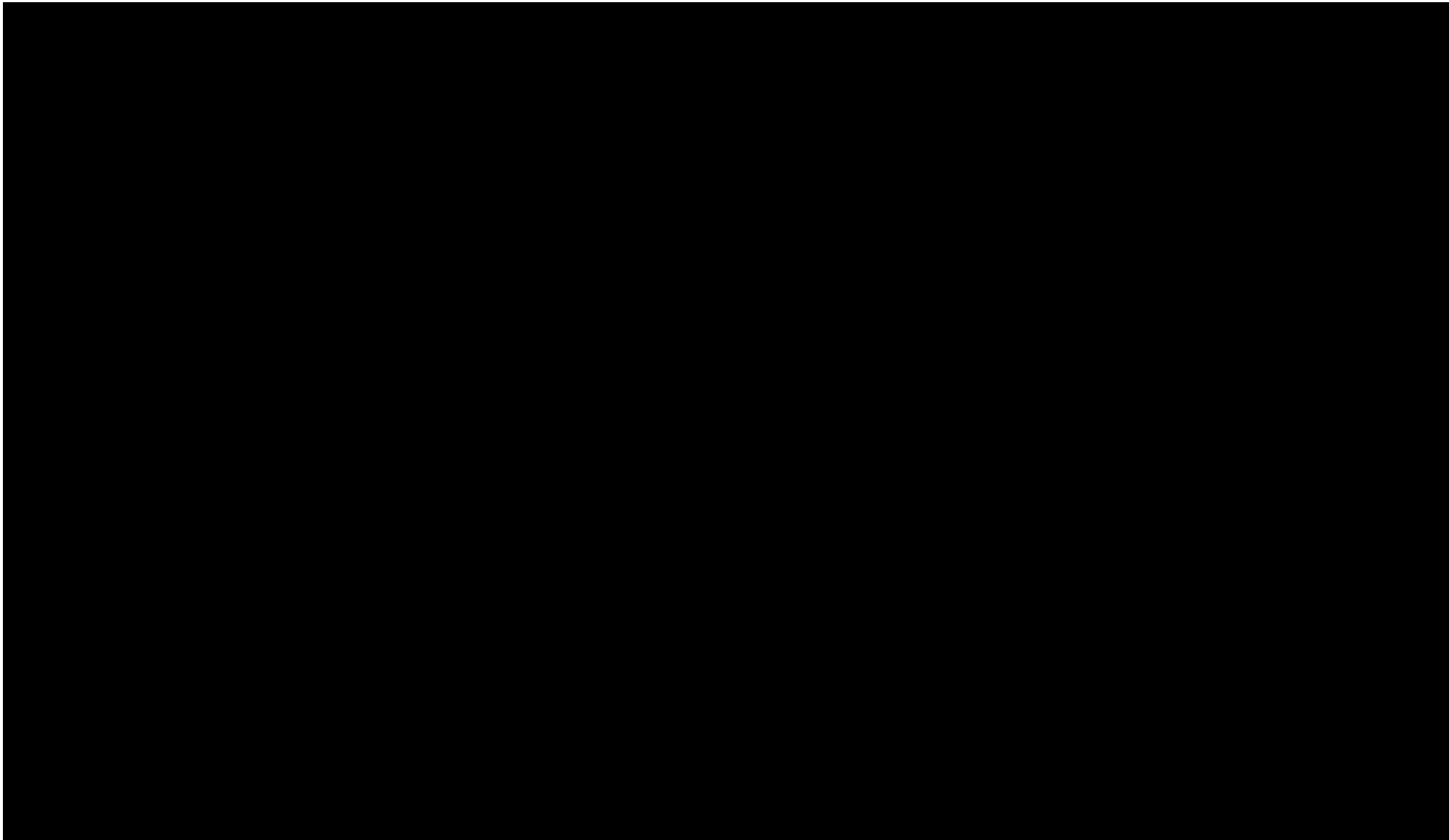
LA 19.Mar.16:  
I re-reordered. I hear your issues.  
I think we've got the wrong pages  
... let's discuss live

Topic	Lead	Time
<b>Introduction and summary</b>	Mayo Schmidt & Stef Stocco	<b>30 mins</b> (9:00-9:30)
<b>Service delivery</b>		<b>75 mins</b> (9:30-10:45)
• Voice of the customer	BCG	15
• System investment plan and Tx filing update	Mike Penstone & Oded Hubert	30
• Capital delivery strategy	Brad Bowness	20
• Customer service roadmap	Rob Quail	10
<b>Efficiency</b>		<b>60 mins</b> (10:45-11:45)
• Full potential summary	Mike Vels	20
• Procurement	Gary Schneider	10
• O&M efficiency	John Rebick	10
• SG&A effectiveness	Judy McKellar	5
• Timing of O&M efficiency and SG&A effectiveness opportunities	Judy McKellar	15
<b>Path forward: Looking ahead to execution phase</b>	Mayo Schmidt	<b>15 mins</b> (11:45-12:00)

# Recall: 2 year cost of service Tx filing due in May



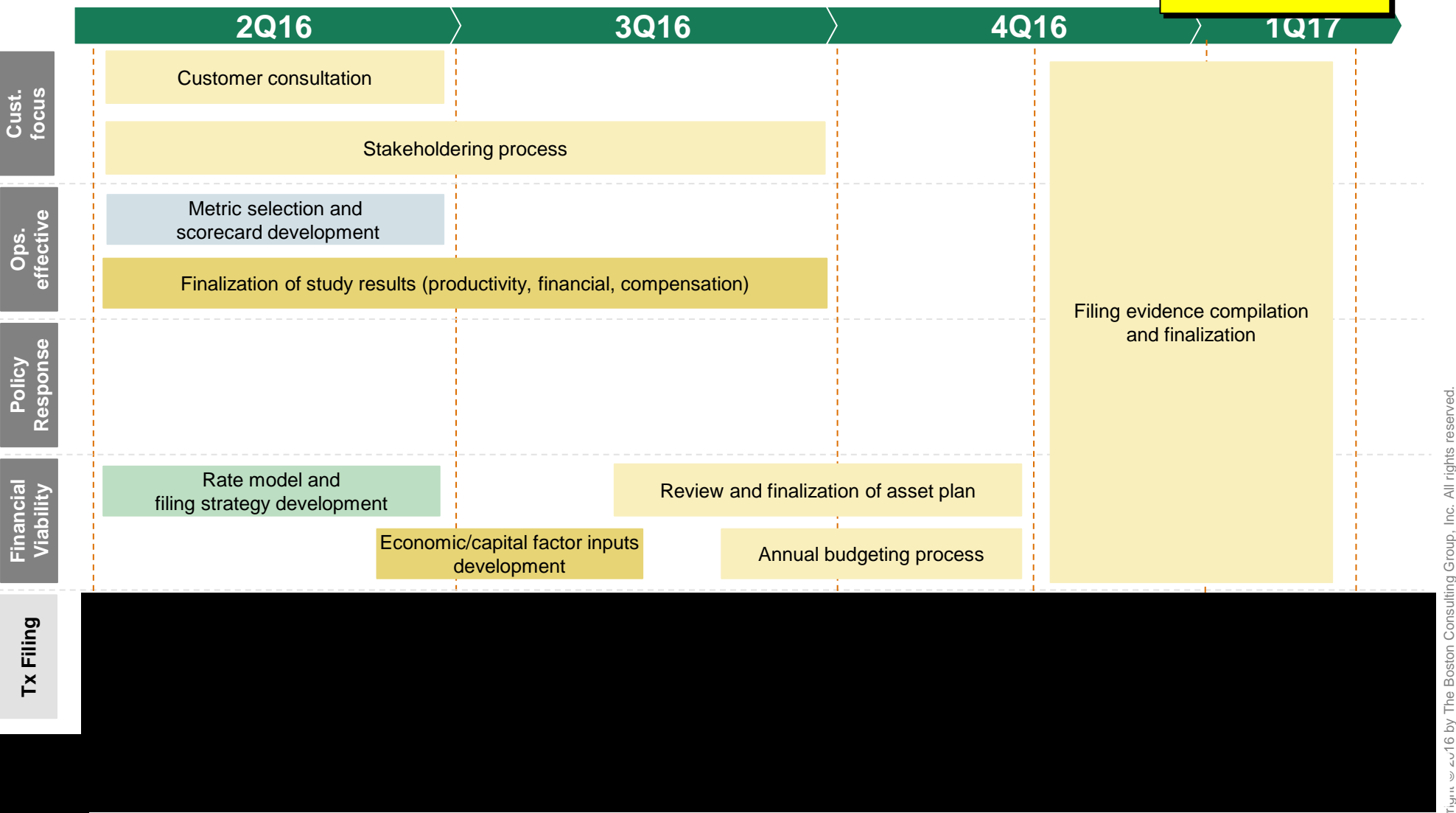
# Overview of Tx Filing status



# Preliminary timeline for activities leading up to Dx rate filing

Planning underway to allow customer consultation, key studies, modeling to complete

**Not for Board**



Cross-functional
  Reg. affairs
  Transmission
  Finance
  External advisor

# Overview of Tx and Dx investment plans

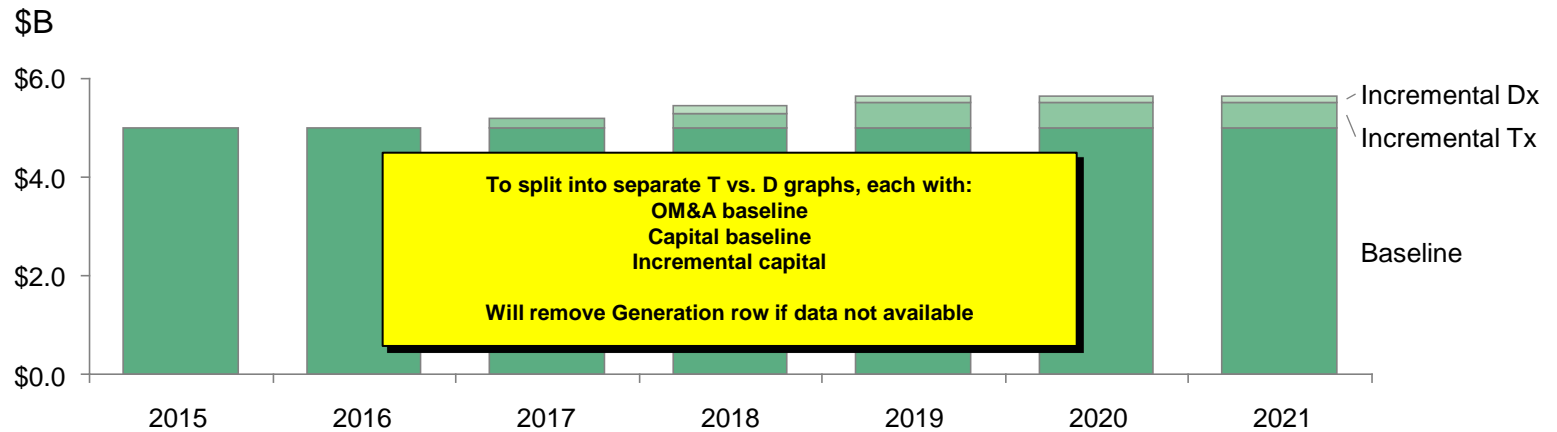
5-year views being modeled for business plan purposes

	Tx Investment Plan	Dx Investment Plan
Context		<p>Consistent 4th quartile reliability</p> <p>Past studies have suggested that customers are unwilling to pay for improved reliability, but OEB has challenged that assumption</p> <p>Following major investments in IT and smart meters; now refocusing spend on asset performance</p>
Overview of Plan		<p>Focus on differentiated approach to customer segments (LDAs, Urban, Rural), explicitly tying spend to customer outcomes</p> <p>Four 5-year investment scenarios being developed</p> <ol style="list-style-type: none"><li>1. Baseline</li><li>2. Baseline optimized</li><li>3. Baseline + \$60M/yr CapEx (reliability focus)</li><li>4. Baseline + \$60M/yr CapEx (grid mod focus)</li></ol> <p>Customer engagement (summer 2016) to inform recommended scenario</p> <p><b>Baseline + \$60M/yr scenarios modeled for customer bill impact (for contextual purposes)</b></p>

# Summary: Investment plans and customer bill impacts

Require Board input on 2017-2018 Tx plan and impacts today

## Investment Plan



## Year-on-year rate impact

<b>Tx</b>						
<b>Dx</b>	6.3%	4.9%	7.5%	3.3%	3.6%	4.0%

## Year-on-year residential customer bill impact<sup>1</sup>

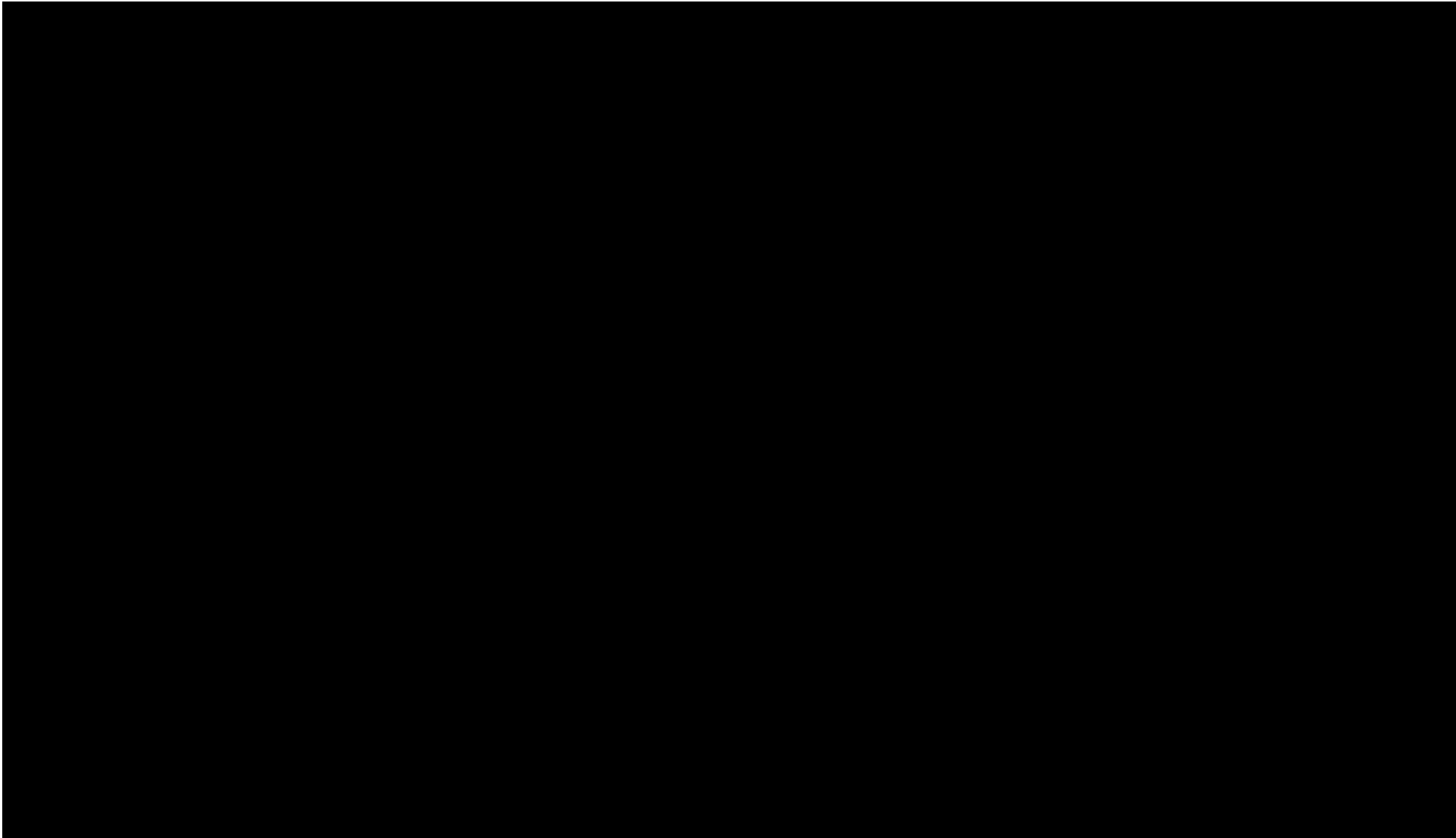
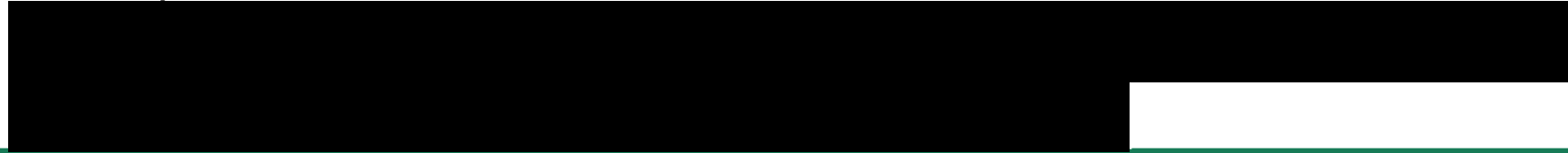
<b>Transmission</b>						
<b>Distribution</b>	2.1%	1.6%	2.5%	1.1%	1.2%	1.3%
<b>Generation</b>	X	X	X	X	X	X
<b>Total</b>						

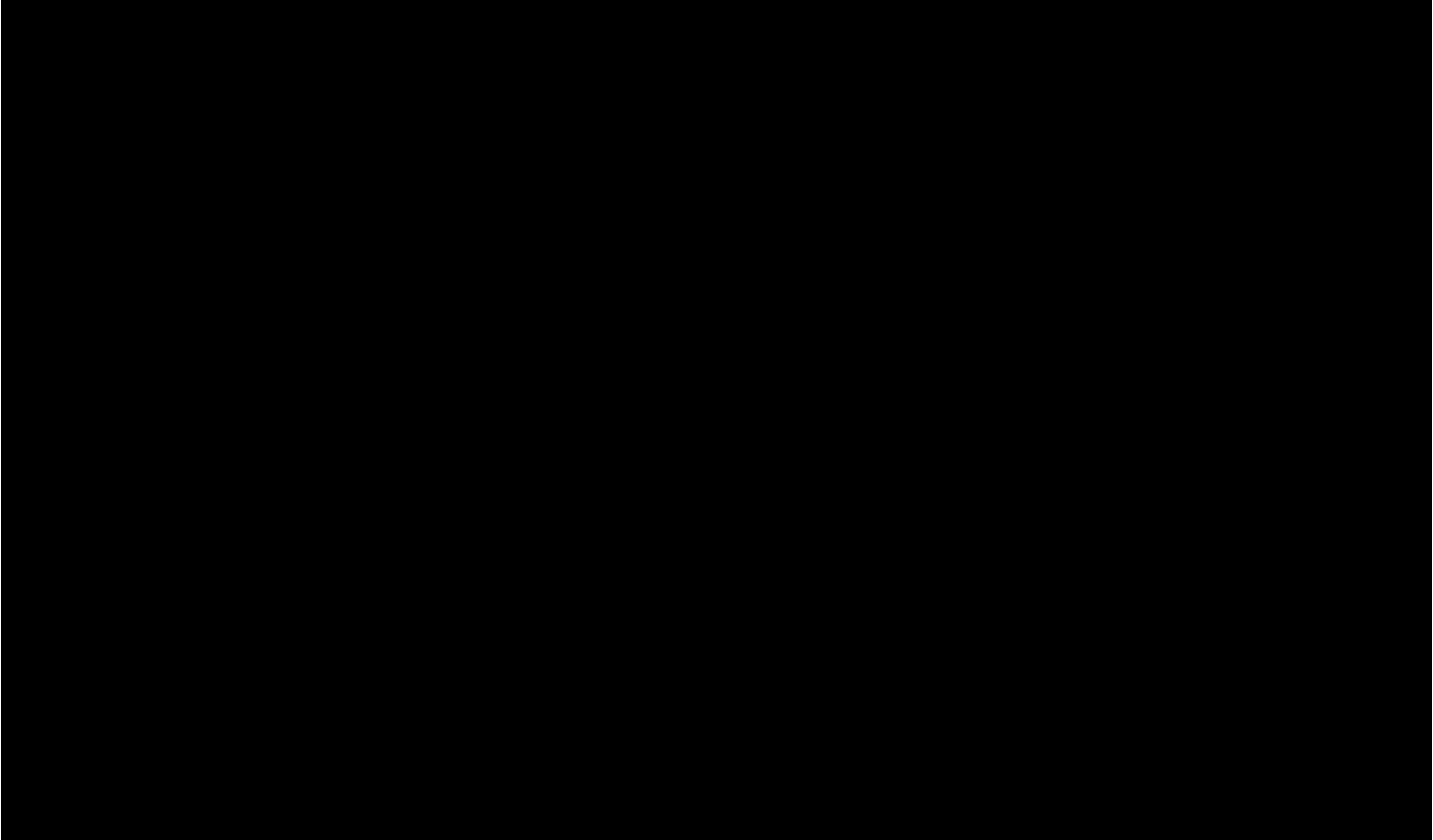
"Locked" values

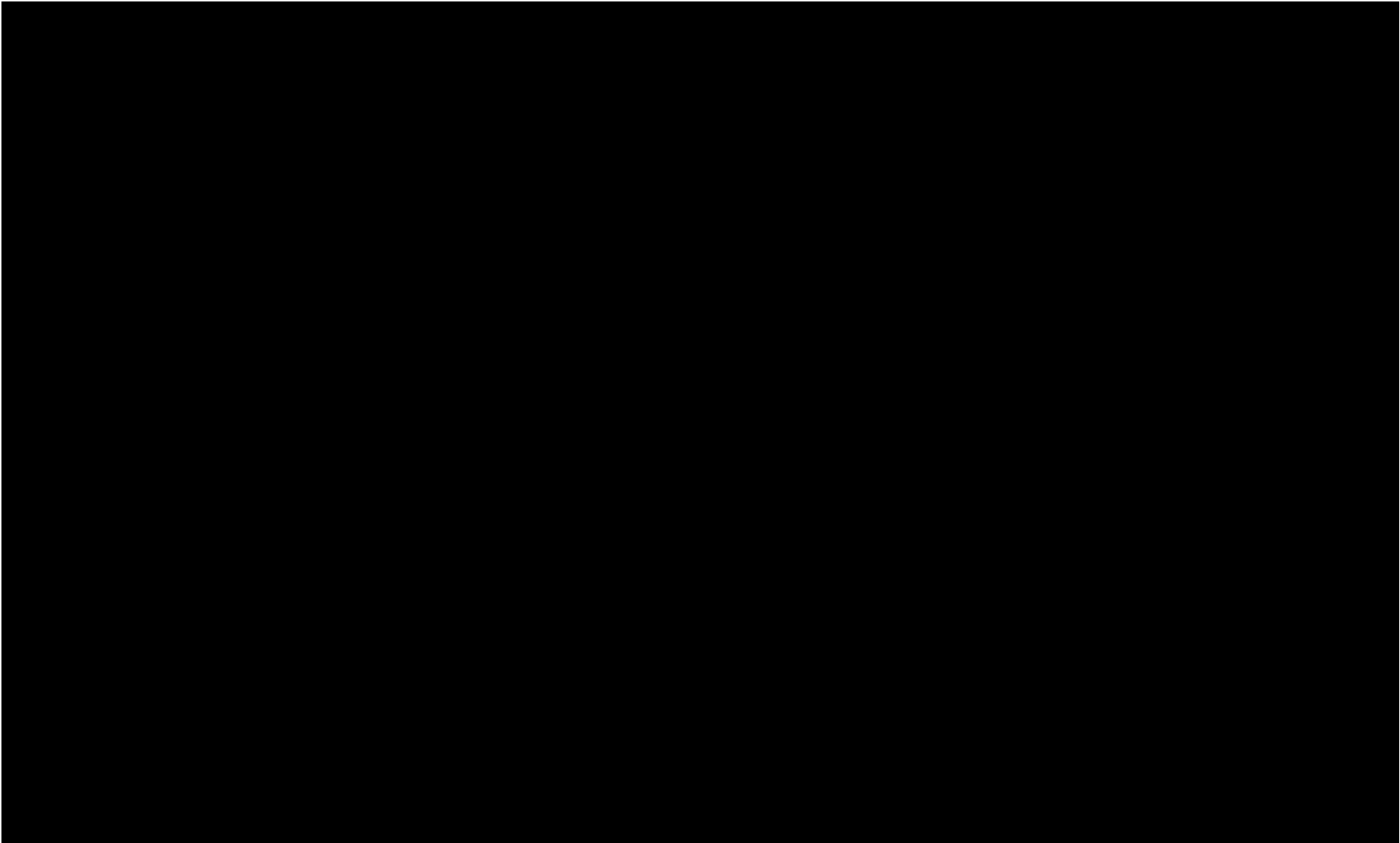
For Board approval  
at May 6 meeting

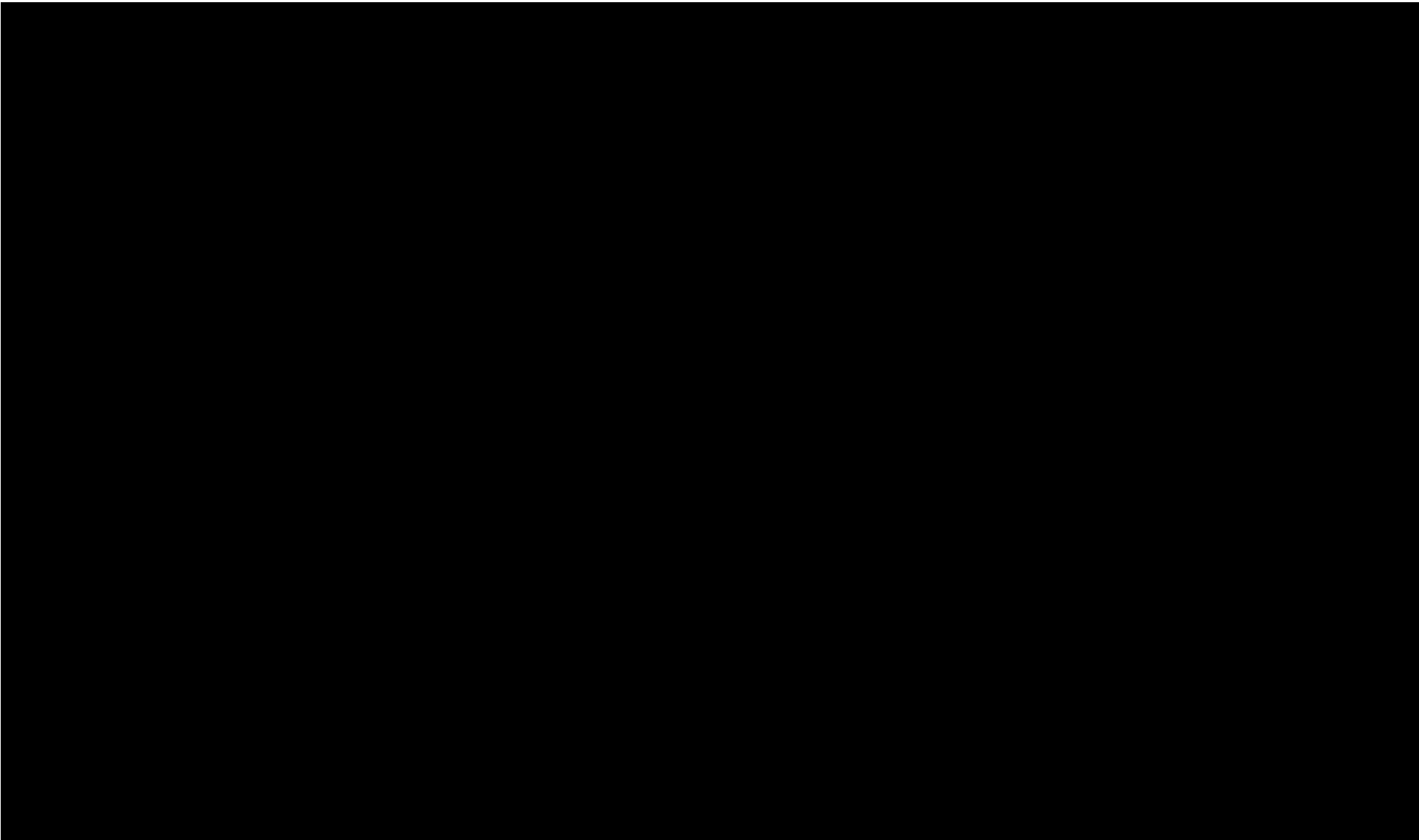
For future rate filings - estimate  
provided for context

1. Avg. 800 kWh/month customer









# Dx investments segmented into foundational spend and enhancement spend tied to improved customer outcomes

	1 Foundational	2 Enhancement
Investment category	<ul style="list-style-type: none"> <li>A Asset renewal</li> <li>B Customer connections</li> <li>C Safety, security, enviro (compliance)</li> <li>D Customer projects (ongoing)</li> <li>E Outage response</li> <li>F Other<sup>1</sup> (not in asset mgmt focus)</li> </ul>	<ul style="list-style-type: none"> <li>A Reliability enhancement</li> <li>B Grid modernization (comms / automation)</li> <li>C Advanced analytics</li> <li>D Distributed energy resources enablement</li> <li>E Additional capacity / reserves</li> <li>F Grid hardening</li> </ul>
Purpose	<p><b>Maintain current reliability risk and system performance</b></p> <ul style="list-style-type: none"> <li>Continue to prioritize based on existing risk model / investment planning process</li> </ul>	<p><b>Enhance performance and deliver outcomes desired by customers</b></p> <p><b><u>Metric</u></b></p> <ul style="list-style-type: none"> <li>Improved reliability → \$ / Avoided Cust. Interrupt.</li> <li>Reduced O&amp;M → Annual savings / \$ invested</li> <li>Avoided CapEx → 20-year NPV</li> <li>Cust. energy efficiency / conservation → Load reduction / \$ invested</li> <li>New cust. products / services → Qualitative assessment</li> </ul>
Proj. Spend <sup>2</sup> ('16-'20)	<p><b>CapEx: ~\$2,550M</b></p> <p><b>OM&amp;A: ~\$1,700M</b></p>	<p><b>Capital: ~\$240M</b></p> <p><b>OM&amp;A: ~\$100M</b></p>

1. Others include e.g. Facilities and Enterprise IT, which are not directly related to network assets

2. 2016-2020; excludes "Common" and non-wires spend.

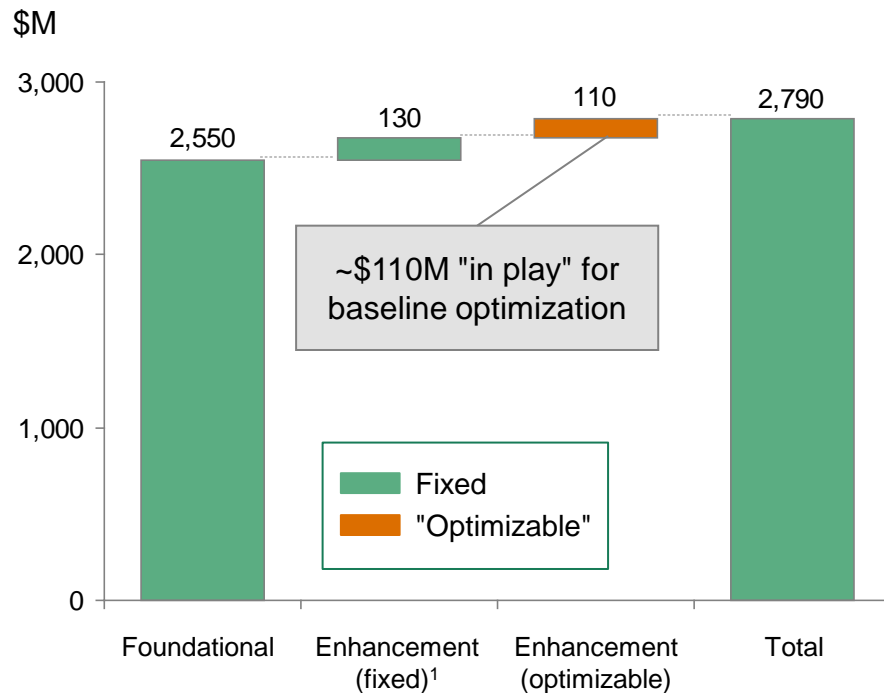
Note: Foundational investments are those that are required for Hydro One to continue to deliver safe, reliable, and efficient service to all customers

# Existing Dx investment plan has been optimized to deliver customer outcomes more efficiently

Not for Board

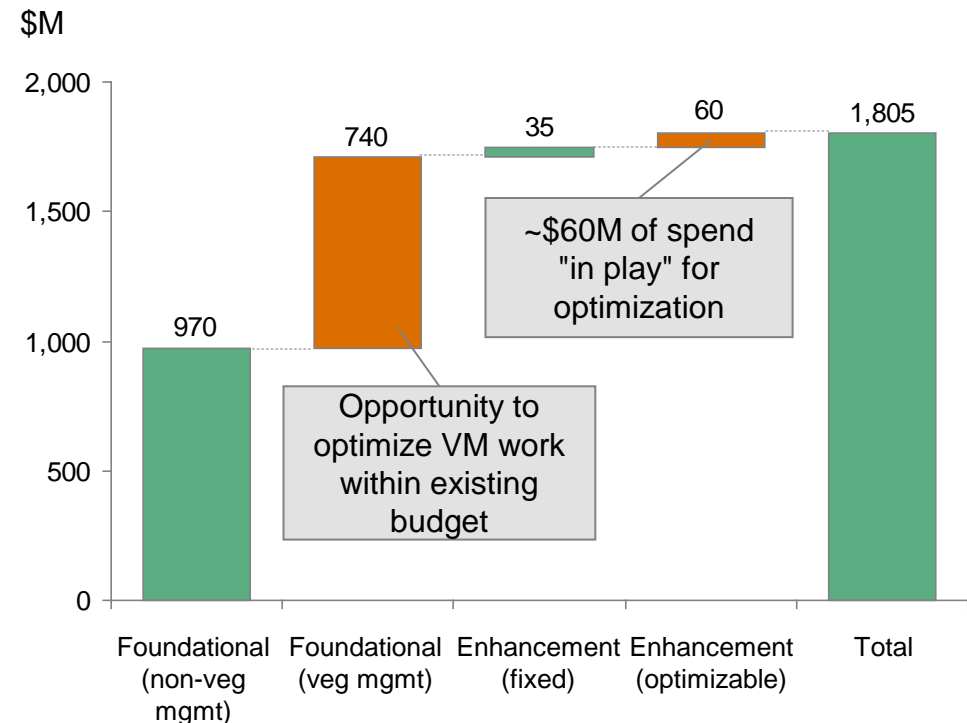
## Distribution Capital Spend

2016-2020 (Asset spend only)<sup>1</sup>



## Distribution O&M Spend

2016-2020 (Asset spend only)<sup>2</sup>



**>90% of "optimizable" capital spend is currently allocated to grid modernization programs**

1. Fixed spend includes all enhancement spend in 2017 and 2018 as well as programs identified as having positive NPV business cases

2. Excludes Operating, Customer, and Common Spend as well as non-wires items of "IT Business Solution Development" (\$49M) and "Security Infrastructure" (\$5M)

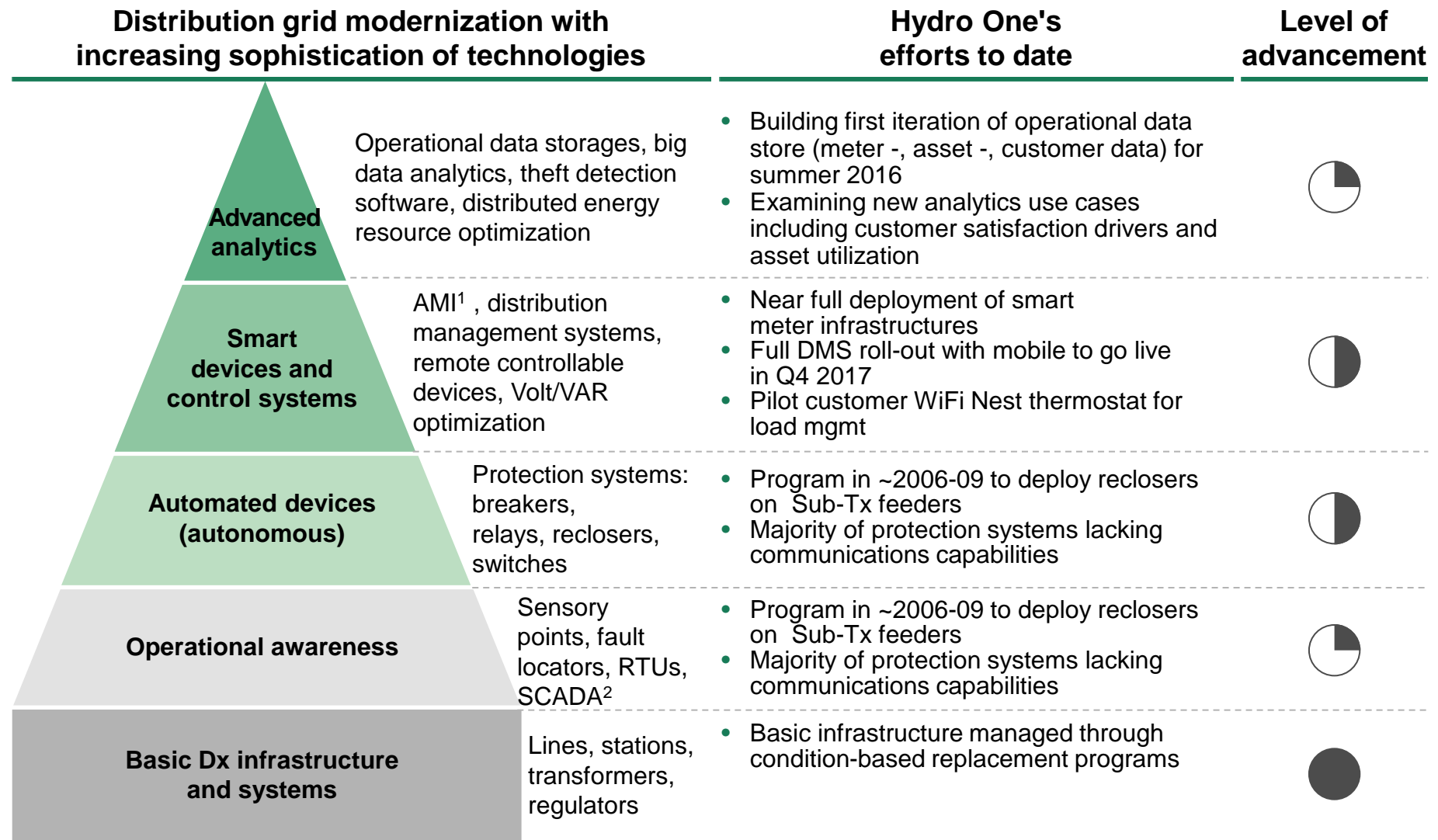
3. Excludes Operating, Customer, and Common Spend as well as Non-wires items of "IT Bus. Improvements and Enhancements" (\$15M), "IT Bus. Solution Dev" (\$11M), "Security Infra" (\$2M), and "Engineering and Technical Services" (\$2M)

# Six programs evaluated for scenario development

	Program	Description	Identified opportunities
1	<b>Distribution automation (grid modernization)</b>	Deployment of <b>modern, remote-controllable devices</b> across network (e.g., smart reclosers & tie switches)	<ul style="list-style-type: none"> <li>Fault location/isolation reduces outage response (~30mins) and customer interruptions (~30-50%)</li> <li>DA provides flexibility to add future capabilities (e.g. DG integration) for customer empowerment</li> </ul>
2	<b>Vegetation management optimization</b>	Optimized spend to achieve <b>least cost reliability</b> maintenance / improvement	<ul style="list-style-type: none"> <li>Opportunities identified to:               <ul style="list-style-type: none"> <li>Reduce unit costs through shorter trim cycle</li> <li>Improve prioritization of strategic trim</li> <li>Increase targeted hazard tree program</li> <li>Selectively deploy spacer (Hendrix) cables</li> </ul> </li> </ul>
3	<b>Worst performing feeder program</b>	<b>Comprehensive improvement</b> of feeders with worst reliability performance	<ul style="list-style-type: none"> <li>~25% of feeders driving 80% of cust. interruptions</li> <li>Similar programs successful at other utilities (e.g., Toronto Hydro, Pepco)</li> </ul>
4	<b>Accelerated recloser deployment</b>	Additional <b>3-phase line reclosers</b> to increase feeder sectionalization	<ul style="list-style-type: none"> <li>Opportunity to deploy on ~40% of feeders currently below "saturation" (i.e., one recloser per 500 cust.)</li> <li>Most cost effective reliability improvement option</li> </ul>
5	<b>Feeder ties</b>	Construction of <b>new feeder ties</b> to capture lowest-cost opportunities	<ul style="list-style-type: none"> <li>Redundant supply reduces customer interruptions 10-25% on targeted feeders</li> <li>Several low-cost opportunities identified</li> </ul>
6	<b>Fault indicators</b>	Deployment of <b>low-cost fault indicators</b> on M and F-class feeders	<ul style="list-style-type: none"> <li>O&amp;M savings from reduced time to resolve trouble calls recovers initial capital investment in &lt;2 yrs</li> </ul>

Add'l details provided

# Grid modernization: Opportunity to better focus existing efforts in grid modernization



1. Advanced metering infrastructure 2. Remote terminal unit, Supervisor control and data acquisition

# Grid modernization: Revised strategy needs to address cost/benefit tradeoffs of technology options by customer segment

Increased cost / complexity						Proposed approach by cust segment		
	Technology	Approx. CapEx (per feeder)	Avg. outage response	Customer interruptions	Additional benefits	LDA	Urban	Rural
	Fault indicators (non-communicating)	~\$800 <sup>1</sup>	↓ ~30 min	N/A	N/A	✓	✓	✓
	Reclosers (comm. ready)	~\$60K <sup>1</sup>	↓ ~30 min	↓ ~25%	N/A	✓	✓	✓
	Distribution automation	~\$200 - 300K <sup>1</sup>	↓ ~30 min	↓ ~25-50% <sup>2</sup>	<ul style="list-style-type: none"> <li>Distributed gen integration</li> <li>Volt/Var optimization</li> <li>Real-time state estimation</li> <li>etc.</li> </ul>	✓	✓	
						Deploy as low-cost bridge technology and in key locations		
						Apply across system where most cost effective		
						Target initial deployment on LDA and urban customers most likely to value additional benefits / programs		

1. Fault indicators: cost for set of 3 non-communicating Horstmann fault indicators. Reclosers: unit cost for installed electronic recloser on existing line is estimated at \$60k. Distribution automation: Per feeder values. Assumes upgrade of 1-2 existing reclosers and addition of one electronic recloser with unit cost of \$60k, upgrade of potential tie-switch with unit cost of \$60k and adding remote controls for each device with unit cost of \$25k.

2. High end impact assumes existing tie switch available for automation

# Dx scenarios developed for optimal allocation of spend under different enhancement budgets and spend priorities

## Basis for Dx investment scenarios

Two levels of capital spend:

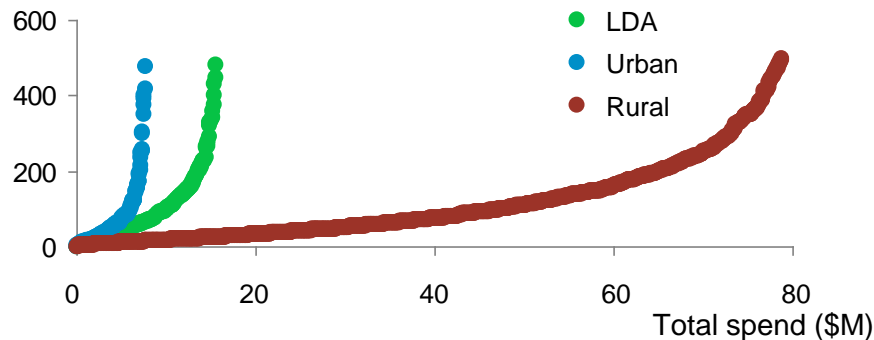
- Baseline (existing Dx investment plan)
- Incremental \$60M/year for '18-'20 (consistent with "full potential" benchmarks<sup>1</sup>)

Allocation of enhancement dollars across:

- Grid modernization: Prioritizing LDA & urban customer segments
- Reliability programs: Focus on most cost effective programs (based on \$ per avoided customer interruption)

### Example: Cost effectiveness of recloser deployment<sup>1</sup>

\$ / avoided customer interruption



1. Of \$240M in enhancement capital, \$90M is available for optimization (occurs beyond 2017 and is not allocated to a specific project)

2. Dollars per avoided customer interruptions over 10-yr period. Impact based on historical reliability performance (3-year avg.) and existing level of sectionalization on each feeder

Note: OM&A enhancement dollars are optimized within existing envelope

Steerco4\_March18\_v5.pptx

## Overview of 4 scenarios

Enhancement Capital: \$240M<sup>1</sup>

①

### Baseline

- Enhancement spend focused largely on grid modernization (targeted at LDA and urban customers)

②

### Baseline (optimized)

- Grid mod spend reduced by ~50%
- Remaining funds allocated towards least cost reliability improvement levers

Enhancement Capital: \$420M

③

### Incremental (maximize reliability)

- Baseline spend level for grid modernization
- Remaining funds allocated to reliability improvement levers

④

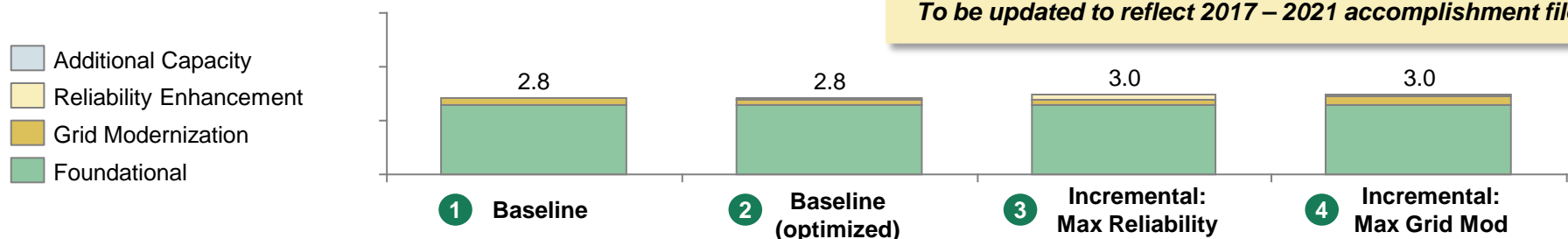
### Incremental (maximize grid mod)

- Optimized baseline spend on reliability levers
- All remaining funds allocated to grid mod (included deployment to rural customers)

# Summary of preliminary Dx scenarios

Dx scenarios will be presented to customers as part of Dx customer engagement process in Q2 '16

2016-2020 Distribution system net CapEx (\$B)



Capital Spend	Enhancement (\$M)	240	240	420	420
	Foundational (\$M)	2610	2610	2610	2610
	Other (\$M)	550	550	550	550

Expected Outcomes	LDA	SAIFI:(3-yr avg: 1.83)	↓10 - 20%	↓15 - 25%	↓ 30 - 40%	↓ 20 - 30%
		CAIDI: (3-yr avg: 2.04)	↓0 - 5%	↓0 - 5%	↓ 0 - 10%	↓ 0 - 10%
	Urban	SAIFI:(3-yr avg: 1.77)	↓ 5 - 15%	↓10 - 20%	↓ 25 - 35%	↓ 15 - 25%
		CAIDI: (3-yr avg: 1.51)	↓0 - 5%	↓0 - 5%	↓ 0 - 10%	↓ 0 - 10%
	Rural	SAIFI: (3-yr avg: 3.24)	0%	↓ 5 - 15%	↓ 5 - 15%	↓ 5 - 15%
		CAIDI: (3-yr avg: 2.66)	0%	↓0 - 5%	↓ 0 - 10%	↓ 0 - 10%
	DA penetration:		LDA: 100% Urban: 93% Rural: 0%	LDA: 50% Urban: 50% Rural: 0%	LDA: 100% Urban: 93% Rural: 0%	LDA: 100% Urban: 100% Rural: 15%
	OM&A impact:		TBD			
	System reliability risk		TBD			

Rates	Customer rate impact	TBD
-------	----------------------	-----

# Path forward: Improve integrated planning process

Initial observations and proposed resolutions identified to date

## ★ Key pain point area

## Observed pain points

## Proposed resolution

Business parameters and Asset strategy	<ul style="list-style-type: none"> <li>Definitions of business values currently not reflecting updated focus of corporate strategy</li> </ul>	<ul style="list-style-type: none"> <li>Re-categorize investments in current plan into Foundational vs. Enhancement spend</li> <li>For Enhancement spend, <u>link investments to targeted outcomes with specific metrics</u></li> </ul>
Definition of potential investments	<ul style="list-style-type: none"> <li>★ Spend categories not clearly linked to outcome-driven objectives</li> <li>Asset Analytics tool with specific data quality issue areas or data gaps (e.g. known defects)</li> <li>Subjective risk assessment used for potential investment definitions</li> <li>★ Inaccuracy / lack of cost-estimates for potential investments</li> </ul>	<ul style="list-style-type: none"> <li>Continue with existing improvement program to address data management issues in AA</li> <li>Ensure BEST<sup>1</sup> cost estimates are defined in the plan for min. first 3 years (2018 Tx filing onwards)</li> <li>Continue <u>improving overall quality of cost estimates</u> using benchmarked levels for assumptions</li> </ul>
Optimization	<ul style="list-style-type: none"> <li>Business values weighting in optimization not reflecting updated focus of corporate strategy</li> </ul>	<ul style="list-style-type: none"> <li>Update business values weighting for optimization to better match updated business priorities</li> </ul>
Plan revision and approval	<ul style="list-style-type: none"> <li>Investment plan may require several rounds of manual adjustments after optimization in the AIP tool</li> </ul>	<ul style="list-style-type: none"> <li>Prepare for potential revisions and ensure adequate time to incorporate changes in the plan</li> <li>Validate that the plan is executable and ensure understanding of associated assumptions</li> </ul>
Plan execution	<ul style="list-style-type: none"> <li>★ Investment outcomes not adequately tracked against budget or expected outcomes</li> <li>Incentive structures tied to current unit or \$ accomplishment follow-up</li> </ul>	<ul style="list-style-type: none"> <li>Establish rigor in <u>execution and follow-up of planned vs. realized budget</u> for in-service additions</li> <li><u>Measure achievement of investment outcomes</u></li> <li>Validate and update assumptions for outcomes to improve estimation of future projects</li> </ul>

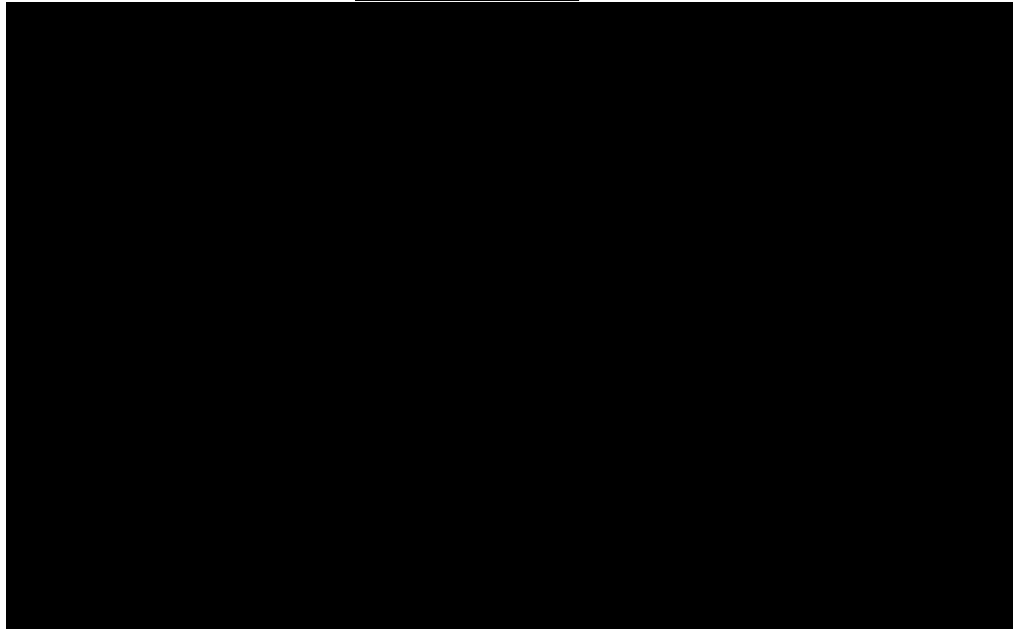
# Our agenda for today

Topic	Lead	Time
<b>Introduction and summary</b>	Mayo Schmidt & Stef Stocco	<b>30 mins</b> (9:00-9:30)
<b>Service delivery</b>		<b>75 mins</b> (9:30-10:45)
• Voice of the customer	BCG	15
• System investment plan and Tx filing update	Mike Penstone & Oded Hubert	30
• Capital delivery strategy	Brad Bowness	20
• Customer service roadmap	Rob Quail	10
<b>Efficiency</b>		<b>60 mins</b> (10:45-11:45)
• Full potential summary	Mike Vels	20
• Procurement	Gary Schneider	10
• O&M efficiency	John Rebick	10
• SG&A effectiveness	Judy McKellar	5
• Timing of O&M efficiency and SG&A effectiveness opportunities	Judy McKellar	15
<b>Path forward: Looking ahead to execution phase</b>	Mayo Schmidt	<b>15 mins</b> (11:45-12:00)

# Investment plan represents ~30% increase in gross capital deployed by 2021 (vs. 2016)

## Proposed investment plan calls for increased capital deployment

Gross capital (\$M)



Net Dx	630	640	650	670	690	670	700	730	670	680	3,450
--------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-------

## With challenges to overcome

Increased FEED<sup>1</sup> demand to release more projects for execution

Impact of variability in performance magnified in larger portfolio

Higher workload (~50% increase for construction, ~10-15% for other BUs)

Labour constraints

1. Front End Engineering Design (Project work before release – e.g. INIT (planning spec) / BEST (budgetary estimate) / DETL (detailed estimate))

Sources: Mar 17th 2017-2021 Accomplishment File

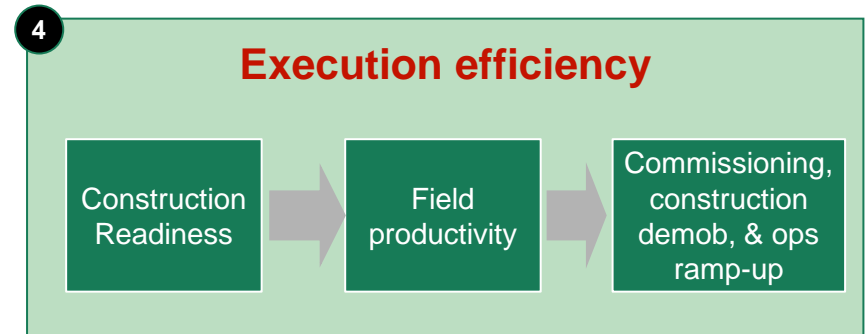
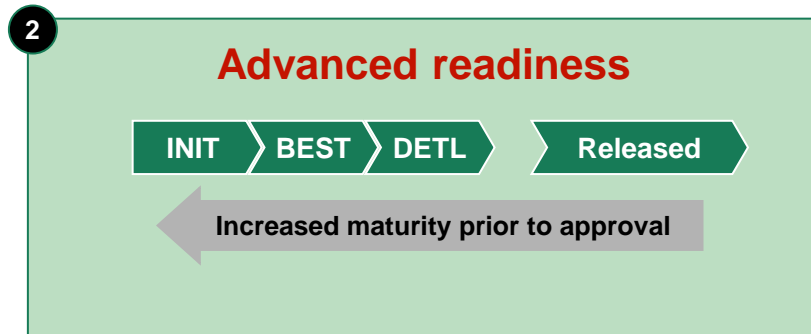
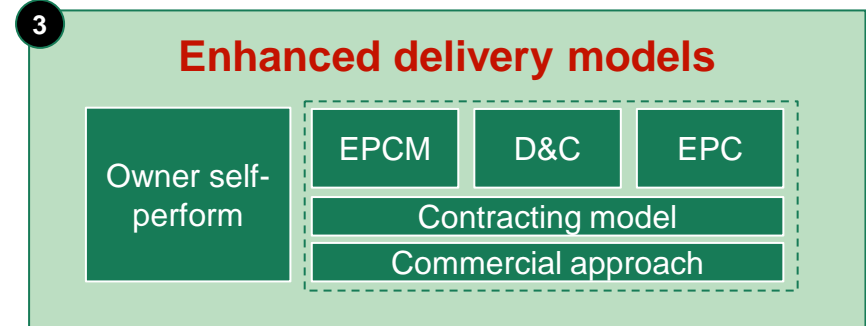
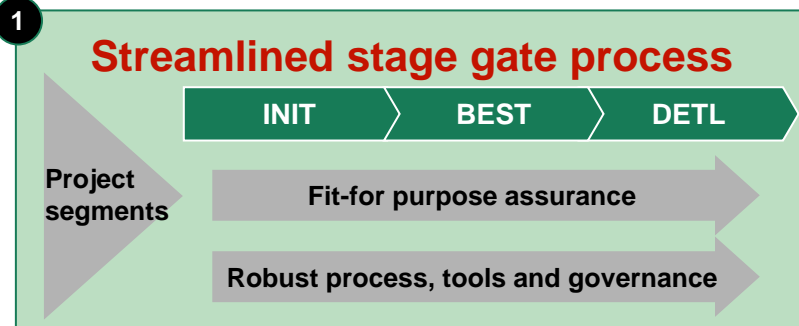
# 4 streams to ensure efficient delivery of recommended plan

## Project development

*More (predictable) projects through the pipeline*

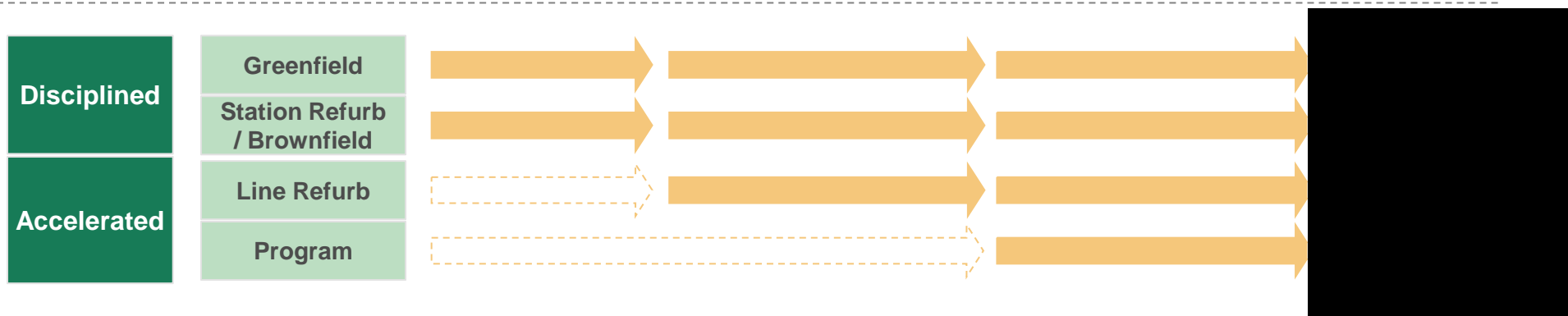
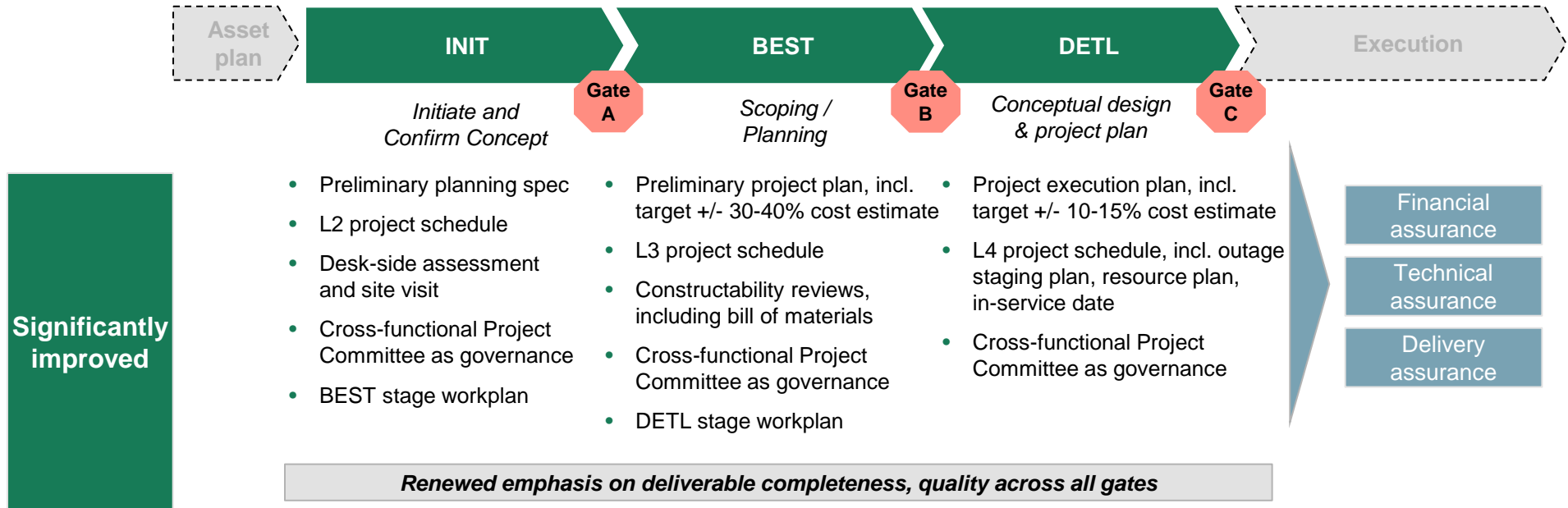
## Project delivery

*Enhanced capability to deliver*

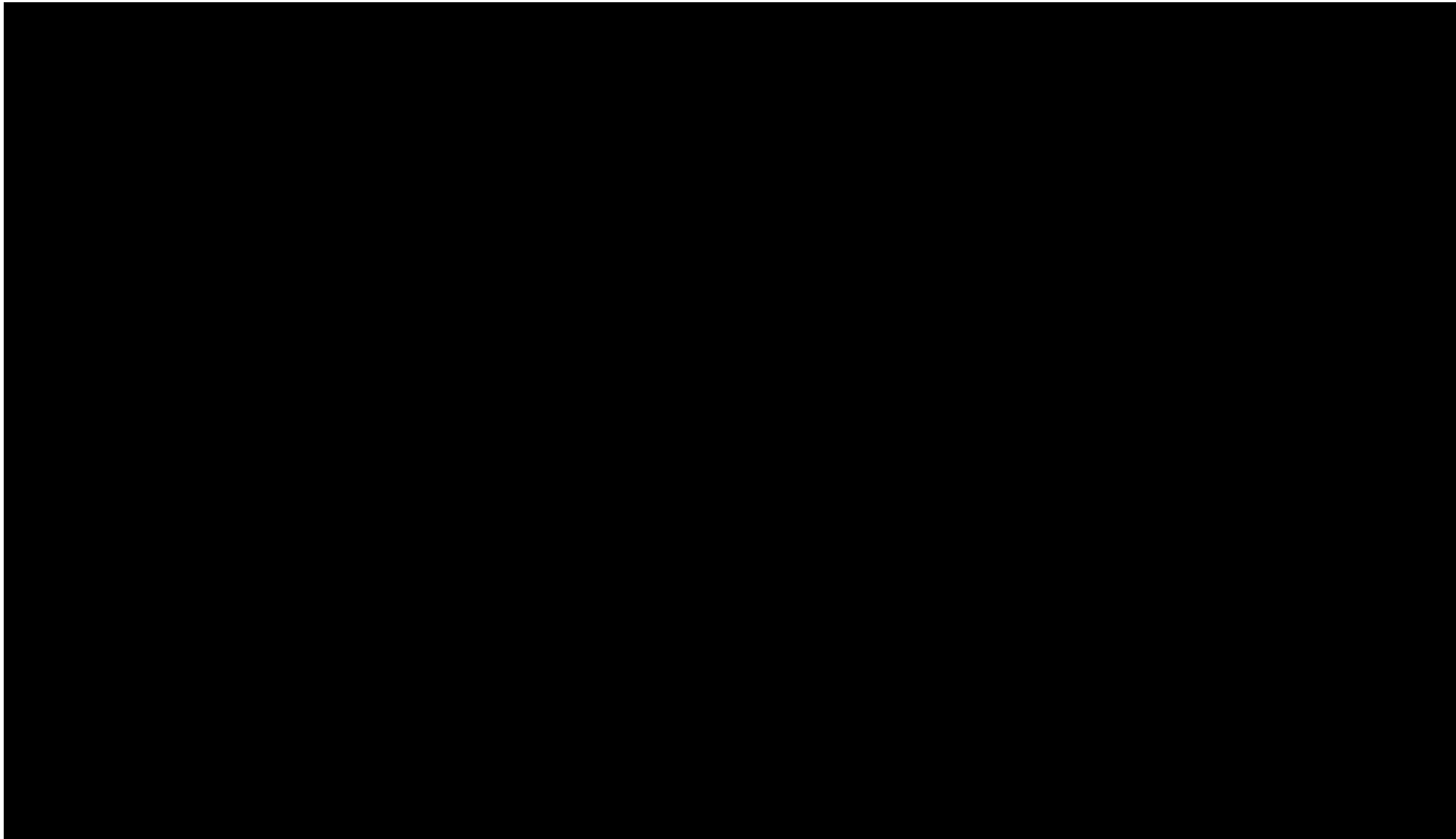


# Streamlined stage gate process

1 Fit for purpose process depending on project complexity

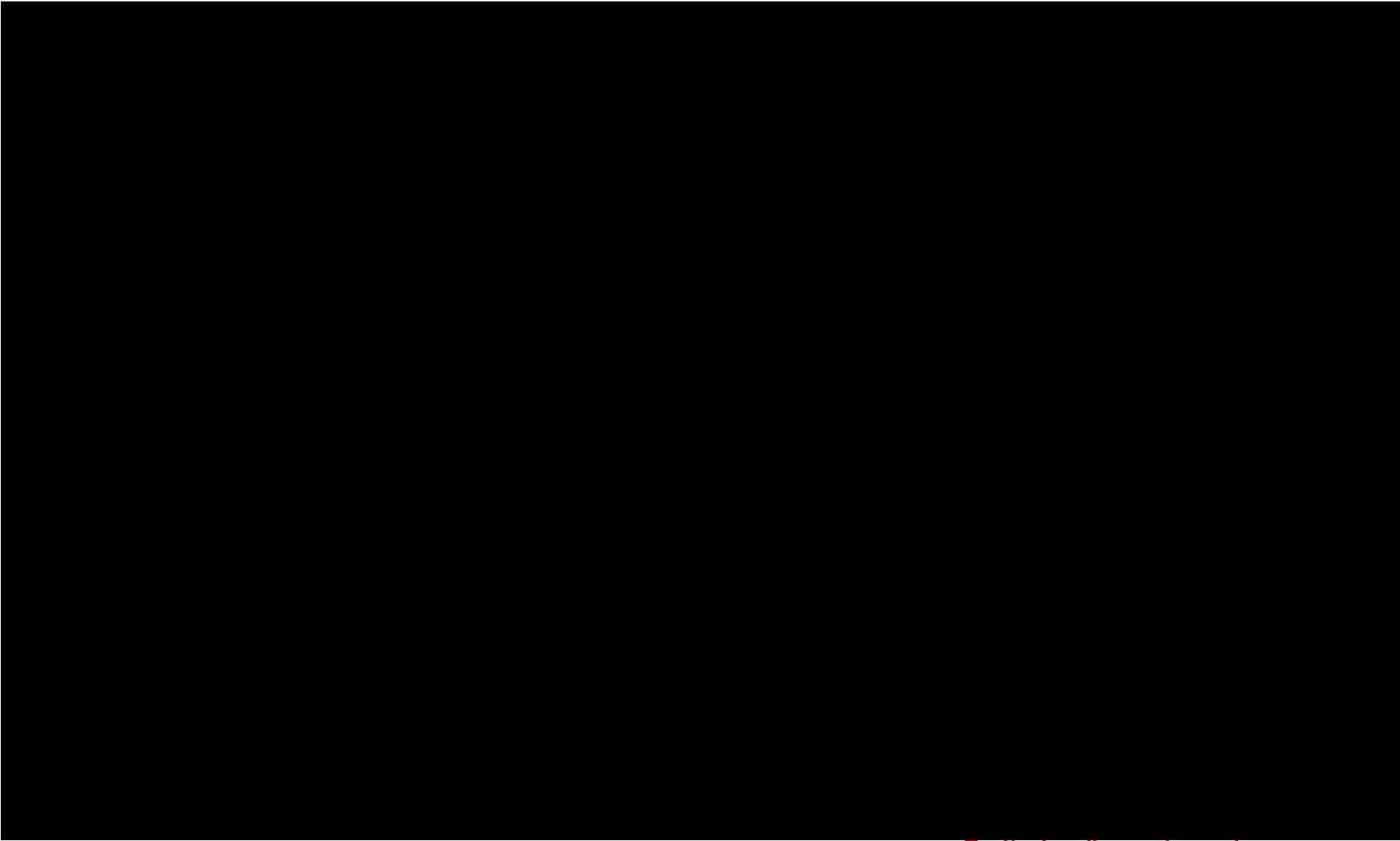
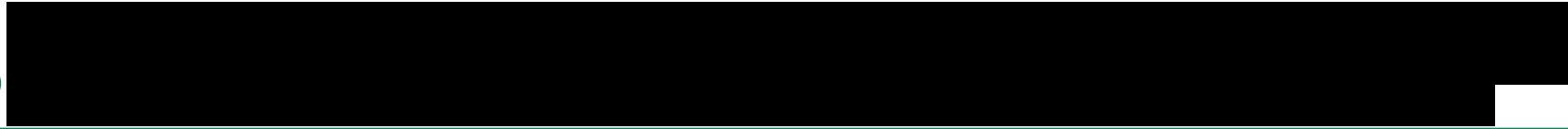


## 2 Advanced readiness

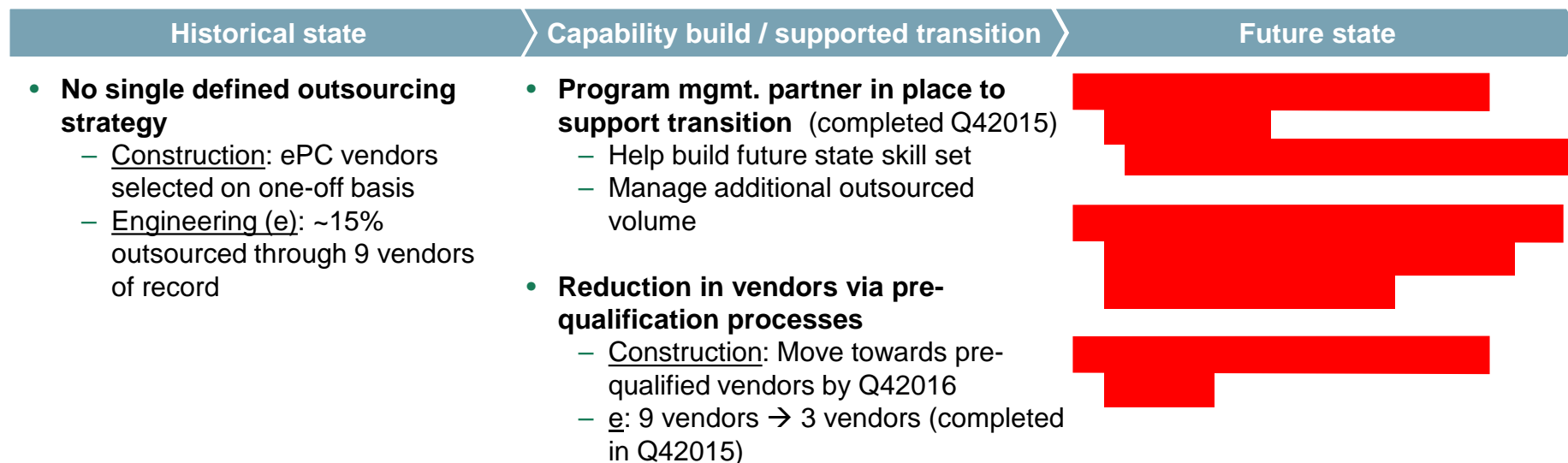
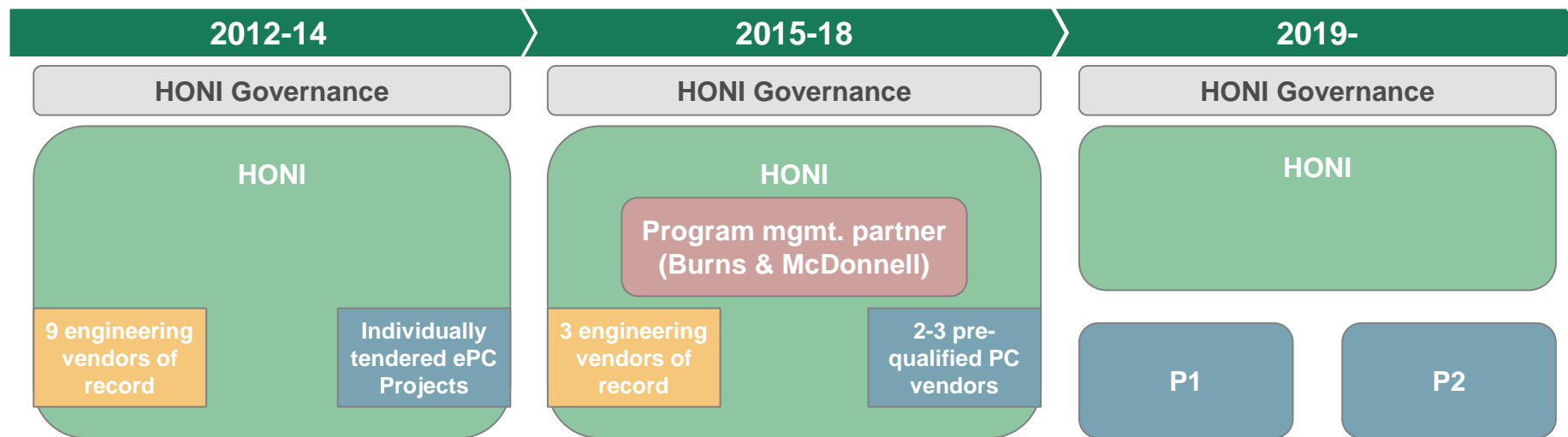


Sources: Historical work release statistics; 2015 ISA summary; Mar 17th 2017-2021 Accomplishment File

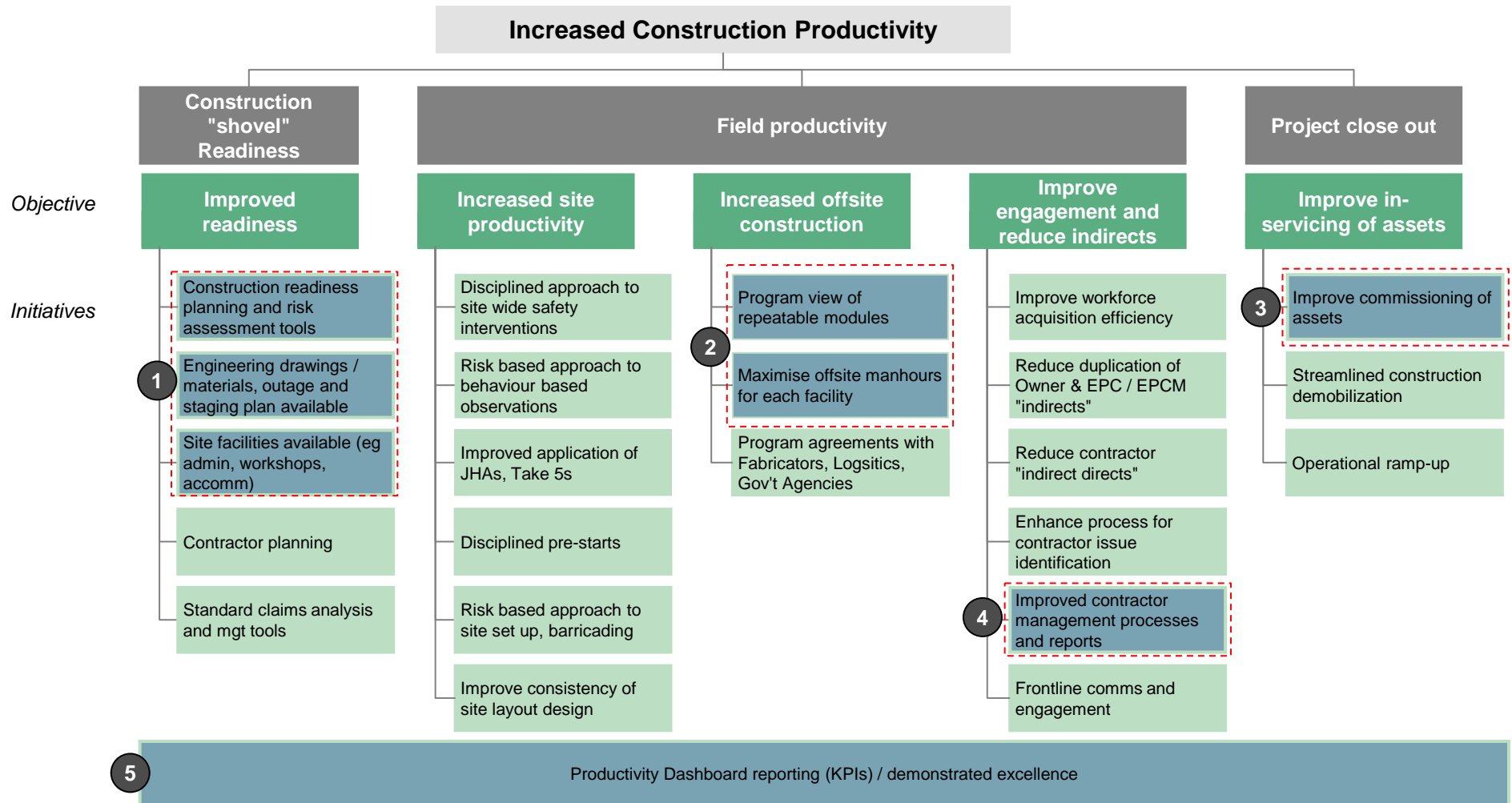
Steerco4\_March18\_v5.pptx



### 3 Evolving commercial model to support future delivery model



## 4 Execution efficiency: Five priority initiative areas

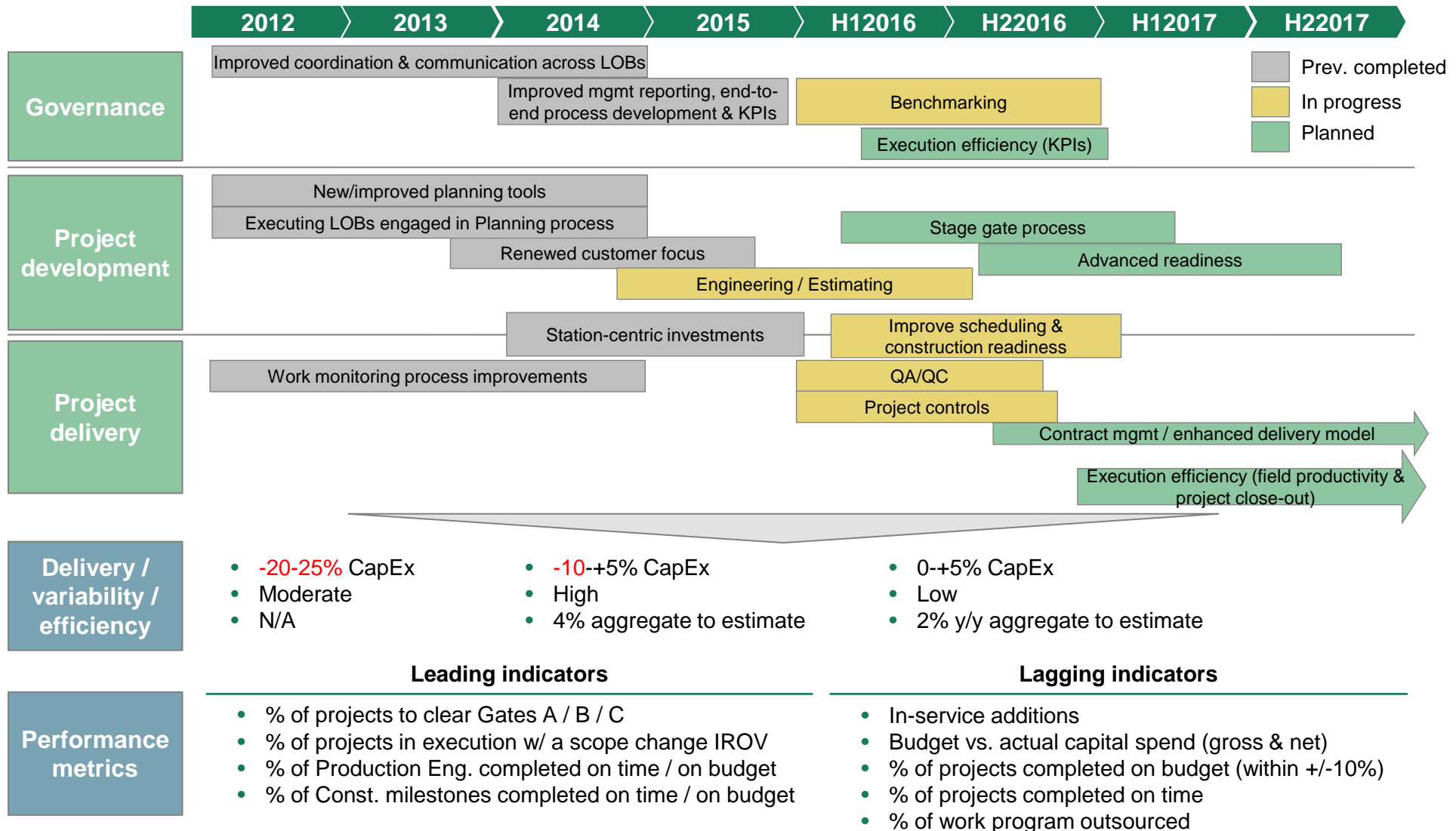


**x Identified as priority opportunity**

Note: Indirects are Contractor and EPC/EPCM management and functions on site eg Construction Management, Superintendents, Environmental officers

# Path forward

## Timeline and measuring success



# Our agenda for today

Topic	Lead	Time
<b>Introduction and summary</b>	Mayo Schmidt & Stef Stocco	<b>30 mins</b> (9:00-9:30)
<b>Service delivery</b>		<b>75 mins</b> (9:30-10:45)
• Voice of the customer	BCG	15
• System investment plan and Tx filing update	Mike Penstone & Oded Hubert	30
• Capital delivery strategy	Brad Bowness	20
• Customer service roadmap	Rob Quail	10
<b>Efficiency</b>		<b>60 mins</b> (10:45-11:45)
• Full potential summary	Mike Vels	20
• Procurement	Gary Schneider	10
• O&M efficiency	John Rebick	10
• SG&A effectiveness	Judy McKellar	5
• Timing of O&M efficiency and SG&A effectiveness opportunities	Judy McKellar	15
<b>Path forward: Looking ahead to execution phase</b>	Mayo Schmidt	<b>15 mins</b> (11:45-12:00)

# Summary: Customer service roadmap

We have identified several opportunities to address unmet customer needs, drive satisfaction and deliver on our 4 goals – value for money, trust, ease to do business with, and transparency

- **Residential and Small Business:** Three priority initiatives identified to address unmet customer needs
  1. **Call centre enhancements** to elevate agent skills and to improve first call resolution
  2. **Digital engagement** via Smart e-billing including alerts, and enhanced My Account and HydroOne.com design
  3. **Bill redesign** to provide a more user-friendly format and make bill easier to understand
- **Commercial & Industrial customers:** Two priority initiatives:
  1. Improved training and tools for agents in business call centre
  2. Proactive marketing of conservation and demand management programs
- **Large Distribution Account customers:** Two priority initiatives:
  1. Proactive marketing of conservation and demand management programs
  2. Better communications around outage performance
- [REDACTED]  
[REDACTED]  
[REDACTED]

Majority of customer satisfaction impact this year will be from recently completed or in-flight initiatives

# Four recently completed initiatives will drive customer satisfaction impact in 2016

## Key initiatives delivered in 2015

### Call centre quality improvements

- Revised policies and introduced revamped training and assessment of call agents



## Impact realized

- Increased satisfaction on transactional survey from 80% to 85% (and achieved 90% in January 2016)

### Improved Billing

- Through meter network performance improvements and the Flexible Billing Window, improved performance to capture more readings from advanced metering infrastructure/ field



- 98.7% of bills issued to time-of-use customers are based on actual reads (up from 92% in December 2014)

### Customer commitments

- Instituted service level guarantee and reporting mechanisms for failures, with \$50 cash credit to customer for any failure (first of its kind for a Canadian utility)



- 48 failures<sup>1</sup> in 2016 year to date – tracking well below annual target of <2,000

### Outage notifications













- Introduced proactive outage, estimated time of recovery and restoration alerts via texts and email



- ~10,000 customers enrolled to date

1. Includes three types of failures: call centre calls not returned in 24 hrs, field appointments not met, late/delayed connections









# Priority initiatives: Residential and Small Business and Commercial and Industrial customers

	Initiative	Key theme addressed	Operational Metric	Current	2017 Target	Expected "go-live"	Cost/ Complexity	Customer sat. impact
Residential & Small Business	Call centre quality enhancements	<ul style="list-style-type: none"> <li>Effective call centre issue resolution</li> </ul>	First call resolution	82%	84%	Q2 2016	 <\$1M <sup>2</sup>	
	Smart eBilling & customer usage tools	<ul style="list-style-type: none"> <li>Affordable power</li> <li>Straightforward bill</li> </ul>	Customers using e-billing	9%	19%	Q4 2016	 ~\$10.7M <sup>3</sup>	
	My Account and website redesign	<ul style="list-style-type: none"> <li>Convenient self-service channels</li> </ul>	Active users	15%	27%	Q2 2017	 ~\$12M	
	Bill redesign	<ul style="list-style-type: none"> <li>Straightforward bills</li> </ul>	Ease of bill understanding	62%	68%*	Q2 2017	 ~\$5M	
Commercial & Industrial	Business Call Centre agent training and system upgrades	<ul style="list-style-type: none"> <li>Single contact to resolve issues</li> </ul>	First call resolution <sup>1</sup>	80%	83%	TBD	 ~\$500K <sup>4</sup>	
	Conservation & demand management marketing enhancements	<ul style="list-style-type: none"> <li>Affordable power</li> </ul>	Energy savings	60 MWh <sup>^</sup>	120 MWh	Q3 2016	 ~\$40K <sup>4</sup>	

Priority initiatives selected based on expected customer satisfaction impact and cost/complexity of implementation

1. First Call Resolution for Business Call centre; 2. Largely vendor funded except for live chat and speech analytics. 3. Expected to receive cost recovery from Independent Electricity System Operator (IESO) (~\$2M). 4. Some cost recovery expected. \* Expected to go live in Q2 2017; 2018 target is 74% on this metric. ^ MWh is Megawatt hours.

# Priority initiatives: Large Distribution Accounts and Transmission customers

	Initiative	Key theme addressed	Operational Metric	Current	2017 Target	Expected "go-live"	Cost/ Complexity	Customer sat. impact
Large Distribution Accounts	Conservation & demand management program awareness	Access to energy conservation programs / customized advice	Conservation demand management present. (%)	60%	90%	TBD	 ~\$50K <sup>1</sup>	
	Outage performance communications	Reliability and quality	Unplanned outage satisfaction (%)	79%	85%	TBD	 ~\$30K <sup>1</sup>	
Transmission	Process improvements and enhanced rep support	Keeping commitments in timely manner	Commitments met (%)	73%	81%	TBD	 ~\$360K <sup>2</sup>	
	Communication of Hydro One plans	Proactive communication of Hydro One plans	Customer consultations (#) <sup>3</sup>	TBD	TBD	TBD	 ~\$250-500K <sup>2</sup>	

Priority initiatives selected based on expected customer satisfaction impact and cost/complexity of implementation

1. Represents reallocation of existing resources. 2. Represents recurring annual costs. 3. Preliminary metric still being finalized.

# Back-up: Several recently completed and in-flight initiatives will drive material customer satisfaction impact in 2016

	Initiative name	Description / components	Status	Impacts
R&SB	<b>Call Centre Quality Enhancements</b>	<ul style="list-style-type: none"> <li>Customer Service MAGIC training</li> <li>Revamped call scorecard</li> <li>Agent performance scorecard</li> </ul>	Most changes in-service late 2015. Completion by Q1-Q2 2016	<ul style="list-style-type: none"> <li>Transactional Satisfaction: from 80% (2014 avg.) up to 85% (2015 avg.)</li> <li>Unacceptable calls: from 71% (Jan 2015) down to 1% (Dec 2015)</li> </ul>
	<b>My Account Revisions</b>	<ul style="list-style-type: none"> <li>Revamped (simpler) sign-up</li> <li>Usability (look and feel) improvements</li> </ul>	In-service as of Q3 and Q4 2015	<ul style="list-style-type: none"> <li>Transactional Satisfaction: from 75% (2014 avg.) to 78% (2015 avg.). 81% in Jan 2016</li> </ul>
	<b>Customer Commitments</b>	<ul style="list-style-type: none"> <li>Instituted service level guarantee + reporting mechanisms for failures</li> </ul>	In-service as of Q4 2015	<ul style="list-style-type: none"> <li>48 failures<sup>1</sup> year to date. Tracking well below annual target of &lt;2,000</li> </ul>
	<b>Flexible Billing Window</b>	<ul style="list-style-type: none"> <li>Expanded meter read window to capture more reads from advanced metering infrastructure system and field</li> </ul>	Partially in-service as of Q4 2015	<ul style="list-style-type: none"> <li>Increased overall bill quality by 0.5%</li> <li>Reduced billing related exceptions by 20%</li> </ul>
	<b>Meter Route Optimization</b> (Phase 2 of Flexible Billing Window)	<ul style="list-style-type: none"> <li>Migrated customers to appropriate end state commodity billing (i.e. time of use or 2 Tier)</li> <li>Optimized field meter read routes based on advanced metering infrastructure availability and drive time</li> </ul>	In-service as of Feb 2016	<ul style="list-style-type: none"> <li>Reduced manual meter read unit costs by 15%</li> <li>Increased meter read capture by 5%</li> <li>Reduced billing related exceptions by 15%</li> </ul>
	<b>Outage Alerts</b>	<ul style="list-style-type: none"> <li>Proactive outage, estimated time of recovery and restoration alerts via texts and email</li> <li>Phone calls for estimated time of recovery change</li> </ul>	In-service as of Q4 2015 (pilot since 2014)	<ul style="list-style-type: none"> <li>~10,000 customers enrolled</li> </ul>
	<b>Billing Accuracy</b>	<ul style="list-style-type: none"> <li>Proactive management of no bills; persistently estimating bills &amp; delayed bills</li> </ul>	In-service as of Q1 2015	<ul style="list-style-type: none"> <li>No bill volumes reduced by 94%</li> <li>Persistently estimated bills improved by 9%</li> </ul>
	<b>Ontario Electricity Support Program Implementation</b>	<ul style="list-style-type: none"> <li>Implemented Ontario Electricity Support Program for low income customers</li> </ul>	In-service as of Q4 2015	<ul style="list-style-type: none"> <li>13,500 customers enrolled</li> </ul>
C&I	<b>Business Customer Contact Changes<sup>2</sup></b>	<ul style="list-style-type: none"> <li>Direct escalations phone number</li> <li>Streamlined interactive voice response options</li> </ul>	In-service as of Q4 2015	<ul style="list-style-type: none"> <li>Transfers required due to routing errors: from 903 (Jul 2015) down to 657 (Jan 2016)</li> </ul>
Tx	<b>Enhanced reliability reporting<sup>3</sup></b>	<ul style="list-style-type: none"> <li>Customized reporting on reliability performance for Transmission customers</li> </ul>	In-service as of Q1 2015	<ul style="list-style-type: none"> <li>130 reports generated in 2015 for 112 customers</li> <li>Positive customer feedback. May have played role in satisfaction increase from 77%-85% (2014-2015)</li> </ul>

1. Includes three types of failures: call centre calls not returned in 24 hrs, field appointments not met, late/delayed connections 2. For Commercial & Industrial customers

3. For Transmission customers

# Our agenda for today

Topic	Lead	Time
<b>Introduction and summary</b>	Mayo Schmidt & Stef Stocco	<b>30 mins</b> (9:00-9:30)
<b>Service delivery</b>		<b>75 mins</b> (9:30-10:45)
• Voice of the customer	BCG	15
• System investment plan and Tx filing update	Mike Penstone & Oded Hubert	30
• Capital delivery strategy	Brad Bowness	20
• Customer service roadmap	Rob Quail	10
<b>Efficiency</b>		<b>60 mins</b> (10:45-11:45)
• Full potential summary	Mike Vels	20
• Procurement	Gary Schneider	10
• O&M efficiency	John Rebick	10
• SG&A effectiveness	Judy McKellar	5
• Timing of O&M efficiency and SG&A effectiveness opportunities	Judy McKellar	15
<b>Path forward: Looking ahead to execution phase</b>	Mayo Schmidt	<b>15 mins</b> (11:45-12:00)

# Summary: OM&A and capital efficiency

**Identified total run rate potential of up to ~\$100M OM&A and ~\$120M capital across 2015 \$2.8B spend baseline**

- [REDACTED]
- Execution requirements still to be assessed and will need to consider implications of growing work program
- [REDACTED]
- ~\$7M (mostly OM&A) already in execution and locked into 2016 financials

**Opportunities have been identified across three work streams**

- Procurement: \$39 – 85M opportunity to be executed across four waves with first wave already underway
- O&M efficiency: \$39 – 51M opportunity including \$15-26M on top of existing in-flight initiatives (e.g., Move to Mobile)
- [REDACTED]

**Five key steps to drive SG&A effectiveness and O&M efficiency opportunities**

# Capital and OM&A baseline: \$2.8B

Being addressed through 3 efficiency work streams

	2015 baseline (\$B)			Work stream	Description (example levers)
	Capital	OM&A	Total		
Procured spend				1 Procurement	<ul style="list-style-type: none"> <li>Specifications and service level rationalization to benchmark levels</li> <li>Controlling demand or consumption levels</li> <li>Fact-driven approach to competitive bids and negotiations</li> </ul>
People & Inergi spend					
Total					

1. Includes regular employees (incl. rotations), temporary employees, staff augmentation and \$164M Inergi spend

# Run rate potential of up to ~\$100M OM&A and ~\$120M capital

Starting point for savings realization in time ... execution requirements still to be fully assessed

Cumulative run-rate potential (\$M)			
2016+		2017+	2018+
1 Procurement	23 - 44	38 - 80	39 - 85

# \$6.7M already under execution and locked into financials

\$5.4M 2016 net in-year impact

## \$6.7M run-rate (\$5.4M in-year) savings locked into financials

	Net in-year savings	Run rate savings (\$M)	Impact will begin?	Risk/Consideration
<b>Reduce infrastructure costs by</b>	<b>2.35</b>	<b>3.2</b>		Leverage standard contractual RRC methodology. Reduce size of backup archives by moving to 'daily incremental and monthly full' in non-prod/project environments
• Optimizing backup & storage	1.45	1.8	Q2	
• Optimizing project environments	0.45	0.7	Q2	
• Decommissioning infrastructure & DBs	0.45	0.7	Q2	
<b>Renegotiate contracts to reduce</b>	<b>1.9</b>	<b>2.3</b>		No risk to overall delivery of enhancements
• Hourly Inergi rate for minor enhancements	0.4	-	Q2	
• Cost of 3rd party licenses & maintenance	0.475	1	Q1	
• Mobility services	1	1.3	Q1	
<b>Reduce minor enhancement budget</b>	<b>1</b>	<b>1</b>		Will focus on areas with large capital investment to reduce minor enhancement spend
• Inergi budget	0.8	0.96	Q1	
• Non-inergi budget	0.2	-		
<b>Cancel transformation projects not delivering value or no longer needed</b>	<b>0.1</b>	<b>0.1</b>		
• Command centre	0.03	0.03	Q1	Savings are being realized – no further action required
• Mobile Pay Advice Stream	0.03	0.03	Q1	
• Mobile Receipting	0.04	0.04	Q1	
<b>Total</b>	<b>5.4</b>	<b>6.7</b>		

\$6.6M in OM&A,  
\$0.1M in Capital

## Implementation progress closely tracked

- \$ impact of initiative
- Cost of initiative
- Key milestones
- Cost centre
- Executive sponsor/leader

Initiative tracker														
hydro one														
Description of initiative														
Initiative #	Is Strategic	Is Critical	Is High Impact	Is High Risk	Is High Cost	Is High Complexity	Is High Visibility	Is High Priority	Is High Urgency	Is High Impact	Is High Risk	Is High Cost	Is High Complexity	Is High Visibility
101	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
102	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
103	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
104	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
105	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
106	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
107	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
108	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
109	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
110	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
111	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
112	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
113	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
114	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
115	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
116	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
117	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
118	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
119	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
120	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

# Procurement: \$39-85M opportunity across 27 categories

Represents 5-11% savings potential on addressable spend of \$768M

Category	Spend (\$M)		Savings Potential (\$M)	
	Total	Addressable		
Electrical hardware	120	62	3	9
EPC services	115	55	6	8
Engineering services	20	20	2	3
Fleet: vehicle purchases and maintenance	148	112	6	8
Staff augmentation <sup>1</sup>	60	45	2	7
Professional services (finance, HR, legal, marketing, etc.)	64	26	3	5
Equipment rentals	63	50	3	5
IT software (apps., licenses, maintenance & support)	36	30	2	5
Transformers	118	42	2	4
Construction services	91	70	1	4
General hardware	35	22	2	3
Real estate	20	20	1	3
Construction materials	32	27	1	3
Telecom (carrier services and equipment)	72	50		3
IT hardware	29	15	1	2
Environmental services	42	22	1	2
Engineered equipment	74	20	1	2
Travel, accommodation & entertainment	17	8	1	2
Mailing & courier	13	12		1
Facilities management	51	10		1
Wood poles	20	20		1
Transport services	27	9		1
Steel fabrications	18	18		1
Office supplies	6	3		0
PCT equipment and controls	16	0	0	
Metering equipment and parts	37	0	0	
Remotes supply fuel	27	0	0	
Quick wins <sup>2</sup>	N/A	N/A		2
<b>Total<sup>2</sup></b>	<b>1,371</b>	<b>768</b>	<b>39 – 85 (OM&amp;A: 8 – 24; CAPEX: 31 – 61)</b>	

Source: Hydro One Jan 1, 2015 – Dec 31, 2015 total spend, BCG analysis 1. Staff augmentation only includes commercial negotiation 2. Savings already confirmed in 2016

# Execution planned across four waves

Wave 1 already in execution

## Considerations for prioritization

### Gains vs Ease/Speed

### Readiness & interdependencies

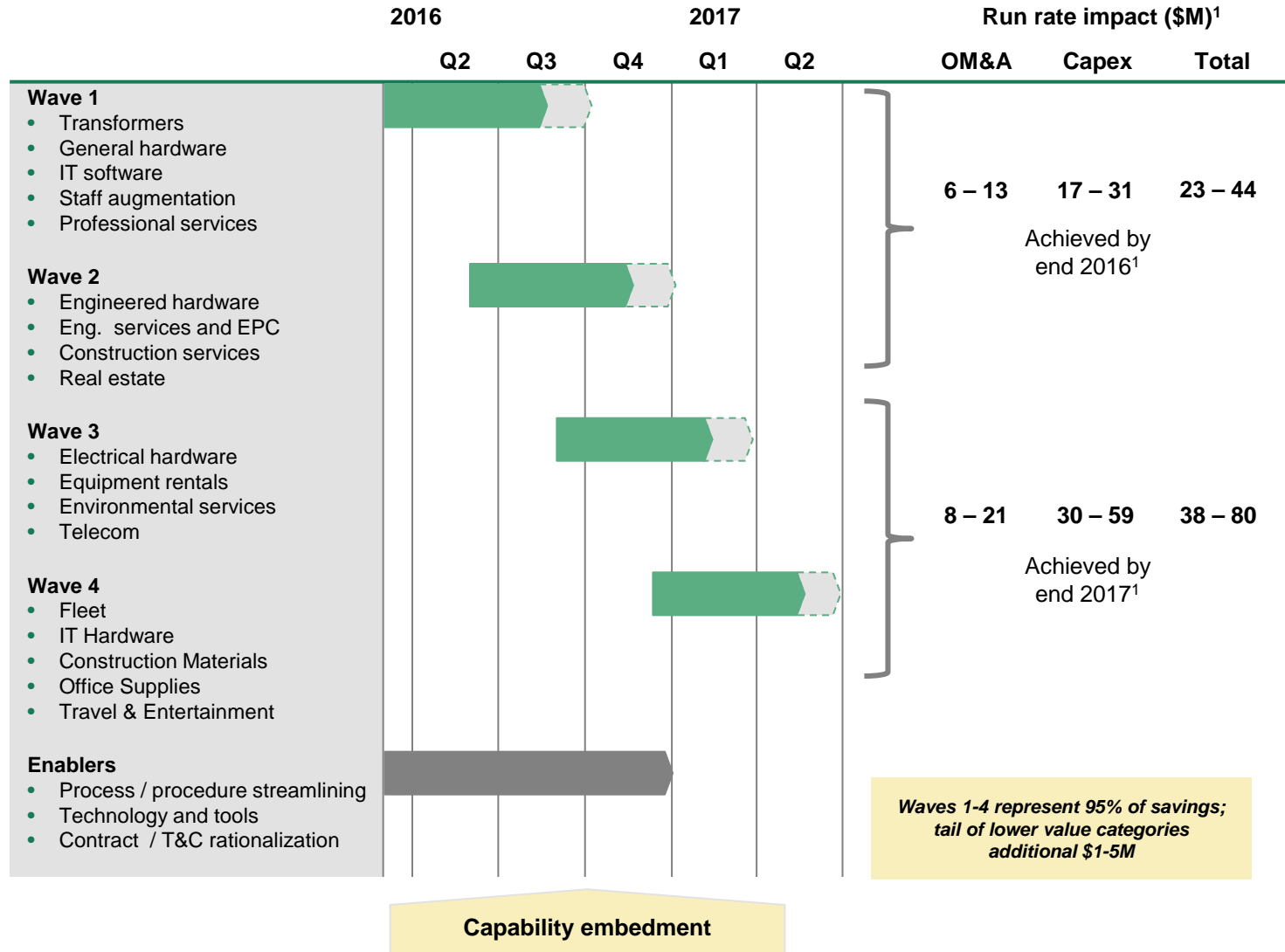
- E.g. Cleanup for electrical hardware;
- Delivery model for EPC services

### Resources availability

- E.g. Eng. input for transformers, electrical and engineered hardware

### Diversity of levers for embedment

- RFP vs tear down
- Engineered vs off-shelf
- Demand levers, e.g. rationalization



1. Run rate listed is inclusive of \$2.3M of confirmed savings through "quick wins"

# Waves 1 & 2: approach and levers

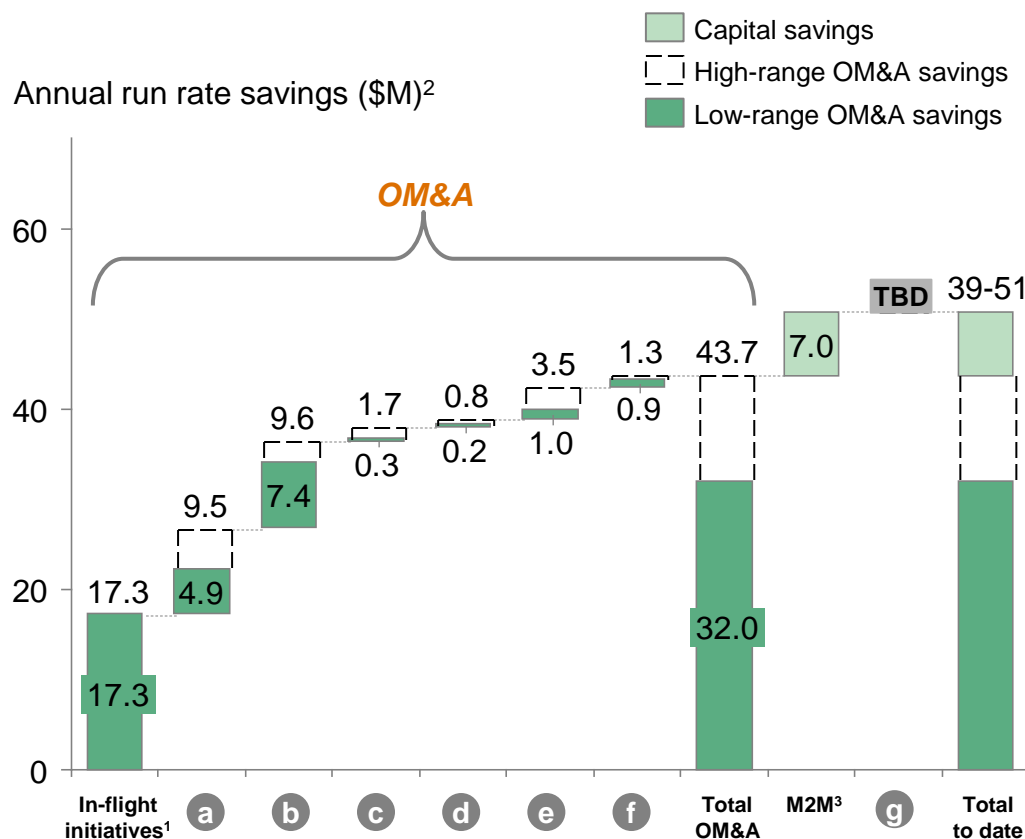
	Approach / levers	Addressable Spend (\$M)	Potential Savings (\$M)
General Hardware	<ul style="list-style-type: none"> <li>Conduct broad RFP with multi-round feedback to maximize competition</li> <li>Adopt basket and non-basket approach to rapidly lock-in prices for top-items</li> <li>Introduce volume discounts and explore consignment</li> </ul>	22	2 - 3
Transformers	<ul style="list-style-type: none"> <li>Run competitive RFP with multi-round approach to re-base prices</li> <li>Leverage an expanded supplier base including LCC vendors</li> <li>Rationalize specifications</li> </ul>	42	2 - 4
Engineered Equipment		20	1 - 2
IT Software	<ul style="list-style-type: none"> <li>Teardown, benchmark and renegotiate large contracts [REDACTED]</li> <li>Rationalize dormant and non-essential licenses, true-down license mix</li> </ul>	30	2 - 5
Professional Services	<ul style="list-style-type: none"> <li>Eliminate non-essential services</li> <li>Consolidate vendor base and renegotiate prices for select services</li> </ul>	26	3 - 5
Staff Aug.	<ul style="list-style-type: none"> <li>Conduct competitive RFP to rebase rates with consolidated set of preferred vendors, leveraging spend across secondments and projects</li> <li>Apply competitive pressure through multi-round feedback on decomposed rates</li> <li>Challenge incumbents with new bidders including secondment specialists [REDACTED]</li> </ul>	45	2 - 7
Engineering & EPC Services		75	8 - 11
Construction Services	<ul style="list-style-type: none"> <li>Conduct competitive RFP to establish pricing with 2-3 preferred construction vendors</li> </ul>	70	1 - 4
Real Estate	<ul style="list-style-type: none"> <li>Rationalize / consolidate office floor space in the GTA</li> </ul>	20	1 - 3

Wave 1

Wave 2

# O&M efficiency: \$39 - 51M opportunity identified to-date

Includes \$15-26M of new opportunity on top of existing in-flight initiatives



## Opportunity

## Description

### d Fault indicators

Reduce time to resolve trouble calls through expanded use of fault indicators

### e Preventive maint. execution

Standardize preventive maintenance practices across zones to reduce time to execute

### f Outage cancellation reduction

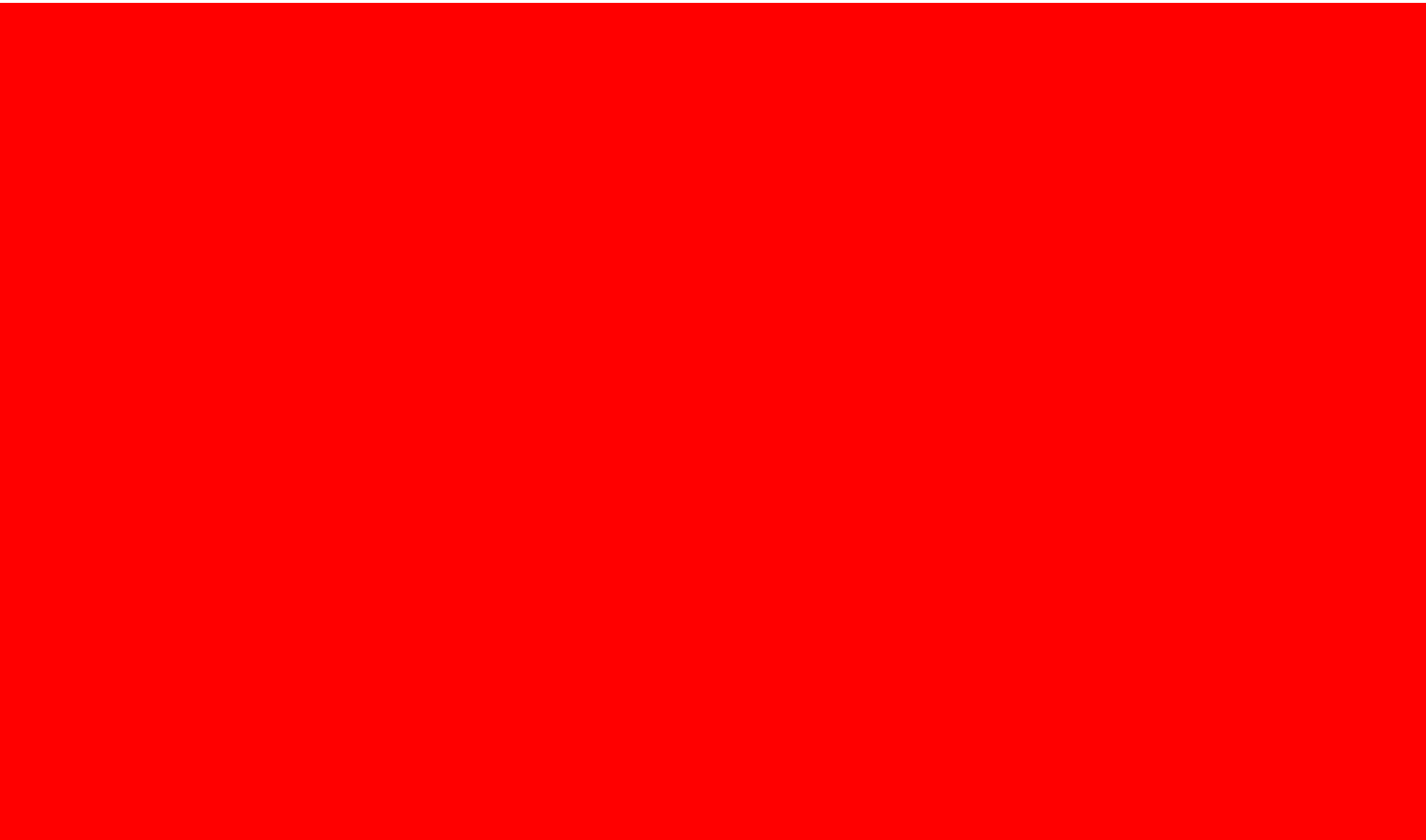
Reduce outage cancellations and related costs

### g Field execution efficiency

Perform detailed field study in Lines to identify additional opportunities

**Additional opportunities to be determined through detailed Provincial Lines field study in next phase**

1. In-flight initiatives include \$9M in Forestry and \$8.3M in Lines; does not include \$5M of M2M capital and OM&A savings or potential savings from Stations scheduling tool initiative savings that are captured in SG&A workstream 2. OM&A and capital savings off of 2015 baseline 3. Represents capital savings from M2M



# Proposed plan for field visits

**Main focus will be to evaluate efficiency of field execution in Provincial Lines**

Assessment	Focus areas
<b>Process</b>	<ul style="list-style-type: none"> <li>• Time spent on meetings &amp; admin tasks</li> <li>• Application of standard work processes</li> <li>• Work site conditions (e.g. design, cleanliness, safety)</li> <li>• Effectiveness of tools and equipment</li> <li>• Etc.</li> </ul>
<b>Training &amp; Culture</b>	<ul style="list-style-type: none"> <li>• Teaming, motivation, and capabilities of work crews</li> <li>• Training program effectiveness</li> </ul>

**Scope will target several ops centres in different environments**

**Target ~4 ops centres in 2 zones for observation**

- Two in Northeast zone to provide good example of unique challenges working in Ontario
- Two in Georgian Bay zone to provide more representative view of typical operating conditions

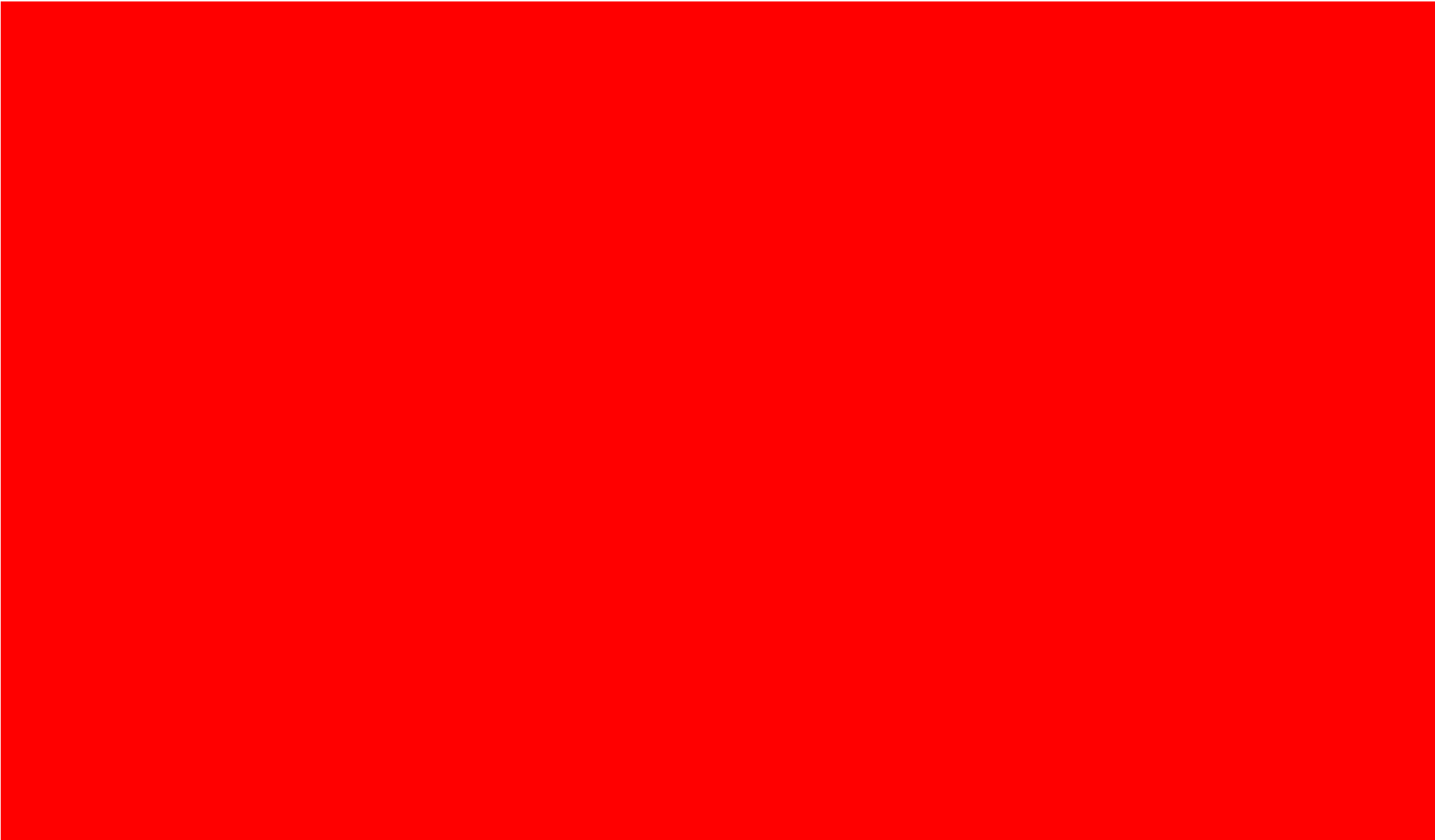
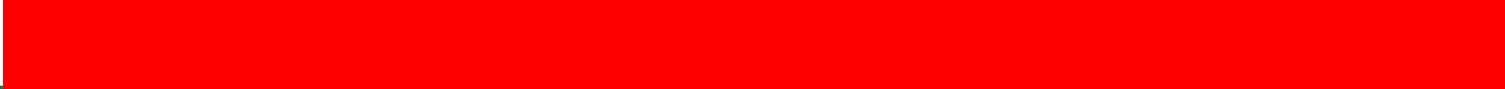
**Propose two weeks to complete field observations**

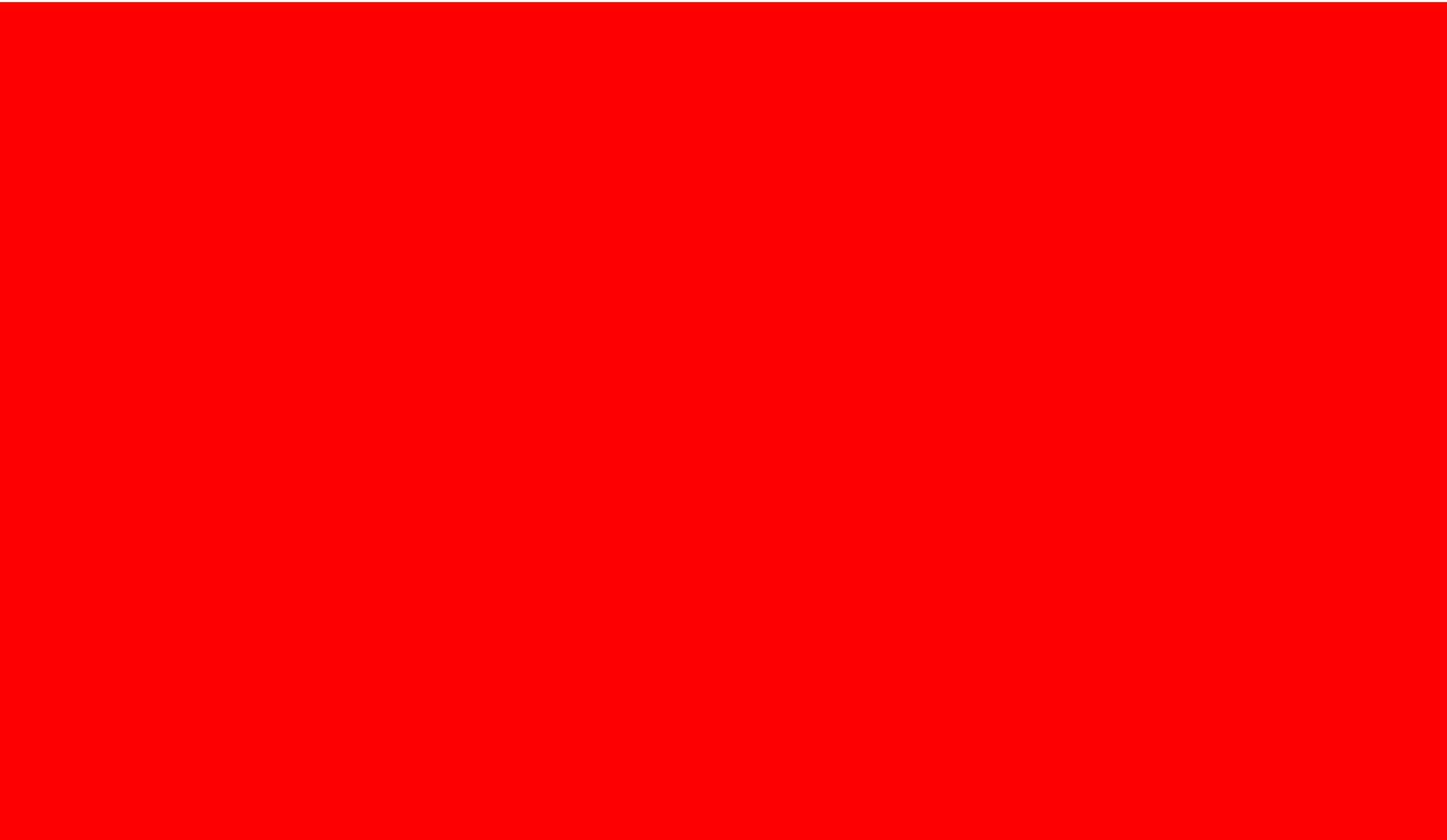
- BCG resource will be paired w/ superintendent
- Spend ~2 days performing observations/ interviews at each ops centre with both trouble and bulk crews
- Propose "unannounced" visits to improve realism of observations

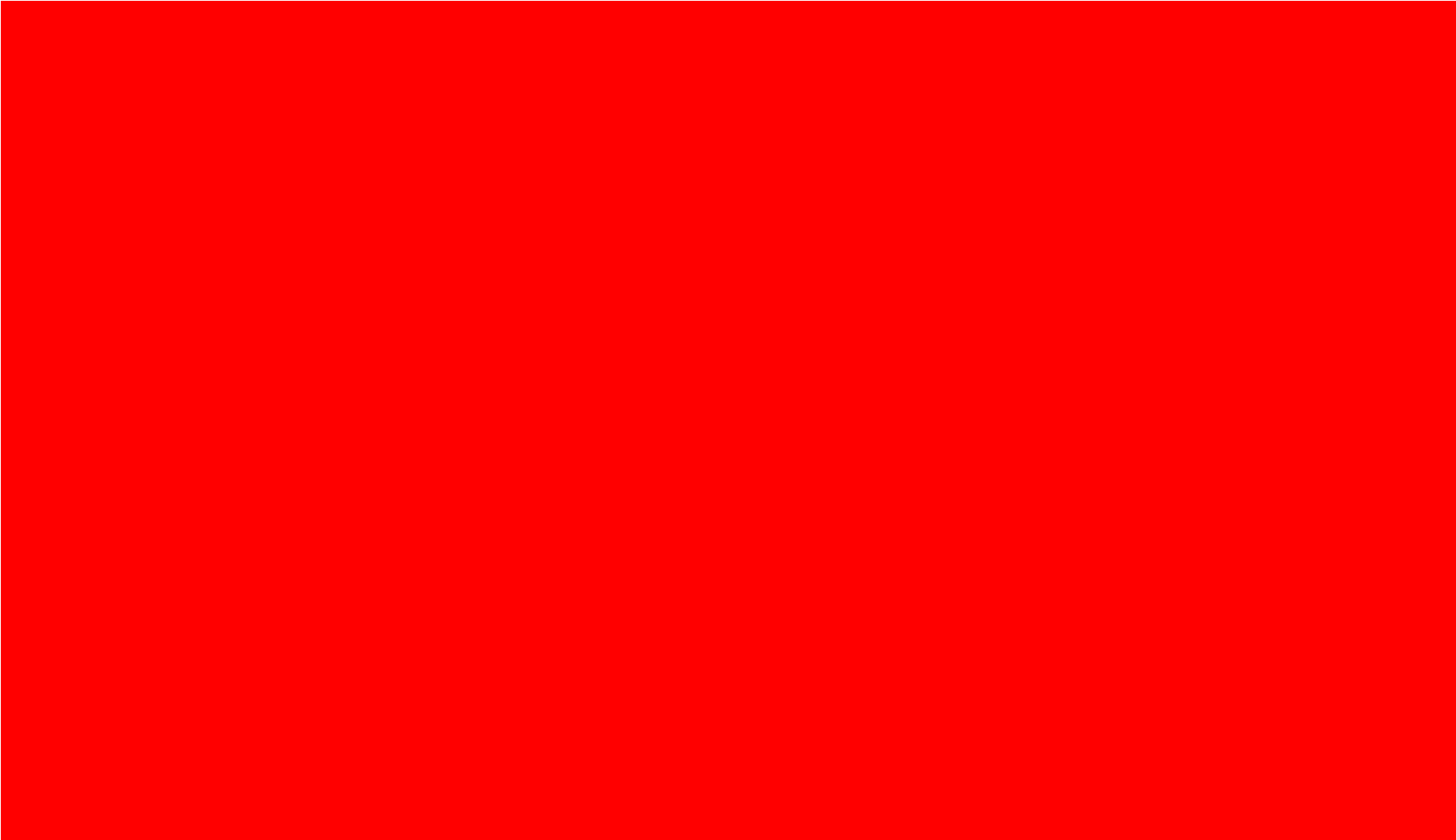
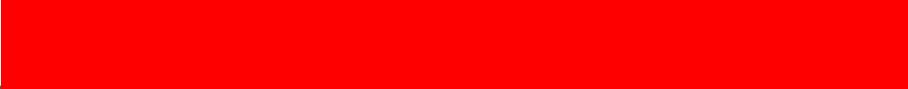
**Third week to be used for synthesis and follow-up**

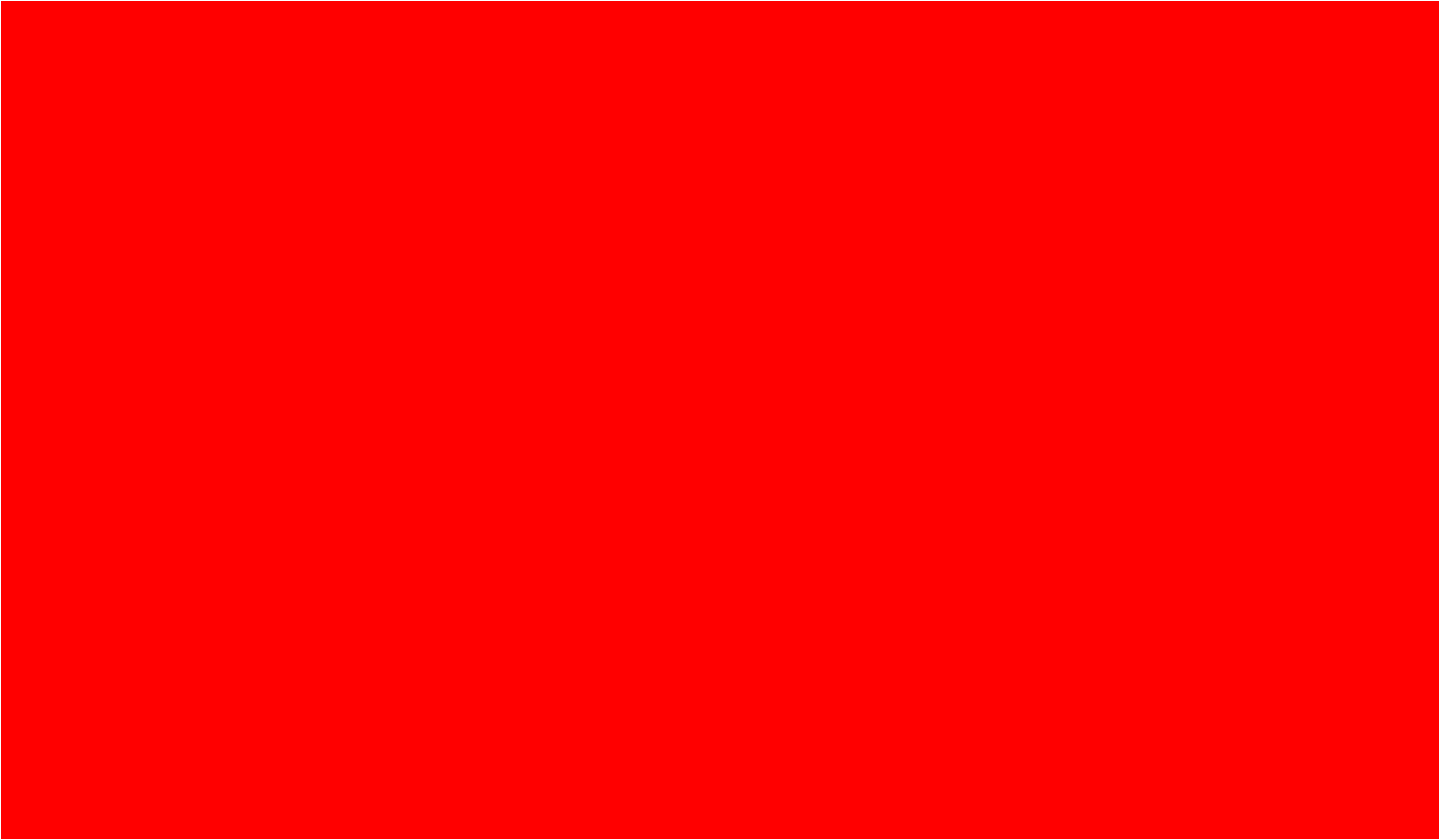
- Meet with field teams/superintendents as necessary to clarify observations & takeaways

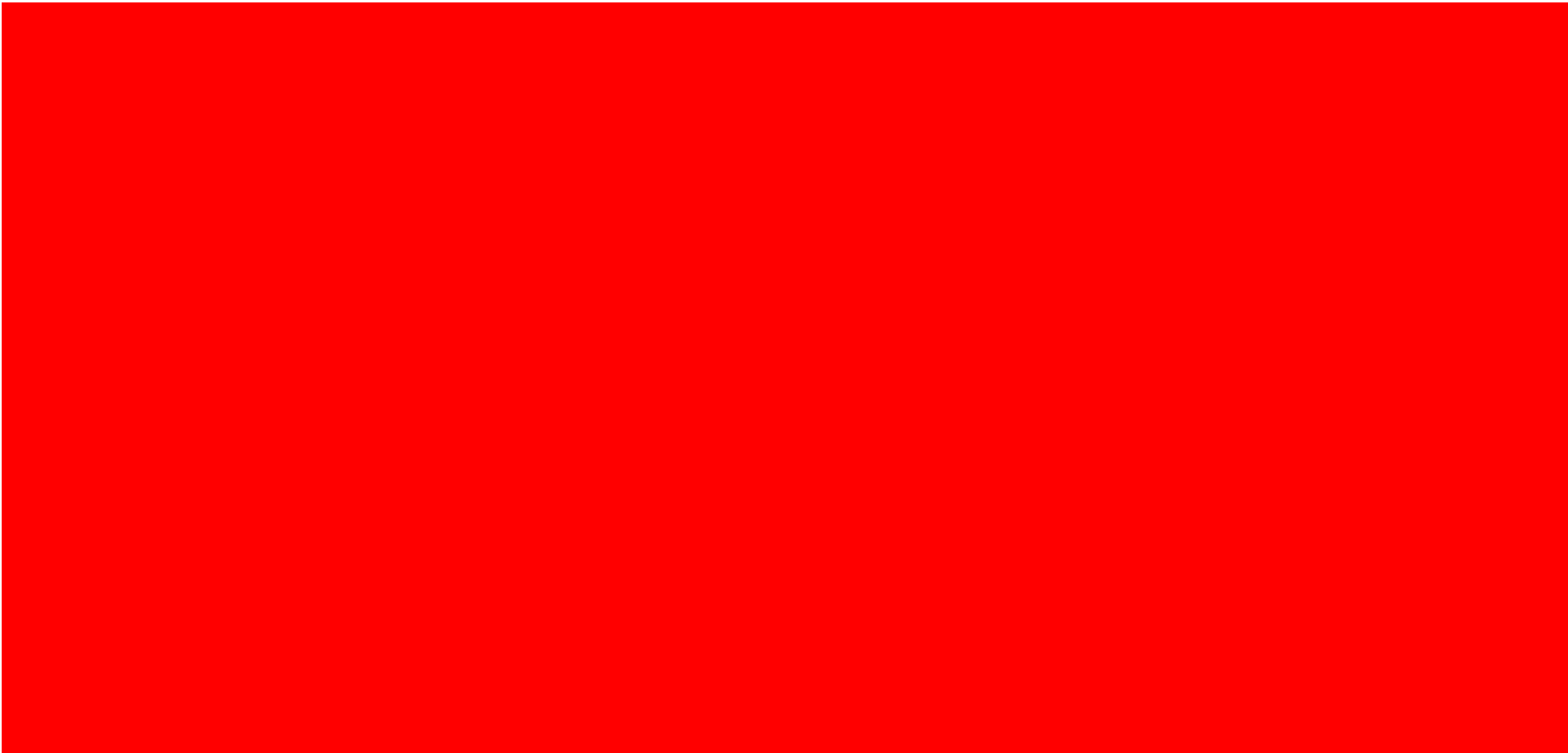
**Depending on early findings, may elect to expand scope**

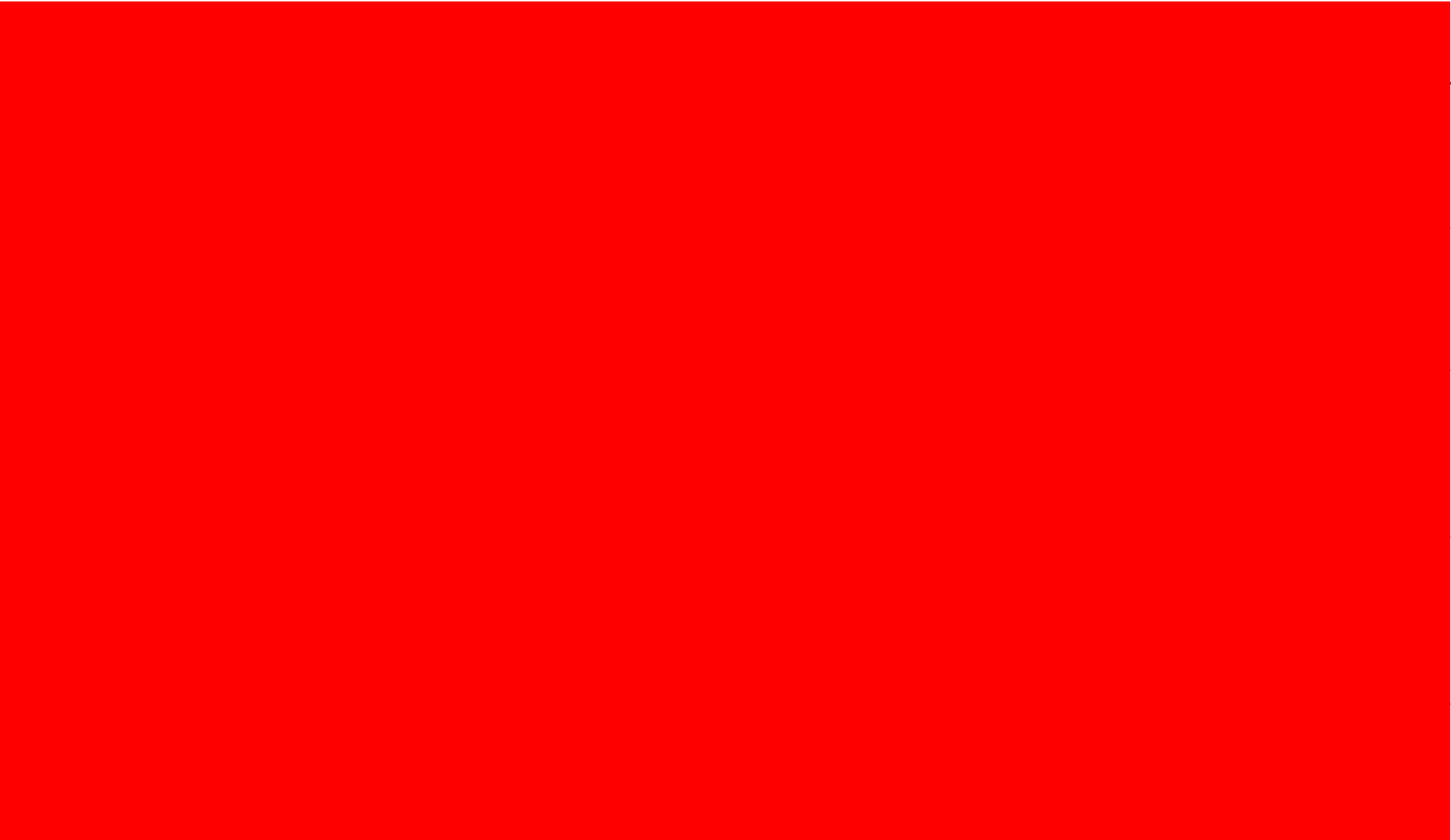










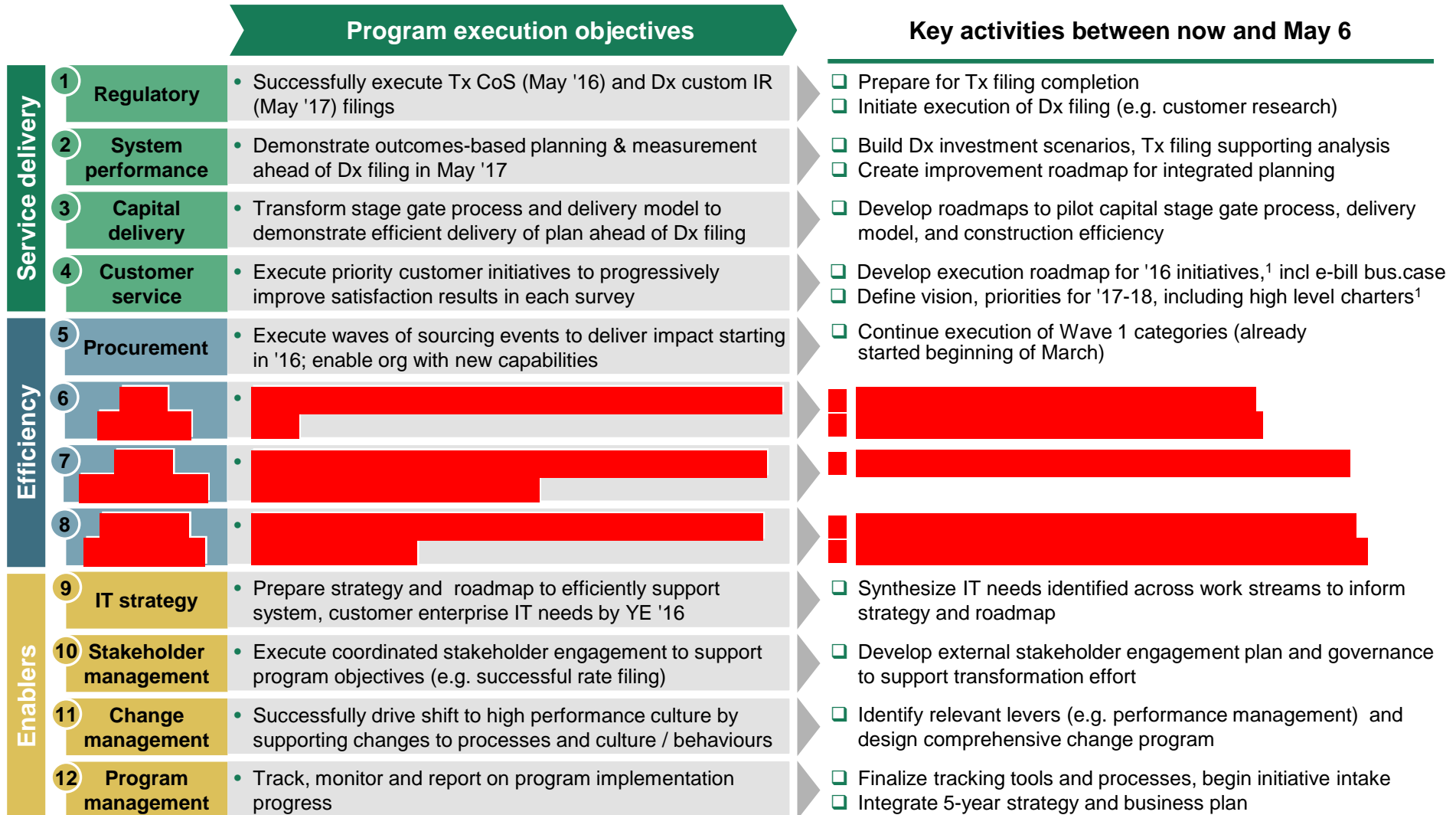


# Our agenda for today

Topic	Lead	Time
<b>Introduction and summary</b>	Mayo Schmidt & Stef Stocco	<b>30 mins</b> (9:00-9:30)
<b>Service delivery</b>		<b>75 mins</b> (9:30-10:45)
• Voice of the customer	BCG	15
• System investment plan and Tx filing update	Mike Penstone & Oded Hubert	30
• Capital delivery strategy	Brad Bowness	20
• Customer service roadmap	Rob Quail	10
<b>Efficiency</b>		<b>60 mins</b> (10:45-11:45)
• Full potential summary	Mike Vels	20
• Procurement	Gary Schneider	10
• O&M efficiency	John Rebick	10
• SG&A effectiveness	Judy McKellar	5
• Timing of O&M efficiency and SG&A effectiveness opportunities	Judy McKellar	15
<b>Path forward: Looking ahead to execution phase</b>	Mayo Schmidt	<b>15 mins</b> (11:45-12:00)

# 12 focus areas that will define successful execution

Note: Excludes preparation work to explore strategic growth opportunities



1. For all customer segments

# Rigorous program management will support execution

## Clear program structure in place

- Dedicated TMO resources
- Defined governance structure

## Detailed execution planning

- Clear milestone plans
- Measurable KPIs and targets

## Rigorous tracking and monitoring

- Status of individual milestones
- Management of risks and interdependencies

## Clear information flow and escalation paths

- Defined reporting cadence
- Formal issue resolution and change processes

Not for Board



Team structure

LA 19.Mar.16:  
Why not for board?

Initiative description			
Module	Name	Initiative Leader	Executive Sponsor
100		100	100
<b>Objective</b>		<b>Key KPIs to measure success</b>	
• Main goal of initiative e.g. improve customer experience		• e.g. customer satisfaction by 10 points, 4 of savings delivered by 10%	
<b>Potential cost of implementation (\$)</b>		<b>Expected benefits</b>	
• e.g. mobile application, \$200k		• Savings, FTE reduction, improved customer satisfaction, etc.	
<b>Other considerations</b>		<b>In scope / Out of scope</b>	
• Risks, interdependencies, assumptions, etc.		• e.g. Phase 1 includes contract renegotiations, no volume reduction	
✔✔✔ support required? (check box if yes)			

Initiative charter

Initiative Tracker											
Module	Task	Start	End	Owner	Status	Progress	Start	End	Owner	Status	Progress
100	Task 1	2016-01-01	2016-01-15	John Doe	On track	100%	2016-01-16	2016-01-30	Jane Smith	On track	50%
100	Task 2	2016-01-01	2016-01-15	John Doe	On track	100%	2016-01-16	2016-01-30	Jane Smith	On track	50%
100	Task 3	2016-01-01	2016-01-15	John Doe	On track	100%	2016-01-16	2016-01-30	Jane Smith	On track	50%
100	Task 4	2016-01-01	2016-01-15	John Doe	On track	100%	2016-01-16	2016-01-30	Jane Smith	On track	50%
100	Task 5	2016-01-01	2016-01-15	John Doe	On track	100%	2016-01-16	2016-01-30	Jane Smith	On track	50%
100	Task 6	2016-01-01	2016-01-15	John Doe	On track	100%	2016-01-16	2016-01-30	Jane Smith	On track	50%
100	Task 7	2016-01-01	2016-01-15	John Doe	On track	100%	2016-01-16	2016-01-30	Jane Smith	On track	50%
100	Task 8	2016-01-01	2016-01-15	John Doe	On track	100%	2016-01-16	2016-01-30	Jane Smith	On track	50%
100	Task 9	2016-01-01	2016-01-15	John Doe	On track	100%	2016-01-16	2016-01-30	Jane Smith	On track	50%
100	Task 10	2016-01-01	2016-01-15	John Doe	On track	100%	2016-01-16	2016-01-30	Jane Smith	On track	50%

Tracker

Description		Initiative Leader		Initiative Sponsor		Initiative Description	
3-5% Range/program for success/100%		John Doe		Jane Smith		Contract Assessment	
Party		Risk rating		Contract Assessment		Contract terms for use	

# We are on a journey to change culture and behaviours

## *Preliminary*

### Historically...

**Vaguely defined accountabilities and lack of ownership**

**No clear consequences for missed deadlines and commitments**

**Poor execution discipline – lack of urgency regarding on-time, on-budget delivery**

**Managers find "work arounds" to avoid dealing with poor performers**

**Insufficient facts to make decisions**

**Risk aversion slowing down work – check and balance for sake of check and balance**

### Moving to...

**Clear role mandates, articulating individual accountabilities and decision-rights**

**KPIs monitored for all accountabilities, with rewards and penalties enforced**

**Project management discipline embedded in every organization**

**Managers feel empowered and responsible to uphold performance standards**

**Fact-based organization**

**Aligned understanding of "acceptable" risk and required checks and balances**

# Commitments to foster high performance culture include

## Performance management & culture

- Clearly define KPIs and establish systematic tracking
- Align accountabilities with consequences
- Conduct business performance reviews

## Employee engagement

- Communicate frequently and transparently with employees
- Create opportunities for employee involvement

## Capabilities & enablement

- Understand capabilities required for success and gaps
- Create enablement plans – "See one, do one, teach one"
- Develop training on new processes

## Org principles

- Review operating model and conduct cascaded org design
- Draft role mandates with clear decision rights and accountabilities

# What to expect at May 6 Board meeting

January 14

March 31 (Today)

May 6

August TBD

Board  
meeting  
agendas

## Review strategic framework

- Baseline trajectory
- Strategic framework
- Strawman strategy and transformation sequence
- Plan to finalize strategy and launch transformation

## Review draft of 5-year strategy

- Voice of the customer
- System investment plan
- Capital delivery strategy
- Customer service roadmap
- Efficiency opportunity

## Confirm direction of Tx filing

- Investment plan and supporting evidence
- Customer input
- Bill impact

## Approve

- 5-year strategy (including impact – if any – of innovation & technology)
- 5-year business plan
- Transmission filing

## Review execution plan

- Portfolio of initiatives to achieve strategy
- Milestones, metrics & targets
- Governance process
- Tracking mechanism

*Focus of May 6 Board meeting*

## Update on Good to Great execution

## Discuss short list of strategic growth options for investigation

Board  
education  
agendas

## Provide overview of Innovation & technology landscape

- [Redacted]

## Provide overview of Ontario LDC opportunity

- [Redacted]

## Provide overview of strategic growth market landscape

# Path to March 31st

not for board

Milestone	Date
Final board materials due to TMO	Wed, Mar 23 @ 5pm
Materials posted for Board of Directors meeting	Thurs, Mar 24
Dry-run of Board presentation	Wed, Mar 30, 11am-2pm (TBC)
Board of Directors meeting	Thurs, Mar 31, 1pm-5pm

SteerCo 5 scheduled for April 5<sup>th</sup> to regroup on Board direction, customer feedback and align on path forward



Filed: 2018-06-22  
EB-2017-0049  
Exhibit J 7.1  
Attachment 5  
Page 1 of 15



Filed: 2019-08-28  
EB-2019-0082  
Exhibit JT-1.11  
Attachment 7  
Page 1 of 15

# Good to Great Program

## Steering Committee meeting

April 5, 2016

THE BOSTON CONSULTING GROUP

# Our agenda for today

---

## Board meeting debrief

Stef

15 mins

- Implications for May 6 deliverables?

## Customer consultation debrief

Mike P.

15 mins

- Implications for Tx filing narrative?
- Implications for Tx investment plan?

## Good to Great efficiency inputs to Tx filing

BCG

120 mins

- Review of LoB worksheet summary
- Group discussion: Fair and adequate representation without over-committing?

## Board meeting debrief

# Key Takeaways from March 31 Board Meeting

## Tx System Investment Plan and Rate Filing



## Customer

- What is the size/value of the various segments and how do we prioritize them
- How will our customer service initiatives be impacted by expected policy changes to customer rate design (i.e. shift from variable to fixed)
- How are we leveraging CRM databases
- Consider embedding into the Design of bill how rate breakdown is presented as it will be important in how it shapes R&SB perception

## Efficiency

- View of how savings will flow to customers (via rate offsets) and how it flows to Hydro One P&L

## General

- Come back with a view on financials (i.e. TSR, 5 year outlook)
- Can we look at risks to our domestic Ontario business (i.e. disruptors to core business in Ontario)
- Can you come back with an update on SAP, IT Strategy?
- Regular updates on execution of Good to Great and Board-level tracking dashboard

# Key Takeaways from March 31 Board Meeting

## Items to Align on Today:

### 1) Why did we choose the path that we are on – what was the regulatory strategy?

- What will increase chances of success and what are the risks

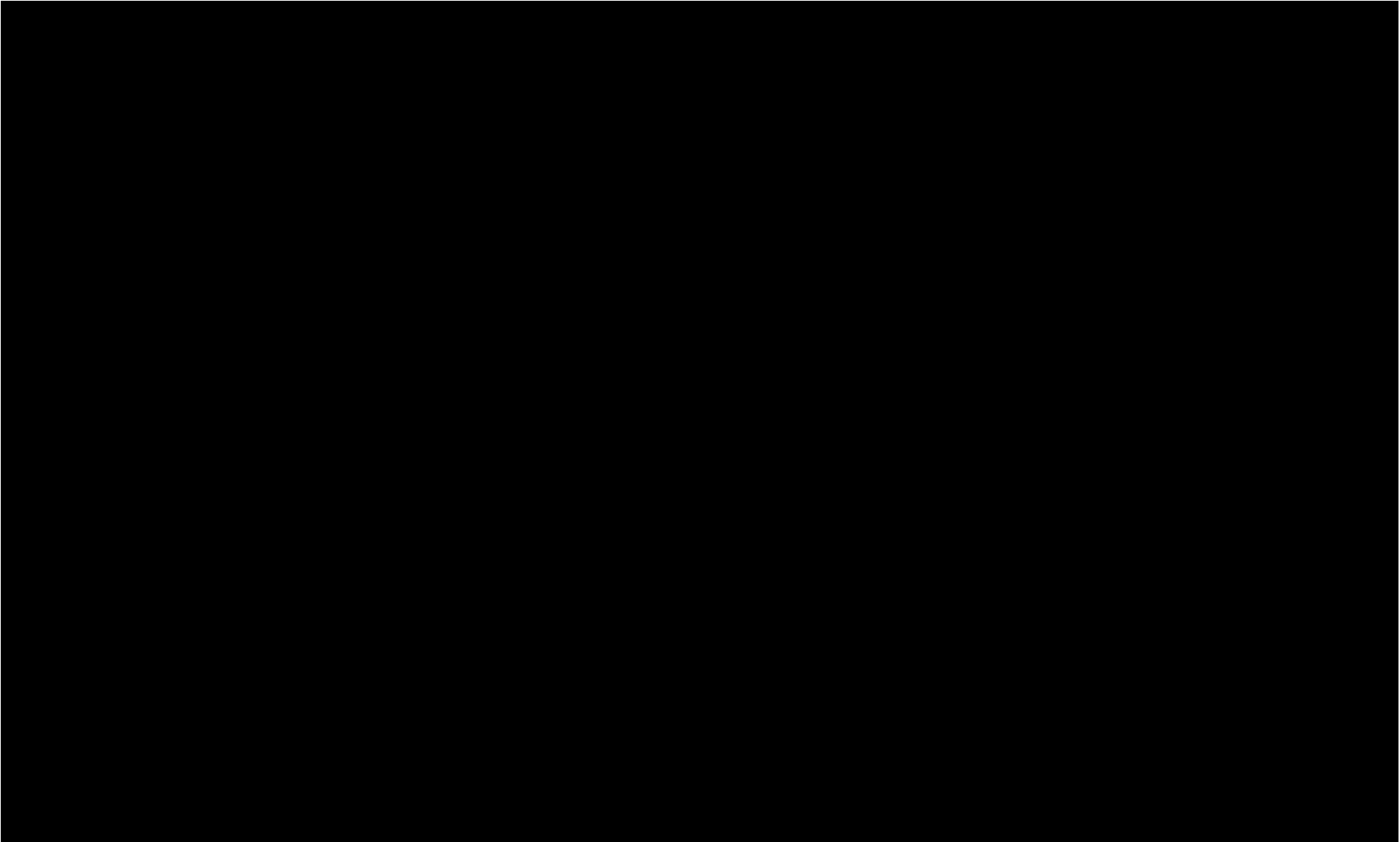
### 2) Establish an overall narrative for Tx filing in light of the recent privatization and demonstrate how the incremental investment benefits the Province

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

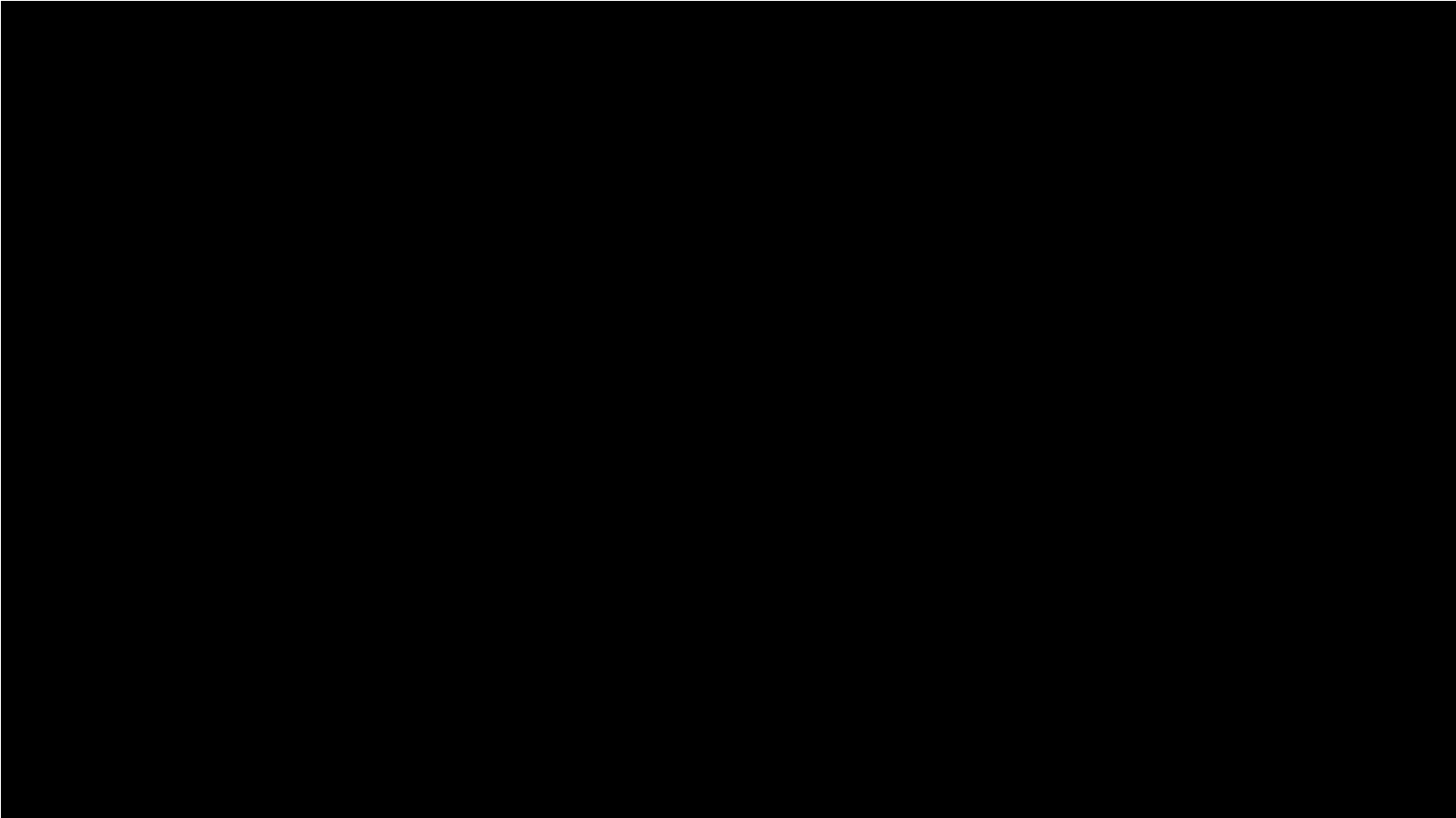
### 3) Disaggregation of rate increases and a buildup of the elements of revenue requirement would be helpful, along with more robust analysis to support the recommendation

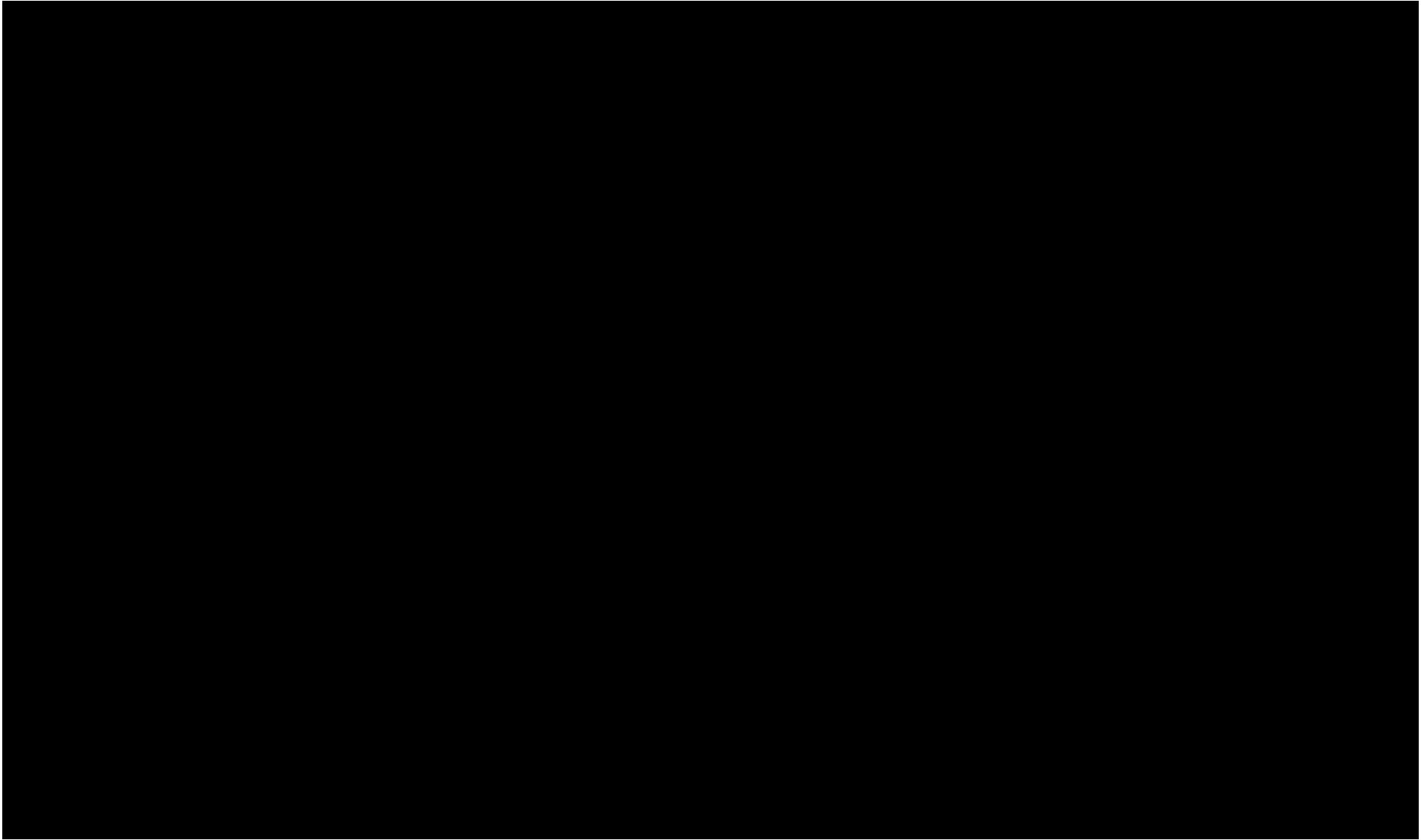
- To be handled in advance of or as part of submission May Board?
- Content Considerations:
  - Here's the recommendation and how it breaks down into the elements investment plan
  - How do the elements of the investment plan translate into revenue requirement and rates
  - Here's the rate impacts and customer bill impact

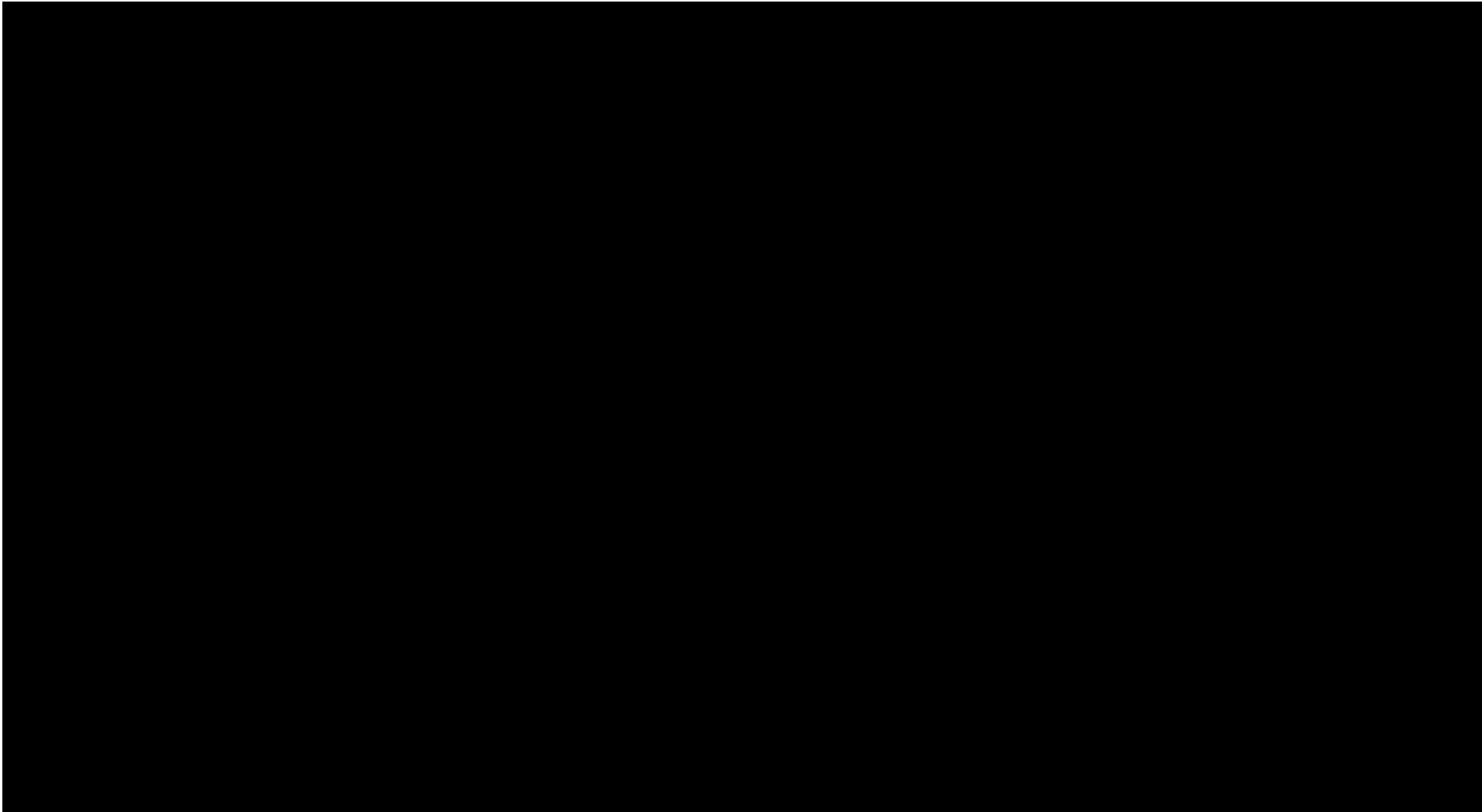
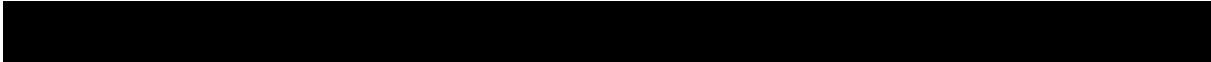
## Customer consultation debrief



## Good to Great efficiency inputs to Tx filing







[Redacted]

[Redacted]

[Redacted]

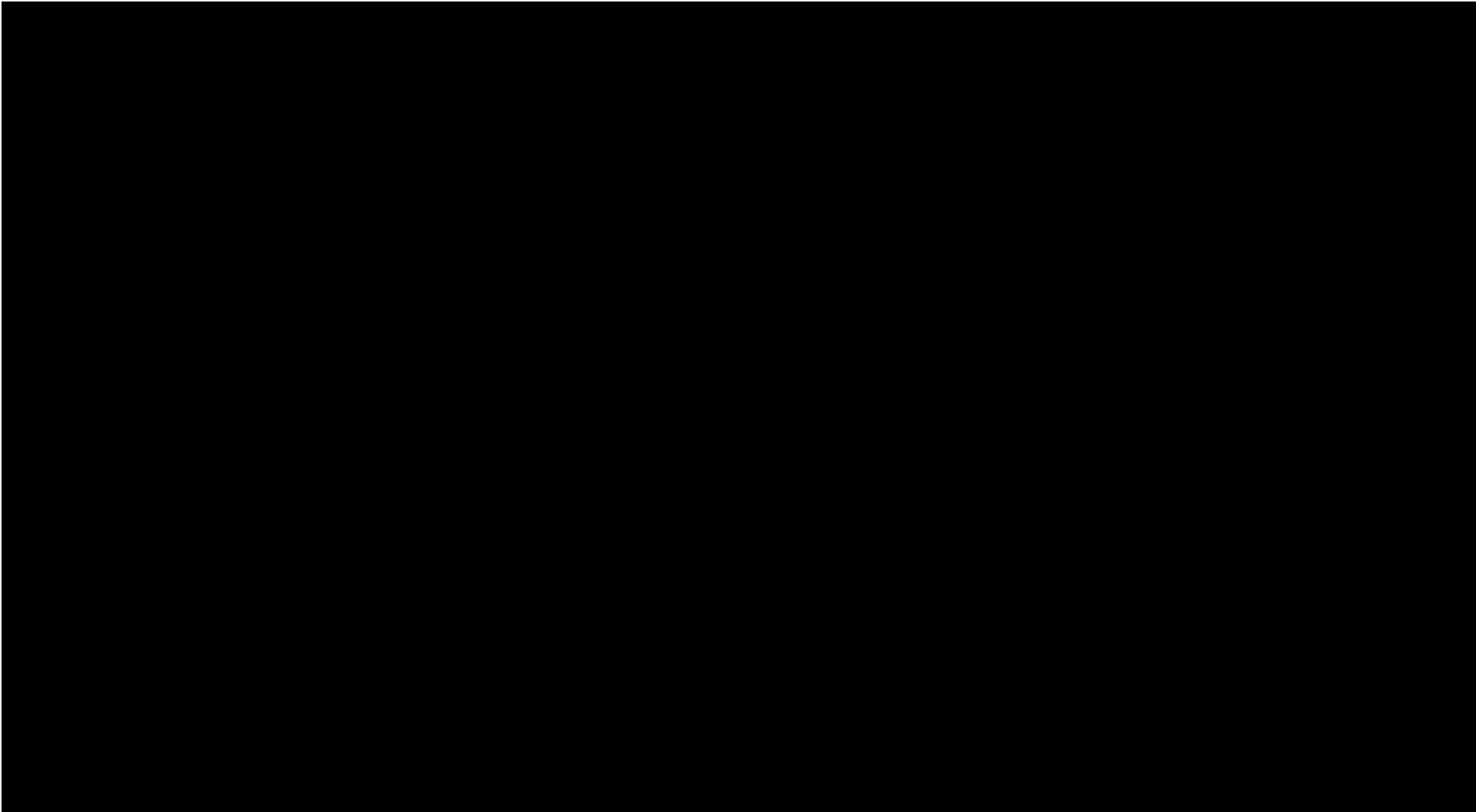
1. Includes allocations to Remotes and Telecom  
Source: Hydro One, BCG Analysis

SteerCo5\_April5\_Preread.pptx



[Redacted]

[Redacted]



# Next steps

---

## **Finalize inputs by EOD Friday April 8<sup>th</sup>**

- Based on outcomes of discussion today

## **Looking ahead on the org front: Kicking-off our 2016 LoB plans next week**

- April 12<sup>th</sup> workshop to kickoff as a group the "2016 action planning" process
- Expect to receive excel sheet for review and inputs April 12<sup>th</sup>-18<sup>th</sup>

# Agenda for Steering Committee 6 (April 25, 9-11am)

Topic	Objectives for today	Lead	Time
Opening	<ul style="list-style-type: none"><li>☐ Safety moment</li><li>☐ Review agenda for SteerCo, establish ground rules</li><li>☐ Raise other questions or concerns on Board materials</li></ul>	Stef	10 min
Overall strategic narrative	<ul style="list-style-type: none"><li>☐ Voice over narrative and set expectations on what will (and will not) be delivered at May 6 Board meeting</li></ul>	Mayo	10 min
Top down 5 year financials	<ul style="list-style-type: none"><li>☐ Set the tone for business planning process forward</li></ul>	Mike V.	5 min
Dx filing	<ul style="list-style-type: none"><li>☐ Talk through strategy on Dx (how we file, implications)</li><li>☐ Discuss approach to customer consultation</li></ul>	Oded & Laura	40 min
Tx filing	<ul style="list-style-type: none"><li>☐ Pressure-test rationale and brainstorm tough questions</li><li>☐ Share back responses to core March Board questions</li></ul>	Oded & Mike P.	40 min
Closing and next steps	<ul style="list-style-type: none"><li>☐ Recap of action items to finalize Board materials</li></ul>	Stef	5 min

## UNDERTAKING - JT 1.12

### Reference:

I-07-SEC-032, part a)

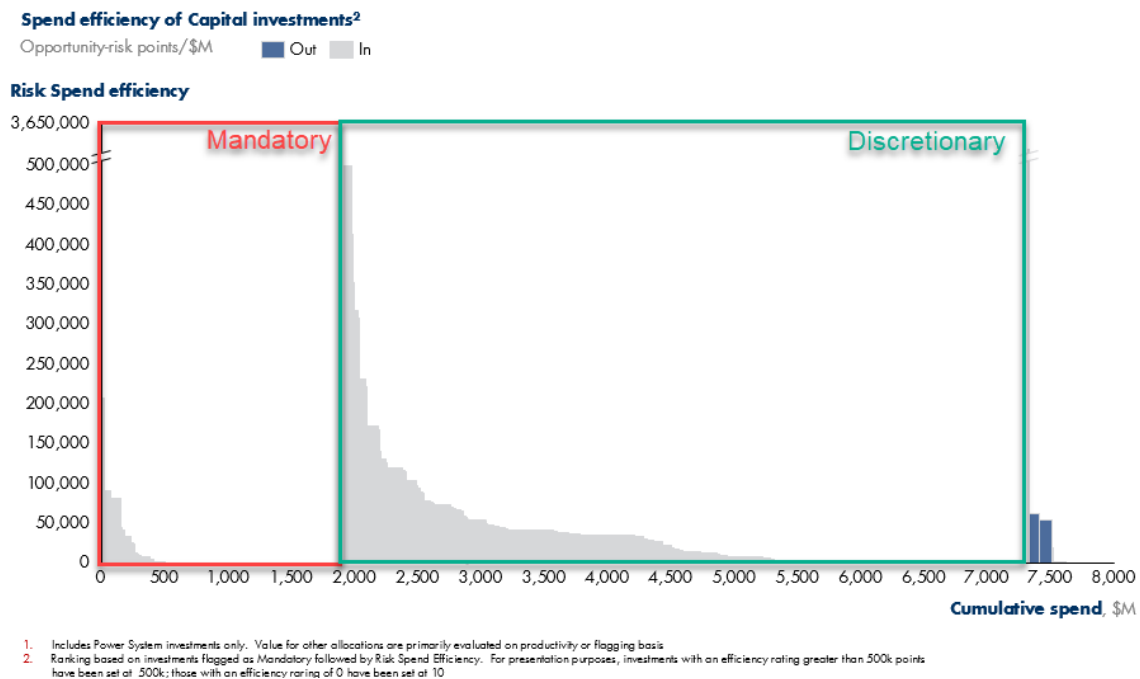
### Undertaking:

To provide data clarifying costs and risk score (reference SEC IR 32).

### Response:

The table below has been structured in a manner consistent with the pre-filed evidence to allow for a meaningful comparison. Investments have been categorized as either mandatory or discretionary, consistent with the criteria described in Exhibit B, Tab 1, Schedule 1, Section 2.1. The graph included in SEC-32, includes mandatory investments, and subsequently discretionary investments, with expenditures planned over the 2019-24 period, as shown below:

### Tx Capital – Power Systems – Risk Spend Efficiency Chart



Mandatory investments meet one of the four mandatory flag criteria outlined in TSP 2.1, page 37 and reproduced below:

Witness: Bruno Jesus

- **Immediate / Short-term Compliance** – Explicit obligation to a regulatory agency (e.g. OEB requires work to be done *within a year* with *immediate risk* of legal breach, or there is a *two to five-year risk* of regulatory or legal breach);
- **Third party requests** – Explicit connection request by a city, county, agency, or customer, with a *one to five-year risk* of breaking the utility obligation to serve;
- **Contractual** – Signed, fixed-sum contracts with third parties for services such as IT support, facility support, etc.; and
- **In-Flight** – Project already under construction.

In some cases, mandatory investments were not re-scored because they were in-flight, or were scored low based on a compliance obligation.

	ISD	ISD Name	2019-2024 Spend (\$ M)	Total Risk Mitigation	Risk Spend Efficiency <sup>1</sup>
Mandatory <sup>2</sup>	SA-01	Connect New IAMGOLD Mine	10	-	-
	SA-02	Horner TS: Build a Second 230/27.6kV Station	6	-	-
	SA-03	Halton TS: Build a Second 230/27.6kV Station	6	-	-
	SA-04	Connect Metrolinx Traction Substations	11	-	-
	SA-05	Future Transmission Load Connection Plans	19	-	-
	SA-06	Protection and Control Modifications for Distributed Generation	-	879,930	500,000
	SA-07	Secondary Land Use Projects	-	-	-
	SR-01	Air Blast Circuit Breaker Replacement Projects	219	10,897,936	49,845
	SR-02	Station Reinvestment Projects	142	115,142	813
	SR-03	Bulk Station Transformer Replacement Projects	20	251,406	12,274
	SR-05	Load Station Transformer Replacement Projects	51	65,233	1,272
	SR-06	Load Station Switchgear and Ancillary Equipment Replacement Projects	20	21,795	1,088
	SR-10	Transformer Protection Replacement	7	-	-
	SR-15	Telecom Fibre IRU Agreement Renewals	15	3,190,264	206,982
	SR-19	Transmission Line Refurbishment - End of Life ACSR, Copper Conductors & Structures	49	585,075	11,967
	SR-24	Transmission Line Shieldwire Replacement	74	665,383	8,982
	SR-26	Transmission Line Emergency Restoration	59	1,992,879	33,552

<sup>1</sup> Investments with an efficiency rating of 0 are either in-flight or driven by regulatory compliance, contractual commitments, customer requests or economical efficiencies.

<sup>2</sup> Certain System Renewal investment are included in both the Mandatory and Discretionary categories based on the taxonomies as certain sites are currently in-flight. Refer to TSP 2.1 pages 37-38 for mandatory/discretionary categorization.

Witness: Bruno Jesus

	ISD	ISD Name	2019-2024 Spend (\$ M)	Total Risk Mitigation	Risk Spend Efficiency <sup>1</sup>
	SS-01	Lennox TS: Install 500kV Shunt Reactors	46	-	-
	SS-02	Wataynikaneyap Power Line to Pickle Lake Connection	30	-	-
	SS-03	Nanticoke TS: Connect HVDC Lake Erie Circuits	-	-	-
	SS-04	East-West Tie Connection	127	-	-
	SS-05	St. Lawrence TS: Phase Shifter Upgrade	18	-	-
	SS-06	Merivale TS to Hawthorne TS: 230kV Conductor Upgrade	24	-	-
	SS-07	Milton SS: Station Expansion and Connect 230kV Circuits	194	-	-
	SS-08	Northwest Bulk Transmission Line	35	-	-
	SS-09	Barrie Area Transmission Upgrade	75	-	-
	SS-10	Kapuskasing Area Transmission Reinforcement	28	-	-
	SS-11	South Nepean Transmission Reinforcement	1	-	-
	SS-12	Alymer-Tillsonburg Area Transmission Reinforcement	30	-	-
	SS-13	Leamington Area Transmission Reinforcement	206	-	-
	SS-14	Southwest GTA Transmission Reinforcement	33	-	-
	SS-15	Future Transmission Regional Plans	44	-	-
	SS-16	Customer Power Quality Program	20	-	-
		Less than \$3M	296	5,272,230	17,814
Discretionary	GP-02	Grid Control Network Sustainment	41	772,412	18,926
	GP-05	Transmission Non-Operational Data Management System	23	25,420	1,125
	SA-07	Secondary Land Use Projects	7	-	-
	SR-01	Air Blast Circuit Breaker Replacement Projects	464	60,937,116	131,344
	SR-02	Station Reinvestment Projects	458	22,478,975	49,088
	SR-03	Bulk Station Transformer Replacement Projects	392	22,150,917	56,472
	SR-04	Bulk Station Switchgear and Ancillary Equipment Replacement Projects	176	65,981,862	374,265
	SR-05	Load Station Transformer Replacement Projects	719	10,637,910	14,799
	SR-06	Load Station Switchgear and Ancillary Equipment Replacement Projects	225	10,137,180	45,150
	SR-07	Protection and Automation Replacement Projects	64	10,084,973	158,113
	SR-08	John Transformer Station Reinvestment Project	86	1,465,442	17,038
	SR-09	Transmission Station Demand and Spares and Targeted Assets	243	7,269,990	29,886
	SR-11	Legacy SONET System Replacement	115	1,008,208	8,731
	SR-13	ADSS Fibre Optic Cable Replacements	4	484,854	114,499

Witness: Bruno Jesus

	ISD	ISD Name	2019-2024 Spend (\$ M)	Total Risk Mitigation	Risk Spend Efficiency <sup>1</sup>
	SR-14	Mobile Radio System Replacement	20	201,590	10,170
	SR-19	Transmission Line Refurbishment - End of Life ACSR, Copper Conductors & Structures	481	996,525	2,072
	SR-20	Transmission Line Refurbishment - Near End of Life ACSR Conductor	506	355,060	702
	SR-21	Wood Pole Structure Replacements	300	12,487,336	41,607
	SR-22	Steel Structure Coating Program	111	-	-
	SR-25	Transmission Line Insulator Replacement	407	14,289,148	35,117
	SR-27	C5E/C7E Underground Cable Replacement	127	176,963	1,390
	SR-28	OPGW Infrastructure Projects	32	321,485	10,041
		Less than \$3M	402	20,108,484	50,065
Excluded		Less than \$3M	360	32,790,878	91,171

As part of Enterprise Engagement and Challenge Sessions, trade-off decisions assess which investments should be promoted or demoted based on the following levers:

- **Risk:** Is Hydro One comfortable with the remaining risk? Are there unfunded investments which mitigate large risks?
- **Flags (non-risk parameters):** Which investments need to be funded for non-risk merits?

The consideration of risk efficiency and risk mitigated per dollar and other considerations supports the making of prudent and data-driven trade-off decisions. Investments that were prioritized out of the plan (“Excluded”) have not been included in this application; examples of these candidate investments included power system telecom investments, station reinvestment and component replacements, replacement of wood pole structures in non-publicly accessible locations, and future line refurbishments which are expected to be assessed to be end-of-life at a later date.

## UNDERTAKING - JT 1.15

### **Reference:**

TSP 1.3, Attachment 1

### **Undertaking:**

To provide data similar to what was provided in EB-2016-0160, IR Staff 15, page 6, figure 1, breaking down risk reliability for each of four scenarios and how they were derived.

### **Response:**

The reliability risk model is a simplified method to communicate risk to customers and stakeholders, and is not used to identify specific asset needs or justify investments. The reliability risk model was one of several measures used in the 2017 Customer Engagement Survey to communicate the outcomes associated with various investment scenarios. The reliability risk scenario data presented as part of the Customer Engagement, reflects the relative change in forecast reliability risk from January 1, 2019 to December 31, 2023. The scenarios are illustrative only and do not reflect the specifics of the plan later developed based on the directional feedback received from customers.

As described in Exhibit B-1-1, Section 1.4, Attachment 13, the reliability risk model uses hazard curves that describe the asset survival risk by asset type. Hydro One's hazard curves are based on a report prepared by Foster Associates, which is based on an analysis of Hydro One's historical data. Subsequently, the demographic profile of the asset is multiplied by the age-specific hazard rate to obtain a risk profile for the assets as a function of their age used to compute the fleet risk. The overall probability is the sum of this profile.

For the purpose of the Customer Engagement, five reference points were calculated, including four illustrative scenarios:

- Current State (projected as of January 1, 2019)
- Scenario A (projected as of December 31, 2023)
- Scenario B (projected as of December 31, 2023)
- Scenario C (projected as of December 31, 2023)
- Scenario D (projected as of December 31, 2023)

The forecast state of these asset fleets is subsequently multiplied by the historical contribution of each of the asset classes to the equipment reliability outages (duration)

Witness: Bruno Jesus

over the 2011-15 period. As a result of the increased number of scenarios, the derivation of the reliability risk figures presented during the Customer Engagement process have been included below in a slightly different format:

**Table 1: Historical Interruption Duration**

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

**Table 2: Supporting Data – Fleet Risk**

	Supporting Data – Fleet Risk				
	Jan 1, 2019	Scenario A	Scenario B	Scenario C	Scenario D
<b>Lines</b>	1.11%	1.42%	1.22%	0.96%	0.92%
<b>Transformers</b>	2.66%	3.86%	3.19%	2.77%	2.77%
<b>Breakers</b>	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%
<b>Total</b>	0.77% + 0.16% + 0.15% =	<b>1.07%</b>	0.98% + 0.23% + 0.17% =	<b>1.39%</b>	0.84% + 0.19% + 0.15% =	<b>1.19%</b>	0.66% + 0.17% + 0.12% =	<b>0.95%</b>	0.63% + 0.16% + 0.11% =	<b>0.91%</b>

**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 =	<b>30%</b>	(1.19 / 1.07) – 1 =	<b>11%</b>	(0.95 / 1.07) – 1 =	<b>-11%</b>	(0.91 / 1.07) – 1 =	<b>-15%</b>
As presented in Customer Engagement	Increase in risk ~30%		Increase in risk ~10%		Decrease in risk ~10%		Decrease in risk ~15%	

As discussed in Exhibit B, Tab 1, Schedule 3, Attachment 4, the reliability risk model was initially introduced as a simplified method to communicate the value of renewal investments to customers and stakeholders and to provide a directional indicator to assess the effect of an investment portfolio on reliability risk. It is not used to identify specific

1 asset needs or justify investments. Asset needs are anchored by asset condition  
2 assessments and investments are justified by asset needs and prioritized in accordance  
3 with Hydro One's investment planning approach described in TSP Section 2.1,  
4 Investment Planning Process.

5  
6 The reliability risk scenario data presented as part of the Customer Engagement was  
7 solely illustrative and does not reflect the specifics of the plan later developed based on  
8 the directional feedback received from customers.

## UNDERTAKING - JT 1.21

### Reference:

I-11-CCC-004

### Undertaking:

To provide the underlying numbers for the two charts to derive the amounts.

### Response:

a) The following table outlines the portion of Hydro One's major assets that had a high or very high risk condition and were considered to be end of life at the time of filing Application EB-2016-0160.

Hydro One has amended the table below (emphasis added) presented in Interrogatory I-CCC-004 part b) and originally provided in EB-2016-0160 Exhibit B1, Tab 2, Schedule 6, Figure 30 to reflect a correction to the calculation of High Risk or Very High Risk Wood Poles. Further details may be found at Undertaking JT 1.22.

**Major Asset Condition Summary**

Asset Type	% of Assets at High or Very High Risk	Count of Assets at High or Very High Risk	Total Population	EB-2016-0160 Reference
<b>Transformers</b>	15%	108	721	Exhibit B1, Tab 2, Schedule 6, Figure 5
<b>Circuit Breakers</b>	11%	499	4,543	Exhibit B1, Tab 2, Schedule 6, Figure 11
<b>Protection Systems</b>	27%	3,267	12,103	Exhibit B1, Tab 2, Schedule 6, Figure 18
<b>Conductors (km)</b>	9%	2,643	29,369	Exhibit B1, Tab 2, Schedule 6, Figure 24
<b>Wood Poles</b>	12%	4832	42,000	Exhibit B1, Tab 2, Schedule 6, Figure 30
<b>Underground Cables (km)</b>	4%	11	267	Exhibit B1, Tab 2, Schedule 6, Figure 48

Witness: Donna Jablonsky

- b) The following table outlines the portion of Hydro One's major assets included in this Application that have a high or very high risk condition and are considered to be at end of life.

**Major Asset Condition Summary**

<b>Asset Type</b>	<b>% of Assets at High or Very High Risk</b>	<b>Count of Assets at High or Very High Risk</b>	<b>Total Population</b>	<b>EB-2019-0082 Reference</b>
<b>Transformers</b>	17%	122	716	Exhibit B, TSP Section 2.2, Table 1 Exhibit B, TSP Section 2.2, Figure 3
<b>Circuit Breakers</b>	9%	460	4,774	Exhibit B, TSP Section 2.2, Table 1, p 3 Exhibit B, TSP Section 2.2, Figure 8
<b>Protection Systems</b>	27%	3,363	12,506	Exhibit B, TSP Section 2.2, Table 1, p 3 Exhibit B, TSP Section 2.2, p 26
<b>Conductors (km)</b>	13%	3,680	29,107	Exhibit B, TSP Section 2.2, Table 1, p 3 Exhibit B, TSP Section 2.2, Figure 18
<b>Wood Poles</b>	13%	5,630	42,000	Exhibit B, TSP Section 2.2, Table 1, p 3 Exhibit B, TSP Section 2.2, Figure 27
<b>Underground Cables (km)</b>	3%	8	264	Exhibit B, TSP Section 2.2, Table 1, p 3 Exhibit B, TSP Section 2.2, Figure 21

## UNDERTAKING - JT 1.22

### **Reference:**

I-11-CCC-004

### **Undertaking:**

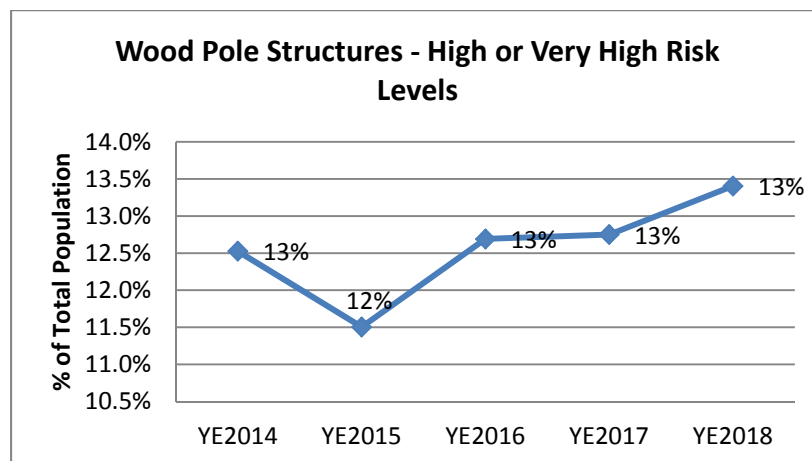
To provide data showing major asset condition summaries for wood poles for a five year period beginning in 2014, showing a trend line for assets in the high risk or very high risk category.

### **Response:**

Hydro One has amended the percentage of wood pole structures at High or Very High Risk originally provided in EB-2016-0160 Exhibit B1, Tab 2, Schedule 6, Figure 30. The original figure of 3% for wood pole structures was incomplete as it excluded End of Life (EOL) poles in the “Poor” condition category.

In 2018, Hydro One recognized this discrepancy and included EOL wood pole structures in both the Very Poor and Poor categories. When applying this approach to the EB-2016-0160 data, the High or Very High Risk value is 12% (YE2015 shown in the figure below) instead of 3%.

The trend for High or Very High Risk wood pole structures, using the updated analysis for historical years, has been provided in the graph below.



Witness: Donna Jablonsky

## UNDERTAKING - JT 1.23

**Reference:**

I-11-CCC-004

**Undertaking:**

To provide the number of poles tested, not tested, not eligible for testing for the years 2015 to 2019.

**Response:**

Hydro One assessed (tested) wood pole structures in the following amounts:

	2015	2016	2017	2018	2019 YTD
Poles Tested	2189	2484	1421	1778	226

As provided in Exhibit B-1-1 TSP Section 2.2 on page 69 - 70, there are 42,000 wood pole structures. Approximately 12,300 wood pole structures (29%) are tested, 19,000 (45%) are categorized as "Needs assessment" (comprised of structures eligible for initial assessment and eligible for re-assessment), and approximately 10,700 wood pole structures (26%) are not eligible for assessment.

Hydro One is unable to provide the historical number of pole structures not tested, needs assessment and not eligible for testing as the database is not capable of providing a historical point-in-time output of this information.

## UNDERTAKING - JT 1.24

**Reference:**

I-07-SEC-036

**Undertaking:**

To provide actuals for the table in SEC IR 36 under the column EB-2019-0018.

**Response:**

Please refer to the updated interrogatory I-07-SEC-036 provided as Attachment 1 which includes 2016 actuals as well as updated actual and forecast expenditures for the station centric assets (transformers, breakers and protection systems) for 2017-2022.

Furthermore, historical replacement units have been updated to reflect a correction to actuals reported. For 2018 this was due to a lag in reporting of in-serviced units that were not accounted for when the Application was filed on March 19, 2019.

To provide consistency, Table 3 and 4 from Exhibit B-1-1 TSP Section 3.3 showing the replacement units have been updated to reflect unit updates provided in this undertaking J1.24 (I-7-SEC-36) and undertaking J1.26 (I-12-AMPCO-28)

**Table 1: Asset Replacement Rates - Transmission Station Assets**

	Historical				Bridge	Test			Plan	
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>Transformer Portfolio</b>										
# of Replacements	24*	18*	15	28*	20	9	23	19	40	17
% of Fleet	3.3%	2.6%	2.1%	3.6%	2.8%	1.3%	3.2%	2.7%	5.6%	2.4%
<b>Circuit Breaker Portfolio</b>										
# of Replacements	31	73	108	155*	88	135	105	88	215	95
% of Fleet	0.7%	1.6%	2.4%	3.2%	1.9%	2.8%	2.2%	1.9%	4.5%	2.0%
<b>Protection Systems Portfolio</b>										
# of Protection Replacements	445	627	298	325*	453	465	370	503	681	384
% of Fleet	3.6%	5.1%	2.5%	2.6%	3.6%	3.7%	3.0%	4.0%	5.4%	3.1%

Witness: Donna Jablonsky

1

**Table 2: Asset Replacement Rates - Transmission Line Assets**

	Historical				Bridge	Test			Plan	
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>Conductor Portfolio</b>										
kms of Circuit Replacements	201	183	119	51	140	64	483	795	309	475
% of Fleet	0.7%	0.6%	0.4%	0.2%	0.5%	0.2%	1.7%	2.7%	1.1%	1.6%
<b>Wood Pole Portfolio</b>										
# of Replacements	845	761*	966*	735*	560	800	800	800	800	800
% of Fleet	2.0%	1.8%	2.3%	1.8%	1.3%	1.9%	1.9%	1.9%	1.9%	1.9%
<b>Steel Structure Portfolio</b>										
# of Renewal	371*	86*	725	1050	220	260	500	500	500	500
% of Fleet	0.7%	0.2%	1.4%	2.0%	0.4%	0.5%	1.0%	1.0%	1.0%	1.0%
<b>Insulator Portfolio</b>										
# of circuit structures	155	2100	3623*	3958*	3700	3700	3700	3450	3450	3450
% of Fleet	0.1%	1.4%	2.6%	3.1%	2.9%	2.9%	2.9%	2.7%	2.7%	2.7%
<b>Underground Cable Portfolio</b>										
Kms of Circuit Replacements	0	2.3*	0	0	4.7	0	0	0	0	7.2
% of Fleet	0%	0.9%	0%	0%	1.8%	0%	0%	0%	0%	2.7%

- 2     \*Replacements and percentage of fleet figures have been updated to reflect a correction to historical actuals. The 2017  
3     and 2018 insulator figures reflect COB, CP and polymer insulator replacements.

Witness: Donna Jablonsky

SEC-36

Please fill in the shaded cells

	EB-2016-0160 Application/Proposal (1)					EB-2016-0160 DRO**		EB-2019-0082						
	2014A	2015A	2016F	2017F	2018F	2017F	2018F	2016A	2017A	2018A	2019F	2020F	2021F	2022F
<b>Transformer Portfolio</b>														
# Replacements	24	24	19	27	22	27	22	18	15	28 <sup>+</sup>	20	9	23	19
% of Fleet	3.3%	3.3%	2.6%	3.7%	3.1%	3.7%	3.1%	2.5%	2.1%	3.6% <sup>+</sup>	2.8%	1.3%	3.2%	2.7%
Capital (\$M) ***	132.0	132.0	104.5	148.5	121.0	148.5	121.0	77.3	75.7	193.6	110.3	50.6	131.9	111.1
<b>Circuit Breaker Portfolio</b>														
# Replacements	83	31	43	66	132	66	132	73	108	155 <sup>+</sup>	88	135	105	88
% of Fleet	1.8%	0.7%	0.9%	1.5%	2.9%	1.5%	2.9%	1.5%	2.4%	3.2% <sup>+</sup>	1.9%	2.8%	2.2%	1.9%
Capital (\$M) ***	58.1	21.7	30.1	46.2	92.4	46.2	92.4	42.4	54.7	77.9	47.5	74.3	58.9	50.3
<b>Protection Systems Portfolio</b>														
# Replacements	610	266	367	449	528	449	528	627	298	325 <sup>+</sup>	453	465	370	503
% of Fleet	5.0%	2.2%	3.0%	3.7%	4.4%	3.7%	4.4%	5.1%	2.5%	2.6% <sup>+</sup>	3.6%	3.7%	3.0%	4.0%
Capital (\$M) ***	76.3	33.3	45.9	56.1	66.0	56.1	66.0	57.3	42.8	60.5	64.7	67.8	54.9	76.2
<b>Conductor Portfolio</b>														
Replacements (km)	93	201	183	192	440	192	440	183	119	51	140	64	483	795
% of Fleet	0.3%	0.7%	0.6%	0.6%	1.5%	0.6%	1.5%	0.6%	0.4%	0.2%	0.5%	0.2%	1.7%	2.7%
Capital (\$M)	40.7	58.4	76.9	67.1	143.1	67.1	143.1	68.0	36.5	52.0	137.6	150.8	191.4	211.7
<b>Wood Pole Portfolio</b>														
# Replacements	897	845	850	850	850	935	850	761	966	735	560	800	800	800
% of Fleet	2.2%	2.0%	2.0%	2.0%	2.0%	2.2%	2.0%	1.8%	2.3%	1.8%	1.3%	1.9%	1.9%	1.9%
Capital (\$M)	43.6	38.5	38.3	35.3	35.3	38.8	33.9	42.8	41.2	35.3	34.8	51.0	52.0	53.0
<b>Steel Structure Portfolio**</b>														
# Renewal	153 <sup>++</sup>	371 <sup>++</sup>	462	1250	1600	1145	1600	86	725	1050	220	260	500	500
% of Fleet	0.3%	0.7%	0.9%	2.4%	3.1%	2.2%	3.0%	0.2%	1.4%	2.0%	0.4%	0.5%	1.0%	1.0%
Capital (\$M)	3.8	5.1	8.8	42.5	54.4	39.0	26.2	2.3	42.1	37.7	9.3	11.4	21.8	22.3
<b>Underground Cable Portfolio</b>														
Replacements (km)	3.1	0	0	0	4.8	0	4.8	2.3	0	0	4.7*	0	0	0
% of Fleet	1.1%	0.0%	0.0%	0.0%	1.8%	0.0%	1.8%	0.9%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%
Capital (\$M)	20.6	3.5	1.4	2.3	22.5	2.3	22.5	1.7 <sup>+++</sup>	10.7	16.5	15.0	7.1	32.5	33.6

Source: (1) EB-2016-0160 I-6-20

\* Discrepancy is due to rounding

\*\* EB-2016-0160 DRO Forecast reflects EB-2016-0160 Application/Proposal due to timing of Decision & Order. Revised units were not forecast as part of the DRO submission.

\*\*\* 2016A, 2017A and 2018A Capital expenditures reflect capitalized costs for station centric asset replacements (transformers, breakers and protection systems). Forecasts for 2019F and onwards reflect the 2016-2018A average cost including CPI (Exhibit B-1-1 TSP Section 2.1 page 11)

<sup>+</sup> Updated to reflect 2018 in-serviced units that were not accounted for, due to a lag in reporting, when the Application was filed

<sup>++</sup> Updated values to reflect correct accomplishments for 2014, 2015

<sup>+++</sup> Replacement cost included under a development project; not in the sustainment category

## UNDERTAKING - JT 1.25

**Reference:**

D-02-01-01

**Undertaking:**

To comment on using new data in assessing performance and reliability standards.

**Response:**

The undertaking asks for Hydro One to provide the steps entailed and what Hydro One would have to go through to update the Customer Delivery Point Performance (CDPP) Standards. Hydro One estimates that an update to the original CDPPS will take approximately 1 to 2 years to develop, stakeholder and implement. It is difficult to envision all the detailed steps, however, three high-level steps that Hydro One would have to undertake to update the CDPP Standards would be:

- i. a statistical analysis of delivery points to account for normal performance variations and determine where the “approximately 10%” level should be. This would require obtaining historical data and conducting the analysis.
- ii. update the analysis for the Customer Interruption Costs (also known as Value of Lost Load). Hydro One would have to revisit this methodology to determine if it should be updated or if a better method to quantify the value of lost load for customers would be better suited for the CDPP Standards.
- iii. the current approved CDPP Standards were publicly stakeholder. As such, Hydro One believes that any update would similarly stakeholder. Particularly, with respect to updating the data that underpins the standards, as that was a topic specifically commented on by stakeholders and the Ontario Energy Board in its’ Decision and Order in proceeding RP-1999-0057 / EB-2002-0424, issued July 25, 2005. Refer to: pages 13 & 14. Section - 2.3.4 Fixed Ten Year (1994-2003) Reference for Individual (Inlier) CDPP Standards.

**UNDERTAKING - JT 1.26**

**Reference:**

I-12-AMPCO-028

**Undertaking:**

To review AMPCO IR 28, Table 3, and provide a breakdown, if possible.

**Response:**

Please refer to Attachment 1 incorporating Exhibit B-1-1 TSP Section 3.3 Table 3 and 4 into Interrogatory I-12-AMPCO-28 Attachment 1.

2.0-AMPCO-28

Hydro One Networks Inc. Transmission Rate Application

EB-2019-0082

Ex B TSP Section 2

Replacement History by ESL & Condition

(as per JT1.26)

	Population	Expected Service Life (Years)	2015 # replaced beyond ESL	2016 # replaced beyond ESL	2017 # replaced beyond ESL	2018 # replaced beyond ESL	2015 # replaced in very high & high risk	2016 # replaced in very high & high risk	2017 # replaced in very high & high risk	2018 # replaced in very high & high risk	2015 # replaced beyond ESL & in very high & high risk	2016 # replaced beyond ESL & in very high & high risk	2017 # replaced beyond ESL & in very high & high risk	2018 # replaced beyond ESL & in very high & high risk	2015 # total replaced	2016 # total replaced	2017 # total replaced	2018 # total replaced
<b>TRANSMISSION ASSETS</b>																		
<b>Transformer</b>																		
115kV	273	40-60	12	10	6	20	9	8	6	7	6	7	6	7	17	11	6	20
230 kV	397	40-50	5	4	5	6	3	3	3	4	3	2	3	3	6	6	7	8
500 kV	46	40	1	1	1	-	1	1	1	-	1	1	1	-	1	1	2	-
<b>Circuit Breakers</b>																		
Oil	1,600	55	6	13	23	58	10	13	20	63	6	13	20	58	10	20	57	88
SF 6	1,857	40	3	6	1	1	10	15	9	3	3	6	1	1	12	15	15	16
Air Blast	157	40	6	19	13	17	6	19	13	17	6	19	13	17	6	19	13	27
GIS	364	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metaclad	767	40	-	4	3	-	1	10	14	1	-	4	3	-	1	16	21	17
Vacuum	29	40	-	3	-	7	2	3	-	7	-	3	-	7	2	3	2	7
<b>Protection Systems</b>																		
Electromechanical	3,484	45	66	77	54	55	66	77	54	55	66	77	54	55	194	225	115	122
Solid State	1,970	25	126	235	104	103	126	235	104	103	126	235	104	103	152	278	109	110
Microprocessor	7,268	20	1	7	1	5	1	7	1	5	1	7	1	5	99	124	74	93
<b>Conductors (circuit-km)</b>																		
Poles <sup>1</sup>	29,107	70 <sup>3</sup>	201	183	119	51	201	183	119	51	201	183	119	51	201	183	119	51
Wood	42,000	50	-	-	-	-	845	761	966	735	-	-	-	-	845	761	966	735
<b>Steel Structures<sup>2</sup></b>																		
Steel Towers in Light Corrosion Zones	37,300	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Steel Towers in Heavy Corrosion Zones	13,000	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Steel Poles	1,950	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Insulators</b>																		
Glass	N/A	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poreclain	N/A	70	-	-	-	-	155	2100	3422	3900	-	-	-	-	155	2100	3422	3900
Polymer	N/A	30	-	-	-	-	-	-	201	58	-	-	-	-	-	-	201	58
<b>Underground Cable</b>																		
LPLF	60 km	70 <sup>4</sup>	-	-	-	-	-	2.3	-	-	-	-	-	-	-	2.3	-	-
HPLF	173 km	70 <sup>4</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
XLPE	31 km	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

1. Wood Poles are only replaced at end of life (high risk) per Hydro One asset management philosophy. Records of the structures replacements which had passed ESL are not readily available.
2. Steel Structures are not scheduled to be replaced under a yearly program. They are coated in order to extend their life and delay high capital costs in the future.
3. These replacements were planned before the ESL for ACSR conductors was changed from 70 to 90 years - Therefore they are based on an ESL of 70 years. See: Exhibit B-1-1, TSP Section 1.4, Attachment 4
4. Years (as per for life of the line)

**UNDERTAKING - JT 1.38**

**Reference:**

**Undertaking:**

Undertaking from EnergyProbe Excel File (email Roger Higgin)

**Response:**

Please see JT1.38-01

	EB-2019-0028				Hydro One 2020-2024 CIR plan System Reliability Metrics								Page
					Actuals	Forecast/Targets							
Reference	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
HONI Historical and Forecast													
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	
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													
SAIDI 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													
SAIFI (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 Page 5													
T-SAIDI (Ave minutes of interruptions per Deliver Point)					0.65	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	0.49	0.48	0.48	0.47	0.46	0.45	
T-SAIDI (Ave minutes of interruptions per Deliver Point)					42.80	70.00	35.40	34.66	33.96	33.28	32.62	31.97	
System Unavailability (%)					0.69	0.71	0.48	0.47	0.47	0.46	0.45	0.44	
Unsupplied energy (minutes)					13.20	19.50	9.80	9.59	9.40	9.21	9.02	8.84	

## UNDERTAKING - JT 2.4

### **Reference:**

### **Undertaking:**

To provide the OM&A in rates versus actual for the given year for OPEBS.

### **Response:**

Below is a table showing the amount of OPEBs included in rates and the amount of OPEB costs incurred.

\$ amounts in Millions								
	2014	2015	2016	2017	2018	2019	2020	Total
OPEB Amounts Included in Rates	57	51	43	52	53	50	55	361
OPEB Costs Actually Incurred	60	52	58	61	56	50	55	392

Note, these numbers appear in the Application as follows:

- For OPEB OM&A costs included in rates, please refer to Table 3 in Exhibit F, Tab 5, Schedule 1.
- For actual OPEB costs incurred, please refer to Hydro One's response to SEC Interrogatory #58, Attachment 1.

Please also see the Technical Conference transcript dated August 13, 2019 at pages 56 to 58 in respect of this issue.

## UNDERTAKING - JT 2.5

### Reference:

### Undertaking:

To provide depreciation associated with OPEBs that have been capitalized to date.

### Response:

Hydro One is unable to provide a reasonable estimate of the depreciation associated with OPEBs that have been capitalized to date, as OPEB amounts capitalized in prior periods are not identifiable at the individual capital asset level to allow for an estimate of depreciation.

As noted in Hydro One's response to OEB staff IR 222, part (c), OEB's Report on the Regulatory Treatment of Pension and OPEB Costs (the "Report") intends for the accrual vs. cash differential variance account to be calculated on the basis that it includes capitalized amounts of OPEB costs from the date of implementation.

To further illustrate this point, Hydro One has prepared the following example that examines the impact for two different entities: Company 1 that treats 100% of OPEB costs as OM&A; and Company 2 that capitalizes a portion of its OPEB costs. Regardless of the difference in accounting treatment between the two entities, the implementation of the account ensures that only differences from the implementation of the policy are captured and not from past periods.

*\*Amounts are in Millions*

	2015	2016	2017
OPEB OM&A (accrual)	100	100	100
OPEB Cash Benefits Paid	50	50	50

#### **Company 1**

Company 1 expenses 100% of OPEB costs, which are included in rates via OM&A

	2015	2016	2017
OPEB OM&A (accrual) Recovered in Rates	100	100	100
Cash Benefits Paid	-50	-50	-50
Difference	50	50	50

Cumulative Over-Recovery of Accrual Cost Prior to  
Implementation of Carrying Charge Account

150

Witness: Samir Chhelavda

**Company 2**

Company 2 capitalizes 50% of OPEB costs and the remaining 50% in expense are included in rates via OM&A. The capitalized portion is amortized straight-line over 40 years, with half-year rule.

	2015	2016	2017
OPEB OM&A (accrual) Recovered in Rates	50	50	50
Depreciation Recovered in Rates	0.625	1.875	3.125
Cash Benefits Paid	-50	-50	-50
	0.625	1.875	3.125
Cumulative Over-Recovery of Accrual Cost			<b>5.625</b>

1  
2 As illustrated in the example above, Company 1 is not required to account for the \$150  
3 million of over-recovered accrual basis expense prior to implementation of the account.  
4 Company 2 has \$5.6 million of over-recovered accrual basis expense prior to  
5 implementation of the account. Requiring Company 2 to include the depreciation on the  
6 amount of OPEB expense capitalized prior to the implementation of the account  
7 (essentially considering either the full \$150 million or the remaining \$144.4 million  
8 which have not been over-recovered in prior periods for 2018 onwards) results in  
9 inconsistent treatment of Company 1 and Company 2 and is punitive to Company 2. It is  
10 Hydro One's view that this is not the intention of the OEB's Report and the  
11 implementation of the account.

## UNDERTAKING - JT 2.6

**Reference:**

I-01-OEB-139  
C-08-02, Table 1

**Undertaking:**

To provide the historical and OEB-approved overhead capitalization rates for 2015, 2016, 2017, 2018.

**Response:**

Hydro One's historical actual overhead capitalization rates for the requested years are as follows:

2015 = 13%

2016 = 13%

2017 = 14%

2018 = 14%

As the OEB does not directly approve overhead capitalization rates, the requested OEB-approved overhead capitalization rates are not available. The OEB approves the capitalization methodology as presented in the evidence. The approved capitalization methodology was used to derive the above noted Capitalization Rates. Hydro One is able to provide the capitalization rates as filed in the evidence for the respective proceedings which were estimated by applying the same approved capitalization methodology to plan data (EB-2014-0140 for 2015 and 2016 rates and EB-2016-0160 for 2017 and 2018 rates). The rates are as filed and do not reflect any subsequent updates made to capital and OM&A to reflect either settlement reductions or OEB mandated reductions.

Overhead capitalization rates as filed in EB-2014-0140 and EB-2016-0160 are as follows:

2015 = 14%

2016 = 15%

2017 = 13%

2018 = 12%

## UNDERTAKING - JT 2.7

### **Reference:**

I-01-OEB-196

### **Undertaking:**

- a) To update the table in OEB Staff-196 showing FTE changes from 2019 to 2022, to include 2020;
- b) To quantify the impacts on the 2020 test year requirements for OM&A and capital;
- c) To explain the changes in transmission FTES in the transmission work program row of the same table.

### **Response:**

- a) The following is the updated chart from Exhibit I-01-OEB-196 with 2020 data.

<b>FTE Change by Items listed below F-04-01 Table 2</b>				
	<b>Supports either Transmission, Distribution or both</b>	<b>2019</b>	<b>2020</b>	<b>2022</b>
<b>Repatriated Customer Call Centre (1)</b>	Dx	-8	-	-
<b>Shared Service Supply Chain Strategic Plan (2) Fleet Mechanics apprentices (6) Helicopter Services (7)</b>	Both	75	-6	13
<b>Distribution Work Program (4)</b>	Dx	415	-6	131
<b>Transmission Work Program (3)</b>	Tx	200	-36	-165
<b>Health &amp; Safety (7)</b>	Both	28	-1	-3
<b>Great Lakes Power (Hydro One Sault Saint Marie) (5)</b>	Tx	-	-	-
<b>Total</b>		<b>710</b>	<b>-49</b>	<b>-24</b>

Witness: Sabrin Lila, Andrew Spencer

- b) On a best effort basis, the 2020 Transmission revenue requirement impact as it relates to the 49 FTEs outlined in part a) is summarized below. Please note that these cost savings have been already reflected within revenue requirement presented in this filing.

<b>Transmission Revenue Requirement (\$ millions)</b>	<b>2020</b>
OM&A	(1.6)
Capital related	(0.2)
<b>Total Revenue Requirement</b>	<b>(1.8)</b>

The revenue requirement impacts were derived by using best efforts and applying the following calculations:

- An average FTE ratio of representation/non-representation was applied to each of the FTEs identified in table 2 from part a) above and the average compensation was applied to derive the total costs.
- The total costs were broken out by OM&A and Capital by applying the labour content method from the Black and Vetch study “Review of Overhead Capitalization Rates” (filed as Exhibit C-8-2-1).

- c) The increase of 200 FTEs in the 2019 Transmission Work Program is primarily caused by the transfer of non-regular lines apprentices from the Distribution line of business to the Transmission. The reductions shown in 2020-2022 represent decreases in the direct hire casual trade workforce as a result of expected efficiencies due to progressive productivity savings.

## UNDERTAKING - JT 2.8

### **Reference:**

KT2.1  
I-01-OEB-172

### **Undertaking:**

In respect of the document prepared by OEB Staff and marked as Exhibit KT2.1, to consider and provide answers to the following questions to the extent they are probative: to explain the unexplained differences in table 1 and table 2 of the document.

### **Response:**

Table 1 compares the distribution compensation from EB-2019-0082 and EB-2017-0049, and is not relevant to the current transmission application.

In respect of Table 2, as stated in Exhibit I, Tab 01, Schedule OEB-172, the difference in overall FTE levels between EB-2019-0082 and EB-2017-0049 is due to the fact that the 2019 to 2024 business plan underpins the evidence in EB-2019-0082, while the 2017 to 2022 business plan underpins the evidence in EB-2017-0049.

Some of the changes that drive the variance between the two business plans for 2019 include:

- an increase of approximately 400 FTE due to the repatriation of the call centre;
- an increase in Hydro One Networks engineers transferred from Hydro One Telecom; and
- increases in the Shared Services Supply Chain function to insource the strategic sourcing function.

## UNDERTAKING - JT 2.9

### **Reference:**

I-07-SEC-055, part a)

### **Undertaking:**

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

### **Response:**

The following table outlines the capital reductions related to the net mercer median table and is consistent with how the OM&A table was produced in SEC IR No. 55 (a).

<b>Net Mercer Median Reductions Allocated to Capital (\$M)</b>	<b>2020</b>
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)
<b>Total Net Mercer Capital Reductions</b>	<b>24.3</b>

- Mercer Median (+\$28.5 million) is the Capital component of the transmission allocated portion of \$38.6 million as stated above;
- The current revenue requirement reflects the reduced pension capital costs (-\$3.0 million) due to the actuarial valuation of pension expenses completed by Willis Towers Watson (Exhibit F, Tab 5, Schedule 1 Attachment 1);
- The current revenue requirement reflects the updated OPEB capital costs, the allocation to Tx Capital results in an increase of (+\$1.7 million) as a result of the latest valuation which is provided in Exhibit I, Tab 1, Schedule OEB-205;
- The current revenue requirement reflects the reduced executive compensation capital costs (-\$2.6 million) identified in EB-2018-0130, Exhibit I, tab 7, schedule 3, page 2 to be in compliance with Bill 2; and
- As part of the blue-page update Hydro One further reduced its capital (-\$0.3 million) by factoring the Ontario Government Directive issued on February 21,

Witness: Joel Jodoin, Sabrin Lila

Filed: 2019-08-28

EB-2019-0082

Exhibit JT 2.9

Page 2 of 2

- 1           2019 (“the Directive”), as discussed in Exhibit F, Tab 4, Schedule 1, page 35 and
- 2           also identified in Exhibit F, Tab 1, Schedule 1, page 3.

## UNDERTAKING - JT 2.10

### **Reference:**

KT2.1

### **Undertaking:**

- a) To advise why compensation is increasing at a rate faster than inflation;
- b) To advise why compensation is increasing at a faster rate than FTES;
- c) To explain why TX compensation and FTES are increasing at a higher rate than distribution compensation and FTES.

### **Response:**

- a) The projected compensation costs referenced in Exhibit KT2.1 contain several underlying factors based on best estimates across each factor, in each year including: forecasted FTE changes, base escalation, labour burdens and the allocation between the Transmission and Distribution.

As the compensation forecast includes several interconnected factors, they will not align with inflation rates in isolation.

In addition, it should be noted that Hydro One's base wages increases for represented employees are at or below inflation.

- 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.

- c) Hydro One does not see the relevance of the comparison between Distribution and Transmission, as this is a Transmission filing.

However, the compensation programs are consistent for both transmission and distribution and as outlined in part a) above, the allocation of labour costs between Transmission and Distribution are based on labour splits which differ for each year. As a result of the allocation differences by year, the compensation costs for

Filed: 2019-08-28

EB-2019-0082

Exhibit JT 2.10

Page 2 of 2

- 1       Transmission started at a lower dollar amount in 2018 and ended higher in 2022,
- 2       relative to Distribution, resulting in a higher percentage increase.

Witness: Sabrin Lila

**UNDERTAKING - JT 2.11**

**Reference:**

KT2.2

**Undertaking:**

To explain the upticks in total burdens for both TX and DX.

**Response:**

While Hydro One's position is that questions pertaining to distribution burdens are not relevant to this Application, we nonetheless provide the following response which is applicable to both transmission and distribution burdens.

The main drivers for the increases in burdens is the result of the higher FTE levels and base escalation assumptions which subsequently result in increases in the various components that make up the labour burdens.

## UNDERTAKING - JT 2.14

**Reference:**

**Undertaking:**

To provide the Q2 FTE actuals for 2019.

**Response:**

The undertaking response provides the transmission allocated Q2 FTE actuals for 2019 which are relevant to this Application.

The regular FTEs are approximately 6% below budget largely due to vacancies. This is aligned with the current assumption of a 7% vacancy rate reduction for corporate groups.

For regular PWU represented positions, typically these become vacant throughout the year and are filled towards the end of the year through a “mass hire”. During the year this work is completed by PWU HH employees who are on and off boarded as required.

Overall Hydro One believes the 2019 FTE trend is on track with the forecasted budget.

2019 Transmission FTEs vs. Q2 Actuals				
	2019 Budget	2019 Q2 YTD FTE	2019 Q2 Actual vs. 2019 Budget	
			Number	Percentage
Regular	2,664	2,502	-162	-6 %
Non-Regular	1,811	1,869	58	3%
Total	4,475	4,371	-104	-2%

## UNDERTAKING - JT 2.15

**Reference:**

I-07-SEC-055

**Undertaking:**

Regarding SEC 55, in particular in respect of the global figures as to the differential relative to market median, to advise how the differential was calculated.

**Response:**

Below, Mercer has provided a summary of the methodology used.

An estimate of the dollar difference between the weighted average total compensation for Hydro One and the market median calculated in response to Exhibit I, Tab 07, Schedule SEC-55 is as follows:

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

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

The Study Year value in Table 1 was calculated based on the results of the Mercer 2017 Compensation Cost Benchmarking Study (Exhibit F, Tab 4, Schedule 1 Attachment 2). The dollar differences in subsequent years were estimated based on the following steps and assumptions.

- Update the Hydro One benchmark and market benchmark based on salary/wage increases provided in Table 2 below and the market adjustment assumptions listed below. Results, by year, are provided in Table 3.

**Table 2: Actual and Projected Hydro One Salary/Wage Adjustments: 2018 to 2022**

Category	Desc.	2018	2019	2020	2021	2022
MCP	Merit Budget	2.50% (actual)	2.30% (CPI)	2.00% (CPI)	2.50% (est.)	2.50% (est.)
PWU	Negotiated Step Increase	1.80% (Apr. 1, 18)	2.00% (Apr. 1, 19)	2.00% (Jan. 1, 20)*	2.00% (est.)	2.00% (est.)
SOCIETY	Negotiated Step Increase	0.50% (Apr. 1, 18)	2.00% (Apr. 1, 19)	2.00% (Apr. 1, 20)	2.00% (est.)	2.00% (est.)

Table 2 Notes: \*PWU has agreed to a 0.6% wage adjustment on January 1, 2020. A projected annual adjustment of 2.0% was used for 2020 to reflect the opportunity, in 2020, for a wage adjustment associated with the new collective agreement.

- Projected external market salary/wage increases as per the information below:
  - Market (MCP roles): CPI + 0.6%,
  - Market (represented roles): Increase at rate of CPI
  - CPI Assumptions: 2017: 2.3%, 2018: 2.3%, 2019: 2.0%, 2020: 2.0% , 2021: 1.9%, 2022: 2.0%

**Table 3: Updated Benchmark Based on Stated Assumptions: 2018 to 2022**

	2017*	2018	2019	2020	2021	2022
<b>Non-Represented</b>		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
<b>Energy Professionals</b>		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
<b>Trades and Technical</b>		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
<b>Total</b>						
Multiple of P50	1.12	1.11	1.10	1.10	1.10	1.10

Table 3 Notes: \*Mercer Compensation Cost Benchmark Study effective October 1, 2017

- Estimated Dollar Differentials are based on the differential between the average salary and the market median rate for the corresponding level, multiplied by the number of incumbents in the relevant level based on the FTE forecast found at Exhibit I, Tab 7, Schedule 58 Attachment 1 (Payroll Table).
- The allocation of compensation to Transmission related activities is based on the following percentages 2019: 44.33%, 2020: 48.22%, 2021: 49.68% and 2022: 48.35% to reach the figures provided in Exhibit I, Tab 07, Schedule SEC-55.

In summary, the 2017 estimated total reward dollar differential, based on the Mercer Study, was projected forward to 2022 by adjusting for Hydro One's actual and projected wage/salary adjustments and the expected market wage/salary adjustments during the

Witness: Sabrin Lila

- 1 period. Further, forecasted increases or decreases in Hydro One employee numbers, by
- 2 category, were taken into account yielding the figures in Table 1.

## UNDERTAKING - JT 2.16

### **Reference:**

I-07-SEC-056, 57, 58

### **Undertaking:**

In respect of SEC 56 and specifically the table on page 2 re the Towers Watson Management compensation study, to advise how the table was calculated.

### **Response:**

Willis Towers Watson has provided a qualitative summary of the methodologies used, with illustrative exhibits to support the underlying explanations.

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 Willis Towers studies is based on the following consistent methodology used for each study:

#### **Individual Incumbent Benchmarking Methodology**

In determining Hydro One's overall market positioning relative to market for a particular employee group, each individual incumbent is benchmarked to the market, using the following approach:

1. Internal Incumbent Segmentation: Assigns a segment to each individual Hydro One incumbent, i.e. either the Core Services or Operations segment. Peer groups are determined by segment and apply to all incumbents in the segment:
  - Operations Segment: Represents incumbents requiring specific education, skills and knowledge in a professional area that is directly related to concepts and methods associated with the transmission, distribution and regulation of power.
  - Core Services Segment: Represents incumbents requiring education, skills and knowledge that are not specific to the transmission, distribution and regulation of power.
2. Internal Incumbent Leveling: Identifies the level of each incumbent within Hydro One's existing represented and non-represented career frameworks. For example:
  - Society represented incumbents: Level MP4 or MP5
  - PWU represented incumbents: Schedules 28 or 30

Witness: Sabrin Lila

- 1                   • Management non-represented incumbents: Manager level 5 or level 6
- 2
- 3           3. External Benchmarking: Informed by the results of the internal segmentation and
- 4           incumbent levelling (steps 1 and 2), each individual Hydro One incumbent is
- 5           compared to the external market with the following considerations:
- 6           • Peer Groups: Incumbents identified within the Operations segment are
- 7           benchmarked against the Operations peer group, while Core Services
- 8           segmented incumbents are benchmarked against the Core Services peer group.
- 9           • Level Alignment: Each Hydro One career level is then aligned to a specific
- 10           career level from Willis Towers Watson's compensation surveys based on
- 11           similar levels of contribution.
- 12           • Incumbent Matching: Each Hydro One incumbent is matched to a specific
- 13           compensation survey position, consisting of a job function and discipline to
- 14           capture similar/comparable types of work in the market.
- 15

## 16   Market Positioning within a Segment

17  
18   Where market data are available, each individual Hydro One incumbent will have a  
19   unique position to market. Individual positioning data points are then averaged by level,  
20   to provide an aggregated positioning to market.

21  
22   In calculating Hydro One's overall positioning within a segment, a weighted average by  
23   level is applied to account for Hydro One's representation by level.

24  
25   An illustrative exhibit is provided below, using the Operations segment as an example,  
26   spanning two Hydro One levels.

Hydro One			Base Salary		Incumbent Positioning vs.
Level	Incumbents	Segment	Hydro One	Market 50th	Market Median
Level 4	Incumbent A	Operations	\$80,250	\$82,000	-2.1%
Level 4	Incumbent B	Operations	\$83,500	\$79,000	5.7%
Level 5	Incumbent C	Operations	\$93,250	\$95,000	-1.8%
Level 5	Incumbent D	Operations	\$95,000	\$95,000	0.0%
Level 5	Incumbent E	Operations	\$95,000	\$97,000	-2.1%
Level 5	Incumbent F	Operations	\$97,400	\$93,500	4.2%
Hydro One Average Positioning by Level *					
Level 4 (n=2)					1.8%
Level 5 (n=4)					0.1%
* A simple average of market positioning for each incumbent by level					
Hydro One Overall Segment Positioning **					
Operations					0.6%
** Overall positioning of the operations segment represents a weighted average based on the total of incumbents in levels 4 and 5					

**Note:** Details within this exhibit are illustrative in nature and do not reflect Hydro One incumbents or actual positioning to market

Witness: Sabrin Lila

## Overall Market Positioning

In calculating Hydro One's overall market positioning, Willis Towers Watson first calculates overall position to market by level, on a weighted average basis across both segments. Overall positioning to market then calculates the weighted average positioning of each level.

An illustrative exhibit is provided below, using both the operations and core services segments as an example, spanning two Hydro One levels.

Hydro One			Base Salary		Incumbent Positioning vs.
Level	Incumbents	Segment	Hydro One	Market 50th	Market Median
Level 4	Incumbent A	Operations	\$80,250	\$82,000	-2.1%
Level 4	Incumbent B	Operations	\$83,500	\$79,000	5.7%
Level 5	Incumbent C	Operations	\$93,250	\$95,000	-1.8%
Level 5	Incumbent D	Operations	\$95,000	\$95,000	0.0%
Level 5	Incumbent E	Operations	\$95,000	\$97,000	-2.1%
Level 5	Incumbent F	Operations	\$97,400	\$93,500	4.2%
Level 4	Incumbent G	Core Services	\$75,000	\$72,000	4.2%
Level 4	Incumbent H	Core Services	\$79,000	\$77,000	2.6%
Level 5	Incumbent I	Core Services	\$84,000	\$82,000	2.4%
Level 5	Incumbent J	Core Services	\$81,000	\$82,000	-1.2%
<b>Hydro One Average Positioning by Level (across segments)</b>					
Level 4 Operations (n=2)					1.8%
Level 4 Core Services (n=2)					3.4%
<b>Level 4 Overall Positioning*</b>					<b>2.6%</b>
Level 5 Operations (n=4)					0.1%
Level 5 Core Services (n=2)					0.6%
<b>Level 5 Overall Positioning*</b>					<b>0.2%</b>
* Overall positioning by level across segments represents a weighted average based on the total incumbents by level across each segment					
<b>Hydro One Overall Positioning**</b>					
<b>Level 4 Overall Positioning (n=4)</b>					<b>2.6%</b>
<b>Level 5 Overall Positioning (n=6)</b>					<b>0.2%</b>
<b>Overall Positioning (n=10)</b>					<b>1.2%</b>
** Overall Hydro One positioning represents a weighted average based on the total number of incumbents in levels 4 and 5					

Note: Data within this exhibit are illustrative in nature and do not reflect Hydro One incumbents or actual positioning to market

**UNDERTAKING - JT 2.17**

**Reference:**

I-07-SEC-057

PWU benchmarking study (exhibit F-4-1 attachment 3)

**Undertaking:**

In respect of SEC 57 and specifically the table on page 1 re the Towers Watson PWU Benchmarking study, to advise how the table was calculated and explain why there is a negative value in the table in the study year.

**Response:**

Willis Towers Watson has provided a qualitative summary of the methodologies used, with illustrative exhibits to support the underlying explanations.

Please see Exhibit JT2.16 for a description of the methodology used by Willis Towers Watson to estimate the dollar difference between the weighted average total compensation for Hydro One's employees allocated to its Transmission business and the market median.

In response to the question concerning the negative dollar amount in the PWU benchmarking study raised by SEC at the technical conference, Willis Towers Watson firstly calculated an overall weighted average position to market on a Target Total Cash (TTC) basis at 7% above target market.

Although overall TTC position to market was calculated at 7% above market, the costs associated with this positioning *actually reflect a cost savings*. Positioning to market on a percentage basis for each segment is a relative measure, i.e. the quantum reference points (market 50th percentile) reflect different values in each segment.

The following variables are considered when calculating Hydro One's costs/savings of its position to market:

1. The actual dollar difference between Hydro One's TTC value and the segmented market 50th TTC dollar value. The difference in both these values drives Hydro One's variance to market 50th TTC in terms of actual dollars.
2. The number of PWU Hydro One incumbents within each segment, i.e. the higher representation of incumbents within the Operations segment will impact overall cost/savings to a greater degree than Core Services.

Witness: Sabrin Lila

1  
2 Representation of incumbents within each schedule/step across each segment will  
3 impact the absolute dollar costs of Hydro One's position to market, however not  
4 necessarily impact the % +/- market relative variances. Actual pay levels for  
5 PWU operations roles are typically 15% higher than core services incumbents due  
6 to their representation in the PWU schedule/steps.

7  
8 An illustrative example is provided below:

Hydro One Segment	% +/- Target Market Positioning <sup>1</sup>	Hydro One Weighted Average TTC \$ Value (Illustrative)	Market 50 <sup>th</sup> TTC \$ Value (Illustrative)	Hydro One Average Incumbent Variance to Market 50 <sup>th</sup> TTC (\$) <sup>1</sup>	PWU Employee Distribution	Number of PWU employees by segment	Total Costs (+)/Savings (-) of position to market by segment <sup>1</sup> (illustrative)
Operations	<b>-8%</b>	\$95,000	\$103,250	<b>-\$8,250</b>	87%	3711	<b>-\$30,615,750</b>
Core Services	<b>64%</b>	\$82,000	\$50,000	<b>+\$32,000</b>	13%	533	<b>+\$17,056,000</b>
Overall Weighted Average	<b>7%</b>				100%	4244	<b>-\$13,559,750</b>

9 <sup>1</sup> Variance to market 50th TTC differs by PWU schedule within each segment. The number of PWU incumbents within  
10 each schedule alter costs/savings to greater a degree than relative positioning. Refer to page 8 of the PWU  
11 benchmarking study review detailed positioning by schedule for both segments

## UNDERTAKING - JT 2.18

### **Reference:**

I-07-SEC-005

### **Undertaking:**

In respect of SEC 5 Attachment 1, the Society Competitive Review study, to provide a similar table as in SEC-55, 56, 57 advise how the table was calculated.

### **Response:**

Willis Towers Watson has provided a qualitative summary of the methodologies used, with illustrative exhibits to support the underlying explanations.

Please see Exhibit JT.2.16 for a description of the methodology used by Willis Towers Watson to estimate the dollar difference between the weighted average total compensation for Hydro One's employees allocated to its Transmission business and the market median.

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

	Study Year	2020	2021	2022
<b>Estimated Dollar Difference</b> (Hydro One to Market Median)	\$6,724,556	\$7,178,973	\$7,049,249	\$6,474,226

Consistent with the referenced interrogatories, the following variables are considered when calculating Hydro One's costs/savings of its position to market:

1. The actual dollar difference between Hydro One's TDC value and the segmented market 50th TDC dollar value. The difference in both these values drives Hydro One's variance to market 50th TDC in terms of actual dollars
2. The number of Society Hydro One incumbents within each segment.

Representation of incumbents within each schedule/step across each segment will impact the absolute dollar costs of Hydro One's position to market, however not necessarily impact the % +/- market relative variances.

Witness: Sabrin Lila

## UNDERTAKING - JT 2.23

### **Reference:**

I-12-AMPCO-070

### **Undertaking:**

Re: AMPCO IR 70 part a, to provide the forecast for total number of non-overtime hours worked for 2019 to 2022.

### **Response:**

Forecasted Non Overtime Hours				
	2019	2020	2021	2022
MCP	1,439,360	1,441,440	1,443,520	1,443,520
Society	2,911,142	2,888,990	2,890,836	2,879,760
PWU	7,534,085	7,636,850	7,705,360	7,761,780
Non Regular	5,911,360	6,088,160	6,672,640	6,443,840

### **Calculation Assumptions:**

In Exhibit I, Tab 12, Schedule AMPCO-70 under Non Overtime Hours, only actual paid working hours (i.e. not including vacation time, sick time) were shown for 2015-2018. For 2019-2022 the following methodology and assumptions were used in order to calculate the forecasted Non Overtime Hours:

- All Non represented employees work a base of 40 hours per week
- Based on 2018 actual hours of work, 90% of Society represented employees work a base of 35 hour work week, 10% work a base of 40 hour work week
- Based on 2018 actual hours of work, 75% of PWU represented employees work a base of 40 hour work week, 25% work a base of 35 hour work week
- All non-regular employees assumed to work a base of 40 hour work week

Forecasted hours of work =

(Forecasted FTEs in a given year per representation) x (base hours of work per representation) x (52 weeks)

Witness: Sabrin Lila

**UNDERTAKING - JT 2.24**

**Reference:**

I-07-SEC-026

**Undertaking:**

To review an example of the monthly operations productivity report that is given to the operational leadership team to determine if it contains any additional probative information in respect of productivity results (beyond the information that has already been provided on the record), and if so, provide it.

**Response:**

Hydro One reviewed a monthly operations productivity report. The information it contains is consistent with the information on the record, and does not contain additional relevant information in response to this undertaking.

**UNDERTAKING - JT 2.25**

**Reference:**

I-11-CCC-028

**Undertaking:**

With reference to the scorecard measure entitled "OM&A Program Accomplishment (composite index) ", to provide an example of how the this works and how it's measured.

**Response:**

The *OM&A Program Accomplishment (composite index)* measure is calculated as follows:

	Work Item	Segment	Units	Budget (n)	Weighting (n)	Units Planned (n)	Units Forecasted (n)	Completion (n)	Weighted Index (n)
(n)					$\frac{\text{Budget}_{(n)}}{\text{Budget}_{\text{Total}}}$			$\frac{\text{Units Forecasted}_{(n)}}{\text{Units Planned}_{(n)}}$	$\text{Completion}_{(n)} \times \text{Weighting}_{(n)}$
1	Dx UVM – Defect Correction	DX	# of kms	\$121.3	41.3%	34,666	29,640	85.5%	35.3%
2	Dx O&M Trouble Call	DX	# of calls	\$62.1	21.1%	42,645	41,508	97.3%	20.6%
3	Tx Lines - RoW Brush Control	TX	# of ha	\$19.3	6.6%	12,500	12,850	102.8%	6.7%
4	Preventive Maintenance - Planned	TX	# of orders	\$18.7	6.4%	7,400	8,288	112.0%	7.1%
5	Dx Cable Locates	DX	# of locates	\$14.2	4.8%	200,000	204,151	102.1%	4.9%
6	Dx Disconnects / Reconnects	DX	# of disconnect/ reconnect	\$12.1	4.1%	14,250	17,876	125.4%	5.2%
7	Distribution Line Patrols	DX	# of poles /inspection	\$9.5	3.2%	350,000	380,527	108.7%	3.5%
8	Overhead PCB Inspection and Testing	DX	transformers	\$9.4	3.2%	27,595	20,546	74.5%	2.4%
9	Tx Lines - RoW Line Clearing	TX	route km	\$6.5	2.2%	3,000	3,049	101.6%	2.3%
10	DS Preventive Maintenance - Planned	DX	# of orders	\$4.3	1.5%	6,234	5,664	90.9%	1.3%
11	Tx PCB Reduction Program - Retro	TX	# of retrofills	\$4.3	1.5%	341	273	80.1%	1.2%
12	Ancillary Preventive Maintenance	TX	# of orders	\$3.8	1.3%	3,830	4,451	116.2%	1.5%
13	P&C Preventive Maintenance	TX	# of orders	\$3.7	1.2%	1,476	1,289	87.3%	1.1%
14	Infrastructure Preventive Maintenance	TX	# of orders	\$2.2	0.7%	1,899	3,377	177.8%	1.3%
15	Telecom Preventative Maintenance	TX	# of orders	\$1.5	0.5%	1,200	1,709	142.4%	0.7%
16	Tx PCB Reduction Program - Testing	TX	# of orders	\$1.1	0.4%	3,000	2,485	82.8%	0.3%
		<b>Budget Total</b>		<b>\$293.9</b>					

$$\text{OM\&A Program Accomplishment (composite index)} = \frac{\text{Weighted Index}_{3,4,9,11,12,13,14,15,16}}{\text{Weighthing}_{3,4,9,11,12,13,14,15,16}} = \frac{6.7+7.1+2.3+1.2+1.5+1.1+1.3+0.7+0.3}{6.6+6.4+2.2+1.5+1.3+1.2+0.7+0.5+0.4} = 107.1\%$$

The **OM&A Program Accomplishment (composite index)** is the sum of the TX Segment Weighted Index values divided by the sum of the TX Segment Weighting values.

Figure 1 from Exhibit B-1-1, TSP Section 1.5 is reproduced below to reflect minor calculation revisions as follows:

- i. **2018, Capex as % of Budget:** revised to reflect the removal of \$11.2 million associated with the LSL project;
- ii. **2018 OM&A Program Accomplishment (composite index):** revised to include Tx-only Work Items; and
- iii. **2018 Capital Program Accomplishment (composite index):** revised to include Tx-only Work Items.

Performance Categories	Measures	Targets										
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
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
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-SAI FI-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-SAI FI-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-SAI DI (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	97	100	100	100	100	100	100
	OM&A Program Accomplishment (composite index)		97	99	108	107	100	100.0	100.0	100.0	100.0	100.0
	Capital Program Accomplishment (composite index)		122	59	88	120	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
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 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				
		Achieved		13.12	10.93	10.02	9.03	11.08				

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

Witness: Andrew Spencer

**UNDERTAKING - JT 2.27**

**Reference:**

I-07-SEC-026

**Undertaking:**

To advise on Hydro One's position regarding SEC's request to provide the Hydro One Networks Inc. aggregated distribution and transmission totals for each initiative listed in SEC-026.

**Response:**

Please see response to JT 2.26, which confirms that most of the productivity initiatives in SEC-26 are subject to direct assignment to the Transmission work program. Additionally JT 2.26 also provides the allocation methodology and allocations applied to items that are not subject to direct allocation. Having provided the information in JT 2.26, the additional information requested in this undertaking regarding the Hydro One Networks Inc. aggregated distribution and transmission totals for other remaining productivity initiatives would provide no additional value in connection with evaluating the present application.

**UNDERTAKING - JT 2.28**

**Reference:**

SEC-026

**Undertaking:**

Regarding SEC 26, to consider if further level of details can be provided beyond what is currently provided in evidence regarding the base number for each one of the initiatives.

**Response:**

Please see Attachment 1 to this Exhibit.

				Updated Savings										
Category	Initiative Grouping	Measurement and Expected Benefit		2016A	2017A	2018A	2019	2020	2021	2022	2023	2024	Baseline	
Capital	Operations	Engineering	Cost Reduction from Software Implementation <i>Estimated by quantifying the expected FTE reductions in Engineering through the implementation of EDM software enhancements</i>	\$ -	\$ -	\$ -	\$ 0.4	\$ 0.9	\$ 1.1	\$ 1.4	\$ 1.4	\$ 1.4	129 Tx FTEs (2017 actual) in records and drafting job functions.	
		Fleet Telematics and Right-Sizing	Fleet Rationalization - Unit Based Capital Plan Reduction <i>Estimated by utilizing Telematics data on fleet utilization and then measures the expected unit based reduction in the capital plan</i>	\$ -	\$ 1.9	\$ 10.2	\$ 10.6	\$ 11.0	\$ 11.1	\$ 11.4	\$ 11.6	\$ 11.3	Baseline is \$59.7M annual spend (HONI Total). See EB-2017-0049 Exhibit J 2.3 for detailed methodology	
		Transmission and Stations	Cost Reduction based on Historical spend <i>Expected Capital allocation based on historical spend for Transmission and Stations efficiencies and Temporary work HQ. Calculated by measuring expected benefit per occurrence</i>	\$ -	\$ 1.8	\$ 0.6	\$ 0.7	\$ 0.7	\$ 0.7	\$ 0.7	\$ 0.7	\$ 0.7	Savings Calculated per occurrence for TWHQ (varies by zone - approx. \$185). Baseline for Transmission and Stations efficiencies (BGIS Outsourcing )is 650K.	
		OT Reductions	Overtime Reductions <i>Targeted effort to reduce the number of relative OT hours worked as a % vs prior year baseline</i>	\$ -	\$ 1.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	Savings calculated against 2015 baseline of 12.3% OT as a % of Base Hours - please refer to I-07-SEC-25	
		Procurement	Lower Cost per Unit - Historical Baseline vs Actual <i>Savings are estimated at a category level based on historical spend, expected and achieved negotiated savings, and updated per business plan assumptions (Capital program spend)</i>	\$ 1.2	\$ 12.8	\$ 27.9	\$ 25.1	\$ 30.3	\$ 34.9	\$ 35.8	\$ 35.7	\$ 37.1	Calculation described in EB-2017-0049 Exhibit J 2.3. As there are tens of thousands of materials being tracked (automated system reports) Hydro One is unable to reasonably provide the baseline price for each item.	
		Progressive Defined	Targeted Efficiencies - Defined <i>Efficiencies that have been allocated to specific Operating initiatives that are not yet proven. Allocations taken in Business Plan based on preliminary estimates. Ex - Hydro Vac reduction, Temp Access Roads</i>	\$ -	\$ -	\$ -	\$ 5.0	\$ 6.1	\$ 11.6	\$ 11.6	\$ 10.1	\$ 10.1	Refer to JT 1.09 for an Update on Progressive initiatives.	
		Progressive Undefined	Targeted Efficiencies - Undefined <i>Escalating commitment of 1-3% of capital work program to be allocated to future initiatives as they are defined. Included as a Top Line capital reduction</i>	\$ -	\$ -	\$ -	\$ -	\$ 10.9	\$ 27.4	\$ 49.4	\$ 67.9	\$ 80.9	N/A	
		Scheduling Tool	Cost Reduction from Software Implementation <i>Estimated by quantifying the expected FTE reductions in Scheduling Staff through the implementation of software enhancements</i>	\$ -	\$ -	\$ 0.2	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	\$ 0.9	32 Tx FTEs (2017 Actual) in Scheduling job functions
		Wrench Time	Lower Cost Per Unit of Operation <i>Utilize unit reporting to compare like for like work in actuals vs baseline year to determine \$ savings per operation.</i>	\$ -	\$ -	\$ -	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	Labour efficiency per Task: 2015 Labour Hours Less Estimated Labour Hours for planned orders multiplied by \$143 per hour. Due to the volume of orders Hydro One is unable to reasonably provide the baseline price for each Task.
OM&A	Information Technology	Contract Reductions	Cost Reduction Based on Historical Spend <i>Lower cost resulting from Inergil IT Contract renegotiation. Measured against baseline spend for same scope of work</i>	\$ 2.0	\$ 2.3	\$ 6.6	\$ 6.3	\$ 6.4	\$ 8.9	\$ 9.6	\$ 9.6	\$ 9.6	Baseline is \$65.5M (Total 2015 Actual/2016 Plan)	
	Operations	Engineering	Cost Reduction from Software Implementation <i>Estimated by quantifying the expected FTE and contractor reductions in Engineering through the implementation of PCMIS software enhancements</i>	\$ -	\$ -	\$ 0.7	\$ 0.6	\$ 0.6	\$ 0.6	\$ 0.6	\$ 0.6	\$ 0.6	Baseline is 13 Non-Regular FTEs (2017 Historical Actual) in P&C functions.	
		Fleet Telematics and Right-Sizing	Fleet Rationalization - Unit Based Capital Plan Reduction <i>Estimated by utilizing Telematics data on fleet utilization and then measures the expected unit based reduction in the capital plan</i>	\$ -	\$ 0.5	\$ 0.2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	There are no savings included in the plan years.	
		Forestry Initiatives	Lower Cost per KM <i>Estimated based on reductions in cost due to staff policy for inclement weather and expected overall unit volume reduction in trouble calls</i>	\$ -	\$ -	\$ 1.3	\$ 2.1	\$ 2.0	\$ 3.4	\$ 2.0	\$ 2.4	\$ 1.9	Estimate per occurrence for inclement weather @ \$85 per hour. Forestry baseline is \$1566 per km (2015, escalated for labour inflation)	
		Transmission and Stations	Cost Reduction based on Historical spend <i>Expected OM&amp;A allocation based on historical spend for Transmission and Stations efficiencies and Temporary work HQ. Calculated by measuring expected benefit per occurrence</i>	\$ -	\$ 0.8	\$ 1.8	\$ 1.2	\$ 1.2	\$ 1.2	\$ 1.2	\$ 1.2	\$ 1.2	Savings Calculated per occurrence for TWHQ. See above in this table.	
		Network Operating Efficiencies	Operational Program Efficiencies <i>Unit cost reduction in completing Load Transfer studies through Network Operating group</i>	\$ -	\$ -	\$ 0.4	\$ 1.0	\$ 1.0	\$ 1.0	\$ 1.0	\$ 1.0	\$ 1.0	Baseline is historical program budget of \$1.0M	
		OT Reductions	Overtime Reductions <i>Targeted effort to reduce the number of relative OT hours worked as a % vs prior year baseline</i>	\$ -	\$ 1.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	\$ 0.5	See OT reductions within the Capital section above in this table

				Updated Savings									
Category	Initiative Grouping	Measurement and Expected Benefit		2016A	2017A	2018A	2019	2020	2021	2022	2023	2024	Baseline
		Procurement	Lower Cost per Unit - Historical Baseline vs Actual <i>Savings are estimated at a category level based on historical spend, expected and achieved negotiated savings, and updated per business plan assumptions</i>	\$ 1.8	\$ 2.9	\$ 1.7	\$ 0.9	\$ 0.8	\$ 0.8	\$ 0.9	\$ 0.8	\$ 0.8	See Procurement category within the Capital section above in this table
		Scheduling Tool	Cost Reduction from Software Implementation <i>Estimated by quantifying the expected FTE reductions in Scheduling Staff through the implementation of software enhancements</i>	\$ -	\$ -	\$ 0.2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	See Scheduling Tool category within the Capital section above in this table
		Wrench Time	Lower Cost Per Unit of Operation <i>Utilize unit reporting to compare like for like work in actuals vs baseline year to determine \$ savings per operation.</i>	\$ -	\$ -	\$ 1.5	\$ 2.3	\$ 2.3	\$ 2.3	\$ 2.3	\$ 2.3	\$ 2.3	See Wrench Time category within the Capital section above in this table
CCC	Corporate	Corporate Initiatives	Corporate Cost Initiative <i>Identified reductions in vacancies and contractor and consulting spending</i>										Baseline is \$303.9M (2019 Prior Plan (2018-2023). Tx is allocated by B&V methodology.
				\$ 2.3	\$ 1.2	\$ 1.4	\$ 20.1	\$ 19.1	\$ 16.5	\$ 13.6	\$ 11.3	\$ 9.4	
	Operations	Procurement	Lower Cost per Unit - Historical Baseline vs Actual <i>Savings are estimated at a category level based on historical spend, expected and achieved negotiated savings, and updated per business plan assumptions (Corporate Allocation)</i>	\$ 0.1	\$ 1.8	\$ 5.4	\$ 2.3	\$ 2.3	\$ 2.3	\$ 2.3	\$ 2.3	\$ 2.3	Baseline is \$0. Savings are quantified as a Early Pay credit (negotiated cost reduction) received from Vendors.
<b>Total Capital</b>				\$ 1.2	\$ 18.0	\$ 39.4	\$ 43.6	\$ 61.7	\$ 88.7	\$ 112.2	\$ 129.2	\$ 143.4	
<b>Total OM&amp;A</b>				\$ 3.8	\$ 8.0	\$ 14.8	\$ 14.7	\$ 14.7	\$ 18.6	\$ 17.9	\$ 18.3	\$ 17.8	
<b>Total Common</b>				\$ 2.3	\$ 3.1	\$ 6.8	\$ 22.4	\$ 21.5	\$ 18.8	\$ 16.0	\$ 13.6	\$ 11.7	
				\$ 7.3	\$ 29.1	\$ 61.0	\$ 80.8	\$ 97.9	\$ 126.1	\$ 146.1	\$ 161.1	\$ 172.9	

## UNDERTAKING - JT 2.30

**Reference:**

I-07-SEC-055

**Undertaking:**

Re: SEC-055, net Mercer median reductions, to explain the calculation of the pension reduction OM&A and OPEB reduction.

**Response:**

The offsetting OM&A reductions to the net Mercer median table outlined in SEC IR 55 for Pension and OPEB are described below:

Pension Reduction OM&A (\$M)	Tx OM&A 2020	Exhibit Reference
Figure at point of Mercer Study (EB-2017-0049)	17	C-01-02
Tx Filing EB-2019-0082	11	F-05-01
<b>Total Net Mercer OM&amp;A Reductions</b>	<b>(5.5)</b>	

OPEB Reduction OM&A (\$M)	Tx OM&A 2020	Exhibit Reference
Figure at point of Mercer Study (EB-2017-0049)	18	C-01-02
Tx Filing EB-2019-0082	16	F-05-01
<b>Total Net Mercer OM&amp;A Reductions</b>	<b>(2.4)</b>	

**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.

**UNDERTAKING - JT 2.32**

**Reference:**

**Undertaking:**

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

**Response:**

Please refer to Exhibit JT 2.31.

**UNDERTAKING - JT 2.34**

**Reference:**

KT2.2

**Undertaking:**

To respond to Exhibit No.KT2.3.

**Response:**

Hydro One's response for Q1-Q6, Q9, and Q10 were provided in Tranche 1, filed on August 21, 2019; responses to Q7-Q8 are provided in Tranche 2, which was filed on August 28, 2019.

**UNDERTAKING - JT 2.34 - Q7**

**Reference:**

Exhibit I/Tab 10/Schedule 17 (VECC-17)

Exhibit I/Tab 10/Schedule 19 (VECC-19)

**Undertaking:**

a) Please provide the actual External Revenues for each of the four categories for the first six months of 2019. For Secondary Land Use Revenue, please break-out the revenues attributable to Easements and Operational Land Sales.

b) In the same schedule please provide the actual External Revenues for the first six months of 2018 at the same level of detail.

**Response:**

a) & b)

**External Revenues (\$ Millions)**

<b>\$M</b>	<b>2018 Jan - June</b>	<b>2019 Jan - June</b>
Secondary Land Use	12.3	9.7
Station Maintenance	2.2	1.5
Engineering & Construction	0.02	0.1
Other External Revenues	4	3.2
<b>Totals</b>	<b>18.5</b>	<b>14.5</b>

1

**Secondary Land Use Revenues (\$ Millions)**

<b>\$M</b>	<b>2018 Jan - June</b>	<b>2019 Jan - June</b>
Secondary Land Use Revenue	9.5	8.9
Easements and Operational Land Sales	2.8	0.8
<b>Totals</b>	<b>12.3</b>	<b>9.7</b>

**UNDERTAKING - JT 2.34 - Q8**

**Reference:**

Exhibit I/Tab 10/Schedule 21 (VECC-21)

**Undertaking:**

a) Please provide the average monthly cash balances for Hydro One Networks Transmission business for 2017 and 2018.

**Response:**

a) The average monthly cash balances for Hydro One Networks Inc. Transmission Business for 2017 and 2018 were zero. Throughout 2017 and 2018, Hydro One Networks Inc. Transmission Business had a balance payable under the inter-company demand facility. The 2017 and 2018 year-end balances payable under this facility are shown on page 4 of Hydro One Networks Inc. Transmission Business Financial Statements provided in Attachment 3 of Exhibit A, Tab 6, Schedule 2.

**UNDERTAKING - JT 2.35**

**Reference:**

KT2.4

**Undertaking:**

To respond to Exhibit No. KT2.4.

**Response:**

Please refer to Exhibit JT2.35-Q01-Q04 for responses to LPMA written questions for Panel 4.

## UNDERTAKING - JT 2.35 - Q1-Q4

### **Reference:**

Exhibit I, Tab 4, Schedule 17

Exhibit I, Tab 4, Schedule 18

Exhibit F, Tab 8, Schedule 1, Attachment 1

### **Undertaking:**

#### **Preamble:**

The response in I-4-17 states that there are no costs directly associated with this application included in the Test Year 2020 forecast.

The response in I-4-18 part (a) states that one time costs shown on lines 2,6,10 & 11 in Attachment 1 of F-8-1 primarily relate to forecast costs for other regulatory applications expected to take place in 2020, and not this application.

The response to part (b) of I-4-18 indicates that the \$2,000 in external legal costs shown in line 5 of Table 2 and the \$550 in expert witness/consultant costs in line 4 are forecasted within the LawDivision budget and not in the Regulatory Affairs division budget.

For ease of reference, the first table shown in Attachment 1 of F-8-1 will be called Table 1 and the second table in the attachment will be called Table 2 in the questions that follow. All references to figures in Table 2 are related to the 2019 bridge year column.

1. Please confirm each of the following, or explain fully if they cannot be confirmed:
  - a) The \$150 shown in Table 2 at line 2 is included in the \$150 shown in line 2 of Table 1 in 2019.
  - b) The \$125 shown in line 10 of Table 2 is included in the \$510 shown in line 10 in Table 1 in 2019.
  - c) The \$900 shown in line 11 of Table 2 is included in the \$1,306 shown in line 11 in Table 1 in 2019.
2. What are the other regulatory applications noted in the response to part (a) of I-4-18 that are expected to take place in 2020 and indicate how these other regulatory applications differ from regulatory applications that took place in 2018 and 2019, other than the current rates application.

Witness: Stephen Vetsis

3. Is the \$550 shown in line 4 (expert witness/consultant costs) of Table 2 included in the \$694 shown in line 6 (consultant costs) in 2019 and/or in the \$1,548 shown in 2018 in Table 1, or are Page 2 of 2 these separate consultant costs? If they are separate costs, please confirm that none of the costs shown in line 6 in Table 1 are related to the EB-2019-0082 application. If this cannot be confirmed, please quantify the amounts in 2019 in line 6 in Table 1 that is related to the current application and that this amount is over and above the \$550 shown in line 4 in Table 2.

4. Are the external legal costs shown in line 5 in Table 2 and the \$550 in expert witness/consultant costs shown in line 4 in Table 2 been removed from the Legal Division budget forecast for 2020? If not, please explain fully why these rate case related costs would not be reduced in 2020

**Response:**

1.

a) Confirmed

b) Confirmed

c) Confirmed

2. For 2020, Hydro One has made provision for 3 - Section 92 application, 1 – Section 99 application, 2 – NEB proceedings, and 2 MAADS-related applications. Moreover, there is an expectation that some spending will take place in 2020 in preparation for the combined application for distribution rates and transmission revenue requirement with a test period commencing 2023.

3. The \$550k estimate in Table 2 is included in the Regulatory Affairs budget in Table 1 in the 2019 year. Hydro One expects to exceed its stated budgets in this proceeding with respect to Consultants and Expert witnesses and will absorb those costs with no additional funding requests.

4. Hydro One wishes to clarify the response to Exhibit I, Tab 04, Schedule 18 part b). In that response Hydro One stated that differences in lines 4 and 5 between tables 1 and 2 are related to Legal and Consultants costs which are included in the Law Division budget. As noted in question 3 above, the costs in Table 2 line 4 (Expert Witness Costs/Consultants' Costs) are included in line 6 in Table 1 (Consultants' costs for regulatory matters).

1 The General Counsel and Secretariat budget forecast includes provisions for all  
2 external legal costs including regulatory proceedings among other external legal costs  
3 as detailed in Exhibit F, Tab 2, Schedule 2. Total Non-labour budget was forecast  
4 based on historical expenditures and current business needs. Details regarding Hydro  
5 One's expected regulatory proceedings in 2020 are provided in question 2, above.  
6 Additionally, as stated in question 2 above there is an expectation that some spending  
7 will take place throughout the test period of this application relating to the preparation  
8 and litigation of the combined application for distribution rates and transmission  
9 revenue requirement with a test period commencing 2023.

## UNDERTAKING - JT 2.42

**Reference:**

I-01-OEB-018

**Undertaking:**

With reference to the description of progressive productivity savings in IR OEB Staff 18 as having a similar effect to a stretch factor, to calculate what the stretch factor would be and show the derivation of the calculation.

**Response:**

Table 2 of TSP Section 3.2 presents the reductions in capital related to Progressive Productivity Placeholder which are summarized below (\$ millions):

<b>2020</b>	-17.0
<b>2021</b>	-39.0
<b>2022</b>	-61.0

The associated in-service additions related to Progressive Productivity Placeholder which ultimately reduce the rate base are provided in Table 1 of Exhibit C, Tab 2, Schedule 1 and are summarized below (\$ millions):

<b>2020</b>	-15.8
<b>2021</b>	-36.3
<b>2022</b>	-56.7

The associated revenue requirement impact as a result of these reductions in rate base is as follows and is already reflected in the revenue requirement outlined in the application:

<b>(\$ millions)</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
Depreciation	(0.2)	(0.9)	(1.9)
Return on Debt	(0.2)	(0.9)	(2.1)
Return on Equity	(0.3)	(1.2)	(2.8)
Income Tax	0.1	0.5	1.0
<b>Total Revenue Requirement</b>	<b>(0.6)</b>	<b>(2.4)</b>	<b>(5.8)</b>

Witness: Stephen Vetsis

1 The revenue requirement impact of the progressive productivity savings expressed as a  
2 stretch factor can be calculated as follows:

3

<b>Rate Year (\$M)</b>	<b>2021</b>	<b>2022</b>
<b>Revenue Requirement Impact of Progressive Productivity Savings (A)</b>	\$(2.4)	\$(5.8)
<b>Prior Year's Revenue Requirement (B)</b>	\$1673.8	\$1765.8
<b>Progressive Productivity Savings as Percent of the Revenue Requirement (C=A/B)</b>	0.14%	0.33%

4

5 The calculation above indicates that the progressive productivity savings reflect a stretch  
6 factor of roughly 0.15% for 2021 and 0.3% for 2022.

**UNDERTAKING - JT 2.43**

**Reference:**

KT2.5

**Undertaking:**

To respond to Exhibit No. KT2.5

**Response:**

Hydro One's response is provided in undertaking JT-2.43-Q01.

**UNDERTAKING - JT 2.43 - Q1**

**Reference:**

KT2.5

**Undertaking:**

**In OEB IR # 188 (Exhibit I, Tab 1, Schedule 188) OEB staff asked:**

OEB staff asked Hydro One to explain the differential between the 2018 “Plan” and “Actual” levels, related to Customer Care OM&A in Exhibit F Tab 1, Schedule 6, Page 2, Table 1.

**In this IRR Hydro One responded:**

“A section of Corporate Affairs, which dealt largely with customer surveys, was reorganized into the Customer Service department.

The department that was added to Customer Service focused primarily on large transmission customers and customer surveys. The addition of this department to Customer Service resulted in additional costs for Customer Service, with offsetting reductions in Corporate Affairs. Additional reductions have been achieved in Corporate Affairs as a result of efforts to contain Outsourcing costs.”

**OEB staff follow-up questions are as follows:**

a) Customer Care OM&A is expected to increase by \$3.6 million to \$7.5 million in 2020 versus 2018 plan of \$3.9 million, or 92.3%. Can this increase be largely explained by Hydro One’s statement that in the IRR that “a section of Corporate Affairs, which dealt largely with customer surveys, was reorganized into the Customer Service department?” If this is not the case, please explain.

b) Regarding “Corporate Affairs OM&A”, OEB staff notes that Exhibit F, Tab 1, Schedule 6, Page 2, Table 2, shows a decrease of \$3.1 million, or 38.3%, to \$5.0 million in 2020, versus 2018 plan of \$8.1 million.

Please confirm that the 2020 OM&A relating to “Corporate Affairs” of \$5.0 million is included in the “Common Corporate Costs and Other Costs” amount of \$30.3 million

Witness: Spencer Gill

1 in Exhibit F Tab 1 Schedule 1 Page 3 “Table 1: Summary of Transmission OM&A  
2 Expenditures (\$ millions).” If this is not the case, please explain.

3  
4 **Response:**

5 a) The increase is primarily related to organizational changes, which includes the  
6 customer surveys group as well as other departments. An offsetting reduction can be  
7 noticed in Corporate Affairs, which is decreasing from 2018 plan to 2020 plan by  
8 \$3.1M.

9  
10 b) Confirmed.