

Distribution Productivity Studies

Hydro One Stakeholder Session

Thursday October 22, 2015

DoubleTree Hotel by Hilton – The Toronto Ballroom

108 Chestnut Street

8:30am – 4:30pm

Overview

On October 22, 2015 Hydro One Networks Inc. hosted a stakeholder session with intervenors and OEB staff. The purpose of this meeting was to present and seek feedback on the proposed approach and framework for four separate distribution productivity studies: Vegetation Management Program Study; Total Factor Productivity Study; and Pole Replacement Program Study and Distribution Station Refurbishment Program Study.

The stakeholder session included:

- Welcoming remarks from Maxine Cooper (Senior Regulatory Advisor, Hydro One Networks);
- A presentation on the proposed approach and framework of the Vegetation Management Program Study delivered by William Porter (CN Utility Consultants);
- A presentation on the proposed approach and framework of the Total Factor Productivity Study by Steve Fenrick (Power Systems Engineering); and
- Two presentations on the proposed approach and framework of the Pole Replacement Program and Distribution Station Refurbishment Program Study by Benjamin Grunfeld (Navigant Consulting) and Ken Buckstaff (First Quartile Consulting).

The draft summary was written by Matthew Wheatley and Bianca Wylie, who provided independent facilitation services for the stakeholder session. It provides a high level summary of the main points shared by participants as captured in the “live” notes written during the meeting, and is not intended as a verbatim transcript of the meeting.

This summary was shared in draft with participants for their review prior to being finalized.

Note that there are three appendices to this summary (attached separately), including:

- Appendix 1. List of Participants
- Appendix 2. Submissions Received After the Meeting
- Appendix 3. Presentation Slides

NOTE: This summary reflects what happened during the meeting and does not attempt to integrate the written feedback received after the meeting. Please see Appendix 2 for the additional feedback received.

Part 1 – Vegetation Management Program Study

William Porter from CN Utility Consultants delivered an overview presentation that described the overall framework and proposed approach for the Vegetation Management Program Study. Following William's presentation participants asked questions of clarification and provided feedback. A summary of the questions and feedback is provided below.

Please note that responses provided to questions and comments are noted in *italics* immediately following each question or comment.

Suggestions and Comments on Study Methodology & Outcomes

- **Make comparisons between Hydro One's regions and comparable companies.** It seems possible that a company like Southern Georgia would look a lot like Hydro One's southern region but nothing like Hydro One in its entirety. Therefore, it would be useful to compare Hydro One's southern region to Southern Georgia. Then, where it makes sense you could compare all of Hydro One to other companies such as Manitoba Hydro. *We will be looking for the comparisons between Hydro One's different regions and their comparators.*
- **The study should be able to demonstrate how Hydro One's different regions are being managed,** including where there are differences among the regions, in terms of cost, and why these differences exist. If the study is not able to do demonstrate this, to me, this study will have failed.
- **What we want to understand from this study is whether or not Hydro One costs more, in terms of vegetation management, on a comparable basis and secondly, why this would be the case.** The fact that some utility companies may have inexperienced workers is a reason their costs are different but not a reason to adjust their comparability. Our main concern is where this study is making adjustments and we feel they should not be made for comparability. You will need to be very clear which adjustments are being made for comparability as we may disagree on these.
- **Measuring SAIFI and SAIDI comingles other factors that make it difficult to draw any conclusions from.** SAIFI and SAIDI are going to have other problems that make it difficult to measure actual effectiveness. *The first time we did this study we looked at SAIDI and SAIFI, for this study we are going to down play SAIDI and SAIFI. We are asking companies to report their tree related SAIFI separate from their system SAIFI.*
- **Identify the top-performing comparators.**
- **If you are going to measure Hydro One, you need to measure on hard things, not soft.** The average percentage of trees in contact at time of maintenance is not a useful indicator. Three things have to happen for an accident: there has to be a tree; there has to be a person and there has to be a line.
- **Stay away from speculative measures that are not established in data.** Speculative safety measures are not established in data pertaining to Hydro One. If you are going to come back with a benchmark study that says Hydro One is spending a lot of money but it is the right thing to do because they are avoiding a lot of accidents, I won't buy it.

Suggestions and Comments on Productivity and Resource Utilization

- **The OEB wants to know if Hydro One is getting more productive and whether it is doing best practices.** It is also looking for metrics that tell you whether Hydro One is doing a good job and if it is getting better at it. I looked at some of the things CN is proposing to do - it has by in large been done before and most of it is pretty good.
- **A huge thing that is missing is resource utilization.** Hydro One has a lot of workers and there is a lot of money invested in training professionals that are highly paid. They also have

a lot of very expensive equipment and minor fixed assets that are dedicated to their forestry program. Hydro One is running their forestry program about six months of the year and once it stops all the assets are parked.

- **Resource utilization has to be addressed if you are comparing with peer utilities.** If peer utilities are either running a 12 month a year program or are hiring contractors that can redeploy resources they will have a natural advantage over a utility that doesn't run its program 12 months a year.
- **It would be worthwhile for CN to look at other utilities to see which ones treat productivity as a function of how the program is treated by the utility.** If Hydro One is managing dollars as opposed to kilometres they are going to have a big problem if they spend all the money in their budget but don't get the kilometres.

Suggestions and Comments on Performance Measures and Objectives

- **Looking at the UVM objectives, be careful that you only focus on objectives that you can reasonably measure.** I do not know that you can reasonably measure how many fires can be prevented or how much you can preserve in terms of environmental quality. As for the one on safety, I would suggest you break that out into results for employees and results for public, they are different.

Suggestions and Comments on Clearing Sites and Cycles

- **The Board will be interested in information about the clearing cycles.** The Board has heard in the past that the length of the clearing cycle is a major driver of current costs when measured on a per kilometre basis. There are different clearing cycles historically; this is something that is going to need to be addressed and something that you control for when doing cross utility cost comparisons.

Questions of Clarification

Benchmarking Methodology

- My understanding of a benchmark study is that you compare different companies to see what their performance is. This sounds like you are doing a study to see how Hydro One can spend more money on vegetation management by doing it better. The theme appears to be "spend more". Can you help me on this? *What we are charged with doing here is understanding performance and improvement performance. We want to look at those metrics that we think indicate where there are areas for improvements independent of how much work is done, where the work is done or why the work is done. One of the objectives that has been brought up is should we look at SAIFI and SAIDI as metric of performance, do we look at how many outages there are per kilometre as a measure of performance. We want to determine this and we want to compare Hydro One with other companies to measure their performance.*
- Then the study is not benchmarking the cost of vegetation management, it is benchmarking only the areas? *The cost of vegetation management is the outcome. We are going to ask lots of questions about cost and productivity. We do not think it is fair to simply compare the raw numbers side by side. So much of what we do is try to figure out how these comparisons are comparing apples to apples as opposed to apples to oranges and those are productivity factors that may not be just the raw numbers of cost. For instance, if you are working with instances of dense forest, terrain, limited ability to access other logistics your cost may be greater than if you are just going from one tree to another tree.*

- How is worker turnover an independent variable? *My experience in the industry is that a worker may be on the job for weeks and find themselves in a tree and may not really know what they are doing and the productivity in that situation may not be the same as in an instance with someone that has been through a six-year apprenticeship program.*

Study Outcomes

- Is it correct to say that this study will do two things: measure the cost of vegetation management and make adjustments because not every company that does vegetation management is comparable; and measure the outcome of that vegetation management program to see if it is effective. *Yes, that is correct.*

Measuring Reliability

- With respect to reliability you say that this is a longitudinal study, however, it appears that you are doing a cross section study of a lot of companies. Will you also examine Hydro One's performance over time against itself, along with a comparison to other companies? *Yes, with the exception that we also have time over time data on the other companies going back to 1997 so we have an ability to do a longitudinal study across not only Hydro One over time but inclusive of the other companies.*
- Your intent is to report on both Hydro One's performance over time against itself and other companies? *Yes.*
- In Ontario every utility reports outages by Cause Code and one of these is tree contact. This is a direct output of vegetation management. Will this study look at the Cause Code outages used, in terms of reliability? *Most assuredly, in fact we have data already on the causes and how much relative to the total number of outages by the system versus vegetation management. Within vegetation management we know that the vast majority of outages are caused by trees and/or branches that fail into lines, as opposed to trees that are simply growing into lines. There is a direct correlation to the time at which maintenance is performed and the number of outages that occur. We also see a relationship between maintaining the space around conductors and the number of outages that occur.*
- Does your study try to create a relationship between outages as recorded by cause code and how will you demonstrate whether the money spent on vegetation management has an effective outcome? *Yes, one of the ways that we normalize cost is by looking at how many labour hours are expended on a project. This is a way to understand across a lot of different factors of compensation that we won't be looking at. This allows you to judge whether company X or company Y is getting more from their productivity based on how many labour hours they are spending. Our main measurement for reliability is the number of outages that occur and we look at that on a per kilometre basis as opposed to reliability metrics that are based on customer densities.*
- Can you tell us briefly about 101 for Reliability Centred Maintenance (RCM) - where is it in terms of is best practices, is that a framework that you will be using in your report to bring together best practices? *I believe that RCM has great value in the delivery of electricity. I do not think that RCM is necessarily the route a vegetation management program should take in order to meet its objectives. That being said, we ask questions about reliability. If companies are performing vegetation management according to RCM ideas, it is going to come out in the study.*
- We now hear a lot more about RCM being the approach to vegetation management, are you going to push in that direction as far as this study? *I think that ultimately our recommendation in terms of innovation will be to seek clarity in measurement performance and if that can be achieved through some reliability measurement than that is what we will advise.*

Overall Comparisons

- Which utilities, in your experience, are the best at vegetation management, just at a high level? *This is a very difficult question to answer because we use a lot of different measurements to determine this. The methodology within Canada, which is to eliminate vegetation within a required zone then maintain a corridor, is best in class.*
- Why can't you tell us the best three on the list of comparators you have provided? *We have discussed giving an award for the best company overall. However, we haven't done this, simply because the evidence isn't in that any company has mastered the problem.*

Peer Group Selection Criteria

- You have some Canadian peers that from my perspective would probably be useful like Manitoba Hydro, are you able to confirm which of these on the list are in the upcoming study? *No, not at this time.*
- How did you pick your comparators and is Hydro One helping you do that? *No, Hydro One is not helping us pick our comparators. The lists provided are all companies we have already done studies with and they will be the companies we invite first. We will also invite additional companies. The final list is our choice, not Hydro One's.*
- Is the final list based on some empirical analysis? *The final list is based on a list of companies that meet the criteria we are looking for. We have a peer group and we have a general group. For the peer group we are going to look at several factors. The most important factors will be the tree density and customer density. The other factors we are going to look at are the region of North America they are in and some of the individual characteristics that match up with Hydro One.*
- Is workforce one of the factors you will be looking at when selecting the peer group? *Hydro One is unique in their workforce to almost all of the companies that we have studied.*
- In your presentation you list the criteria that will be used to choose future comparators, are these the criteria that you will use? *Yes, this is how we are going to divide up the peer group from the general group.*
- Is Total Factor Productivity a factor being used to choose peers? *No, total productivity factors are all of the different parts of the programs that distinguish the different parts from one another. We are trying to match up what we think are good comparators based on the types of programs they have.*
- I understand the independent variables; I don't understand the other ones. *The other variables are independent in that these companies have made particular choices or are driven by particular regulatory rules. We are going to make this completely clear in our study, which companies are included and which types of company are not included. For example, if one company is a complete outlier we may take them out.*

Comparing Hydro One's different regions to other companies

- Why have you added one more region within Hydro One in this study versus the previous study? *Simply because this is the structure that Hydro One is operating under.*
- Are you going to look at Hydro One's different regions separately when making comparisons? *Yes, Hydro One's different regions will be treated like single companies. A lot of the other comparators are doing the same thing, they have different groups and they report data for each operating group separately so they are able to see each of those internal operations as compared to the other companies in the study.*
- When the study is complete will we be able to see Hydro One's southern region compared to other comparable southern region companies to determine whether Hydro One performed well or indifferent under this comparison? *Yes.*

- Are you going to have different peer groups for Hydro One's five regions? *The short answer is no. The comparisons are inclusive, if the southern region of Georgia Power is one comparator and if the southern region of Hydro One is one comparator they will both be in the comparison so you can evaluate that one with the other one. They are included, however, the rest of the comparators will also be included in the comparison.*

Performance Measures and Objectives

- You mentioned other program efficiencies should include other stated objectives, what would other program efficiencies be? *Generally, when we evaluate programs, we look at your objectives and you need to show the metrics which are showing that you are achieving those objectives.*
- Is there an industry standard or metric for cost effectiveness? *In terms of cost effectiveness there is not a standard metric for vegetation management. One of the outcomes of the study is being able to inform the company if there is an improvement they can make and whether they will be able to generate a return on this improvement by looking at how much it would cost to mitigate versus not mitigating.*

Clearing Sites and Cycles

- Aren't clearing sites and cycles controlled by cut back protocols from municipalities, the province or what the local residents say is an acceptable cutback for aesthetic or other reasons? *There are constraints on every utility company for maintaining their clearing and cycle objectives. There are issues in achieving these that relate to municipal rules or customers themselves so compromises are made along the way. We do ask questions about the company's greatest constraints in terms of clearing, these are part of what we call a productivity factor.*

Other Questions of Clarification

- Was Hydro Quebec included in the 2009 study. *Yes, Hydro Quebec was in the 2009 study.*
- Are you going to compare the results from this study with the results from the 2009 study, which you completed? *Yes.*
- Will you also be identifying changes in the methodology between the 2009 study and this study? *Yes.*

Part 2 – Total Factor Productivity Study

Steve Fenrick from Power Systems Engineering delivered an overview presentation that described the overall framework and proposed approach for the Total Factor Productivity Study. Following Steve's presentation participants asked questions of clarification and provided feedback. A summary of the questions and feedback is provided below.

Please note that responses provided to questions and comments are noted in *italics* immediately following each question or comment.

Suggestions and Comments on Study Methodology

- **Find out if the financial data from Hydro One is available by region. It would be interesting to do the outputs by region**, even without the financial data, to determine if reliability is being improved by region.

Suggestions and Comments on Measuring Reliability and Cost Efficiencies

- **Use tried and true ways of calculating the lag related to the timelines of investments and identifying with empirical evidence what the lag is.** I don't believe that a 20-year trend would capture the lag, you would have to know what the lag is. *We can certainly take that under consideration as far as something we think is useful.*
- **Measuring Productivity should include keeping wages at a reasonable level.** *This is certainly important for cost levels. However, I think this would be captured by a different study as this is not traditionally a TFP measure.*
- **Include the incremental cost of units of improved outputs in your report.** *We can certainly take that under consideration.*

Suggestions and Comments on Comparisons to Peer Companies

- **It is good to have TFP improving but you need to know how Hydro One relates to their peers.** On the TFP study the most obvious input is the lack of any comparison to any 3rd part peer/peer group comparison on a TFP basis is a big flaw. *In the OEB Decision, the OEB stated it saw value in Hydro One measuring its own productivity over time and directed Hydro One to determine its own study method. An external comparison is therefore outside of the scope of this study.*

Questions of Clarification

Measuring Reliability and Cost Efficiencies

- How do you address timelines related to investments? Costs in one year may produce outputs 3 years down the road; will this report look holistically at the time period or simply put all the numbers in columns on a spreadsheet? *The report will likely produce columns on a spreadsheet. You are correct that there tends to be a lag in terms of investments and outputs. The fact that we are doing a 20-year trend will hopefully capture some of this lag. We could also do a 3 year rolling average in an effort to capture any lag.*
- *For a well-managed stable operation it is true that you need to increase inputs for reliability to improve. However, for a business where things are not optimally managed you don't necessarily need to incur more costs to get better outputs.*
- Will inflation, which is one of your TFP drivers, include the cost of Hydro One's union contracts? *Yes, it should. It is independent but it also a resource that Hydro One is using related to outputs.*
- In terms of the correlation between reliability and cost, will your study measure the incremental cost of these units, that is, how much more we would pay for each unit of safety, for example? *The TFP measurement should quantify an x percentage improvement in reliability leads to an x percent drop in TFP. Those could then be translated into costs, however, we are primarily concerned with TFP trends.*
- Am I correct that the TFP will go down if Hydro One spends more to keep reliability at the same level? *All else being equal that would drive down the TFP. This is why it will be important to look at TFP over a 20-year time period so that we can see if investments made in one year will increase productivity 2, 3 or even 4 years later.*

Measuring Independent Variables

- My understanding is that the industry sample you are performing will identify and measure independent variables and will not compare Hydro One to anyone else, is this correct? *Yes, that is correct.*

Using the TFP Study for other purposes

- Will this TFP study also be used by Hydro One to develop adjustment mechanisms for rates?
(Hydro One) Every one of these studies will be reviewed and where possible incorporated into the business plan that support the distribution application to be filed in the first quarter of 2017.
- Will the outputs from this study be used by Hydro One in the design of the next IRM? *(Hydro One) The outputs will be considered as an input.*
- *(Power Systems Engineering) The TFP trends that are likely to come out of this study really should not be used in an $I - X$ formula because they should be revenue weighted. Outputs should be based on what drives revenues which is how PEG did the 4th generation IR, which is the proper approach for rate setting. We are going to be evaluating performance trends for Hydro One.*
- This is a productivity study and therefore the outputs should be included in your application.
(Hydro One) The outputs will be reflected in some way, whether it is done strictly mathematically or qualitatively is yet to be determined.

Ontario Energy Board's decision regarding PEG

- Will you be able to respond to the Ontario Energy Board's decision, should they decide they support the way PEG performed their benchmarking study, particularly in terms of reliability?
Yes, we would likely be in the first two steps of our study and would be able to incorporate the OEB's feedback. Additionally, these previous studies were benchmarking comparisons, whereas we are only comparing Hydro One to itself over time.

Regions

- Does this study in any way deal with Hydro One's different regions as an output? *Currently, this study was going to look at Hydro One as a whole company. It is our understanding that the financial data is available on a company wide level.*
- Is the financial data available on the regional level or company wide level? *(Hydro One) We can't speak to finance right now but this is something we can definitely look into.*

Additional Cost Drivers

- You mentioned that you might be considering additional cost drivers, can you give us some examples? *We listed additional cost drivers because we are looking for feedback as we talk with Hydro One and stakeholders. If anyone here has any ideas we would be open to considering these.*

Measuring Outputs

- How will your study normalize the weather component for outputs including SAIDI and SAIFI? *We are going to exclude the major weather event days.*
- What do you mean by environmental output? *These include energy efficiency type activities that may increase costs. We are aware that we will need to be careful to the extent that these costs are calculated in the CDM and are outside the distribution system. However, we are going to look at indirect costs that could be included in the TFP measure.*
- How do you measure customer service levels? *By looking at the score card metrics and looking at how that's changed on TFP trends at different utilities. To the extent that we can come up with an empirical model we will try to do that. This has never been done before so we are not certain we can correlate customer service levels to TFP trends but we will have a better answer to this in the second quarter.*
- Can you explain the output you have listed as system capacity at peak demand? *This refers to the output used in the 4th generation IR proceeding, which was a measure that took the*

maximum peak demand in a year and used it going forward until that demand was an exceeded. It would stay the same until peak demand exceeded its maximum of the past.

- One of the cost issues over time for Hydro One is that capacity continues to increase while basic demand does not. *If Hydro One is doing that that would tend to drive down their TFP, if they are making extra investments and increasing their capacity without a requisite increase in peak demand that is going to drive down their TFP.*

Study Timeline

- When will we see a draft of the TFP report? *The preliminary results will be presented during the next stakeholder session, which is scheduled for Q2 of 2016.*

Part 3 – Pole Replacement and Distribution Station Refurbishment

Program Study Approach

Ben Grunfeld from Navigant and Ken Buckstaff from First Quartile delivered an overview presentation that described the overall framework and proposed approach for the Pole Replacement Program and the Distribution Station Refurbishment Program Studies. Following their presentation participants asked questions of clarification and provided feedback on the proposed approach. A summary of the questions and feedback is provided below

Please note that responses provided to questions and comments are noted in *italics* immediately following each question or comment.

Suggestions and Comments on Peer Selection

- **Explain your method to address the quality of your selected group in the report.** There are tests you can do to address the quality of your selected group - do you do this? *In our annual study we run results of our annual studies against what we can get publicly available, primarily on cost (using FERC data). We find that the average for our group is right about the same as the overall average, there is no apparent bias.*
- **Select additional peers with more similarities to Hydro One and be aware of some of the major differences with the ones already on the list.** As far as criteria go for the peer group – there are companies on the map that don't seem to be similar to Hydro One in any way. Texas, for example, with weather patterns, is significantly different than Ontario. Same with SoCal Ed. You don't have Wisconsin, Michigan, and Minnesota, which are much more similar in terms of geography and density. *We have a couple of others that we will be approaching; we started with the list that is in our benchmarking group. Texas, for example, you would be surprised how similar they are, in service territory - densities are different but if you take out Dallas they are quite similar. They have ice storms too. One of the ones we are going to approach is NorthWestern – they cover South Dakota and Montana - it's not on this list yet because they are not in our panel. They have similar wide-open spaces and similar bad weather. They have a number of similarities. And if there are other utilities that are perceived to be good for this sample we are happy to reach out to folks, that's part of the feedback we'd like to get from you today.*

Suggestions and Comments on Study Format & Outputs

- **Use econometrics for benchmarking.** You are doing peer group benchmarking rather than econometric benchmarking. If you have a diverse group of utilities that you want to compare then one way to do it is to use econometrics to get at the relationship between your independent variables and your outputs. *No, we're not planning on doing that.*
- **If you don't use econometrics for benchmarking, provide a rationale in the report.** Yet because you have a diverse group, it would seem that using econometrics would be the

obvious way to do it, it's unclear to me why you're not doing it. *Part of the challenge is defining all of the drivers and not having to deal with admitted variable biases and things of that nature. You can't necessarily trust the outcome of the econometric study unless you are comfortable with the formulas and you have identified all the major drivers. To your point, this is a panel benchmarking exercise. We are not doing regressions; we hadn't planned to do that.*

- **Provide correlation data.** I thought you were going to do regressions with labour costs so we could see if there is a true correlation that goes with labour costs. *We can provide some correlation data but correlation is different from a full regression analysis.*

Suggestions and Comments on Regional Analysis

- **Be consistent in doing regional analysis across all of the studies.**
- **Do peer analysis based on regions.** Regarding the peer group analysis – have you considered splitting up to the various regions of Hydro One and comparing regions where they have regional data to comparators that are similar to those regions. Take SouthWestern Ontario for example - it will be similar to certain other utilities, whereas Northern Ontario won't be similar to those same utilities. Can you add that in to ensure you have better comparability? *We are talking to Hydro One about that - to the extent to which the data is available and we can do these comparisons.*
- Hydro One divides itself up corporately into regions and they run it regionally and some of those regions are run better than others. If one were to test that theory, it would be helpful to have this study done regionally. *What you are really trying to get at are the drivers. What you really want to know is what is causing a cost difference. If there is no difference in driver other than geography than there is not a great level of value to this data. Part of the analysis for us, when we ask questions about and look at practices, as to how they are different in different parts of the province. It is reflected, even if we're not able to get down to that granular level of cost data. Some of the studies do regional studies and some don't so this will be an issue when looking at all of the studies.*
- **Highlight drivers and the impacts of drivers that Hydro One can control.** By splitting up into regions you can identify the operational differences, the reasons why Hydro One is more expensive in the same geography. Get rid of the independent drivers because those you can easily measure and get to the ones where there is a difference that Hydro One can control. *You are going to see that whether you are comparing SouthWestern operations to Integris or whether you are comparing Hydro One generally to another utility. The distinctions around operating practices aren't that varied that you don't see it even when you look at the utility as a whole relative to other utilities as a whole.*
- **Consider comparing what type of pole is being taken out versus what is being put in.**
E.g. 35 foot pole to a 50 foot pole

Questions of Clarification

Study Format & Outputs

- The presentation says that the peer group will be confidential - will we know who is on the list or not? *Yes, you will know who is on the list but you won't know the performance of the entity, other than Hydro One.*
- Regarding the limitations on who can be in the group – if you have approximately 21 companies on this list, and then if you only get 60% that's 12 companies - does that affect the statistical quality of your results? *It's always a case of "the more the better" in terms of statistics. In terms of who self-selects to participate, it is companies that have some interest in the area or who are willing to do it for us as a favour – they work with us in our annual studies and get a lot out of that. They help the community by participating in these kinds of*

one-off studies. The companies that self-select are not at the bottom or top of the performance spectrum, we get a range.

- Did you talk to Hydro One about regional analysis? I don't see it anywhere here. *We are talking to Hydro One about that.*
- One of the variables is the results of one approach versus another approach. What we saw from the other studies is that one of the things you have to look at are impacts on reliability, maintenance cost, and others' results. I didn't see how other variables such as these will be factored in to this study. *We have been asked to look at the cost of replacement or refurbishment, the cost of the action once that decision has been made.*
- So you are not providing any input on whether there should be a higher rate of replacement or different cycles? Are you not going to be evaluating reasons for replacement/refurbishment? *No, we are not looking at recommending changes to decisions around reasons for replacement and/or refurbishment.*
- The Hydro One mantra for years has been we are a unique utility and you can't compare us to anyone else and now you're saying no, no problem, we can do it. *What I'm saying is that you can identify where those differences come from.*

Terms of Reference

- Regarding the Terms of Reference for this study: If you read the board's decision and look at the six points in the second slide about the benchmarking studies (plural) – the board says you will carry out an internal trend analysis to show the variability of these unit costs over time year over year. In the last rate proceeding EB-2013-0416, they filed that data on some basis, certainly for the poles. So let's start with poles, what are you going to add, other than the data that they've already filed, to comply with the Terms of Reference? *We are looking over a historical period of time and Hydro One data over a historical period of time, as well to some extent, the peer group and the peer utilities over a historical period of time. The one aspect that is completely brand new is where Hydro One sits relative to others on these. That's one new element. On the same metrics we are reporting comparisons against peers we can also provide a trend for what Hydro One has done based on what they have reported over a period of time.*
- Are you going to redo the cost analysis that Hydro One has previously done with the same format and same assumptions as the peer group? *I wouldn't say we'll redo it. We'll do trend analysis in addition to the benchmarking study.*
- How do we compare the two, what they filed last time with what they'll file next time, assuming the data will be different? *Where there are differences we'll identify those.*

Study Methodology – Pole Replacement and Construction Standards

- Can you just do cost per pole? *Once you get into the nuances of what is included and what's not included in that cost of pole replacement there are a lot of differences to what is included.*
- As for unit cost analysis, will you be differentiating between proactive and reactive pole replacement? *It's still uncertain as to whether we can get sufficient data to benchmark this across utilities separately. We recognize it's a potential driver of variation in cost, so we'll have this in the questionnaire where it plays in and how it plays into the data we collect. We will be trying to do this.*
- Regarding construction standards – these are changing over time, in terms of the height of the pole you are putting in. Will this be considered in the study? *Yes, there is consideration for the way demographics are shifting. You can have varied construction standards for poles but more so for stations, particularly for Hydro One and also for peer groups companies.*

Understanding exactly what you're getting for the money you're spending on assets is definitely part of this. There are still some questions about how much you can benchmark these differences, given how many differences there are. At the minimum we will have an understanding of relative contributions.

- Pole replacements programs tend to be the most expensive way to replace poles. How are you going to capture this with the different utilities? A utility with a high-growth rate will have a very low pole replacement program, per se. Do you bundle them all together or separate them out? *One of the questions we ask in the questionnaire is what is the reason for replacement. To the extent that people can give us that data, it's very useful. For the standard proactive replacement (because they got old) there tends to be good data. In the case of other reasons (such as road widening) there is not as much data. We will try to get the different drivers for that.*
- Does the type of pole impact the cost? *We will ask that question and collect that data. Hydro One is predominantly wood. We want to make sure that the peer groups we look at are also predominantly wood, and if they're not, then we adjust for it. Does the type of wood matter? Not really.*
- Are you going to be looking at the size of the pole replacement program in its totality relative to the demographics of the pole population? Does Hydro One cut off at 30 or 40 years and someone else cuts off at 50? Curious to know how it affects unit cost. *We don't know whether it affects unit costs - this is something we are going to check, find out the pole replacement rates at the utilities*

Study Methodology – Labour Costs

- How is the labour cost of these utilities considered as an input, how does one understand if there is a correlation between the labour cost and final unit cost of the replacement or if there is no such correlation? *That is one of the open questions. We will ask about the total cost of the program, then we will ask if they can break that down into labour, etc. For the respondents that can give us this we will include it. We will likely get this information from about half of the utilities we ask, many won't be able to give us that level of detail.*
- Why is that? The utilities have labour costs for the type of work that is done on poles. It would let you understand if there a correlation of the unit labour cost vs. labour cost of utilities – then you can say the labour cost is actually driving the difference. *The question is whether people are willing to give us this data. Part of the reason you can only get half of this data is that companies that outsource the work just have a single large number.*
- Will we be able to see the differences between the utilities that outsource the work vs. those that do it in house? *Yes, this is the type of and level of data that we are going to work to get.*

Other Questions of Clarification

- What do you mean by a panel? *A panel is a collection of comparators.*

Part 4A – DISTRIBUTION STATION REFURBISHMENT PROGRAM STUDY METRICS

Ken Buckstaff from First Quartile delivered a presentation that described the proposed program metrics for the Distribution Station Refurbishment Program Study. Following his presentation participants asked questions of clarification and provided feedback on the proposed program metrics. A summary of the questions and feedback is provided below. Please note that responses provided to questions and comments are noted in *italics* immediately following each question or comment.

Suggestions and Comments on Methodology

- **Consider who does the work, not just outside versus inside.** In the case of Hydro One distribution systems, overhauls are done by transmission station workers, who aren't the cheapest labour. You might be able to find difference between utilities to help guide Hydro One to a better practice
- **Consider environmental drivers of refurbishment.** Hydro One used to use arsenic trioxide so some of the costs may be due to environmental drivers. *Great advice, thank you.*

Questions of Clarification

Cost Analysis

- Are you measuring the units of property cost or the program cost? *We will end up with the total program cost divided by the number of units when we're done – so you will end up with the cost per substation refurbished, with some definitions alongside this as to what's in this cost.*
- So these costs will be controlled by the strategy, right? *It will be affected by the strategy, which is why we're asking these questions at the front end, as to what the strategy is and how does it work. And in terms of unit cost, we'll be doing it per station, but we'll also do it per KVA or MVA of capacity, to be able to compare the difference between companies.*
- You have the same issue with pole replacement, where you have a program cost at the bottom and the unit cost at the side [of the presentation slide]. *In this case as well, the total cost will be compared.*

Peer Group Selection

- How are you going to be sure you are going to get like for like in the Hydro and peer definitions? As a subset of that, Hydro One is moving to IMDS - how will you control for that? *We have IMDS in the methods section, it is quite different from doing a more traditional refurbishment and we are going to try to get the data for both. We've spent some time in the past couple days to try to understand how much of a difference there is between the practices when you using one system versus the other.*
- Do you think you will be able to find a peer group that does it the same way? *We will get some. We will also find a number who don't do it that way, who do it purely by components. What we do there, we have to take what they do and try to modify it to fit what Hydro One does.*

Other Questions of Clarification

- What is IMDS? *IMDS is a modular station.*

Part 4B – POLE REPLACEMENT PROGRAM STUDY METRICS

Ben Grunfeld from Navigant and Ken Buckstaff from First Quartile delivered a presentation that described the proposed program metrics for the Pole Replacement Program Study. Following their presentation participants asked questions of clarification and provided feedback on the proposed approach. A summary of the questions and feedback is provided below.

Please note that responses provided to questions and comments are noted in *italics* immediately following each question or comment.

Suggestions and Comments on Methodology

- **Treatments of the poles is not relevant to this context.** It's unlikely that Hydro One is doing treatment on the poles. e.g. injections, this is not relevant to our context.
- **Be careful when considering differences in the phases.** When you are looking at demographics such as single phase versus three phase. 80% of the lines at Hydro One are

single phase, not sure that 80% of the replacements are single phase – may be replacing with more than you think.

- **Consider the type of programs being used for pole replacement.** There are 5 different programs that replace poles. For example, service upgrades can be part of this if the pole is replaced as part of the service upgrade because of its condition. Line refurbishment is where you rebuild the whole line because you bypass the threshold for the amount of poles on the line that need to be replaced, so this is a different program. All poles on the line need to be replaced whether each individual one needs to be replaced or not. Other things that may drive the replacement program include the engineering standards between the old pole and the new pole e.g. the height of the old pole vs. the existing pole. If you don't create this kind of context for the analysis, the cost of pole replacement may look artificially high, because it does not take into account all the pole replacement that was pushed into other programs.
- **Consider adding other criteria that appear to be missing, such as density, remoteness, and the median distance between the pole replaced and the service centre.** Given that the end product of the exercise is the unit cost for pole replacement, a lot of these criteria seem to be more related to what drives the number of poles that get replaced in a particular time frame, which is not relevant to the key metric (unit cost).

Questions of Clarification

Cost Drivers

- 90% of Ontario is either rural or really remote - how have you factored this in as a cost driver? Or is the cohort selection process going to take care of that? *We intend to gather the information about what is being replaced, such as whether they are in the urban or rural area. In terms of the drivers, some of those make a difference in the sense that if you are replacing 4% a year you're not going to let them get very old versus if you are replacing 1% a year you're likely to have a lot more failures.*
- I thought you weren't measuring cost of pole replacements? *It's not the core function, but we will be asking for those volumes. You can rest assured that we'll be 1% or less, not 4%.*
- I don't think that's correct that the whole system is remote, there are towns like Ancaster and Kingston, and all sorts of places like that served by Hydro One, you need to let the data tell you about this.
- I want to confirm what you are studying: The question is: How efficiently is Hydro One replacing the poles in total, not the crews individually – you are looking at the entire strategy, there are a lot of different drivers in there in terms of cost impact. *Correct, this is what we are measuring, including all the factors outside of the crew replacing the pole.*

Next Steps in the Study

Ben Grunfeld from Navigant and Ken Buckstaff from First Quartile reviewed the final slides regarding Next Steps for their study. Following their presentation participants asked questions of clarification and provided feedback on the proposed approach. A summary of the questions and feedback is provided below. Please note that responses provided to questions and comments are noted in *italics* immediately following each question or comment.

Questions of Clarification

- Looking at the previous version of the presentation – where your second bullet says finalize peer group selection metrics and identify candidate. Have you finalized your peer group selection metrics? It was my understanding that what was presented here was a sample, as some factors to consider, not the final list, but now I think you're saying that this is your final

list. *Yes, that's the primary criteria, but it will be updated based on some of what we heard today.*

- Is the list from presentation your list of candidates? *Yes, this is the final list, plus any that are suggested today.*
- Do you have a list or table somewhere that maps your candidates to your criteria? *Yes. Can you share it? Yes.*
- From the first version of the presentation, it says schedule first round of “local practice workshops” - what are those? *That's with Hydro One, to understand what their practices are. Have you held them yet? No, we have scheduled them, but we have not had them yet.*
- (To Hydro One) – When are you filing your rate application? (Hydro One) *We currently plan on filing Q1 2017 for 2018-2022 distribution rates. Transmission, we plan filing Q2 2016, for two years, 2017 and 2018 rates.*

Process Next Steps

The facilitator thanked all participants for their input and reviewed the process feedback received throughout the session, which is summarized below and followed by participant questions about next steps for the process.

Comments and Suggestions on the Meeting Process

- **Provide the meeting content (for the next meeting, the detailed results) a week to 10 days prior to the meeting.** When we are looking at actual results, getting detailed content like these results at the meeting is not helpful. We need to get it a week or 10 days in advance so we can do some analysis and ask some questions in advance, send them along before the meeting. *Yes, we can do this.*
- **Indicate the time allocated for feedback in the agenda.**
- **Create separate worksheets per presentation.** For example, this session would have had four worksheets (one per presentation).
- The facilitator noted the adjustment made to enable a better flow of questions between the participants and the presenter and took this as helpful advice for future meetings.
- **Thanks to Hydro One and to Swerhun for your work.** Really appreciate that you included the OEB Decision information in the package, helped a lot.

Questions of Clarification

- Will there be a follow-up session when the consultants put their work together for the intervenor groups to ensure that it matches up with the direction from the OEB? *Yes, this will be the next stakeholder session. Preliminary results and recommendations will be shared before they're finalized.*
- At the next stakeholder meeting are you going to provide drafts of the reports? *We will be sharing the preliminary results and findings.*

Wrap Up – Maxine Cooper, Hydro One

Maxine thanked participants for their feedback and encouraged them to share additional input and feedback via email/the soft copy of the worksheet. She also encouraged participants to be in touch at any point between this session and the next if they had any topics they wanted to discuss. Maxine noted that participants will have until October 30th for written feedback, and will receive the soft-copy of the feedback worksheet on the following day (October 23rd).