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Director, Regulatory Initiatives, Compliance and Support

January 23, 2019

BY COURIER

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

Dear Ms. Walli:

**EB-2018-0218 – Hydro One Sault Ste. Marie LP - Transcript Redactions and Corrections**

Hydro One Sault Ste. Marie LP (“HOSSM”) writes to submit corrections and redactions identified in regards to the transcripts from days 1-2 of the technical conference. Most corrections are minor and are set out in the enclosed spreadsheet.

Confidentiality is being requested, consistent with the OEB’s Practice Direction, on the basis that the transcript contains proprietary technical information and information about certain companies or individuals that may be harmful to the parties if released. A portion of Day 2 of the technical conference was held in camera. HOSSM has reviewed the transcript and believes that only items on pages 88 to 90 of the transcript require redactions.

Sincerely,

ORIGINAL SIGNED BY JEFFREY SMITH

Jeffrey Smith

Panel	Day	Page	Line	Witness	Correction	Corrected?
			1		Steven Vetsis should be spelt Stephen Vetsis	
			2		Steven Vetsis should be spelt Stephen Vetsis	
	2	40	24		Take out the period	
	2	48	10		Insert a space in "login" so it reads "log in"	
	2	51	1		Insert the word "are" between "you" and "doing"	
	2	54	15		The number should be minus 1.67 rather than .67 percent	
	2	64	6		Replace "way" with "where" and replace "into" with "in"	
	2	67	4	Dr. Schwartz meant "experienced" for both of the cases where he said "inexperienced"		
	2	72	8		Replace "look far similar" with "looks far more similar"	
	2	72	14		Replace "there's" with "there"	
	2	88	20		Redaction	
	2	88	21 to 22		Redaction	
	2	88	24		Redaction	
	2	88	28		Redaction	
	2	89	1 to 3		Redaction	
	2	89	4 to 5		Redaction	
	2	89	13 to 14		Redaction	
	2	89	18		Redaction	
	2	90	7 to 8		Redaction	
	2	90	14		Redaction	
	2	90	15		Redaction	
	2	91	1		Replace "talking" with "taking"	
	2	109	9		Replace "came" with "KM"	
	2	117	5		Replace "cam" with "KM"	
	2	126	23		Replace "sentence" with "the sense"	
	2	132	16		Replace "these" with "that's"	
	2	138	10		Replace "ESC" with "NESC"	
	2	166	2		IRF should be corrected to RRF	



# ONTARIO ENERGY BOARD

**FILE NO.:** EB-2018-0218

**Hydro One Sault Ste. Marie Inc. on  
Behalf of Hydro One Sault Ste. Marie  
LP**

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**VOLUME:** Technical Conference

**DATE:** January 15, 2019

EB-2018-0218

THE ONTARIO ENERGY BOARD

Hydro One Sault Ste. Marie LP

Application for electricity transmission revenue  
requirement beginning January 1, 2019 and related  
matters

Hearing held at 2300 Yonge Street,  
25th Floor, Toronto, Ontario,  
on Tuesday, January 15, 2019,  
commencing at 9:09 a.m.

-----  
TECHNICAL CONFERENCE  
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A P P E A R A N C E S

JAMES SIDLOFSKY	Board Counsel
FIONA O'CONNELL	Board Staff
KEITH RITCHIE	
DAVID HOVDE *	Pacific Economics Group (PEG)
MARK LOWRY *	
PETER HELLAND *	Midgard Consulting Inc.
MICHAEL ENGELBERG	Hydro One Sault Ste. Marie Inc.
JEFF SMITH	on behalf of Hydro One Sault Ste.
LINDA GIBBONS	Marie LP
SHELLEY GRICE	Association of Major Power Consumers of Ontario (AMPCO)
TOM LADANYI	Energy Probe Research Foundation
LARRY SCHWARTZ	
RICHARD STEPHENSON	Power Workers' Union (PWU)
MARK RUBENSTEIN	School Energy Coalition (SEC)
JAY SHEPHERD	
MARK GARNER	Vulnerable Energy Consumers'
BILL HARPER	Coalition (VECC)

\* appearing by teleconference

I N D E X   O F   P R O C E E D I N G S

<u>Description</u>	<u>Page No.</u>
--- On commencing at 9:09 a.m.	1
<b>HYDRO ONE SAULT STE. MARIE - PANEL 1, resumed S. Fenrick, S. Vetsis, K. Lewis, R. Otal</b>	1
ISSUE C, TRANSMISSION SYSTEM PLAN	1
Examination by Mr. Ladanyi	1
--- Recess taken at 10:25 a.m.	39
--- On commencing in camera at 10:50 a.m.	39
Examination by Dr. Schwartz	39
Examination by Mr. Shepherd	75
--- On resuming public session at 12:25 p.m.	93
--- Luncheon recess taken at 12:25 p.m.	93
--- On resuming at 1:21 p.m.	93
ISSUE B, REVENUE CAP PROPOSAL	93
Examination by Mr. Hovde	93
Examination by Mr. Shepherd	124
--- Recess taken at 3:05 p.m.	153
--- On resuming at 3:23 p.m.	153
ISSUE D, PERFORMANCE SCORECARD	162
Examination by Ms. O'Connell	162
ISSUE E, ACCOUNTING	180
Examination by Ms. O'Connell	180
ISSUE F, COST ALLOCATION	181
Examination by Ms. O'Connell	181
--- Whereupon the conference adjourned at 4:24 p.m.	183

E X H I B I T S

<u>Description</u>	<u>Page No.</u>
EXHIBIT NO. KTX2.1: MATERIAL PROVIDED BY DR. SCHWARTZ (CONFIDENTIAL)	39

U N D E R T A K I N G S

<u>Description</u>	<u>Page No.</u>
UNDERTAKING NO. JT2.1: TO PROVIDE THE EXCEL SPREADSHEET SUMMARIZING THE CAPITAL PLAN	15
UNDERTAKING NO. JT2.2: TO PROVIDE A WRITTEN EXPLANATION OF HOW THE SPREADSHEET WAS ARRIVED AT AND WHAT IT SIGNIFIES	18
UNDERTAKING NO. JT2.3: TO INQUIRE WHETHER INFORMATION IS AVAILABLE ABOUT THE PRESENCE OF PCB OIL IN SAULT STE. MARIE'S POWER TRANSFORMERS	34
UNDERTAKING NO. JTX2.4: TO PERUSE TABLE A IN THE HANDOUT AND CONFIRM OR DISCONFIRM THAT FOR EACH YEAR AND FOR EACH COMPANY DR. SCHWARTZ HAS CORRECTLY DOWNLOADED THE COMPANY-SPECIFIC INDICES FOR EACH YEAR	56
UNDERTAKING NO. JTX2.5: TO ADVISE WHETHER IN TABLE B THE PERCENTAGE CHANGES WERE CALCULATED ARITHMETICALLY OR LOGARITHMICALLY.	57
UNDERTAKING NO. JTX2.6: TO CONFIRM THE NUMBER OF POSITIVE TFP RESULTS IN TABLE B	59
UNDERTAKING NO. JT2.7: TO PROVIDE AN OPINION ON MR. HOVDE'S ALTERNATE CALCULATION FOR AVERAGE ANNUAL GROWTH RATE.	96
UNDERTAKING NO. JT2.8: TO REVIEW PEG'S CONJECTURE AND PROVIDE REVISED RESULTS, IF REQUIRED, THAT THE ISSUE LIES WITH ONLY RESTRICTING THE SAMPLE TO "BAD TFP OBSERVATIONS", AND NOT ADDITIONALLY FOR "EXCLUDED OBSERVATIONS".	101

U N D E R T A K I N G S

<u>Description</u>	<u>Page No.</u>
UNDERTAKING NO. JT2.9: TO REVIEW PEG'S CONJECTURE AND PROVIDE REVISED RESULTS, IF REQUIRED, THAT THERE ARE TWO SETS OF COMMANDS THAT CALCULATE WEIGHTED AVERAGES OF HISTORIC LEVELIZED ASSET PRICES, I.E. TRIANGULIZED WEIGHTED AVERAGES. THE FIRST IS FOR HON, WHICH CALCULATES THE AVERAGE FOR 46 YEARS ENDING IN 2002. THE SECOND IS FOR THE 46 YEARS ENDING IN 1989 USED FOR U.S. COMPANIES. IT APPEARS THAT THE VALUES OF THE LEVELIZED ASSET PRICE INDEX, I.E. THE VARIABLE WKA, WERE NOT CALCULATED FOR YEARS PRIOR TO 1963 THAT ARE NEEDED FOR THE U.S. CALCULATIONS.	106
UNDERTAKING NO. JT2.10: TO PROVIDE THE VARIABLE NAMES THAT CORRESPOND TO RESPONSES IN PART H	110
UNDERTAKING NO. JT2.11: TO PROVIDE A WEIGHTED AVERAGE RETURN ON CAPITAL	116
UNDERTAKING NO. JT2.12: TO PROVIDE WHATEVER INFORMATION AVAILABLE ON CUSTOMER CONTRIBUTIONS AND WHAT PERCENTAGE THAT IS OF THE TOTAL	121
UNDERTAKING NO. JT2.13: TO ADVISE OF THE LOCATION OF THE BREAKDOWN IN THE WORKING PAPERS	123
UNDERTAKING NO. JT2.14: TO PROVIDE THE HYDRO ONE PERCENTAGE OR IF NOT POSSIBLE TO ADVISE IT'S SOMETHING NOT CALCULATED EASILY	144
UNDERTAKING NO. JT2.15: TO MAKE BEST EFFORTS TO LOOK AT THE TFP AND COST BENCHMARKING APPROACHES USED BY THE BOARD IN THE PAST AND CURRENTLY USED NOW FOR DISTRIBUTION, AND THE TWO STUDIES DONE FOR TFP AND BENCHMARKING, PUT THEM SIDE BY SIDE, AND EXPLAIN WHAT THE DIFFERENCES ARE	152

U N D E R T A K I N G S

<u>Description</u>	<u>Page No.</u>
UNDERTAKING NO. JT2.16: TO ADVISE THE PERCENTAGE OF THE VALUE OF UNDERGROUND PLANT AS COMPARED TO OVERALL NET PLANT FOR A RECENT HISTORICAL YEAR.	153
UNDERTAKING NO. JT2.17: [NOT ASSIGNED]	
UNDERTAKING NO. JT2.18: TO REVISE THE NUMBER OF THE TOTAL CREDIT BALANCE TO THE CORRECT AMOUNT AND TO REVISE TABLE 2 TO CLEAR THE FULL AMOUNT OF 1.2 MILLION CREDIT AGAINST THE 2019 PROPOSED REVENUE REQUIREMENT	180

1 Tuesday, January 15, 2019

2 --- On commencing at 9:09 a.m.

3 MR. SIDLOFSKY: Good morning, and welcome to day 2 of  
4 the technical conference for Hydro One Sault Ste. Marie,  
5 OEB file number EB-2018-0218. We are going to proceed this  
6 morning by concluding questions on the transmission system  
7 plan. And that means Mr. Ladanyi will be finishing up with  
8 questions on behalf of Energy Probe.

9 Mr. Ladanyi.

10 **HYDRO ONE SAULT STE. MARIE - PANEL 1, RESUMED**

11 **Steve Fenrick**

12 **Steven Vetsis**

13 **Kevin Lewis**

14 **Robert Otal**

15 **ISSUE C, TRANSMISSION SYSTEM PLAN**

16 **EXAMINATION BY MR. LADANYI:**

17 MR. LADANYI: Thank you, good morning, panel. I hope  
18 you can see me. There's actually no good place to sit in  
19 this room, so sorry about this.

20 So if we can first turn to Energy Probe No. 2, and  
21 particularly answer D. The responses -- keep going down.  
22 Okay. And keep going down. Okay. C. Well, let's look at  
23 C for a second. So C says "please refer to School Energy  
24 Coalition number 10 in the attachments", and then in part D  
25 you say the only documents that were actually produced at  
26 those meetings -- and I won't go into details what the  
27 meetings are, I will leave that for the hearing -- were the  
28 attachments to Energy Probe No. 10.

1 Can we go to Energy Probe No. 10, please. Sorry,  
2 Energy Probe -- I mean, School Energy Coalition No. 10. I  
3 misspoke. SEC No. 10. In their attachment -- so they are  
4 actually a series of Excel spreadsheets. They were  
5 attached to the response.

6 MR. SMITH: Did you want us to open the Excel  
7 spreadsheet --

8 MR. LADANYI: Yes, well, I would like you to go to the  
9 Excel spreadsheets, and what I would like you to do, if you  
10 can find them, is that you select whichever one you'd like  
11 -- this is not a trick question at all -- and I would like  
12 you to explain to me how those Excel spreadsheets work,  
13 what exactly are we to take from those Excel spreadsheets,  
14 and how they were used. So you can select any one of them  
15 you like, I don't care, and you take us through it.

16 Is there anyone at the panel, by the way, who was  
17 present at those meetings? Can I start like that? So none  
18 of you were present. Are you at all familiar -- have you  
19 actually seen these spreadsheets before they were filed?  
20 Have you -- have you seen any of these spreadsheets before,  
21 or this is the first time you have seen them?

22 MR. OTAL: Yes, I have seen these spreadsheets before,  
23 but, yeah.

24 MR. LADANYI: Are you reasonably familiar with these  
25 spreadsheets that you can explain to me what I am to take  
26 out of these spreadsheets?

27 MR. OTAL: I will try my best to answer your  
28 questions.

1 MR. LADANYI: Okay. So why don't you take us  
2 through -- there are several sections in each spreadsheet.  
3 You explain to us how they were used in the meetings and  
4 what exactly do we take out of this information. Because  
5 this is a technical conference, and I think in my  
6 experience technical conference is the place where these  
7 kind of questions can be asked so we would not take up time  
8 during the hearing. So this is strictly a technical  
9 question; no challenge, no trick to this. I am just trying  
10 to understand how this works.

11 MR. OTAL: So if I could direct you back to the  
12 evidence, Exhibit B1, tab 1, schedule 1, just kind of to  
13 give you an overview of what is a challenge session.

14 MR. LADANYI: Sure.

15 MR. OTAL: So basically it's looking at various trade-  
16 off decisions, assessing which investments should be  
17 promoted or demoted based upon -- so, sorry, I am looking  
18 at Exhibit B1, tab 1, schedule 1, page 170 (sic) of 188,  
19 specifically line 12 in the evidence.

20 And so it's saying that as part of the challenge  
21 sessions we are going to look at trade-off decisions,  
22 assessing "which investments should be promoted or demoted  
23 based upon such parameters as the planners' level of  
24 comfort with the risk that remains unmitigated after the  
25 investment portfolio is assembled;" and looking at "the  
26 investments selected on the basis of non-risk  
27 considerations (by use of qualitative flags) relative to  
28 risk-based investments outside of the Plan portfolio."

1           At the completion of these sessions "staff will record  
2 the changes that are made to the investment portfolio,  
3 along with the rationales that support these changes and  
4 the impact on the contemplated investment portfolio driven  
5 by these changes."

6           MR. LADANYI: And go on. So how does this tie into  
7 the spreadsheets?

8           MR. OTAL: Do you have a specific question --

9           MR. LADANYI: Well, no, I would like to actually -- I  
10 would like to understand the spreadsheet. This is a  
11 technical conference, and this is an opportunity for you to  
12 explain to us what this evidence is, and I don't actually  
13 understand what this evidence is. I looked at it, and I  
14 can't make any sense of it, so please help me.

15          MR. OTAL: I can answer a specific question if you  
16 have a specific question on the part of the spreadsheet.

17          MR. LADANYI: It's going to take a long time if I'm  
18 going to have to ask you -- like, if I start asking  
19 questions about each item on the spreadsheet and which one  
20 you've got open, Northern Avenue transmission station T1  
21 replacement.

22          MR. OTAL: Yes, so, I mean --

23          MR. LADANYI: So let's start like this, okay, what is  
24 -- James Warburton, who is he? Does he work for you or  
25 does he work for Hydro One?

26          MR. OTAL: James Warburton is an employee of METSCO  
27 Energy Solutions.

28          MR. LADANYI: Okay. So he was there, and at this

1 meeting was James Warburton taking notes? So this is his  
2 spreadsheet, is it? He had a laptop and he was taking this  
3 down?

4 MR. OTAL: He would have been populating the template.

5 MR. LADANYI: Okay. And the people in the room, were  
6 they -- did they have their own templates?

7 MR. OTAL: I can't answer that question. I was not  
8 present at the sessions.

9 MR. LADANYI: Okay, and let's go on then. Just a  
10 second. Don't go anywhere. We are doing well here.

11 So what does this parent/child AR number mean?

12 MR. SMITH: Just to be helpful, AR is actually a Hydro  
13 One accounting term. That's basically the -- it would be  
14 like a project ID in an accounting system. It's the same  
15 thing. So that's -- it's just kind of an identification  
16 number. It doesn't have any intelligence particularly in  
17 the number.

18 MR. LADANYI: But it doesn't actually have a number,  
19 so that would be like this 1-1-1-1 that I see in the yellow  
20 column?

21 MR. SMITH: The AR number is -- may or may not be set  
22 at the time of the challenge. Like, that's -- as I say,  
23 when it gets entered into the SAP accounting system an AR  
24 number is assigned to a project.

25 MR. LADANYI: Now, I don't want to take a lot of time  
26 now, so if there is a hearing and if you actually have a  
27 person who is familiar with this, I will be asking, like,  
28 an hour question of -- like, an hour worth of questions at

1 a hearing, but I can say I think it's going to be painful,  
2 because these people are not familiar with the spreadsheet,  
3 and I will be asking -- I intend to ask, actually, not one  
4 you select but one that I select, which actually causes me  
5 more difficulties, but I will be happy to leave these  
6 questions for the hearing, and I am hoping that we will  
7 have an oral hearing on this matter.

8 MR. ENGELBERG: Perhaps it would make it a bit easier  
9 if you could pose your questions, whether the panel is able  
10 to answer them or not, but pose them in succession. It may  
11 be something that as a group can be answered now or can be  
12 answered as an undertaking. But I think what I am getting  
13 from the panel is that they don't really understand what  
14 your difficulties are with the spreadsheets, so if you  
15 could maybe in rapid-fire succession ask a number of your  
16 questions, that would be helpful.

17 MR. LADANYI: Actually, I did not intend to make this  
18 into a cross-examination type of session. What I intended  
19 to find out is how these work, because these sheets appear  
20 to be the only record of a group of sessions which are  
21 outlined in the response to Energy Probe No. 2 where key  
22 decisions were made about which project should go ahead and  
23 be prioritized regarding the transmission system plan. It  
24 appears to me that they have -- these sessions had a big  
25 effect on the final outcome of the final version of the  
26 plan, and I asked for records of the sessions to see how  
27 decisions were made, and this appears to be the only  
28 record.

1           So I don't know how to approach it now. I can take  
2 you to a different one and ask you a series of questions.  
3 I thought these were going to be very simple answers,  
4 honestly. I really didn't expect this was going to turn  
5 into a big problem.

6           MR. ENGELBERG: It would be helpful if you would put  
7 those questions on the record now. Unless they are in the  
8 nature of cross-examination, we wouldn't have a problem  
9 with them. So can you ask questions?

10          MR. LADANYI: They would be technical questions,  
11 because I think it's a long time to go over that. I would  
12 be happy to put them in writing and send them to you, but  
13 there could be as many as fifty questions. So you really  
14 have to be careful. Do you really want to go there?

15          I thought this was going to be very simply answered,  
16 honestly.

17          MR. SHEPHERD: It's Jay Shepherd; I wonder if I can  
18 jump in. Is there some reason why Hydro One can't provide  
19 somebody, obviously not here today, but by way of  
20 undertaking, for example, who can just give an explanation  
21 in more detail about how these spreadsheets are used and  
22 provide the details, so that somebody can walk through it,  
23 like a little sort of point by point? If you look at this,  
24 it means this, et cetera, to help out.

25          The spreadsheets are not easy to understand. I mean,  
26 obviously, if they were straightforward, somebody could  
27 explain them and clearly they aren't.

28          Is that possible? Would that be helpful, Tom?

1 MR. LADANYI: Yes, it would be very helpful.

2 MR. ENGELBERG: I think probably something like that  
3 could be done by way of undertaking. All I was asking was  
4 if you could give an idea for purposes of the undertaking,  
5 ask a half dozen of your questions, put them on the record  
6 so that the people who fulfil the undertaking will know  
7 what it is that you are looking for.

8 Do you have an objection to putting half a dozen or so  
9 questions on the record?

10 MR. LADANYI: I can try a few questions, but I don't  
11 know -- let's go to --

12 MR. ENGELBERG: You said you had fifty, but can you  
13 give us six of them?

14 MR. LADANYI: Well, fine. Let's go to copy -- to  
15 Sault Ste. Marie number 3 refurbishment, which is a  
16 spreadsheet, another spreadsheet that's attached.

17 So if you look at the box with a lot of text in it,  
18 that's sort of a -- I would say a beige colour. It says  
19 Sault 3 line is a 70 kilometre 115 kV line between MacKay  
20 station and Goulais transmission station, and it gives a  
21 description below that.

22 And if we go further down in that column, you will see  
23 there's some dollar numbers, and we now see that there's,  
24 let's say, \$250,000, and \$3 million, and \$7 million, and  
25 \$7 million and they appear to be capital expenditures, or  
26 at least -- maybe you can tell me what they are for  
27 different years.

28 What are these numbers and did the people in the room

1 have these numbers before them and how -- who provided  
2 these numbers. And I would like to know what significance  
3 these numbers had in the decision making in the room,  
4 because obviously important decisions were made that day  
5 and the day, I think, is given on that spreadsheet.

6 MR. OTAL: Okay. So this is -- again, you if have  
7 specific questions on specific cells, I am happy to go  
8 through that. So cells C72 through to C75 correlate with  
9 the evidence.

10 If you go to Exhibit 1, B1, tab 1, page 133 of 188, at  
11 the bottom of that page, we see the project costs that are  
12 associated with the Sault 3 115 kV line reconductoring. So  
13 all C72 through to C75 are displaying are those costs.

14 MR. LADANYI: Okay. Now if you go across --

15 MR. SHEPHERD: Sorry, Tom, can I interrupt?

16 MR. LADANYI: Please.

17 MR. SHEPHERD: You didn't answer the question. The  
18 question was did those costs -- did everybody have those  
19 costs coming into the room, were those costs developed  
20 during the room, were they some sort of compromise? The  
21 question was where did those costs come from.

22 MR. OTAL: They came right here from within the  
23 application.

24 MR. SHEPHERD: Okay. So you had the application  
25 first, and then you had these spreadsheets? Is that how it  
26 worked?

27 MR. OTAL: Yes. So these were the final estimates  
28 that would have been developed for these projects, and then

1 the purpose of the challenge session is to form that final  
2 prioritization, to really test these projects through this  
3 procedure, essentially.

4 MR. LADANYI: If I go across -- can you move the  
5 scroll across to the right? You will see it talks about --  
6 it's got something called OM&A annual savings. And then we  
7 have nothing there or "REF". I don't actually know. Does  
8 that mean there's no annual savings as a result of this  
9 capital project? Is that what it means, or it means the  
10 savings are somewhere else?

11 MR. OTAL: So in this case, first of all, the OM&A  
12 savings would have been recorded in column I, not in  
13 column G.

14 MR. LADANYI: Okay.

15 MR. OTAL: And in this case, the OM&A annual savings  
16 would have not been known at the time of the challenge  
17 sessions, so therefore they were not entered.

18 MR. LADANYI: Thank you for that answer. And that  
19 really poses a lot of further questions that I can go with.  
20 How could these people make a decision -- now this is a  
21 cross-examination question and I don't want to go there.  
22 But how can they make a decision if they were not -- did  
23 not have all the numbers in front of them? How could they  
24 make a decision?

25 This is a capital investment. It clearly is a replace  
26 versus repair type of question, and they are choosing  
27 replace. But they don't seem to have information on the  
28 cost of additional maintenance, or maintenance savings.

1 How could they possibly make a decision?

2 MR. OTAL: So when we are doing this evaluation, it is  
3 being performed with all of the available information at  
4 the time, right. And, you know, again, if I direct you  
5 back to Exhibit B1, tab 1, schedule 1, page 48 of 188,  
6 figure 3.2 showing the asset management process, and all of  
7 those four stages, it's really leveraging whatever  
8 information is available at the time.

9 One thing we did state yesterday, right, several  
10 times, is we do not have a business case as part of this  
11 process, right. So we are still going to do the stress  
12 test, we are still going to do the challenge session with  
13 whatever data, whatever information we have at the time of  
14 hand. We may not have all the information, but we still  
15 have to stress test these projects being a prudent utility,  
16 right.

17 MR. SHEPHERD: Help me understand that. How are you  
18 stress testing something if you don't have the financial  
19 data on your trade-offs between operating and capital  
20 costs? What are you stress testing?

21 Maybe this goes to the heart of what Mr. Ladanyi is  
22 trying to ask, which is if you don't have financial  
23 information, if you are not making cost trade-offs in this  
24 process, then what trade-offs are you making?

25 MR. OTAL: So again, if I go back to the evidence,  
26 Exhibit B1, tab 1, schedule 1, page 70 of 188, line 12, as  
27 part of the challenge sessions, trade-off decisions assess  
28 which investments should be promoted or demoted based on,

1 A, the planners' level of comfort with the risk that  
2 remains unmitigated after the investment portfolio has been  
3 assembled. And when I am talking about the risk, that's  
4 going back through the previous pages of that exhibit, so  
5 everything from page 64 onwards to 69 that shows the  
6 various categories underpinning that risk, the risk score.

7 And then the second piece in this point on line 16,  
8 page 70 of 188:

9 "The investment selected on the basis of non-risk  
10 considerations by use of qualitative flags  
11 relative to risk-based investments outside of the  
12 plan portfolio."

13 MR. SHEPHERD: I am not sure how that helps me. If --  
14 are you saying this entire process doesn't try to optimize  
15 the cost of the portfolio, that the cost is not a relevant  
16 factor?

17 MR. OTAL: Risk is a relevant factor, right, the risk  
18 that the customer is facing --

19 MR. SHEPHERD: Risk. I get that. But is it entirely  
20 driven by risk and it doesn't matter what the cost is?  
21 Because that sounds like what you are saying, so if that's  
22 not what you are saying maybe you could clarify.

23 MR. OTAL: As noted yesterday during the discussions,  
24 we only look at the risk. And in this case the risk is  
25 looking at the reliability, the safety, and the  
26 environmental impacts. And when we are looking at  
27 reliability, that's value to the customer, that's making  
28 sure that we are meeting customer preferences, which is one

1 of the most critical things that every utility has to be  
2 able to look at when they are making decisions.

3 MR. SHEPHERD: So why do you even have the dollar  
4 figures in the spreadsheet?

5 MR. OTAL: The dollar figures represent the spending  
6 that is going to be associated with that investment.

7 MR. SHEPHERD: But that's not part of your challenge  
8 and prioritization process.

9 MR. OTAL: I have already stated what we consider in  
10 the challenge session.

11 MR. SHEPHERD: So if this project in particular cost a  
12 billion dollars, but it reduces risk, you are still going  
13 to do it, even if there's other options that don't get rid  
14 of quite as much risk but cost a lot less? Am I -- it  
15 sounds like you are saying something pretty crazy, and I  
16 want to make sure I give you an opportunity to clarify.

17 MR. LEWIS: So where the costs are important in these  
18 projects is we have stated yesterday that we operate within  
19 a planned envelope of spend year over year. So the dollars  
20 obviously have to be factored into the year-over-year  
21 envelope of spend. So as you mentioned, if a project costs  
22 -- or if a project costs I believe you said a billion  
23 dollars, that project is not feasible because it doesn't  
24 fit within the envelope of spend.

25 MR. SHEPHERD: Thank you.

26 MR. LADANYI: Mr. Lewis, thank you for that answer.

27 Actually, can you turn back to Energy Probe No. 2,  
28 page 2. And on page 2, we see the people who were

1 participants in the challenge sessions, and there is an  
2 individual listed as managing director of Hydro One Sault  
3 Ste. Marie. Are you that person?

4 MR. LEWIS: I am the managing director of Hydro One  
5 Sault Ste. Marie, yes.

6 MR. LADANYI: Were you at those sessions then?  
7 According to this document it appears that you were at  
8 those sessions.

9 MR. LEWIS: So if I can refer you to the response B,  
10 it states:

11 "The challenge sessions were attended by members  
12 of HOSSM's engineering and field operating teams,  
13 members of Hydro One's regulatory and investment  
14 planning teams, and METSCO representatives who  
15 completed the asset condition assessment work."

16 It goes on to state:

17 "Selection occurred on the basis of conversations  
18 between HOSSM, HONI, and METSCO staff leading the  
19 project."

20 And then it proceeds to list the individuals. My  
21 interpretation of that response is that I was involved in  
22 conversations surrounding the evaluation but I was not  
23 directly involved in the challenge sessions.

24 MR. LADANYI: Oh, thank you. So then, if I understand  
25 the process, challenge sessions were -- included some  
26 technical staff, not you, and you were management staff, so  
27 then the results of the challenge sessions and outcome of  
28 the challenge sessions was brought to you, and then you

1 signed off on it. Would that be right?

2 MR. LEWIS: I can't confirm that I signed off on it,  
3 as you state. But the end results would have been  
4 presented to me.

5 MR. LADANYI: May I ask how were these end results  
6 presented to you?

7 MR. LEWIS: In the final capital plan as presented in  
8 the evidence.

9 MR. LADANYI: So is the actual -- before I go there,  
10 did you make any changes when this was presented to you?  
11 You reviewed it, I presume, and then you said, oh, I think  
12 there's some concerns, or did you just say, this looks good  
13 to me, good to go?

14 MR. LEWIS: I recall that I did not make any changes,  
15 I relied on the expertise of the individuals involved in  
16 the challenge sessions.

17 MR. LADANYI: And the capital plan that was presented  
18 to you was in what format? It couldn't have been evidence,  
19 evidence must have been written later. Was it a document  
20 that summarized the capital plan; what was it?

21 MR. LEWIS: It was in the form of an Excel  
22 spreadsheet.

23 MR. LADANYI: Would it be possible for us to see this  
24 Excel spreadsheet? Can we have an undertaking, please?

25 MR. SIDLOFSKY: JT2.1.

26 **UNDERTAKING NO. JT2.1: TO PROVIDE THE EXCEL**  
27 **SPREADSHEET SUMMARIZING THE CAPITAL PLAN**

28 MR. LADANYI: Thank you. I am going to now go to

1 another area --

2 MR. SHEPHERD: Sorry, can I just -- I thought there  
3 was an undertaking to explain the spreadsheets earlier, was  
4 there not?

5 MR. LADANYI: Well, I thought that they were going to  
6 come and bring a witness at some point to answer the  
7 questions, or maybe we should clear it up before we move to  
8 another area.

9 MR. ENGELBERG: There hasn't been one yet, Mr.  
10 Shepherd, because what I asked was for some questions that  
11 would give an understanding to the panel as to what "an  
12 explanation of the spreadsheets" means.

13 MR. SHEPHERD: Okay. So you got some examples of  
14 things that were hard to understand. Are you able to now  
15 take those spreadsheets and give an explanation of how they  
16 were -- how they could be understood?

17 MR. ENGELBERG: Yes. Although if Mr. Ladanyi has  
18 further questions that would give a better understanding.

19 MR. LADANYI: I am concerned that we are going to take  
20 a lot of time this morning -- we could spend the rest of  
21 the morning on these spreadsheets.

22 MR. ENGELBERG: We are prepared to give the  
23 undertaking.

24 MR. LADANYI: And I am wondering whether this is a  
25 good use of the time, rather than having -- because these  
26 gentlemen appear to not to be familiar with it, and they  
27 are struggling, and I have been a witness in many hearings  
28 over the years for those who know me, so I know that you

1 don't want to be in a position where you're forced to  
2 answer questions on a subject that you're really not  
3 unfamiliar with, and I don't want to give them a hard time,  
4 so it would not be really right, and plus also I am  
5 concerned that we would not be getting the best quality  
6 evidence, so rather than struggling with them and taking up  
7 a lot of time, I am willing to allow Hydro One to bring  
8 forward a witness who is familiar with the spreadsheets who  
9 can explain to us how these spreadsheets work, who can take  
10 us right through it and deal with it directly.

11 MR. SHEPHERD: Well, sorry, that's fine, except that  
12 if -- we are not yet sure whether there's going to be a  
13 hearing, and even if there is a hearing, it's still useful  
14 to have the undertaking in advance, which gives us a  
15 starting point and may save some hearing time.

16 MR. ENGELBERG: What HOSSM is prepared to do now is to  
17 give an undertaking to provide a written explanation of how  
18 the spreadsheet was arrived at and what it signifies. If  
19 there are questions that arise from that we can look at  
20 that time into whether there needs to be a viva voce  
21 presentation of that evidence, but for now we will  
22 undertake to do it in writing.

23 MR. SHEPHERD: Excellent.

24 MR. SIDLOFSKY: Mr. Ladanyi?

25 MR. LADANYI: I would be satisfied with that as long  
26 as there is an understanding that we would have a detailed  
27 explanation of every cell on the spreadsheet and how they  
28 relate to each other, not just a general overview of the

1 spreadsheets. We really would like to have a detailed  
2 explanation, you know, information from this cell is then  
3 goes to that cell and so on, so that we can follow through  
4 with the spreadsheets and try to understand what happened  
5 during those sessions.

6 MR. ENGELBERG: You have that undertaking.

7 MR. SIDLOFSKY: So that will be JT2.2.

8 **UNDERTAKING NO. JT2.2: TO PROVIDE A WRITTEN**  
9 **EXPLANATION OF HOW THE SPREADSHEET WAS ARRIVED AT AND**  
10 **WHAT IT SIGNIFIES**

11 MR. LADANYI: Are we ready to move to another area  
12 now? I think we are finished with that, with the  
13 spreadsheets for now.

14 Can you turn to Energy Probe No. 12? So in Energy  
15 Probe No. 12, I ask about METSCO and what kind of work they  
16 did, and specifically asked in B about site visits and why  
17 there were site visits. And I have your answer here.

18 So let's start like this. There were site visits and  
19 they took place on May 7th to 11th. Were any of you part  
20 of the site visits?

21 MR. OTAL: I was part of the site visits.

22 MR. LADANYI: Could you explain to us what you did at  
23 those site visits? You arrived -- you flew to Sault Ste.  
24 Marie, somebody picked you up with a car and drove you to a  
25 transmission station. Is that how it went?

26 MR. OTAL: Yes. I mean, I think it's explained in B.  
27 So we basically visited the stations and line circuits  
28 within the vicinity of Sault Ste. Marie, and basically for

1 the purposes of essentially collecting data to support the  
2 production of the METSCO ACA analysis.

3 MR. LADANYI: So you arrived at the site. What kind  
4 of data would you collect? Can you explain to me what you  
5 did on site?

6 You arrived now at the site, and then what? Did you  
7 take some measurements? Did you have some instruments with  
8 you? What did you do there? Did you test the oil, for  
9 example, in the transformers?

10 MR. OTAL: So if I can refer you back to the evidence  
11 in the METSCO ACA? report, page 29 of 96, section 4.2.1,  
12 basically we spent a total of five days in Sault Ste. Marie  
13 as part of two separate engagements.

14 The purpose was to validate HOSSM's data collection  
15 methodologies, calibrate the scale of asset degradation  
16 assessment framework against our experts' understanding to  
17 ranking asset condition parameters.

18 In the course of the work, we conducted independent  
19 visual inspections of multiple station and line assets in  
20 the Sault area, which it subsequently confirmed with the  
21 results of the HOSSM assessments.

22 We note that these calibration exercises were limited  
23 to visual inspection parameters, and did not include the  
24 review of technical testing results such as DGA, infrared  
25 scanning, or double insulation testing performed by HOSSM  
26 contractors.

27 MR. LADANYI: So essentially, you went to station.  
28 They said there were some corrosion on site of some

1 equipment. You looked at it and said, "It looks rusty to  
2 me." Is that basically it?

3 MR. OTAL: No.

4 MR. LADANYI: No?

5 MR. OTAL: We did our own up independent visual  
6 inspections at the substations at the sites that we  
7 visited. At no time were we given any proactive direction  
8 on oddities or any degradation issues. We made those  
9 assessments independently on our own.

10 MR. LADANYI: The data from these field visits -- and  
11 I presume you did not visit every site. You only visited a  
12 selection of sites. The data from these field visits, you  
13 did not actually use any of this in your report, is that  
14 right? You used the data you got from Hydro One Sault Ste.  
15 Marie?

16 MR. OTAL: Well, as I just noted, we confirmed  
17 basically that our results were aligned with the HOSSM  
18 assessments. So, yes, we used the HOSSM assessment  
19 results.

20 MR. LADANYI: How did you select which site to go to?  
21 You couldn't have gone everywhere. So how did you select  
22 the locations?

23 MR. OTAL: So as previously noted, we visited the  
24 assets that were within the vicinity of the Sault Ste.  
25 Marie area. So if I could refer you to Exhibit B1, tab 1,  
26 schedule 1, page 7 of 188, figure 1-1 shows the service  
27 territory map for HOSSM.

28 We visited the major substations that were within that

1 vicinity, and we went as far as the Mackay TS, in terms of  
2 the northern limit of that study.

3 MR. LADANYI: Thank you. Can I take you to page 44 of  
4 that report -- actually, the report is kind of confusing.  
5 It says page 45 of 96 at the bottom, but then it says 44 in  
6 the bottom right-hand corner. So I am not sure what to  
7 refer to. I presume it's 44 of the exhibit, and page 45 of  
8 the report.

9 And it deals with -- it says figure 6.12, data  
10 availability for SF 6 circuit breaker condition parameters.

11 Well, I've got the issue -- at the bottom, it says  
12 page 45 of 96. Do you see that?

13 MR. OTAL: Yes.

14 MR. LADANYI: Very good. Now, if you look at the  
15 right-hand column, it says percent of assets with data.  
16 What does that mean?

17 MR. OTAL: So that refers to -- if I am looking at a  
18 particular variable like age, for instance -- how many of  
19 the SF 6 circuit breakers that were evaluated had age. In  
20 this case, it's 100 percent of the SF 6 circuit breakers  
21 that were evaluated.

22 MR. LADANYI: So you would have known when they were  
23 installed from company records, is that right?

24 MR. OTAL: That is correct.

25 MR. LADANYI: Then we go all the way down, and we see  
26 45 percent contact resistance tests. What does that mean?

27 MR. OTAL: It means that we would have only had -- we  
28 would have only had contact resistance testing results for

1 45 percent of the SF 6 circuit breakers that were  
2 evaluated.

3 MR. LADANYI: So this would be Hydro One Sault Ste.  
4 Marie, in their records, only had contact resistance tests  
5 for 45 percent. Would that be right, because you didn't  
6 actually test any?

7 MR. OTAL: So I would probably preface that by saying  
8 that we would have looked at the more recent information  
9 that would have told us -- that would have given us that  
10 contact resistance test information. I can't say whether  
11 they never did a contact resistance test. It is possible  
12 they did. But perhaps that information wasn't available in  
13 a format that would be readily integrate-able, or the  
14 vintage of that data would be too far back in time for it  
15 to be useful for the purposes of this analysis.

16 MR. LADANYI: So when you have a lack of test results,  
17 and let's say more than half of the assets do not have  
18 contact resistance tests, how do you use this information?  
19 Can you rely on it, or do you say this information is not  
20 reliable enough from a statistical review, or do you assume  
21 that 100 percent of the population is the same as the 45  
22 percent that you have data on?

23 MR. OTAL: So if I could again refer back to the  
24 evidence, the METSCO ACA report, section 5.2, the data  
25 availability index or the DAI. So this is a measure of the  
26 availability of condition parameter data for a specific  
27 asset as they pertain to the construction of the health  
28 index score. And when I refer to the construction, I am

1 talking about the individual degradation factors and the  
2 either visual inspection or testing information that is  
3 going into those, feeding into those degradation factors in  
4 order to calculate the index score.

5 So we see the formula of that data availability index.  
6 We note at the bottom of this page -- sorry, this is  
7 page 36 of 96 -- that an asset with all condition parameter  
8 data available will have a DAI value of 100 percent  
9 independent of the asset's HI score.

10 In the case where the data availability index for an  
11 asset is zero percent, the asset is not considered captured  
12 within the sample population.

13 I would then also turn the page to page 37 of 96, and  
14 I am going to the bottom of section 5.2.1. The last  
15 sentence here:

16 "While many opinions exist as to what percentage  
17 of assets with information on particular  
18 condition parameter is sufficient to include in  
19 the HI calculation, in most cases asset managers  
20 are best served by abandoning a condition  
21 parameter if it is available for less than 60  
22 percent of the population in that asset class."

23 MR. LADANYI: Thank you for that answer.

24 Now, on the same page that I was at before, which is  
25 page 45 of 96, if you go to the table above, Figure 6.11,  
26 "SF6 circuit breaker condition parameter scoring table".  
27 Do you have that? And I see a line. It says "contact  
28 resistance tests". What does number 2 mean next to it?

1 What is that?

2 MR. OTAL: That is the weighting that is assigned to  
3 that particular degradation factor which corresponds to the  
4 relationship between that test and the overall probability  
5 of failure and condition assessment of that SF6 circuit  
6 breaker asset.

7 MR. LADANYI: So 2 is a low score or a high score?

8 MR. OTAL: Two would be a low weighting.

9 MR. LADANYI: Okay. And then what do we have ranking,  
10 A, B, C, D, and E in that column, what does that mean?

11 MR. OTAL: That really refers to the process in terms  
12 of how the input information that is feeding into that  
13 degradation factor is interpreted. So if it was a visual  
14 inspection, for instance, the field crew worker would enter  
15 in a value, anything from A to E. In this case it's a test  
16 result, so we would have definitions for each one of these  
17 parameters. A would be the best, E would be the worst, and  
18 then we translate that into a numerical grade which you see  
19 in the column to the right, 4, again, being the best, zero,  
20 again, being the worst. And this is all part of that  
21 degradation factor calculation that contributes to the  
22 overall calculation of the health index score.

23 MR. LADANYI: So a 4 is A; is that right? So 4 means  
24 A?

25 MR. OTAL: Correct.

26 MR. LADANYI: And 3 is B and so on. I actually had a  
27 question in the interrogatory about that and I was puzzled  
28 by your answer, but I won't take you there now.

1           So the column with the numerical grade is exactly the  
2 same as the ranking with the letters, but all it is, it  
3 translates the letter into numbers so you can do some  
4 numerical stuff with them.

5           MR. OTAL: That is correct.

6           MR. LADANYI: Okay. And what does number 8 in the max  
7 grade mean?

8           MR. OTAL: So that's the maximum grade that can be  
9 achieved for that particular degradation factor. And the  
10 way we calculate that is, so for contact resistance test it  
11 has a weight of 2. The highest grade it can receive is 4,  
12 so we multiply those two, and the maximum possible grade is  
13 going to be 8 for that degradation factor category.

14          MR. LADANYI: So you're multiplying that. And I'm  
15 actually -- I read your report and I couldn't figure it  
16 out, so you multiply what with what to get 8? You say  
17 multiply 2 times 4. Where does the 4 come from?

18          MR. OTAL: In the numerical grade column. Right?  
19 So 4 is the best possible grade that the contact resistance  
20 test can achieve, right, we just talked about that.

21          MR. LADANYI: Yeah.

22          MR. OTAL: Four times 2 is 8. That's the maximum  
23 grade that the contact resistance test can achieve.

24          MR. LADANYI: So when I look at the entire table, they  
25 all have a 4 in there, so they are all kind of the maximum  
26 -- so you are taking the weight times the 4, you are  
27 ignoring the other numbers, and you get a number. Okay.

28           Is there any table -- I now want to look through it --

1 where there is not a 4 in the first column?

2 MR. OTAL: Sorry, I just want to correct that for a  
3 second. We are not ignoring the other numbers, it's simply  
4 for the purpose of a maximum grade. And we use that to do  
5 the -- so you can see that your maximum possible grade out  
6 of all those factors then is 260, and we use that as the  
7 normalization, to calculate the health index between zero  
8 and 100.

9 MR. LADANYI: Okay. I am still very much puzzled by  
10 this. Now, when you look at overall condition line, and  
11 when you look at the column with the letters in it, it's A,  
12 B, C, D, E, and then we have 4, 3, 2, 1, 2, and when you  
13 look below that, time and travel tests, weigh 3, and we  
14 have the A, B, C, D, E, but then we have 4, 3, 2, 1, 3.

15 Can you explain to me why there is like a 1, 3 and a  
16 1, 2 in those two respective columns?

17 MR. OTAL: It looks like that's a printing error.

18 MR. LADANYI: All right. So I --

19 MR. OTAL: It should be zeros.

20 MR. LADANYI: It should have been zeros. Which one  
21 should be zeros? Should be 1, zero and -- oh, I see, so it  
22 should have been 4, 3, 2, 1, 0. All right. And then we go  
23 to the last one at the bottom. It says 4, 3, 2, 1, 1. Is  
24 that possibly an error as well?

25 MR. OTAL: It looks like it was just a printing error.

26 MR. LADANYI: All right. Let's go to Energy Probe  
27 number 18. And here I have asked about explanation of the  
28 weight component. And I wanted to understand how the

1 weighting -- because weightings are obviously very  
2 important in this report; it's all about weightings -- how  
3 are they determined with a numerical example. And you take  
4 me to page 38 of the report. And I have looked at page 38,  
5 and I am more confused than ever.

6       Maybe you can take us to page 38 and explain to me how  
7 the weight component is determined.

8       MR. OTAL: So if I can direct you to page 39 of 96 of  
9 the METSCO asset condition assessment report.

10       MR. LADANYI: All right, I see that one -- that page,  
11 by the way, also has 38. So I wasn't sure which page 38  
12 you were referring to, but we will go to 39, then.

13       MR. OTAL: So if I am just going to start kind of  
14 reading from the middle of the page:

15               "Each of these parameters," and he is describing  
16 the degradation parameters above, "describe an  
17 aspect of a power transformer with a direct  
18 impact on the operational health of the asset.  
19 Lower scores for one or a combination of these  
20 condition parameters strongly indicate progressed  
21 degradation of the asset, hence their larger  
22 weights. Oil leaks, main tank corrosion, cooling  
23 equipment condition, and grounding are collected  
24 through visual inspection procedures, and they  
25 serve as indicators of total health, although  
26 these specific degradation factors are easily  
27 remediated, maintained, and have minimal impact  
28 on the operational health of the asset if dealt

1 with appropriately and in a timely fashion.  
2 "Furthermore, bushing condition, degree of pole  
3 amortization," continuing into the next page  
4 here, 40 of 96, "and control box condition  
5 comprise the condition parameters that carry  
6 medium weights to the overall health index score  
7 of a power transformer."

8 MR. LADANYI: That's a very nice answer, but I still  
9 don't understand the weight column, like 8, and 1, and 10  
10 and so on.

11 Is there something that explains how this is produced,  
12 this weighing? It appears to be a key component of this  
13 report is the weight, and the weights are assigned by  
14 somebody somewhere based on what appear -- it appears to me  
15 to be sort of possibly kind of subjective information.

16 But perhaps there is an objective way that this is  
17 assigned, and I would like to know what it is.

18 MR. OTAL: I think I just explained it previously.  
19 It's really how we look at that data point and how it  
20 correlates to the overall condition and failure probability  
21 of the asset, right.

22 So if we look at the DGA, the oil quality, the  
23 insulation factor, the moisture content, they are given  
24 very high weights because of their relative importance,  
25 because these are tests, they're not subjective, right, and  
26 they are quite detailed tests that are evaluating the  
27 chemical composition within that power transformer.

28 And understanding how a power transformer is degrading

1 and eventually reaches failure, we at METSCO understand  
2 these tests to be important, critical and such why we would  
3 assign a higher weight to those particular degradation  
4 factors.

5 MR. SHEPHERD: Can I just ask you to clarify? You're  
6 assigning more weight to them because they are objective or  
7 because they have a higher -- those factors have a higher  
8 impact on degradation?

9 MR. OTAL: I think in some ways it's going to be both,  
10 right. So when it's a test and it's giving us a numerical  
11 value, it's the quality of that value that's coming out.  
12 And it's also how that test is used to evaluate the overall  
13 integrity of that power transformer.

14 Now, when I look at this overall health index formula,  
15 it's quite comprehensive, right. We are taking a look at  
16 all of these different parameters. Visual inspection  
17 parameters are also important to capture, right.

18 But we also have the test results that are numerical  
19 results that are telling us the overall performance of that  
20 power transformer, and there's a lot of science that goes  
21 into that testing results.

22 So when we combine the testing results with the visual  
23 inspection results, now we are getting a really  
24 comprehensive picture of that power transformer.

25 MR. SHEPHERD: So you have some sort of internal  
26 document that analyzes why each factor would be more or  
27 less important, have a greater weight or a lesser weight?

28 I mean, it isn't just the person who is doing the

1 analysis that decides, oh, I am going to give this a 4 and  
2 this a 2, right? There's some standard, right?

3 MR. OTAL: So these weights ultimately, it's designed  
4 based on our expertise at METSCO, as well as our  
5 understanding of the data that's going into these health  
6 indices, the quality of that data.

7 MR. SHEPHERD: So the weights are different based on  
8 who's doing the analysis, or based on what particular piece  
9 of gear is being analyzed?

10 MR. OTAL: Well, there will be different degradation  
11 factors with different weights for different asset classes.  
12 Each asset class is going to have its own unique health  
13 index formula.

14 MR. SHEPHERD: Exactly. So there must be some sort of  
15 internal analysis at METSCO as to how you set those  
16 priorities -- a generic analysis, not related to Hydro One,  
17 but generally?

18 MR. OTAL: It would be based on our expertise and  
19 experience at METSCO.

20 MR. SHEPHERD: And so you collectively make a  
21 decision, or the individual who does the analysis makes the  
22 decision? Whose expertise are we talking about here? If  
23 there's collective expertise, there must be a document that  
24 expresses it, right?

25 MR. OTAL: So it would be all the people that were  
26 involved on this particular project, right, so all the  
27 representatives from METSCO who would be involved in this  
28 particular project.

1 MR. SHEPHERD: So they all work on every asset that  
2 you look at? And they have a meeting and decide let's --  
3 this is what weight we are going to give to this, and this  
4 is what weight we are going to give to that?

5 MR. OTAL: I will say that each of these individuals  
6 that are referenced in the report are involved at some  
7 stage of the project.

8 MR. SHEPHERD: That's not responsive to the question.  
9 Is the weight established by one person, or by many people?

10 MR. OTAL: The weightings are established based on the  
11 collective experience at METSCO. We have many different  
12 specialists and experts on various asset classes.

13 MR. SHEPHERD: Okay. And so there's a document in  
14 which those are expressed, right? If they're a collective  
15 experience, you have to put that collective experience  
16 somewhere.

17 MR. OTAL: We don't have any document like that. It's  
18 based on our experience at METSCO.

19 MR. SHEPHERD: Okay. So then there's a meeting. How  
20 do you get the collective experience, if you don't have a  
21 document or you don't have a meeting where everybody puts  
22 their experience in, and you come up with one number? I  
23 don't get it.

24 MR. OTAL: So we have an understanding at METSCO on  
25 how these assets perform and what are the key factors that  
26 result in the degradation and eventual failure of these  
27 asset classes. This is collected over years, decades of  
28 experience, in terms of the operation and the performance

1 and the eventual failure of assets, and basically for each  
2 project we apply these experiences to the particular  
3 utility, the data that we are receiving from that utility,  
4 the quality of that data, in order to create their health  
5 index formulation and apply that to that particular  
6 utility.

7 MR. SHEPHERD: So the person who writes a particular  
8 report on a particular asset or who does an assessment of a  
9 particular asset knows the number that everybody agrees at  
10 METSCO is the right number for this particular test?

11 MR. OTAL: Well, I will say that the people, again,  
12 that were involved with this particular project all have  
13 collective expertise on the assets that were evaluated in  
14 order to understand, they all have that expertise and  
15 experience in terms of how these assets degrade over time,  
16 what are the key failure modes, what are the modes of  
17 degradation, what should be the weights of those  
18 degradations, in order to produce that overall health index  
19 score.

20 MR. SHEPHERD: They just all know the right numbers?

21 MR. OTAL: We have the expertise, the engineering  
22 expertise, in terms of how these assets degrade.

23 MR. SHEPHERD: Okay, thanks.

24 MR. LADANYI: If I can go on with you, still on the  
25 same table, power transformers. I am assuming that Hydro  
26 One Sault Ste. Marie has a lot of old transformers and that  
27 some of these transformers would have PCB oil,  
28 polychlorinated biphenyl oil, which is now considered to be

1 hazardous, in them; is that right? Can somebody confirm  
2 that?

3 Did you want to take an undertaking? This is taking a  
4 long time.

5 MR. OTAL: I cannot confirm or deny the existence of  
6 PCBs in the power transformers that we studied for this  
7 evaluation.

8 MR. LADANYI: May we have an undertaking, please?

9 MR. ENGELBERG: Is the information available? Because  
10 if it isn't, an undertaking won't be of any value.

11 MR. OTAL: We wouldn't have that data.

12 MR. LADANYI: May I make a comment here, please? So  
13 the reason why I am asking this is because the weighting  
14 for oil leaks is shown as 1, and I would think that that  
15 would be a high risk factor if there was an environmental  
16 concern about leaking oil that is contaminated with PCBs,  
17 and I thought that any utility that has transformers would  
18 have good information on it.

19 So perhaps the panel doesn't -- the witness panel is  
20 not aware of it, but I am sure there is some information  
21 within Hydro One Sault Ste. Marie regarding which  
22 transformers have or had PCB oil in it.

23 MR. OTAL: Well, I would add that the PCBs were not  
24 considered in this particular health index, and that is why  
25 it has received such a low weight. So the PCBs was not  
26 considered for the purposes of this health index, but  
27 again, I cannot -- we do not have any data that confirms  
28 PCBs in the power transformers.

1 MR. SHEPHERD: Mr. Ladanyi is asking whether Hydro One  
2 might have that data. If Hydro One has that data then  
3 Hydro One could provide the undertaking.

4 MR. ENGELBERG: Hydro One Sault Ste. Marie will  
5 undertake to see if that information is available.

6 MR. SIDLOFSKY: JT2.3.

7 **UNDERTAKING NO. JT2.3: TO INQUIRE WHETHER INFORMATION**  
8 **IS AVAILABLE ABOUT THE PRESENCE OF PCB OIL IN SAULT**  
9 **STE. MARIE'S POWER TRANSFORMERS**

10 MR. LADANYI: Still on the same table, when I look at  
11 these condition categories in the left-hand column, they  
12 don't seem to be independent variables, so to speak. I  
13 mean, if there is, for example, a main tank corrosion,  
14 there's also an oil leak, so they are not independent, they  
15 seem to be somewhat related.

16 Is the idea that what's in the first column that they  
17 are separate categories that don't overlap or they can  
18 actually overlap in some way?

19 MR. OTAL: The oil leaks can occur at many different  
20 parts of a power transformer, not just at the main tank of  
21 the transformer. We could see oil leaks at the gaskets, at  
22 many other parts of the power transformer. So it really is  
23 considered as an independent degradation factor.

24 MR. LADANYI: So the reason oil leaks have 1, a rating  
25 weight of 1, is because, what, you don't have good  
26 information on the oil leaks or oil leaks are not important  
27 or they are not a high risk? There is a reason why there  
28 is a 1 there.

1 MR. OTAL: I think I answered that question earlier,  
2 that "oil leaks are easily remediated or maintained and  
3 have a minimal impact on the operational health of the  
4 asset if dealt with appropriately and in a timely fashion,"  
5 which is stated on page 39 of 96, at the bottom of the  
6 METSCO ACA report.

7 MR. LADANYI: So METSCO knows -- METSCO staff knows,  
8 oh, it's an oil leak; we'll give it a 1. Is that how it  
9 works? Whether it's a big leak or a little leak, it's just  
10 a 1?

11 MR. OTAL: No. I think we have stated why, in this  
12 particular case, the oil leak has received that particular  
13 score. It's based on, again, the ability to be able to  
14 remediate through the maintenance practices specifically  
15 performed by HOSSM.

16 MR. LADANYI: So the fact that leaks can be fixed  
17 easily, that is the main reason why oil leaks have 1?

18 MR. OTAL: Based on HOSSM's processes, and our  
19 understanding of those processes and how they are used to  
20 address oil leaks, that is correct.

21 MR. LADANYI: Okay. When I go down to moisture  
22 content, that has a 10. That means -- what does that mean?  
23 That moisture content is difficult to deal with, or it is  
24 very important or -- what is it? Why does have it a 10?

25 MR. OTAL: It means that moisture content is a very  
26 important test that does contribute -- it has a very high  
27 contribution to the overall performance of the power  
28 transformer.

1 MR. LADANYI: But the main tank corrosion is not as  
2 significant as moisture content?

3 MR. OTAL: That is correct.

4 MR. LADANYI: But wouldn't the main tank corrosion be  
5 caused by moisture content?

6 MR. OTAL: These are, again, two separate variables.  
7 Moisture content is determined through a test. Main tank  
8 corrosion is coming from a visual inspection.

9 MR. LADANYI: Then going down to grounding, isn't  
10 grounding a very important essential condition for a  
11 transformer, that it be properly grounded?

12 MR. OTAL: Again, what we are stating with grounding,  
13 and it's lower weight relative to the other degradation  
14 factors, is that it's a condition that can be remediated  
15 through HOSSM's particular maintenance and inspection  
16 practices.

17 MR. LADANYI: So what you are saying is the staff can  
18 easily go to a site and check if the equipment is properly  
19 grounded and then if it's not, ground it?

20 MR. OTAL: That is correct. The appropriate repairs  
21 can be undertaken to remediate that particular problem.

22 MR. LADANYI: Let's go up in that table to oil  
23 quality. It has a 10, and then next to it has a ranking A,  
24 C and E and 4, 2 and zero. And it's the only one on that  
25 table that does not have a B and a D. Can you tell me why  
26 it doesn't have a B and a D?

27 MR. OTAL: That's really dependent on the input data  
28 that is supplying that parameter. So in some cases, we

1 might have a test where the results from that test are much  
2 more granular and can support five different categories.  
3 We have tests that only have three levels of granularity,  
4 or tests that are binary in nature and it's only two levels  
5 of granularity.

6 MR. LADANYI: So that column really tells me about  
7 Granularity. But what you are taking out of that column is  
8 only A, which is you make it into a 4 in the numerical  
9 column and use it to multiply across. Would that be how it  
10 works?

11 MR. OTAL: Well, I think I already explained how the 4  
12 is used. We are saying that if it receives an A or a 4, it  
13 means that it has the best overall condition from an oil  
14 quality perspective.

15 MR. LADANYI: So the fact that there is no B and a D,  
16 are we to draw any conclusions from that? What are we to  
17 conclude from that?

18 MR. OTAL: I don't think there's any conclusions from  
19 that. It's just based on the formatting of the test that  
20 is being performed for oil quality. Not every test  
21 necessarily has to have five points of data. It could be  
22 three points, it could be two points; it depends on the  
23 nature of the test.

24 In this particular case, there's only a need for three  
25 different factors for oil quality.

26 MR. LADANYI: So a reader of this document should not  
27 be concerned that oil quality only has three, if you like,  
28 degrees --

1 MR. OTAL: Not at all. No concerns, not at all.

2 MR. LADANYI: Not at all. So it really is not a very  
3 significant item. Okay, thank you for that.

4 I have a lot of other questions on this report, but I  
5 am going to save them for the hearing, if we ever have a  
6 hearing, because I think we should move on to other issues,  
7 unless any other parties have any other questions on this.

8 So we can move on to another subject, I am finished  
9 now.

10 MR. SIDLOFSKY: Mr. Ladanyi, I think you are the last  
11 person with questions on the TSP. So when you are talking  
12 about moving over to other areas, are you talking about  
13 moving away from the TSP, or do you have other areas?

14 MR. LADANYI: Yes, I am suggesting that we can move  
15 away from TSP, unless any other parties -- then we would go  
16 on to deal with the PSE report.

17 MR. SIDLOFSKY: Okay. I think what we will do then is  
18 take our morning break now. It's 10:25. I would like to  
19 break until 10:45, and we will begin with Dr. Schwartz and  
20 his questions.

21 Now, for at least some of those questions, we are  
22 going to be going in camera because Dr. Schwartz has  
23 questions about a confidential item.

24 So when we come back on the public broadcast, that  
25 will be after Dr. Schwartz's confidential questions. Thank  
26 you.

27 MR. ENGELBERG: Mr. Sidlofsky, I would like to ask if  
28 Mr. Otal is free to go now.

1 MR. SIDLOFSKY: I believe so. I think we are finished  
2 with the system transmission plan. Thank you, sir.

3 MR. ENGELBERG: Thank you.

4 --- Recess taken at 10:25 a.m.

5 --- On commencing in camera at 10:50 a.m.

6 MR. SIDLOFSKY: We are back, and we are in an in  
7 camera session to deal with Dr. Schwartz's questions about  
8 the PSE material. We have David Hovde on the line from  
9 Pacific Economics Group. The line is otherwise closed, and  
10 we are not broadcasting. We will resume the open session  
11 once the confidential questions are addressed.

12 Dr. Schwartz.

13 **EXAMINATION BY DR. SCHWARTZ:**

14 DR. SCHWARTZ: Thank you very much. Thank you, staff  
15 and members of the panel.

16 I believe you all have -- all those who need it have a  
17 copy of the issues that we have proposed to discuss in  
18 relation to the TFP study that PSE undertook.

19 MR. SIDLOFSKY: Dr. Schwartz, sorry to interrupt you  
20 again. I am just going to give an exhibit number to that  
21 material that you provided to Hydro One and to Mr. Shepherd  
22 as someone who has executed the Board's form of declaration  
23 and undertaking. That will be Exhibit No. KTX2.1. It's a  
24 confidential exhibit.

25 **EXHIBIT NO. KTX2.1: MATERIAL PROVIDED BY DR. SCHWARTZ**  
26 **(CONFIDENTIAL)**

27 DR. SCHWARTZ: Could you repeat that, please? KTX?

28 MR. SIDLOFSKY: 2.1.

1 DR. SCHWARTZ: 2.1. Thank you.

2 MR. SIDLOFSKY: Thank you.

3 DR. SCHWARTZ: Just to be sure that I can be heard.

4 Fine.

5 So I take it, Dr. Fenrick, I will be asking my  
6 questions to you more or less exclusively; that is, you are  
7 the one to answer these questions?

8 MR. FENRICK: Yes, although it's Mr. Fenrick, not Dr.

9 DR. SCHWARTZ: Mr. Fenrick? That's fine. You can  
10 call me Mr. Schwartz. Someone once said, okay, I will call  
11 you Mr. Fenrick, you can call me Dr. Schwartz. I never did  
12 that.

13 So I guess the first question -- and I will be  
14 referring at some point to your report and to some of the  
15 interrogatory responses related to these issues. I guess  
16 the first question is about the sample that PSE has used  
17 for its TFP growth calculations. I call it the TFP sample,  
18 and I take it that that sample includes Hydro One  
19 transmission?

20 MR. FENRICK: Yes, that's true, it does include Hydro  
21 One transmission --

22 DR. SCHWARTZ: Okay. Fine. So is -- let me ask you  
23 one question and give an example. I mean, the other  
24 companies are U.S. utilities, all of them. as far as I can  
25 tell.

26 MR. FENRICK: Correct.

27 DR. SCHWARTZ: Yeah, okay. So what is the  
28 justification for including Hydro One transmission when all

1 the other companies in this sample are U.S. utilities? Let  
2 me expand on that. I mean, I am going to do a sample. I  
3 am interested in the height of men in the room. So I will  
4 take a sample, and of all the men in the room I will get an  
5 average height, and then someone comes along and says,  
6 well, your sample size isn't large enough, it's not a  
7 representative sample of men. And so I say, well, there  
8 aren't any other men here, so on the basis of that I ask  
9 one of the ladies in this room to participate, and she  
10 gives a height, and I add it into my data. And someone  
11 will say, well, you started off wanting to study men's  
12 height, and you didn't have a large enough sample and you  
13 brought in a woman to get her height, so doesn't that  
14 change things?

15 So I guess my question is, what is the justification  
16 for including Hydro One if it is important that all the  
17 relevant conditions in Canada and U.S. have to be broadly  
18 comparable?

19 MR. FENRICK: So we include the U.S. utilities in the  
20 TFP sample as essentially a proxy for the industry  
21 transmission TFP to determine the productivity for the  
22 transmission industry at large. If we had a whole host of  
23 Ontario transmission utilities, that would be perhaps a  
24 more appropriate sample. but given that Hydro One Networks  
25 essentially dominates the transmission industry here in  
26 Ontario we are taking the U.S. utilities and using that  
27 sample as a proxy.

28 We also included Hydro One in that industry sample to

1 align with what was done in fourth-generation IR  
2 proceeding, which was EB-2010-0379, where all of the  
3 distributors -- that was an electric distribution study --  
4 where all the distributors were included in the TFP sample  
5 to calculate the productivity trend that then flowed into  
6 the X factor.

7 So we didn't make any exclusions. We included all the  
8 U.S. as well as Hydro One in that sample when we calculated  
9 the TFP. If we were to exclude Hydro One, which could be a  
10 reasonable exercise to exclude them from and make it a  
11 fully external measurement, if we were to exclude Hydro  
12 One, the TFP estimate would likely decline, given that  
13 Hydro One Networks has had better productivity over this  
14 time than the U.S. sample at large.

15 DR. SCHWARTZ: Well, if I could just add, I am not  
16 asking you to tell me about precedence, per se. I mean,  
17 that's all on the record. I will be speaking to you in  
18 general this morning about, you know, what it means for an  
19 economist to deal with statistics and conclusions and  
20 sampling and those sorts of things. The fact that it was  
21 done in some way in some other case may be relevant, but  
22 that's a different forum, I think, to decide that.

23 I am aware of a case in which we participated -- I  
24 believe it was an OPG -- in which there was some discussion  
25 about whether -- I have forgotten now the issue.  
26 Everything else was U.S., but somehow I think OPG or an  
27 affiliate was included in the sample. I won't even give  
28 the case number, because I don't remember all the facts. I

1 just remember that that was an issue then, and I believe  
2 it's an issue here.

3 So to think of your -- so including Hydro One in your  
4 sample, you have a total of 48 companies in your TFP  
5 sample?

6 MR. FENRICK: That's correct.

7 DR. SCHWARTZ: Forty-eight? Is there an implicit  
8 assumption, going back to my example of men and women's  
9 heights, that the conditions that give rise to productivity  
10 concerns in the United States may or may not be the same as  
11 those in Canada and that when we include Hydro One or  
12 indeed any other Canadian -- a small number of Canadian  
13 samples, I mean, it may be legitimate in one sense, but  
14 then questions can be raised because there may be valid  
15 reasons for differences between Canada and the United  
16 States.

17 So would you see that possibility as kind of a  
18 limitation on your results derived from a sample of 48?

19 MR. FENRICK: Given that there's differences  
20 between -- potential differences between Canada and the  
21 U.S. --

22 DR. SCHWARTZ: Of all of the things that might  
23 influence productivity growth in Canada and the United  
24 States, some of them may be different, may be different on  
25 both sides, on either side of the border. So when you put  
26 them together in a sample isn't it much like bringing women  
27 into a -- heights into a study of men's heights because you  
28 don't have a large enough sample of men?

1 MR. FENRICK: Well, I would say these are all electric  
2 transmission utilities, so they are all in the exact same  
3 industry as Hydro One, you know, so it's all electric  
4 transmission utilities. Could there potentially be  
5 differences between Canada and the U.S.? Yes, absolutely,  
6 that's certainly a possibility.

7 But we are using the U.S. industry and the data, given  
8 that it's the best possible data to develop what the  
9 transmission industry TFP trend has been, we are using that  
10 as a proxy for Ontario TFP trends to determine what the X  
11 factor would be.

12 I think that's by far the best possible solution out  
13 of any other solution. I don't think -- you certainly  
14 don't want to look at Hydro One transmission's TFP trend to  
15 determine that X factor, because you want an external  
16 measure of productivity, otherwise you are putting Hydro  
17 One's performance over time into the incentive regulation  
18 formula, and that would be -- that would violate incentive  
19 regulation principles.

20 So given the realities of the data and what we have,  
21 this is by far the best approach to determine that X factor  
22 for the transmission industry --

23 DR. SCHWARTZ: I am sorry, I am not taking issue with  
24 the fact that you have used U.S. companies, but I think  
25 it's important, and we will explore maybe some of the  
26 differences.

27 Also, I think you were too quick on that. I know why  
28 we don't use Hydro One by itself, because the Board has

1 issued a report saying that it wants an industry-wide  
2 sample and a long-term historical trend based on that  
3 sample, so Hydro One by itself would not be sufficient and  
4 the Board probably wouldn't take it, but let's leave that.

5 Okay. So we can end this, and you will, I guess,  
6 confirm then that there were 47 U.S. utilities in your --  
7 in PSE's TFP sample.

8 MR. FENRICK: Yes, I can confirm.

9 DR. SCHWARTZ: Fine, and that's the number I have been  
10 working with.

11 I would like to turn briefly -- I don't know if you  
12 will need to see it; I am sure you know it -- to your table  
13 3 in the PSE's report, it's on page 10. That's the table  
14 there -- no, you went too far. Table 10, if you can put it  
15 on the screen, yeah, that's table 2. Table 3 is the next  
16 table. That's it. Yeah, okay that's the table I referred  
17 to.

18 Now, I'd like you to confirm that the growth rates,  
19 what you call the average annual growth rate of the  
20 industry TFP index in that table, which is minus  
21 1.71 percent for your study period, 2004 to 2016, is simply  
22 the arithmetic average of the logarithmic growth rates of  
23 that index, as that index is reported. And the issue here  
24 is that you haven't reported the logarithmic growth rates,  
25 or the growth rates on which those averages are based.

26 So would you confirm that minus 1.71, which you show  
27 as the average annual growth rate, is indeed the simple  
28 arithmetic average of the logarithmic growth rates of that

1 index that you have calculated?

2 MR. FENRICK: Yes, that's correct. That's how it's  
3 calculated.

4 DR. SCHWARTZ: That's fine, because it's not clear  
5 there. And I would like to pursue this business about  
6 logarithmic growth rates with you for a moment because I am  
7 reasonably certain that aside from you and me, nobody in  
8 this room knows what a logarithmic growth rate is.

9 MR. FENRICK: I cannot confirm that.

10 DR. SCHWARTZ: I won't take a poll. Would you  
11 confirm, as I have indicated, one of my questions is -- or  
12 disconfirm, or just perhaps subject to check, that instead  
13 of the logarithmic change that the simple arithmetic  
14 average of the percentage, of the annual percentage changes  
15 in table 3, not the logarithmic changes, is minus 1.67  
16 percent for your study period?

17 MR. FENRICK: Yes. I looked at that last night, since  
18 you were nice enough to provide this, and I confirmed that  
19 number.

20 DR. SCHWARTZ: Thank you. So you would agree with me  
21 then that when you go to simple arithmetic average of  
22 annual percentage changes in your index, you get a larger  
23 number than what you've got minus 1.71 percent?

24 MR. FENRICK: Correct. If you go to arithmetic  
25 average, it goes up by --

26 DR. SCHWARTZ: Well, not the -- it's the arithmetic  
27 average of simple annual changes in the index, not the  
28 logarithmic changes in the index.

1 MR. FENRICK: Yes, I believe I said...

2 DR. SCHWARTZ: Yes, I think you did. Okay.

3 MR. FENRICK: Right, it goes up by four basis  
4 points --

5 DR. SCHWARTZ: Yes, I agree with that. I am not so  
6 much concerned with the quantum in the...

7 MR. FENRICK: Let me just say on that point -- it  
8 might be helpful. That's how the fourth-generation IR also  
9 calculated was using the logarithmic changes and percent  
10 changes. So I was being consistent and followed precedent  
11 here in Ontario.

12 DR. SCHWARTZ: As I said, I am not really interested  
13 in precedent here. I am trying to understand the numbers  
14 that you -- that PSE has produced, and how they might  
15 square with more familiar understandings of what a  
16 percentage change in a growth rate is.

17 Would you, I guess -- let us imagine that an index is  
18 100 in the base year, and in the next year it ends at 110.  
19 So you would, I think, agree with me that that's a 10  
20 percent increase in that year in the index?

21 MR. FENRICK: Using the arithmetic --

22 DR. SCHWARTZ: No, well, the percentage -- I said the  
23 percentage change in the index is 10 percent because the  
24 index has moved from 100 to 110. So the percentage change  
25 in that index is clearly 10 percent. Is that right?

26 MR. FENRICK: Using the arithmetic method, it is  
27 10 percent. If you use the logarithmic method, I believe  
28 it's likely less than that.

1 DR. SCHWARTZ: That's right, and that's my next  
2 question. So if we did some changes in an index and you  
3 only reported the logarithmic change, you would be  
4 reporting a change of 9.53 percent in logarithmic terms,  
5 whereas the simple annual percentage change in the index  
6 was 10 percent.

7 If you want a calculator, you can do it, or you can  
8 accept my calculation of your -- subject to check.

9 MR. FENRICK: Let me take that subject to check. I am  
10 not going to do the natural login my head.

11 DR. SCHWARTZ: I believe the natural logarithmic of 10  
12 percent is 9.53 percent, subject to check.

13 MR. FENRICK: Subject to check.

14 DR. SCHWARTZ: Okay. Now, that's a difference of  
15 about 50-basis points, almost. Would you say that's  
16 significant, in your professional opinion?

17 MR. FENRICK: I would say that in my professional  
18 opinion, the 9.53 percent would be a more accurate  
19 depiction of the actual growth rate --

20 DR. SCHWARTZ: We don't know what this is a growth  
21 rate of. I am just asking you if people generally do not  
22 know what a logarithmic growth rate is, they might be  
23 inclined to assume that it is simply the annual percentage  
24 change in the index. That annual percentage change in the  
25 index, as you have agreed, is 10 percent in my  
26 hypothetical --

27 MR. FENRICK: I don't believe -- I said the arithmetic  
28 average comes to 10 percent. I didn't agree...

1 DR. SCHWARTZ: We didn't compute. There is no  
2 averaging in this. It's just a calculation from one level  
3 to another level. I am not averaging anything.

4 MR. FENRICK: I just want to clarify. I didn't agree  
5 that the average increase -- sorry, the increase was 10  
6 percent. I said if you calculated arithmetically, the  
7 increase is 10 percent.

8 DR. SCHWARTZ: I don't know what you mean by  
9 calculating arithmetically. The percentage change in  
10 concept is a very basic concept, and I think everybody in  
11 the room knows how to calculate a percentage increase in a  
12 number that starts off with 100 and ends up with 110.  
13 That's ten percent, right? I am not averaging anything.

14 MR. FENRICK: You are saying it as though it's plain  
15 and common sense. But let's take your example a little  
16 further.

17 So you start with a base of 100, you go to 110, and  
18 you're saying that's a 10 percent growth rate --

19 DR. SCHWARTZ: Do you dispute that?

20 MR. FENRICK: May I finish?

21 DR. SCHWARTZ: Yes.

22 MR. FENRICK: Okay. So you start at 100, you go to  
23 110. Now, if you go down using the arithmetic method by  
24 10 percent, what number are you at?

25 DR. SCHWARTZ: A 10 percent decline in the index leads  
26 to a logarithmic decline of minus 10.54 percent.

27 MR. FENRICK: So if you go up -- you start at 100 and  
28 you go up 10 percent using the arithmetic method, and then

1 you go down 10 percent...

2 DR. SCHWARTZ: 90.

3 MR. FENRICK: No. You are at 100. You go up 10  
4 percent using the arithmetic method at 110. Now you go  
5 down ten percent --

6 DR. SCHWARTZ: Which is to 90.

7 MR. FENRICK: Sir, may I please?

8 DR. SCHWARTZ: Sorry, go ahead. You're right.

9 MR. ENGELBERG: Dr. Schwartz, please let him finish  
10 before you interrupt.

11 DR. SCHWARTZ: Okay, all right.

12 MR. FENRICK: So let me try one more time. You start  
13 at 100. You go up to 110 and using the arithmetic method,  
14 that's 10 percent. If you then use the arithmetic method  
15 and go down 10 percent, you are not at 100. And this is  
16 the problem with the arithmetic average. You are at 100  
17 point something.

18 And so it's not symmetric, based on if you are going  
19 up or down. Whereas using the logarithmic method, that is  
20 symmetric. If you go up 9.53 percent in your example, and  
21 you go back down 9.53 percent, you are at the same spot.

22 So it's symmetric based on whether you're going up or  
23 down, because it's not using that base year as the  
24 denominator, which the arithmetic method does. Instead it  
25 is combining the base year along with the next year in the  
26 calculation.

27 And so this is why, in the fourth-generation IR and  
28 just traditionally when you are doing TFP indexes and

1 looking at the annual growth rates, you doing it  
2 logarithmically because that's more mathematically  
3 accurate.

4 DR. SCHWARTZ: I believe what you said misstated the  
5 issue. If the base year is 100 and then it falls to 90, I  
6 say that's a 10 percent simple decline and that the  
7 logarithmic equivalent of that 10 percent decline is minus  
8 10.54.

9 Now can you confirm that, subject to check?

10 MR. FENRICK: Yes, subject to check, I can.

11 DR. SCHWARTZ: Fine. Because I know what you were  
12 saying. You were saying that if you went from 100 to 110  
13 and then, at that 110 base, you fell ten percent, you might  
14 need a logarithmic change to do it.

15 But I am just saying assuming the base for the  
16 increase and for the decrease, it's the same.

17 MR. FENRICK: Yes.

18 DR. SCHWARTZ: So I agree with what you said.

19 MR. FENRICK: Yes, if the base is the same.

20 DR. SCHWARTZ: That was my point.

21 MR. FENRICK: But in reality, as we are moving through  
22 time, the base never stays the same. It changes, and so  
23 you need to calculate these things logarithmically.

24 Otherwise, if you go up ten percent and then you go  
25 back down 10 percent, that same 10 percent, you are not at  
26 the same spot again, whereas using the logarithmic method,  
27 you are.

28 And that's why precedent states and that -- that's why

1 you calculate these things this way.

2 DR. SCHWARTZ: I am not talking about moving through  
3 time in any kind of serious way. I am just asking to make  
4 the general point, and maybe we can agree on this much,  
5 that the logarithmic equivalent of any simple percentage  
6 change will be numerically smaller than the corresponding  
7 simple change. That is to say, if we went up 10 percent,  
8 the logarithmic change would only be 9.53 percent, and if  
9 we fell from 100 down to 90, the simple change would be  
10 negative 10, but the logarithmic change would be negative  
11 10.54 percent.

12 So what I am saying here only, and I think perhaps you  
13 will agree with me, that when you use logarithmic changes  
14 you have to be a little careful because people may not  
15 understand what a -- who don't know what a logarithmic  
16 change is might come to the conclusion that things are  
17 smaller than they had understood, because that's what  
18 logarithmic changes do. They make the numbers smaller than  
19 the corresponding simple percentage changes.

20 MR. FENRICK: I can agree. I can agree to that. I  
21 would also like to add that's why you should do logarithmic  
22 calculations, because they are more accurate, they more  
23 accurately depict both the decline and -- you know, an  
24 increase and a decline in percentage terms.

25 DR. SCHWARTZ: I agree with you, and that's the issue,  
26 but as I have said in my simple example, the base is the  
27 same, and the logarithmic changes tend to produce smaller  
28 numbers.

1 MR. SHEPHERD: Can I just ask a clarifying question  
2 here? It sounds to me from your discussion like  
3 logarithmic changes actually produce a number biased  
4 towards the negative, not a smaller number, because, in  
5 fact, when change is going down --

6 DR. SCHWARTZ: It becomes more negative. If it's  
7 negative to begin with then it becomes more negative under  
8 logarithmic, and if the growth rate is positive it becomes  
9 less positive.

10 MR. SHEPHERD: Sorry, Mr. Schwartz, I wasn't finished.  
11 And the result of that is that when you do a log analysis  
12 of a series like this where you have negative productivity,  
13 that tends to increase the negative productivity because  
14 you are using logs. I am not saying it's incorrect, I am  
15 just saying that tends to be the effect. Here the effect  
16 is not very big, but the effect is always going to be to  
17 push down the -- increase the negative productivity if  
18 that's what the trend is.

19 MR. FENRICK: Right. I believe that -- Mr. Shepherd,  
20 I believe that's correct, that it would have a higher  
21 decline if you are using the natural log versus the  
22 arithmetic average, and we are talking about four basis  
23 points, which doesn't change any recommendations here  
24 whatsoever.

25 DR. SCHWARTZ: Well, yes, and you're correct in that.  
26 Would you agree with me that for large changes, such as  
27 10 percent, 15 percent, there could be a significant  
28 difference in the reported number, but when we are talking

1 about simple percentage increases on, say, 1 percent,  
2 2 percent, or minus 1 percent, maybe the difference between  
3 the logarithmic and the simple percentage change would not  
4 be very large and may even be close to similar, so that --

5 MR. FENRICK: If your question is as the magnitude of  
6 the change increases the differences between the two would  
7 increase --

8 DR. SCHWARTZ: Yes.

9 MR. FENRICK: -- yes, I can agree to that.

10 DR. SCHWARTZ: Okay. Fine, that's fine.

11 So you are right to say, and I will just confirm that,  
12 and I am glad you have confirmed my own number, that if we  
13 move from the logarithmic minus 1.71 percent in your table  
14 to using simple growth rates, percentage changes, it goes  
15 up, the productivity figures, minus .67 percent versus your  
16 logarithmic change, and it's only four basis points, and  
17 that's because the simple changes are relatively small.

18 MR. FENRICK: Right.

19 DR. SCHWARTZ: All right. Good, thank you. Thank you  
20 very much. I am sorry for the interruption. And I mean  
21 that. I get involved in these things, so...

22 Now, I'd like to just confirm -- as you will see, the  
23 issue number 3 is does the analysis of the U.S.  
24 utilities -- and here I am restricting to the 47 companies  
25 in your indices -- support the PSE's aggregate index  
26 approach.

27 So you will see from the tables that what I have done  
28 is I have downloaded your growth -- your indices, and then

1 -- which is not what you have done -- and tried to make  
2 inferences about the total productivity change. You have  
3 used what I could call the aggregate index approach? That  
4 is, you have taken all the data regardless of company, if  
5 that's the way to put it, and used totals, perhaps, and  
6 things like that? That is, you have not analyzed  
7 individual company productivity indices that you have in  
8 fact created?

9 MR. FENRICK: Yes, that's correct. I aggregated the  
10 industry consistent with the fourth-generation incentive  
11 regulation procedure for the electric distributors. That's  
12 exactly how those calculations were done as well in that  
13 proceeding.

14 DR. SCHWARTZ: Okay. But there could be other ways to  
15 do it. And one way to confirm -- and this is why I did it.  
16 I said, let me look at your individual company-specific TFP  
17 indices and see if I can get close to your number, which is  
18 minus 1.7 percent, and just to confirm that I do. I get  
19 very close to that number, as we will see in a second.

20 But you did not, in your report, present individual  
21 company productivity indices, which is why we had -- is  
22 that correct? And you didn't discuss them?

23 MR. FENRICK: That's correct. I think it's better to  
24 have the report so it can be on the public record. We  
25 don't need confidential. And if we included individual  
26 utilities, we would have to have the report be  
27 confidential, and that's also the fourth-generation IR also  
28 did not disclose the individual distributors' performance.

1 They aggregated the industry into one and presented that.

2 DR. SCHWARTZ: Would you then turn to table A in the  
3 handout and confirm or disconfirm that for each year and  
4 for each company I have correctly downloaded the company-  
5 specific indices for each year? And maybe you want to take  
6 that as an undertaking or...

7 MR. FENRICK: Yes, I would like to take that as an  
8 undertaking.

9 DR. SCHWARTZ: Okay.

10 MR. SIDLOFSKY: That will be a confidential  
11 undertaking. It's JTX2.4.

12 **UNDERTAKING NO. JTX2.4: TO PERUSE TABLE A IN THE**  
13 **HANDOUT AND CONFIRM OR DISCONFIRM THAT FOR EACH YEAR**  
14 **AND FOR EACH COMPANY DR. SCHWARTZ HAS CORRECTLY**  
15 **DOWNLOADED THE COMPANY-SPECIFIC INDICES FOR EACH YEAR**

16 DR. SCHWARTZ: And so to be specific, you're  
17 undertaking to examine Table A and to confirm or disconfirm  
18 whether Energy Probe has downloaded your company-specific  
19 annual indices correctly from the data that you have  
20 provided confidentially in the interrogatories process.

21 MR. FENRICK: Sorry, Dr. Schwartz, could you repeat  
22 that question?

23 DR. SCHWARTZ: Well, we have given an undertaking, and  
24 what I am asking you to do is to confirm essentially that  
25 the data in Table A are correct.

26 MR. FENRICK: Oh, yeah, absolutely we can, yeah.

27 DR. SCHWARTZ: That's all that that is, and if you say  
28 I am wrong then everything else I have done is probably

1 wrong too. Thank you.

2 Now, in -- let's go to the next question. Would you  
3 then turn to Table B, the next one, and confirm or  
4 disconfirm that the annual percentage changes in each  
5 company's TFP index as shown in the table have been  
6 calculated correctly? So now if you look at Table B, these  
7 are the simple annual changes of your indices for each  
8 company. Perhaps --

9 MR. FENRICK: If I could just ask a clarifying  
10 question. Those percentage changes, did you calculate  
11 those arithmetically or logarithmically?

12 DR. SCHWARTZ: In your language I did it  
13 arithmetically.

14 MR. FENRICK: What's your language?

15 DR. SCHWARTZ: A percentage change is easy to compute.  
16 It's  $A \text{ minus } B \text{ over } B$ . You want to call it an arithmetic  
17 change, we can call it an arithmetic change.

18 MR. FENRICK: Okay. So that's how you did it?

19 DR. SCHWARTZ: Yes.

20 MR. FENRICK: Okay. Yes. If I can take an  
21 undertaking to confirm those.

22 DR. SCHWARTZ: Now, would you look at the very bottom  
23 right-hand corner.

24 MR. SIDLOFSKY: Sorry, I am sorry, I am just going to  
25 interrupt you there. JTX2.5.

26 **UNDERTAKING NO. JTX2.5: TO ADVISE WHETHER IN TABLE B**  
27 **THE PERCENTAGE CHANGES WERE CALCULATED ARITHMETICALLY**  
28 **OR LOGARITHMICALLY.**

1 DR. SCHWARTZ: JTX2.5. Okay. Now, just to show you  
2 that I think you and I are probably on the same side,  
3 though we have used different methodologies to some extent,  
4 if you look at the very, very bottom right-hand corner of  
5 Table B, you will see the average of the row averages is  
6 minus 1.709.

7 MR. FENRICK: Yes, I see that.

8 DR. SCHWARTZ: So that's pretty close to your  
9 arithmetic -- sorry, your logarithmic change that you  
10 display in Table 3 of your report? It's just that we have  
11 gone about it somewhat differently?

12 MR. FENRICK: Right. And you don't have Hydro One  
13 Networks in here --

14 DR. SCHWARTZ: Yes, without Hydro One and using what  
15 you refer to as simple arithmetic growth rates, say, we  
16 come out to almost identical.

17 MR. FENRICK: Right, I see that.

18 DR. SCHWARTZ: And if I might call your attention to  
19 the final row in table B, where we have the averages of  
20 each company's changes for that year, and if you look  
21 closely at it -- and my eyes are suffering now -- there is  
22 only one of those years, I think it's 2006, where the  
23 average growth rate of companies in your sample was  
24 positive.

25 You might want to look at it some more. But as I look  
26 at, it they are all negative.

27 MR. FENRICK: Yes, according to table B, that's  
28 correct.

1 DR. SCHWARTZ: And if we look again at table B down  
2 the right-hand column, I think there are one, two, three,  
3 four, five, six, seven, eight companies whose average  
4 annual growth rate over the study period is positive, and  
5 all the other 47 are negative, all the other -- well,  
6 companies in your sample of 47 are negative.

7 You can take that subject to check, if you like.

8 MR. FENRICK: Yes, I count eight as well.

9 DR. SCHWARTZ: Okay. So the case is pretty clear, but  
10 more especially so on the bottom row, I think, the year-to-  
11 year changes are overwhelmingly negative.

12 Now, thinking again about table B, we have 47  
13 companies and, I think, 12 growth -- so there are 564  
14 observations of the annual percentage change in the TFP  
15 index for each of the 47 companies, and that 209 of those  
16 564 observations are positive.

17 MR. FENRICK: I would probably want to take an  
18 undertaking. I don't want to count 209...

19 DR. SCHWARTZ: Yes, okay.

20 MR. SIDLOFSKY: JTX2.6.

21 **UNDERTAKING NO. JTX2.6: TO CONFIRM THE NUMBER OF**  
22 **POSITIVE TFP RESULTS IN TABLE B**

23 DR. SCHWARTZ: Now, I have a note here, if we could  
24 turn to Energy Probe and your response -- sorry, Hydro  
25 One's response to Energy Probe's question number 29F. I  
26 guess we'd have to turn to that.

27 Yes, and here is just a clarification. If you look at  
28 Energy Probe Interrogatory No. 29, we were unsure what was

1 in the sample and what wasn't.

2 So I claimed there it was 552 observations. The  
3 numbers are a little different, but just to confirm now  
4 that we are on the same page, that if you confirm table B  
5 undertakings, then we are talking about 47 US sample  
6 companies over your study period. So we have 564  
7 observations. I will just point that out.

8 MR. FENRICK: Right, because without the 12 Hydro  
9 One...

10 DR. SCHWARTZ: Yes, okay. Fine, thank you. I have  
11 prepared in chart A, based on those 564 observations, a  
12 frequency distribution to summarize the 564 growth rates in  
13 table B. Would you say --

14 MR. SHEPHERD: Can I just stop you, Dr. Schwartz?  
15 Chart A doesn't appear to me to be a confidential document.  
16 Now, I understand it comes from confidential data.

17 DR. SCHWARTZ: Yes.

18 MR. SHEPHERD: But the actual pattern wouldn't have  
19 seemed to me to be confidential. Can you comment on  
20 whether that's confidential or not, or whether it should be  
21 treated as confidential?

22 DR. SCHWARTZ: I had assumed that --

23 MR. SHEPHERD: Sorry, I was asking the witness.

24 DR. SCHWARTZ: Oh, I'm sorry.

25 MR. FENRICK: Yes, to the extent that we are not  
26 revealing utility names and things like that, I would think  
27 this would not be confidential.

28 MR. SHEPHERD: I wonder if we could have chart A --

1 and before I go there, charts B and C which you have also  
2 seen, similarly don't seem to me to be confidential. And I  
3 wonder if charts A, B and C can be treated as public  
4 documents rather than confidential documents.

5 DR. SCHWARTZ: We have no objection.

6 MR. SIDLOFSKY: If you could just bear with me for a  
7 moment?

8 MR. SHEPHERD: The Board hasn't ordered that these  
9 particular documents be confidential, right?

10 MR. SIDLOFSKY: If we look at material that was filed  
11 on the public record by Energy Probe on January 10th, so on  
12 Thursday of last week, we can actually see the issues that  
13 Dr. Schwartz is taking the witnesses through, as well as  
14 redacted versions of the two tables.

15 So there are no company names showing there, and the  
16 charts themselves. So there is -- that material is on the  
17 public record now.

18 MR. SHEPHERD: And it's identical to this?

19 MR. SIDLOFSKY: Well --

20 MR. SHEPHERD: And it has an exhibit number of some  
21 sort?

22 MR. SIDLOFSKY: Well, it's on the record. It hasn't  
23 been assigned an exhibit number. It's in the WebDrawer.

24 MR. SHEPHERD: Okay, then I withdraw my comment.

25 DR. SCHWARTZ: If I may, I believe when we submitted  
26 our request or after PSE had seen, they said it would be  
27 too easy to identify individual companies even if we had  
28 taken out the company names. So that's why I assumed table

1 A and table B would be confidential.

2 MR. SHEPHERD: I am not objecting to table A and B. I  
3 understand that it's the other five pages. Okay, good,  
4 thank you.

5 DR. SCHWARTZ: Chart A is a matter of judgment, I  
6 suppose.

7 MR. SHEPHERD: Thank you.

8 DR. SCHWARTZ: Now, you will see, and based on that  
9 average I have shown you in table B in the bottom right-  
10 hand corner of minus 1.709, that that pretty much lines up  
11 with this chart. I mean, you might want to check it, but I  
12 don't dispute that the simple mean of that distribution is  
13 1.709, close to your own estimate of minus 1.71 percent.

14 Would you consider that what I have done with the data  
15 in table B and chart A to be producing a parameter  
16 estimate, that is my estimate of the productivity change  
17 is, by chart and by table B, minus 1.709 percent, very  
18 close to your own.

19 I am calling that a parameter estimate. Would you  
20 consider that to be correct, just from your general  
21 knowledge of statistics?

22 MR. FENRICK: Could you define what you mean by a  
23 parameter estimate?

24 DR. SCHWARTZ: Well, I will tell you, what do you  
25 think a parameter estimate is? I am using a sample to  
26 estimate a mean, and that mean is presumably an estimate of  
27 some population parameter. Isn't that right?

28 MR. FENRICK: This is your estimate of the average

1 annual TFP growth of the industry, and to the extent you  
2 want to call that a parameter estimate, I mean, that's your  
3 estimate, yes.

4 DR. SCHWARTZ: Well, okay. Now I would like you to  
5 turn to your study on page 30, where your PSE report, 3.4.1  
6 statistical tests. It reads briefly:

7 "The precision of parameter estimates is an important  
8 dimension of the cost estimation exercise. It specifies a  
9 business condition variables that have statistically  
10 significant effect on cost, in particular the standard  
11 errors of parameter estimates, which measure the precision  
12 with which a parameter is estimated, are used to construct  
13 a test of a relevant hypothesis," et cetera, et cetera, et  
14 cetera.

15 So you obviously know what a parameter estimate is,  
16 because you have done that in your statistical tests for  
17 your total cost benchmarking, I guess.

18 But you haven't done any statistical analysis or  
19 confidence or, parameter -- you know, parameter estimates  
20 for your own approach because to do that, you would have to  
21 deal with the sample information that I show in chart --  
22 Table A and Table B, perhaps.

23 Could one do, given your estimate of minus  
24 1.71 percent, a parameter -- calling that a parameter  
25 estimate, other analyses to understand its precision?

26 MR. FENRICK: To clarify, on page 30 of the report we  
27 are talking about the total cost benchmarking model and the  
28 parameter estimates that go into the total cost model.

1           Regarding the TFP estimate that we came up with -- and  
2 this goes back to our earlier discussion -- we aggregated  
3 the industry into one large aggregation, if you will,  
4 following fourth-generation IR precedent, and did that the  
5 same way.

6           So we don't have -- no way into our TFP estimate do  
7 the individual TFP estimates play a role, because we are  
8 aggregating them up into one large industry number and then  
9 looking at the TFP for that full industry, and so there was  
10 no way to do statistical or parameter tests on that  
11 estimate because of the aggregation procedure that we used.

12           Now, by your approach, you know, you do have those,  
13 and maybe you're looking at that. But the approach that we  
14 took, which again followed fourth-generation IR, was to  
15 aggregate the industry and then report that number of what  
16 the industry shows as far as the TFP trend.

17           DR. SCHWARTZ: Going back then to Table 3 in your  
18 report, where you show annual logarithmic changes -- sorry,  
19 annual -- no, you show the average of logarithmic changes  
20 as minus 1.71 percent, and you show at least the index data  
21 on which those are calculated.

22           Did you ever calculate, since you calculated a mean,  
23 an average of logarithmic changes, did you ever calculate a  
24 variance or standard deviation for those -- for that  
25 sample?

26           MR. FENRICK: No, I never calculated that. I, again,  
27 followed and was consistent with the fourth-generation IR  
28 procedures in calculating TFP indices.

1 DR. SCHWARTZ: Now, is that a parameter estimate, your  
2 minus 1.71 percent a parameter estimate, in the sense that  
3 you use that term in total cost benchmarking?

4 MR. FENRICK: It's certainly different in a number of  
5 important ways in the fact that there's only -- you know,  
6 there's 12 growth years in here and it's aggregating the  
7 whole industry, whereas in the total cost benchmarking we  
8 are taking each of the individual utilities in each  
9 individual year where we have a number, you know, hundreds  
10 of observations, and then are calculating econometric model  
11 off of those and coming up with the parameter estimates.  
12 Here we are taking the full industry and calculating the  
13 productivity index as it goes throughout time, and that's  
14 our estimate of the industry's TFP index.

15 If you want to call that -- it's certainly an estimate  
16 and it's an estimate of what we believe the transmission  
17 industry's productivity trend has been from 2004 to 2016.

18 DR. SCHWARTZ: Fair enough. So it is a parameter  
19 estimate in your Table 3, and I agree with that. But you  
20 haven't considered any associated measures of precision  
21 around that estimate to which you refer on page 30, and I  
22 guess my question is why not?

23 MR. FENRICK: Again, in doing the TFP research we were  
24 consistent with the fourth-generation IR precedent, and  
25 this is traditionally how TFP indexes have been calculated  
26 in calculating X factors, to my knowledge, in Ontario and  
27 in other places I haven't seen where there's precision  
28 statistics on the estimate, especially when you are

1 aggregating the industry like we have in following that  
2 precedent, that's not something that has traditionally been  
3 done.

4 DR. SCHWARTZ: Okay. Well, I agree with you that it  
5 is not common practice, but from a professional economic  
6 statistical point of view, isn't it appropriate if one,  
7 generally speaking, reports a mean, a simple average, that  
8 the data is all there to compute measures of variation, the  
9 standard deviation, the variants and so on, and then  
10 subject the mean estimate to statistical testing? Nobody  
11 seems to do that in TFP work, and I have been wondering  
12 why. Have you ever thought about that?

13 MR. ENGELBERG: Dr. Schwartz, the witness has answered  
14 the questions about what was done and why it was done that  
15 way. I don't think the technical conference is a place for  
16 a debate about what might have been done, what could have  
17 been done, what other people might do. Maybe you can save  
18 that for another time.

19 DR. SCHWARTZ: I would rather ask this witness's view.  
20 He is an economist. He has had a lot of experience with  
21 data and statistics, and I don't think it's really a  
22 matter, because this question is now very precise, and I  
23 ask him why in his view these other measures, other  
24 studies, TFP, don't do it when we use his index approach.  
25 And I agree with him that by and large people who do these  
26 studies don't introduce measures of variability. Is there  
27 any good reason for that?

28 MR. ENGELBERG: I am going to tell him not to answer

1 the question --

2 DR. SCHWARTZ: And, sorry, I am not sure it's your  
3 place to tell a witness what to answer when he is  
4 inexperienced. He is inexperienced, and he is allowed to  
5 answer. If he doesn't want to answer, that's fine with me.

6 MR. ENGELBERG: I am instructing him not to answer the  
7 question.

8 DR. SCHWARTZ: Okay.

9 MR. SHEPHERD: I wonder if I can jump in here for a  
10 second. It is Mr. Engelberg's right to decide what his  
11 witnesses will answer, number one. But number two, I think  
12 I wanted to ask some questions about outliers, and I think  
13 that the technical conference is exactly the place where  
14 you are supposed to do that, Mr. Engelberg. We should not  
15 be wasting the Board's time with that sort of technical  
16 analysis of the components of a sample. And this is the  
17 place where -- Mr. Fenrick may well be able to satisfy us  
18 that it is correct to leave the outliers out, to ignore  
19 medians and use averages. And if that's the case, doesn't  
20 that help the Board?

21 MR. ENGELBERG: I understand your position, and thank  
22 you for putting it on the record, but I don't believe this  
23 question is an appropriate question to answer. Maybe when  
24 we get to yours they will be.

25 MR. SHEPHERD: Okay, go ahead.

26 DR. SCHWARTZ: Thank you. Let us turn, then, to the  
27 final two charts, two pages of our handout. And if you'd  
28 look at chart B, this is information based on U.S. energy

1 information -- administration on net electricity generation  
2 for the period '49 to 2017. There are some numbers that I  
3 have put on there, but forgot the numbers. Just looking at  
4 that chart, do you see a trend?

5 MR. FENRICK: Yes.

6 DR. SCHWARTZ: A long-term trend, a historical long-  
7 term trend?

8 MR. FENRICK: Yes, I mean, the trend is upwards from,  
9 you know, right after the World War II era, and you have  
10 increasing -- increasing electricity generation in the  
11 U.S., and then that's increasing, and then it flattens out  
12 around the 2000s.

13 DR. SCHWARTZ: Okay. So, well, let's be clear. Just  
14 looking at the chart, the line as a whole, just to pursue  
15 this a bit, would you say that there is a long-term trend  
16 and that maybe the last few years are what we would say is  
17 off-trend?

18 MR. FENRICK: There's certainly been a change from the  
19 World War II era and the baby boomers and that type of era  
20 where use per customer was increasing rapidly and  
21 electrification in homes and that type of thing, versus  
22 now, you know, use per customer has gone flat due to  
23 technology changes and economic changes, there is certainly  
24 a different trend now in more recent years than there was  
25 post-World War II.

26 DR. SCHWARTZ: Okay. So I guess you are saying there  
27 are two trends here, one historical and one more recent; is  
28 that...

1 MR. FENRICK: Examining the data, that sure looks like  
2 it to me, that there has definitely been a flattening out  
3 of U.S. electricity generation due to those things I cited.

4 DR. SCHWARTZ: And so you do not, then, expect the  
5 longer-term trend to continue. That is we flattened out,  
6 we have kind of peaked, we have no reason to expect any  
7 future increases -- a return, if you will, not long-term  
8 trend?

9 MR. FENRICK: I would rather not speculate on the  
10 future forecasts of U.S. generation. It certainly appears  
11 in historic, recent historical times, that there has been a  
12 flattening out of generation. I would be speculating if I  
13 were to look out ten, twenty years on what U.S. generation  
14 is going to look like.

15 DR. SCHWARTZ: Are you familiar with long-term energy  
16 plans in Ontario, published either by the Energy Board or  
17 what used to be called the power authority, or maybe the  
18 system operator, when they talk about long-term trends in  
19 consumption of electricity? Are you familiar with any of  
20 those?

21 MR. FENRICK: No, sir.

22 DR. SCHWARTZ: Okay. The Board has said, as I  
23 understand it, that they want an historically based long-  
24 term trend to satisfy its, you know, X factor number.

25 And did you refer to any specific documents of the  
26 Board that sustain that conclusion? Are you relying on any  
27 other reports of the Board that say anything more than the  
28 Board wants an historical long-term trend to be used in

1 setting the X factor, or the productivity factor?

2 MR. FENRICK: Yes. Again, I think looking at the  
3 fourth-generation IR in that decision, there the TFP trend  
4 calculated for the electric distribution industry began in  
5 2002 and went through 2012. So that was a ten-year trend  
6 in the Board decision based its X factor of 0.0 percent on  
7 that TFP of ten years.

8 Further looking through other precedents, the recent  
9 merger of Enbridge and Union Gas, the Board's consultant,  
10 Pacific Economics Group, put together a report and this was  
11 in EB-2017-0306, in Exhibit M1, page 42 of 77. And  
12 starting on the bottom of page 42, they talk about the  
13 sample period and what an appropriate long-term trend would  
14 be, and they say:

15 "In choosing a sample period for an indexing  
16 study used in X factor calibration, it is  
17 generally desirable that the period include the  
18 latest year for which all of the requisite data  
19 are available. In the present case, this year is  
20 2016. It is also desirable for the sample period  
21 to reflect the long run productivity trend. We  
22 generally desire a sample period of at least ten  
23 years to fulfill this goal. A long sample  
24 period, however, may not be indicative of the  
25 latest technology trend. Moreover, the accuracy  
26 of the measured capital quantity trend is  
27 enhanced by having a start date for the indexing  
28 period that is several years after the first year

1           that the good capital cost data are available.  
2           We attempt to balance all of these considerations  
3           by presenting productivity results for the  
4           eighteen-year, 1999 to 2016, period."

5           So in this, which was Board Staff's consultant as well  
6           as fourth-generation IR, there was -- you know, PEG said a  
7           ten-year sample period reflected a long term. Here they  
8           used an 18-year for the gas distribution.

9           I believe in the OPG case, the company's consultant  
10          also used a 12-year long-term trend from '02 to '14 in that  
11          case. As well as, if you go outside of Ontario, probably  
12          the most prominent transmission productivity study has been  
13          done by the Australian energy regulator and this was funded  
14          by AER, the regulator itself. And in there, they have a  
15          ten-year TFP trend '06 to '16, and I refer to that study in  
16          Exhibit 1, tab 1, schedule 63.

17          So I think there's a number of precedents that support  
18          having a 12-year TFP trend estimate in this case.

19          DR. SCHWARTZ: Well, I am sure you are right on that.  
20          That's not really my question, but I accept that.

21          Would you turn to chart C, which is the comparable  
22          data on Canadian utilities and its available in two series  
23          from Statistics Canada.

24          Does that suggest to you a different long-term trend  
25          than what -- again ignoring the numbers -- than the U.S.  
26          chart? Are there any significant differences, in your  
27          point of view?

28          MR. FENRICK: Is there a reason why we are not seeing

1 the Ontario graph?

2 DR. SCHWARTZ: We don't have it, as far as I know.  
3 Sorry, I don't know what Stats Canada had, but what I  
4 wanted was a series that was comparable to the U.S. data  
5 and the U.S. data is at the national level, so this chart  
6 is at the national level for Canada.

7 MR. FENRICK: I do know that Stats Canada does provide  
8 an Ontario graph, and it look far similar to the U.S. graph  
9 that you showed.

10 If you want me to comment -- I don't know if this is a  
11 relevant graph for a transmission TFP study, because I  
12 don't really see how generation plays into transmission  
13 costs and cost drivers on the transmission system. I mean  
14 there's it's the demand and the transmission km of line.

15 So I don't know how generation is relevant here. But  
16 if you want me to comment on this graph, there's certainly  
17 a long-term trend post-World War II that has been much  
18 higher than in recent times. There's been a slowdown again  
19 in more recent times here, although it looks like for  
20 Canada -- not for Ontario, but for Canada generation, it  
21 seems like the growth rate is a bit higher in the more  
22 recent historical times.

23 DR. SCHWARTZ: Well, it's about twice the size,  
24 roughly speaking, isn't it, in your study period?

25 MR. FENRICK: Twice the size of the trend?

26 DR. SCHWARTZ: In the U.S. for your study period.  
27 According to these numbers, the growth rate in Canada was  
28 .97 percent a year on the simple average of years. And in

1 the States it was what? 4.2? So I guess I am --

2 MR. FENRICK: Could I answer that? Yes, according to  
3 the -- if you compare electricity generation from Canada --  
4 and I don't know exactly how these are calculated, if  
5 embedded generation are included in these numbers as well.

6 DR. SCHWARTZ: It's all utilities.

7 MR. FENRICK: It's all utilities, okay. But if you go  
8 to my report, the PSE report on page 38, table 8, you'll  
9 see if we look at Hydro One -- when she brings that table  
10 up, it will show that in the future period, Hydro One  
11 Networks is projecting basically flat growth, which matches  
12 much closer to the more recent U.S. experience. In fact,  
13 is even flatter than the U.S. experience that's included in  
14 our sample.

15 And I think when we are looking at TFP indexes and  
16 sample periods, we should try to match the historical  
17 period with what a reasonable expectation of the utility  
18 that we are studying and going to apply this X factor to,  
19 we should be looking at what the expectation is for that  
20 utility and here it's essentially flat output growth. And  
21 it's much more appropriate to have a sample period that  
22 better reflects that reality than going back to the 1950s  
23 and '60s, which had a much different trend due to a number  
24 of factors that just aren't relevant today anymore.

25 DR. SCHWARTZ: The Board has asked for a long-term  
26 historically based trend. That's what these X factors are  
27 supposed to be based on. They didn't call for a trend of  
28 what future productivity is going to be like. They just

1 wanted to know what the long-term historical trend was.

2 So what you say makes sense, but I am not sure it's  
3 what the Board wants -- or rather has asked for, let's put  
4 that it way.

5 MR. FENRICK: I don't know what the Board -- I don't  
6 want to speak for the Board. But looking at past  
7 precedents here in Ontario, specifically the fourth-  
8 generation IR where they depended on a ten-year TFP  
9 estimate to come up with the long-term industry trend, it  
10 certainly seems that our study, the PSE study aligns with  
11 the precedence of the Board.

12 DR. SCHWARTZ: I appreciate that, and I am sure that  
13 you are right in citing those documents correctly.

14 In the OPG study, it did become an issue as to, you  
15 know, what the long-term -- you know, historical growth  
16 rate was. So I will just -- and the people who know about  
17 that are Mr. Hovde and a few others from PEG, because they  
18 were on the other side, they were on the side of Board  
19 Staff. And I asked Mr. Lowry about this very same  
20 question, although not using this data, and basically, as I  
21 recall, looking at Canadian total factor productivity, it's  
22 an economic variable, not an electricity variable, that,  
23 yeah, there has been some tapering off in the last -- since  
24 2000 in Canadian business sector productivity, but the  
25 long-term trend is still upwards.

26 So I will just make that comment to you because I am  
27 trying to suggest that maybe the U.S. and Canadian  
28 experiences in the last ten, 12 years are somewhat

1 different, and that maybe this is because of the result of  
2 that incredible financial and economic crisis we had in the  
3 United States, which affected Canada, certainly, but to a  
4 lesser extent.

5 And so when we are thinking about setting, you know,  
6 parameters for a formula here, we might be a little wary of  
7 relying on U.S. samples, because they obviously -- I mean,  
8 if you ask me, I would be inclined to attribute the  
9 stabling off in chart B to precisely that factor.

10 Any thoughts?

11 MR. ENGELBERG: Well, you have certainly put your  
12 position on the record, but I think what the witness has  
13 said is that the Ontario experience is similar to the U.S.  
14 experience.

15 DR. SCHWARTZ: Okay. Well, that's fine, then we can  
16 take --

17 MR. ENGELBERG: Experience versus the U.S.

18 DR. SCHWARTZ: That's fine. We can take that up if it  
19 goes to a hearing. Thank you. Those are my questions, and  
20 I appreciate and I am sorry if I interrupted you. I mean  
21 that sincerely.

22 MR. FENRICK: No, thank you.

23 MR. SHEPHERD: Before you go out of camera or whatever  
24 the term is, I do have some questions on this confidential  
25 information.

26 MR. SIDLOFSKY: Go ahead, Mr. Shepherd.

27 **EXAMINATION BY MR. SHEPHERD:**

28 MR. SHEPHERD: So I'm going to ask you a couple of

1 things about this data, and I am going to refer to Tables A  
2 and B in the confidential Exhibit KTX2.1. I didn't hear  
3 anything confidential in the discussion you had with Dr.  
4 Schwartz, but hopefully I will be able to change that, and  
5 we will get some redactions.

6 So first of all, in your TFP index, PG&E is not in  
7 there; right?

8 MR. FENRICK: That's correct.

9 MR. SHEPHERD: Now, we are familiar, of course, with  
10 the big problems that PG&E is having now and indeed had  
11 several years ago, but they are not the only U.S. utility  
12 that has had some significant, like, big, big challenges;  
13 right? Like, billion-dollar challenges; is that true?

14 MR. FENRICK: That's true.

15 MR. SHEPHERD: Have you, in selecting your sample,  
16 excluded those utilities, the utilities that have things  
17 happen to them?

18 [Reporter appeals.]

19 MR. SHEPHERD: I apologize. Okay. Those utilities  
20 that have that similar sort of, like, big problems?

21 MR. FENRICK: No, we didn't exclude on any sort of  
22 basis of whether they had problems or did not have  
23 problems. We only excluded based on data, data reasons.

24 MR. SHEPHERD: So is it correct -- and you're very  
25 well aware that -- and I am told by Dr. Lowry and Dr.  
26 Kaufmann periodically this, that I don't know anything  
27 about statistics or economics, but is it correct that your  
28 sample still produces an appropriate average for the

1 industry if those big, big events like a company going  
2 bankrupt, for example, are included?

3 MR. FENRICK: Yes, it is an appropriate estimate, it's  
4 the industry -- it's the U.S. industry experience of the  
5 total factor productivity trend without any what I would  
6 call, you know, arbitrary exclusions based on events. It's  
7 what has actually happened in the industry as far as the  
8 productivity trend.

9 MR. SHEPHERD: Well, that sort of begs the question,  
10 though, doesn't it, and that's really what I was trying to  
11 get to, and, again, I am trying to get you to educate me  
12 here, is the -- that -- it does tell you some information  
13 about what the average was for the industry. The question  
14 is whether it's the information you need for Hydro One;  
15 right? Is it the appropriate information that you need for  
16 Hydro One?

17 So I will give you an example. A few years ago the  
18 Board did an analysis of total factor productivity for  
19 electricity distributors in Ontario and then excluded Hydro  
20 One and Toronto Hydro because they were outliers. And the  
21 Board concluded that without those exclusions the final  
22 number wouldn't be representative of the industry. Do you  
23 do that sort of process here? And if not, why not?

24 MR. FENRICK: Mr. Shepherd, in the fourth-generation  
25 IR that you are alluding to you may recall I adamantly was  
26 opposed to those exclusions in that case. I felt like you  
27 should take the full industry when calculating a  
28 productivity trend without exclusions, because you are

1 trying to come up with the industry -- the productivity  
2 trend for the entire industry, and excluding Hydro One and  
3 Toronto Hydro in there excluded a huge portion of the  
4 industry from that productivity trend.

5 I do recall in that proceeding one of the rationales  
6 for excluding those two was just the magnitude of the size  
7 of those two distributors relative to the rest of the  
8 sample and how they -- those two drove -- essentially drove  
9 the results.

10 And so I think that was one of the rationales, but I  
11 was -- I was opposed to making those exclusions. I felt  
12 like coming up with an industry TFP trend should include  
13 the entire industry.

14 MR. SHEPHERD: So this study, then, takes a different  
15 approach and says I am not excluding anything, no matter  
16 how serious?

17 MR. FENRICK: Yes, we include all of the data  
18 observations that have good data and include those in the  
19 industry definition.

20 MR. SHEPHERD: Let me put this to you as a  
21 hypothetical, because I don't know any particular examples  
22 from the list. I just saw the list for the first time  
23 today. But let's say your study included 2019 and PG&E is  
24 in it and they have \$30 billion of claims for causing  
25 wildfires in California.

26 How does that factor in to their costs and therefore  
27 their productivity? Is that \$30 billion in there  
28 somewhere? If they had to write a cheque, is it in there

1 somewhere?

2 MR. FENRICK: I mean, it's a hypothetical. I don't  
3 know where those expenses would be booked to in the future.

4 MR. SHEPHERD: Well, no, I am asking a more -- okay.  
5 I will ask it in a general way then. If one of these  
6 companies has a big claim, a billion-dollar claim for  
7 something, their reactor exploded -- no, reactors are a bad  
8 example. Their transmission line fell down and the whole  
9 city went bankrupt. How is that factored in? Is that a  
10 cost in here somewhere?

11 MR. FENRICK: What costs are you referring to? The  
12 legal costs or the -- actually, the transmission costs?  
13 Because this study looks at transmission costs. And so if  
14 it was a transmission cost that enters into the cost  
15 definition. If it's legal and if it's outside of the  
16 transmission realm, if it's a legal cost, I don't believe  
17 that would enter.

18 MR. SMITH: So if a transmission company has to pay  
19 billions of dollars for a claim because they managed their  
20 transmission utility badly, that's not included as a cost?

21 MR. FENRICK: It depends on how they book it. I mean,  
22 I can't speculate as to where they would book that cost.  
23 If they book it into a transmission expense category it  
24 would enter the study. If it's booked outside of  
25 transmission where it doesn't enter the cost definition  
26 then it would not be booked.

27 MR. SHEPHERD: So here is the reason why I am asking  
28 that. I have some specific examples on table B that are,

1 for example, a negative productivity in 2016 for one  
2 utility of 32 percent in one year. And there's another one  
3 of 29 percent in one year. And there's lots of them in  
4 double digits, 24 percent, et cetera.

5 But there are some the other way, too -- not as many,  
6 but there are some the other way, a 40 percent improvement  
7 in productivity in one year.

8 When you go through the data don't you look at that to  
9 see are these truly representative of what I am trying to  
10 measure?

11 MR. FENRICK: I think you are getting to a good point  
12 in the fact that you don't want to look at individual year  
13 observations. We are looking at a long-term trend here.

14 And so taking one year and one observation in a study  
15 that is attempting to look at the entire industry, and  
16 what's the experience of the entire industry over a 12-year  
17 period, you know, if you look at one utility here and one  
18 utility there in one specific year, you are just naturally  
19 going to have a higher variance there than if you look at  
20 the long-term trend.

21 I'd also say, yes, there's positives, negatives, in  
22 the cases; we take the data as it is and do the study. I  
23 don't make judgment calls on whether to exclude or include  
24 based on the results. I feel like that would, on some  
25 level, bias what I am trying to do.

26 MR. SHEPHERD: I wasn't asking that. I was more  
27 asking the question do you -- you have heard of the phrase  
28 scrubbing the data?

1 MR. FENRICK: Yes.

2 MR. SHEPHERD: And scrubbing the data means you take  
3 out stuff that is irrelevant to the thing you are trying to  
4 study, right?

5 MR. FENRICK: Take out stuff that's irrelevant to what  
6 you --

7 MR. SHEPHERD: Yes. There's sometimes stuff in your  
8 data that is simply not what you're trying to look for.  
9 You have got extraneous information in there that is not  
10 what you are looking for, right, and so you have to take it  
11 out?

12 MR. FENRICK: Right. So for instance, we don't  
13 include distribution costs, and we scrubbed the cost data,  
14 if you will, and we focused on transmission costs. Is that  
15 kind of what you mean by making exclusions that aren't  
16 relevant?

17 MR. SHEPHERD: Sure. But extraordinary events are not  
18 Exclusions. No matter how extraordinary, they are never an  
19 Exclusion, right?

20 MR. FENRICK: We don't specifically -- no, we don't  
21 specifically exclude observations based on events that  
22 occur.

23 MR. SHEPHERD: Do other economists do that sometimes  
24 when they are studying total factor productivity?

25 MR. FENRICK: Certainly if you go back to the fourth-  
26 generation IR, excluding Hydro One and Toronto Hydro due to  
27 the outlier status and the fact that it drove the results,  
28 was an example of taking out -- based on the results,

1 taking out two utilities. I viewed that as arbitrary, but  
2 that's an example.

3 MR. SHEPHERD: I am more talking now about  
4 extraordinary events, and there's a purpose of this. In  
5 the proposals -- in basically every IRM plan in Ontario,  
6 there is a Z factor for extraordinary events. So  
7 extraordinary events do not need to be in your IRM formula  
8 because they are going to be dealt with separately.

9 So I am asking the question when you go to your data  
10 then, your 564 observations, do you look and say, well,  
11 obviously my final number shouldn't be including  
12 extraordinary events because that's dealt with separately,  
13 can I take this out of the data.

14 And the answer is you don't, right? This includes  
15 extraordinary events.

16 MR. FENRICK: Right, that's correct and I believe  
17 that's a slippery slope, when the researcher starts making  
18 arbitrary decisions on defining extraordinary events rather  
19 than just taking the data as it lays.

20 MR. SHEPHERD: Well, you know the definition that the  
21 Board has, right?

22 MR. FENRICK: Not off the top of my head, no.

23 MR. SHEPHERD: But you could find it out?

24 MR. FENRICK: I could, yes.

25 MR. SHEPHERD: I guess the reason I am asking this is  
26 because when you look at all these big negative numbers --  
27 you know, 52 percent, 41 percent, negative productivity in  
28 a single year -- that looks like, just from the just from

1 the non-economist's eye, it looks like something  
2 extraordinary happened. And if I were trying to understand  
3 these numbers, I would be saying, well, what's that all  
4 about?

5 And that's no part of your process, right, to say  
6 what's that all about? Why is that number the way it is?

7 MR. FENRICK: What line would you suggest we draw in  
8 the sand for that exclusion?

9 MR. SHEPHERD: I am not suggesting anything because I  
10 am not the economist. Otherwise, I would get paid more  
11 money.

12 MR. FENRICK: I am not sure if that's true.

13 MR. SHEPHERD: But I am trying to understand, from  
14 your point of view, why that's okay.

15 MR. FENRICK: I don't want to be in the business of  
16 making these -- of arbitrarily excluding or including data.  
17 I feel like that's -- those would be arbitrary exclusions  
18 and very difficult to define what an extraordinary event is  
19 in a sample of 48 utilities over 12 years. Defining that  
20 would be arbitrary.

21 I'd rather -- I think it's more professional to take  
22 the data and put that into the TFP study and use it as it  
23 results.

24 MR. SHEPHERD: Okay. Then I have two other questions  
25 on this stuff. The first is your averages are averages of  
26 simple annual growth rates, right -- sorry, of natural log  
27 growth rates, right?

28 MR. FENRICK: Yes.

1 MR. SHEPHERD: But they are simple averages; they are  
2 not compound averages. If I were to look at the compound  
3 annual growth rate of productivity for these companies, it  
4 would be significantly lower -- actually, I guess it would  
5 be higher because they are negative, but you know what I  
6 mean. The numbers would be significantly different if I  
7 used a compound annual growth rate, right?

8 MR. FENRICK: Right, that's true. It's an average  
9 annual growth rate. So we take the simple average of the  
10 logarithmic growth rates to calculate that.

11 MR. SHEPHERD: So why don't you use a compound annual  
12 growth rate, which is what the utility industry uses for  
13 virtually everything else?

14 MR. FENRICK: Two reasons, probably. The first is,  
15 you know, reporting productivity indexes, this is how it  
16 traditionally is done. You report the average annual  
17 growth rates, again following the fourth-generation  
18 incentive regulation proceeding. And you know, so we  
19 followed that to be consistent with that.

20 The second reason is this is going to flow into my  
21 recommendation for the X factor, and the X factor is an  
22 annual adjustment to revenue. And so the fact that it  
23 flows into the revenue cap index in the X factor, you want  
24 an average annual growth rate into that.

25 MR. SHEPHERD: I guess that's why I asked the  
26 question, because the IRM formula is a formula that  
27 compounds every year, right?

28 MR. FENRICK: It builds off prior revenues from the

1 prior year, so -- but the formula itself is an annual  
2 formula that would necessitate an average annual growth  
3 rate for the X factor.

4 MR. SHEPHERD: Isn't that why you use compound annual  
5 growth rates, because you have a compounding formula and  
6 you are going to fit it into it?

7 If you have a compounding formula, then the annual  
8 growth rate that matters is what's going to be the compound  
9 annual growth rate, isn't it? That's just math.

10 MR. FENRICK: I guess I am not -- can you repeat?  
11 What do you mean? I guess I am not following your thought.

12 MR. SHEPHERD: If -- and again I am just trying to --  
13 I am probably wrong here, but it seems to me that if you  
14 have a formula that compounds every year, then the only  
15 number to put into it that will produce the right result  
16 after multiple years is one that is a compound growth rate,  
17 because you are going to compound it, aren't you?

18 MR. FENRICK: You are compounding it year after year  
19 in the revenue cap index. But in the specific year as you  
20 are escalating, you want to have the proper productivity  
21 expectation for that given year, which is the average  
22 annual growth rate.

23 Then, yes, it compounds year after year, the revenue  
24 cap formula compounds. But in that specific year, you want  
25 what the productivity expectation is in that given year  
26 which is the average annual growth rate.

27 Maybe I am not understanding the question, but  
28 that's...

1 MR. SHEPHERD: We will deal with the math later.

2 MR. FENRICK: Okay.

3 MR. SHEPHERD: The last thing I wanted to ask you  
4 about this stuff before we go off, is the -- I am looking  
5 at charts B and C. Let's look at chart C, is the easier  
6 one. And one of the reasons why generation isn't as  
7 applicable to transmission as perhaps to other things is  
8 because generation includes exported generation and things  
9 like that. And so it isn't necessarily reflective of what  
10 the load is on the transmission system; right?

11 MR. FENRICK: That's one of the reasons why generation  
12 is not, you know, is not a relevant factor for driving  
13 transmission costs.

14 MR. SHEPHERD: Now, this, this -- the break in the  
15 trend in the last ten, 15 years, that's something that's  
16 been studied by -- in the electricity industry at some  
17 length; right? Have you looked at any of those studies  
18 that look at how the trends have changed?

19 MR. FENRICK: I probably have, but not -- I can't cite  
20 a study that I looked at recently. But it is certainly  
21 something that's studied quite well, I am sure, in the  
22 electric industry.

23 MR. SHEPHERD: And it's true that while these  
24 particular numbers in the generation table are not  
25 necessarily the right numbers for transmission or for  
26 distribution for that matter, transmission and distribution  
27 generally show a break in the trend as well, a similar type  
28 of break. It may not be the same numbers, but it's a

1 similar break; right?

2 MR. FENRICK: From what time period over -- this whole  
3 time period?

4 MR. SHEPHERD: Yeah, from the post-war growth time  
5 period where there was very high growth in electricity  
6 transmission, distribution, and generation, to the more  
7 recent period where it's flattened out. That's been true  
8 in all three cases, right, generation, transmission, and  
9 distribution, generally speaking?

10 MR. FENRICK: Generally speaking, yeah, that's true.

11 MR. SHEPHERD: And the reason why I ask that question  
12 is because I am trying to understand -- you use as one of  
13 your metrics, one of your outputs, I guess, ratcheted the  
14 peak demand, right? So whatever the highest peak demand  
15 historically is, that's what it is today, right?

16 MR. FENRICK: That's right. We call it maximum peak  
17 demand in the report, but...

18 MR. SHEPHERD: And so doesn't that mean that the --  
19 the use of the system -- I understand why you feel that it  
20 drives costs. There's good logic to that. But doesn't  
21 that mean that necessarily companies will continue to spend  
22 on the same basis as if the trend line was continuing to  
23 increase like after the post-war, but the actual number of  
24 billing determinants they are going to have, the number --  
25 the amount of need for their system is going to decline  
26 relative to that? Isn't that going to produce negative  
27 productivity, is my question?

28 MR. FENRICK: Using the maximum peak demand variable?

1 MR. SHEPHERD: Yeah. If the trend is actually  
2 flattening, isn't that going to produce negative  
3 productivity?

4 MR. FENRICK: No, I don't -- no, I don't see why that  
5 would produce negative productivity, the use of that  
6 variable.

7 MR. SHEPHERD: Okay. All right, that's all of my  
8 questions on the confidential stuff.

9 MR. LADANYI: May I ask a couple more questions,  
10 really simple ones? Back to Table B, and I was very  
11 interested in the questions that Mr. Shepherd asked about  
12 data scrubbing. When you look at Table B -- we are still  
13 in camera, aren't we?

14 MR. SHEPHERD: Yeah. Try not the use the names if you  
15 don't have to.

16 MR. LADANYI: Well, in particular, however, here I am  
17 going to have to use the names. That's why I asked.

18 MR. SIDLOFSKY: We are still in camera, Mr. Ladanyi.

19 MR. LADANYI: Yes, so if I look at Table B the highest  
20 growth rate is for [REDACTED] in 2007 of 51  
21 percent. That's the highest positive. And that same [REDACTED]  
22 [REDACTED] then has the highest negative growth  
23 rate in 2012 of minus 38 percent. Further down we see that  
24 [REDACTED], has the  
25 highest growth rate of 40 percent in 2011, and I don't want  
26 to ask you specific ones. But when you see this data there  
27 is obviously something going on, and I just happened to  
28 look up on the Internet what was going on in [REDACTED]

1 [REDACTED]  
2 [REDACTED]  
3 [REDACTED], and there could be some cost allocation issues  
4 going on between the parent company and [REDACTED]  
5 [REDACTED], so did you actually in any way look at the  
6 reasons behind this and say, well, this is an unusual  
7 event, that we should be looking at why these numbers are  
8 such large outliers?

9 MR. FENRICK: The simple answer is no. With the  
10 exception we did exclude mergers. So if the utilities  
11 merged, you know, then we don't have a consistent data  
12 series, so we excluded based on that basis. Otherwise, no.

13 MR. LADANYI: So regarding -- I mentioned [REDACTED]  
14 [REDACTED]. They merged in the early  
15 2000s. I think the merger was 2003, so it's actually not  
16 in this table, so something else must have occurred later,  
17 and I couldn't discover anything right now.

18 Similarly, when you look at [REDACTED],  
19 which seems to be swinging all over the place, and I don't  
20 know what's going on there, you know, why they would have  
21 such a large growth rate in 2007 and then such a positive  
22 growth rate and such a large negative growth rate in 2012,  
23 but you didn't actually do anything with that, did you, you  
24 just took the numbers as --

25 MR. FENRICK: Yes.

26 MR. LADANYI: Now, in your report, you mentioned,  
27 actually, you didn't really completely take the numbers as  
28 you got them off the FERC form. You actually did some cost

1 allocation yourself with the numbers?

2 MR. FENRICK: Right, that's right, we allocate out --  
3 you have the transmission expenses and then the  
4 administrative and general expenses, we took -- we create  
5 an allocation factor to allocate out the transmission  
6 portion of those A&G expenses.

7 MR. LADANYI: Regarding both of those companies, [REDACTED]  
8 [REDACTED], I  
9 checked. They're both in the gas business, they are in the  
10 electricity business, they are in the electricity  
11 distribution, they are in electricity transmission, and  
12 they have generation as well, so there is a lot of  
13 potential allocations going on, and also in the case of  
14 [REDACTED] they also have a parent company which  
15 is managing the whole thing out of [REDACTED]. Again, I don't  
16 know if you know that.

17 So it's a -- is this any -- so when you looked at the  
18 FERC forms how do you disaggregate all these companies and  
19 make them essentially comparable?

20 MR. FENRICK: As you say in the question, we look at  
21 the FERC Form 1, where these utilities are using the  
22 uniform system of account procedures, list all of the  
23 expense categories, and they break out, you know, the  
24 production expenses, transmission, distribution,  
25 administrative, and general, as well as break out the  
26 specific account categories laid out in the uniform system  
27 of accounts, and so we look at -- and that's all reported  
28 on to FERC, which is a federal agency, and reported on the

1 FERC Form 1, and we are talking all that FERC Form 1 data  
2 and how they reported their transmission expenses and  
3 administrative expenses and their plant additions and using  
4 that government source as the data source for the FERC  
5 study.

6 MR. LADANYI: As we know from many hearings at the OEB  
7 there's great variety in the way companies allocate head-  
8 office costs to their subsidiaries. There's no question  
9 about that. So when you look at this kind of large group  
10 of utilities, wouldn't that be very sensitive to  
11 allocations from column, head-office costs, essentially  
12 they will be like common services that the head office  
13 providing to the affiliates, so that kind of stuff. You  
14 really cannot yourself figure out directly from FERC form;  
15 is that right?

16 MR. FENRICK: A couple points with that. First of  
17 all, this is a TFP trend study. So the utilities would  
18 have to change -- have changed those allocations over time  
19 for that to impact the TFP study. If the procedures for  
20 the utility had stayed the same throughout the sample  
21 period then it would not impact, so there would have to be  
22 material change.

23 The second point is, you know, the uniform system of  
24 accounts is very detailed. Those reports are reported to  
25 the federal government and audited, and so if you look at  
26 the specific categories within transmission or within  
27 distribution there could be differences, but we are taking  
28 the full cost level at the higher level. And so a lot of

1 those differences cancel themselves out in our study,  
2 because we are looking at just the transmission expenses  
3 and not looking at the detailed aggregate data that's been  
4 reported, we are aggregating all that up, and a lot of  
5 those differences are going to balance themselves out.

6 MR. LADANYI: Thank you, those are all my questions.

7 MR. SIDLOFSKY: Thank you. I believe that concludes  
8 the in camera session. Sorry, Hydro One, was there a  
9 question?

10 MR. SMITH: The PEG folks are on the phone. They  
11 didn't have any questions?

12 MR. SIDLOFSKY: Not for the in camera session. So our  
13 next step will be to go back on the record. I understand  
14 that PEG -- and just before we do, I understand that PEG  
15 has about three quarters of an hour.

16 Mr. Shepherd, do you have a sense of how many public  
17 questions you have?

18 MR. SHEPHERD: Probably 45 minutes to an hour.

19 MR. SIDLOFSKY: So that would be an hour and three  
20 quarters to two hours.

21 Why don't we break for lunch now. If we could come  
22 back at 1:15, that would be great, and we will continue  
23 with the public session.

24 MR. SHEPHERD: Good.

25 MR. SIDLOFSKY: Thank you.

26 MR. SHEPHERD: Can I suggest you go on the public  
27 record and tell anybody who is trying to listen that...

28 MR. SIDLOFSKY: Yes, that will just take a minute,

1 then. Mr. Ladanyi, do you have public questions?

2 MR. LADANYI: I don't expect to have questions, unless  
3 a new issue is raised during examination by other parties.

4 MR. SIDLOFSKY: Mr. Engelberg, I don't believe anyone  
5 else is planning to ask questions in this area.

6 MR. ENGELBERG: Thank you.

7 MR. SIDLOFSKY: If you can just bear with me for a  
8 minute while we go back on the public record, so we can  
9 close out for lunch.

10 --- On resuming public session at 12:25 p.m.

11 MR. SIDLOFSKY: We are now back on the public record;  
12 it's just coming up on 12:25. We have completed the in-  
13 camera session. We are going to be breaking for the lunch  
14 break and we will be resuming at 1:15 this afternoon with a  
15 public session for questions on total productivity  
16 factoring and benchmarking. Thank you.

17 --- Luncheon recess taken at 12:25 p.m.

18 --- On resuming at 1:21 p.m.

19 MR. SIDLOFSKY: We are going to continue with David  
20 Hovde of PEG with questions on TFP and benchmarking. I  
21 assume there are no preliminary matters. Sorry, I should  
22 have asked. Mr. Engelberg?

23 MR. ENGELBERG: None.

24 MR. SIDLOFSKY: Thank you. And not seeing any others,  
25 Mr. Hovde.

26 **ISSUE B, REVENUE CAP PROPOSAL**

27 **EXAMINATION BY MR. HOVDE:**

28 MR. HOVDE: Thank you, my plan is to start with

1 Exhibit 1, tab 1, schedule 72. It's basically Staff IR 72,  
2 and I would like to start with that one and then move to,  
3 for the people who are kind of running the exhibits  
4 there -- and then I want to move back to 65 and then  
5 proceed in numerical order.

6 There's a couple questions that I had at the outset  
7 that related to previous conversations that were taken that  
8 were discussed in camera, but none of the stuff is  
9 confidential.

10 I will just briefly describe what they are just in  
11 case someone has an objection. I wanted to just briefly do  
12 a follow-up about the arithmetic, logarithmic issue and  
13 then also the issue about, you know, the characterization  
14 of the average annual growth rate as reported in the report  
15 as being some sort of estimate or parameter, and I had a  
16 question about that, and so -- and then a couple other  
17 things that should not be controversial at all, but I  
18 thought I would ask just in case somebody has an objection  
19 about me following up with stuff that was in camera.

20 Okay. If there's no objection then, I had some  
21 difficulty, and I even know what these issues are all  
22 about, but I had some difficulty following the examples  
23 given about the arithmetic versus the logarithmic  
24 discussion, and for the benefit of those reading the  
25 transcript, I'd like to briefly put forward a simpler  
26 example and just ask a few questions about it.

27 Assuming a value goes from 1 in a period to a value of  
28 2 and then back down to 1, in other words, you know, it

1 goes up by 100 percent arithmetically, you have got, you  
2 know, 2 minus 1 divided by 1 will get you 100 percent, and  
3 then goes down from a value of 2 to a value of 1, you know,  
4 1 minus 2 divided by 2 gives you a minus 50 percent. If  
5 you undertook to go ahead and average that 100 percent  
6 value and a negative 50 percent value you will end up with  
7 a value of plus 25 percent. And as can clearly be seen,  
8 you end up, you know -- you know that you are going -- if  
9 you do a separate calculation of the endpoints, you went  
10 from 1 to 1, that's a zero percent change, so clearly it  
11 seems to me that, you know, just doing things  
12 arithmetically year by year and then averaging them just  
13 isn't a good idea.

14 And what I wanted to ask is, I just would like to ask  
15 Mr. Fenrick in your experience, you know, is this sort of  
16 thing done, is it a good idea, and does the logarithmic  
17 problem solve this?

18 MR. FENRICK: Yes, Mr. Hovde, I fully agree with your  
19 example. I think that's a great example to bring up to  
20 illustrate why using logarithmic percentages is superior to  
21 the arithmetic.

22 MR. HOVDE: Okay. Then just one other follow-up. Are  
23 you aware of any TFP study by the U.S. government, Stats  
24 Canada, any productivity work, scholarly journals,  
25 anything, where people use arithmetic -- take arithmetic  
26 growth rates year by year and then average them?

27 MR. FENRICK: I am not aware of any.

28 MR. HOVDE: Okay. And then just one more just for

1 clarity, to be fair to the person that was asking the  
2 questions before. I mean, an alternate way of looking at  
3 this is you could in theory take the values from your Table  
4 3, which was all of your productivity results along with  
5 that annual average growth rate, and you could take the  
6 endpoint value and the beginning point value and calculate  
7 an arithmetic growth rate from starting from beginning  
8 point and an endpoint to kind of get a total percentage  
9 change and then maybe divide that by, you know, number of  
10 years.

11 In your opinion would that be a legitimate -- would  
12 that be a legitimate kind of alternate way to calculate an  
13 average annual growth rate that wouldn't be subject to the  
14 problem that I just discussed? If you want to take an  
15 undertaking that's fine with me too.

16 MR. FENRICK: Yeah, let me take an undertaking on  
17 that, Mr. Hovde, so I can think through the math on that  
18 and just make sure before I answer.

19 MR. HOVDE: Sure, no problem. Still on schedule 72 --

20 MR. SIDLOFSKY: Sorry, just, Mr. Hovde, just hang on  
21 for a sec. That will be Undertaking JT2.7.

22 **UNDERTAKING NO. JT2.7: TO PROVIDE AN OPINION ON MR.**  
23 **HOVDE'S ALTERNATE CALCULATION FOR AVERAGE ANNUAL**  
24 **GROWTH RATE.**

25 MR. HOVDE: Thank you. Continuing on with the same --  
26 Exhibit 1, tab 1, schedule 72, I believe -- and I can't  
27 remember if Mr. Fenrick stated this or the questioner  
28 stated this, but somebody was characterizing the average

1 annual growth rate as presented on Table 3 as being some  
2 sort of estimate or a parameter, and I was having a little  
3 difficulty understanding that in that context.

4 I normally think of, you know, a parameter as  
5 something that is unknown that needs to be estimated and --  
6 you know, such as like the impact of a particular variable  
7 on cost in the context of an econometric model, and what I  
8 am having a problem with is I am having a hard time  
9 thinking of anything that is unknown about the TFP  
10 calculations.

11 To give an example, you know, you are taking a bunch  
12 of accounting data, you know, they are going to report O&M  
13 costs, they are going to report numbers of customers and  
14 peak demand, and all of these things to me are not random,  
15 they are reported, they are just taken as being fact. I  
16 mean, when somebody fills out a Form 1 there's nothing  
17 random about it. When somebody fills out a RRR there's  
18 nothing random about that either, although I think some  
19 people might disagree.

20 But what I am having a problem with here is that when  
21 I look at the data that go into the productivity  
22 calculations I look at the variance of these variables with  
23 respect to being zero, and so it's not really a stochastic  
24 exercise, it's really just a non-stochastic calculation,  
25 and I guess what I want to ask you is, you know, when you  
26 talk about your productivity numbers, are these not  
27 calculations and not estimations?

28 MR. FENRICK: Yes, I think that's a fair

1 characterization. It's -- these are calculations based off  
2 of the accounting data.

3 MR. HOVDE: Thank you. Also, could you just please  
4 confirm subject to check that FERC account 925, which is  
5 titled "injuries and damages", is where, you know, if you  
6 had a lawsuit settlement, if you had to pay out a bunch of  
7 money because you were liable for something, that this is  
8 one place it could show up in the data?

9 MR. FENRICK: You said account 925? Is that in the  
10 A&G section of the FERC Form 1?

11 MR. HOVDE: Correct, yeah.

12 MR. FENRICK: It's subject to check, yeah.

13 MR. HOVDE: And then to your knowledge is account 925  
14 included in your cost calculations?

15 MR. FENRICK: Yes, an allocated portion of the A&G  
16 expenses is included. So to the extent account 925 is  
17 included in the total A&G expenses an allocated portion of  
18 that would be included.

19 MR. HOVDE: All right. And that's my understanding  
20 also --

21 MR. FENRICK: Mr. Hovde, I might just also add to  
22 that, it might help for context, you know, in the  
23 transmission business well over half of the expenses are  
24 capital, capital expenses, so we are really talking about a  
25 smaller portion on these injuries and damages and those  
26 types of things, we are talking in the OM&A portion, which  
27 is going to tend to be a smaller portion of the business  
28 than, you know, other businesses. But, yes, that should

1 be -- that would be included, the injuries and damages.

2 MR. HOVDE: Thank you. Then also could you please  
3 confirm that just, you know, hypothetically if a company  
4 had a major expense for whatever reason, it could be a  
5 major O&M expense, let's say, that would be -- let's say  
6 you had a one-dollar-bill judgment against you, and they  
7 stuck it all in one year and it was in the middle of the  
8 sample period.

9 Now, using, you know, your logarithmic methods for  
10 calculating growth rates, is it fair to say that there is a  
11 blip in the data, would have absolutely no effect on your  
12 overall trend calculation?

13 MR. FENRICK: Yes, if it was on -- in the middle  
14 period of the sample and it was OM&A rather than capital it  
15 would have no impact on the long-term trend that was  
16 measured.

17 MR. HOVDE: Yes, so in other words it's only really  
18 the endpoint matter for this regard for blips and stuff  
19 like that; is that correct?

20 MR. FENRICK: That's correct, for the long-term trend  
21 estimate.

22 MR. HOVDE: Okay. That's -- now I am done with kind  
23 of the follow-up questions for what we had previously  
24 discussed in camera.

25 Now what I would like to do is to ask a number of  
26 questions about the working papers, and I am going to do  
27 this in general terms that I believe Mr. Fenrick will  
28 understand without quoting from anything that would be

1 confidential.

2 Effectively, I reviewed the working papers, and I am  
3 going to ask for two undertakings, and I am going to end up  
4 stating -- I am just going to kind of read these out as if  
5 they will become the undertakings, and if Mr. Fenrick would  
6 like, you know, additional clarification maybe I can clean  
7 up the language so that it's clear.

8 But basically we found that -- after reviewing it, I  
9 found two things that might be errors in the calculations.  
10 So I would just like to have undertakings just to review my  
11 assertions and then just make any corrections that he deems  
12 necessary.

13 And just for everyone's information, in my opinion  
14 these are -- you know, neither of these issues will affect  
15 the conclusions of the study put forward. I just want to  
16 make it clear there's nothing too controversial here.

17 For the first matter, a section of commands that  
18 average the values of cost input quantity and output  
19 quantities appear to produce results that include more  
20 companies in the calculation than are included on table 6  
21 of the PSE report.

22 PEG believes that the issue lies with only restricting  
23 the sample to "bad TFP observations", and not additionally  
24 for "excluded observations". Please undertake to review  
25 this conjecture and provide revised results, if required.

26 Is that kind of a clear enough statement of what I am  
27 after?

28 MR. FENRICK: Yes, I think that's clear, and we can

1 undertake that.

2 MR. SIDLOFSKY: JT2.8.

3 **UNDERTAKING NO. JT2.8: TO REVIEW PEG'S CONJECTURE AND**  
4 **PROVIDE REVISED RESULTS, IF REQUIRED, THAT THE ISSUE**  
5 **LIES WITH ONLY RESTRICTING THE SAMPLE TO "BAD TFP**  
6 **OBSERVATIONS", AND NOT ADDITIONALLY FOR "EXCLUDED**  
7 **OBSERVATIONS".**

8 MR. HOVDE: Also I have this question now, and I think  
9 you may have answered this earlier. But I think I will  
10 just ask it briefly just, you know, for this part of the  
11 record, the non-confidential part.

12 The code that I am alluding to in part A appears to  
13 show that the method used is to aggregate the company level  
14 data to industry level. In other words, you are taking the  
15 individual company data necessary to calculate  
16 productivity. You both average that and aggregate it, and  
17 then you do productivity calculations on whatever -- on the  
18 kind of a typical average company or a typical aggregate.

19 And what I want to ask is: Is there a reason why you  
20 prefer to do it this way?

21 Let me just start with that. Is there a preference  
22 for why you wanted to do it this way?

23 MR. FENRICK: Sorry, you mean the aggregation portion?

24 MR. HOVDE: Yes, I mean -- sorry, aggregated the data  
25 before doing productivity calculations as opposed to doing  
26 company-by-company productivity calculations, and then  
27 averaging the results of those calculations.

28 MR. FENRICK: Averaging the results, so rather than --

1 is this kind of back to the discussion I had with Dr.  
2 Schwartz earlier today, as far as why not take an average  
3 of the company results versus the aggregation? Is that  
4 what you are alluding to?

5 MR. HOVDE: What I really want is -- I've got a couple  
6 questions. The first is just that is there a particular  
7 reason why this -- why you chose to average and/or  
8 aggregate the data to kind of a typical firm and then do  
9 productivity calculations, as opposed to doing productivity  
10 calculations for every single company in the sample and  
11 then averaging like, let's say, the productivity trends of  
12 all of the individual companies that he calculated  
13 productivity for.

14 MR. FENRICK: I think that the answer there is to be  
15 consistent with the fourth-generation IR research, we did  
16 the aggregation method that builds up the full industry  
17 rather than taking an average of the individual TFP results  
18 of the utilities.

19 MR. HOVDE: I will just point out I believe there is  
20 one difference there, in that previously in the fourth  
21 generation, we did an aggregation where it's kind of a  
22 size-weighted average, while I believe you are doing more  
23 of a straight average of the companies then doing the  
24 calculations, which is -- and I believe there's going to be  
25 similar results in everything.

26 MR. FENRICK: I think I know what you are talking  
27 about, Mr. Hovde, and I think the results will be if not  
28 identical very, very similar.

1 MR. HOVDE: I agree. And then I guess what I am  
2 driving at here is do you -- let's put it this way. Our  
3 evidence eventually is going to do it the other way, where  
4 we're going to do it company by company, and then take an  
5 average.

6 Do you have an objection to doing that way?

7 MR. FENRICK: You are going to take the simple average  
8 of the utility TFP trends, and so you are not weighting?  
9 Or you're going to have a weighting procedure?

10 MR. HOVDE: I am not necessarily talking about  
11 weighting them up. I am talking about calculating, you  
12 know -- I am going to have productivity results for Algoma  
13 Power, Black Hills Power, all of the companies, and then I  
14 am going to average the productivity results to come up  
15 with an industry average productivity trend, as opposed to  
16 what you were doing, which was to average all of the data  
17 and then calculate a productivity trend for a typical kind  
18 of average company.

19 I am just wondering if you have any objection to doing  
20 that, so I can adjust accordingly if you do.

21 MR. FENRICK: Would that not be different than what  
22 PEG did in fourth-generation IR then?

23 MR. HOVDE: It would be different because what we did  
24 in fourth-generation IR is we aggregated all of the  
25 industry data together -- no, you are right. It would be  
26 different in that we'd end up aggregating all the industry  
27 data together, and then we calculated, you know, kind of an  
28 aggregate industry trend off of that.

1           And there's some reasons why we did it that way, which  
2 I can get into if people want to hear that. But forgetting  
3 about the question and everything. Do you have any  
4 objection about a method where I just go ahead and do it  
5 differently than we did it for fourth-generation IR, you  
6 know, calculate individual company productivity results and  
7 then average them. I am just wondering if you have an  
8 issue doing it that way, doing it different.

9           MR. FENRICK: If I could withhold judgment on that, I  
10 would like to read your report prior to and see what your  
11 explanation and rationale is, if that would be...

12          MR. HOVDE: That's fine. That's fine. We can move  
13 on.

14          MR. ENGELBERG: I would like to put out a reminder  
15 that this session is public now, so company names should  
16 not be used.

17          MR. SHEPHERD: Surely we can use company names as long  
18 as we don't attach them to any data?

19          MR. ENGELBERG: If the data can't be attributed to a  
20 particular company name, I guess that's the case. But I  
21 think there was a concern, there has been a concern that  
22 perhaps data could be attributed to a certain company.

23          MR. SHEPHERD: I understand that and the caution is a  
24 fair one. But I think the reference to a couple of  
25 companies names just a minute ago didn't attach it to any  
26 data, so I think it's okay.

27          MR. ENGELBERG: It's probably okay, but it's probably  
28 unnecessary.

1 MR. SHEPHERD: Yes.

2 MR. HOVDE: Yes, and I apologize for that. But I will  
3 -- I was just using that as an example to talk about, to  
4 illustrate what I was talking about.

5 Okay, the second undertaking, and I will just read it  
6 out so it can be just the text of the undertaking. There  
7 are two sets of commands that calculate weighted averages  
8 of historic levelized asset prices, i.e. triangulized  
9 weighted averages. The first is for HON, which calculates  
10 the average for 46 years ending in 2002. The second is for  
11 the 46 years ending in 1989 used for U.S. companies. It  
12 appears that the values of the levelized asset price index,  
13 i.e. the variable WKA, were not calculated for years prior  
14 to 1963 that are needed for the U.S. calculations.

15 Please undertake to review this conjecture and provide  
16 revised results, if required.

17 The shorthand version that Mr. Fenrick would  
18 understand is that I think that when you created a WKA, you  
19 dropped some of the early years and it never got included,  
20 so your weighted average is off by a little bit, is what I  
21 am thinking.

22 So does that question make sense? Is the undertaking  
23 clear?

24 MR. FENRICK: Yes, I believe I know what you are  
25 talking about, Mr. Hovde. I will take a look at that and  
26 take that undertaking.

27 MR. HOVDE: And then also...

28 MR. SIDLOFSKY: Mr. Hovde, just hang on a sec. That's

1 JT2.9. Thanks, Mr. Hovde, go ahead.

2           **UNDERTAKING NO. JT2.9: TO REVIEW PEG'S CONJECTURE AND**  
3           **PROVIDE REVISED RESULTS, IF REQUIRED, THAT THERE ARE**  
4           **TWO SETS OF COMMANDS THAT CALCULATE WEIGHTED AVERAGES**  
5           **OF HISTORIC LEVELIZED ASSET PRICES, I.E. TRIANGULIZED**  
6           **WEIGHTED AVERAGES. THE FIRST IS FOR HON, WHICH**  
7           **CALCULATES THE AVERAGE FOR 46 YEARS ENDING IN 2002.**  
8           **THE SECOND IS FOR THE 46 YEARS ENDING IN 1989 USED FOR**  
9           **U.S. COMPANIES. IT APPEARS THAT THE VALUES OF THE**  
10           **LEVELIZED ASSET PRICE INDEX, I.E. THE VARIABLE WKA,**  
11           **WERE NOT CALCULATED FOR YEARS PRIOR TO 1963 THAT ARE**  
12           **NEEDED FOR THE U.S. CALCULATIONS.**

13           MR. HOVDE: All right. Why don't we move now to --  
14 let's go to Staff IR 65, which is Exhibit 1, tab 1,  
15 schedule 65. And here I am interested in responses to  
16 parts A and B of this question regarding the transmission  
17 peak load data.

18           This is going to be -- the Form 1 has been revised a  
19 while back, and there's now kind of multiple different  
20 measures of what might be considered a maximum demand or  
21 peak demand. There's kind of a transmission version that's  
22 on page 400, and then there's kind of another kind of  
23 system peak on page 401B.

24           And so the first question for you is that if the  
25 transmission peak load data were not available or missing,  
26 you know, do you believe that the values on page 401B  
27 would, broadly speaking, be a reasonable proxy for the, you  
28 know, the values you don't have on page 400?

1 MR. FENRICK: My understanding is on the system peak  
2 the -- was it page 401B, those don't include all of the  
3 sales for resale demands that, you know, that the  
4 transmission system would need to carry. So it would be  
5 missing a portion of those sales for resale.

6 MR. HOVDE: Right. And when you say "the sales for  
7 resale", you were talking -- I know it's split into  
8 something called requirement sales for resale and non-  
9 requirement sales for resale, whereas the distinction is  
10 that requirements are the -- are kind of firm service  
11 deliveries, you know, they're the contracts that are so  
12 firm that, you know, that other -- the utility that's  
13 buying that power can rely upon it for capacity  
14 calculations. And the non-form portion is kind of, you  
15 know, other, you know, more economy energy.

16 And so first of all, is that kind of your  
17 understanding of how that works?

18 MR. FENRICK: Yes, that aligns with my understanding.

19 MR. HOVDE: Okay, and then I guess my conjecture for  
20 why the -- why these two might be a little more equivalent  
21 than you might think to start with is that you wouldn't  
22 expect necessarily that a lot of economy transactions be  
23 happening at the peak, you know, if it is the peak then you  
24 would think that you don't have a lot of extra capacity  
25 laying around and you are not saying, hey, I have got some  
26 extra power I can throw over to you because it's at the  
27 peak, so I would think that that part of it that's being  
28 excluded would be relatively minor. I am just wondering if

1 you concur with that or have a different opinion.

2 MR. FENRICK: I don't think I would necessarily concur  
3 with that. I think that's on some level speculation  
4 whether those non-required sales for resale, when those  
5 would be occurring.

6 MR. HOVDE: Okay. Do you believe that if you  
7 hypothetically used the page 400 values instead of the page  
8 401B values that you -- sorry, the other way around -- if  
9 you use the page 401B values instead of the values you used  
10 from page 400, do you think you would have got  
11 significantly different values out of your study?

12 MR. FENRICK: That -- again, that's -- I didn't  
13 test -- I used the transmission -- we used the transmission  
14 system peak in the study, we did not do the study with the  
15 page 400 variable. So I don't know what the study result  
16 would be.

17 MR. HOVDE: Okay. That's fine. The -- also, you did  
18 some adjustments to the data for Algoma Power and Gulf  
19 Power as a result of the previous interrogatory. And you  
20 have some productivity results that moved a little more  
21 than I expected. You went from, I think, 1.71 to 1.29. I  
22 was a little bit surprised about the impact of that, and I  
23 am just wondering if you can just tell me if you kind of  
24 know why the numbers moved that much. I mean, I would  
25 speculate it might be because the weights in your  
26 econometric model have changed, but I just want to get a  
27 story for why you would have got such a big impact from  
28 changing two companies' observations.

1 MR. FENRICK: Just to clarify, there was actually  
2 three utility observations that were changed: Alabama  
3 Power, Gulf Power, and Mississippi Power in the TFP sample  
4 because of the southern companies incorrectly reporting  
5 their data.

6 The reason why it went from negative 1.71 to negative  
7 1.29 percent is primarily because of, as you mentioned, the  
8 weights on the maximum peak demand variable, as well as the  
9 transmission came of line, those changed after making that  
10 adjustment, and so I believe that's why we see that change  
11 in the TFP.

12 MR. HOVDE: Okay. Thank you. And then for part H of  
13 the same interrogatory you listed a number of variables  
14 that -- you had kind of tested the model and it didn't turn  
15 out, and one of my colleagues wanted to know if we can get  
16 the data for that, and I looked at your working papers, and  
17 I think you may have provided a lot of this, but I can't  
18 tell for sure because of the variable names.

19 I was just wondering if you could undertake just to  
20 review what you -- you know, the variables that you had  
21 tried and didn't work in part H and just -- and just check  
22 to see whether or not you have already provided those data  
23 in the working papers, and if you haven't, could you please  
24 just undertake to provide whatever might not be there?

25 MR. FENRICK: Mr. Hovde, just to clarify, do you  
26 also -- do you need the variable names? Because I believe  
27 we didn't take anything out of the data set when we  
28 provided the working papers, because I wanted folks like

1 you to be able to review all of this. And so I believe  
2 these variables are all in the data set. Do you just need  
3 -- do you need the variable names just to make sure you're  
4 using the proper variable that's referenced here?

5 MR. HOVDE: Yeah, that's a perfect way to approach it.  
6 Yeah, if you can just undertake just to give me the  
7 variable names that correspond to your responses in part H,  
8 that would be great.

9 MR. FENRICK: Yes, I can undertake to do that.

10 MR. SIDLOFSKY: That will be JT2.10.

11 **UNDERTAKING NO. JT2.10: TO PROVIDE THE VARIABLE NAMES**  
12 **THAT CORRESPOND TO RESPONSES IN PART H**

13 MR. HOVDE: Okay. Move on to Exhibit 1, tab 1,  
14 schedule 66. We are talking about the declining balance  
15 parameter. One quick question. You ended up using the  
16 1.65, which I believe corresponds to assuming everything's  
17 equipment. I am just wondering, is the method you used to  
18 come up with your appreciation rate, is that just  
19 consistent with an assumption that all transmission assets  
20 are equipment and none are structures?

21 MR. FENRICK: Yes, that's the implicit assumption in  
22 there using the 1.65 declining balance parameter. I would  
23 note if we somehow took some sort of weighted -- weighted  
24 average of the 1.65 and the 0.91, that would likely have  
25 the impact of reducing the TFP trend lower. So we took a  
26 conservative estimate and used the 1.65.

27 MR. HOVDE: Okay. Thank you. Let's move on to --  
28 let's do Exhibit 1, tab 1, schedule 67. Let's see. In

1 part -- which part was it... In part -- response to part  
2 A. You were talking about the impact of pensions and  
3 benefits. And I suspect I know what you did here, but it's  
4 -- I just want to be clear. You had a relatively small  
5 impact on productivity as a result of including pensions  
6 and benefits. And the -- I was just wondering, when you  
7 did it, is this a case in which you took the pensions and  
8 benefits, added it to labour cost, but when you did the  
9 calculation of labour input quantity you still used just  
10 the salaries and wages? In other words, the pensions and  
11 benefits just got stuck into the weight?

12 Or alternatively, another way that it could be done  
13 would be that you would, you know, take the, you know,  
14 salaries and wages, add in the -- whatever share of  
15 pensions and benefits are appropriate here, and then divide  
16 through by the, you know, umm, you know, by the price -- by  
17 a price index that includes pensions and benefits, in which  
18 case then the pensions and benefits numbers would then  
19 impact the input quantity index? And I guess this is maybe  
20 a long way of asking, you know, when you included pensions  
21 and benefits did this impact the calculation of labour  
22 quantity at all?

23 MR. FENRICK: When we included pensions and benefits  
24 for -- in response to the OEB Staff No. 67? Is that --

25 MR. HOVDE: That's correct, yeah.

26 MR. FENRICK: When we did that?

27 MR. HOVDE: If you want to take an undertaking that's  
28 fine with me too.

1 MR. FENRICK: I mean, what we did, I can describe, and  
2 you can see if you have follow-ups, follow-up questions.  
3 What we did was when we put together this IR response, in  
4 the code we had a subtraction of pensions and benefits  
5 already coded in and -- on the OM&A spending, and then we  
6 basically deleted or remarked out that -- that portion of  
7 excluding pensions and benefits. So essentially the OM&A  
8 definition would then include the pensions and benefits.  
9 Does that help?

10 MR. HOVDE: Yeah, and then -- and do you happen to  
11 know that then if you take the -- you know something?  
12 That's good enough. If that's literally what you did, then  
13 I can figure out the rest for myself, that's fine.

14 Continuing on with schedule 67. Let's see. Okay.  
15 You were mentioning in one of the responses you were  
16 talking about aging of plant. I think we had a question  
17 about that. And the -- and you responded that, you know,  
18 because you don't have experience within this industry and  
19 no empirical evidence that you really just didn't -- you  
20 didn't do anything about the age of plant, and I guess what  
21 I am going to ask is, do you think that is a -- adjusting  
22 for the age of plant, do you think that's -- is that more  
23 of an impossibility or is that just a data limitation?

24 And where I am coming from is just that, I know you  
25 were limited to starting in 1969 because of a -- I mean,  
26 sorry, 1989 because of your FNL database you were dealing  
27 with, but if you had data like we did back in the 1960s,  
28 would that provide a better basis for doing age

1 calculation? Or do you still think it's just not possible  
2 to do anything about age?

3 MR. FENRICK: Mr. Hovde, this is in reference to the  
4 total cost benchmarking research, correct? Or are you  
5 talking in the TFP realm as well?

6 MR. HOVDE: No, this would be a benchmarking question.

7 MR. FENRICK: Okay. I do think there is an issue with  
8 including an age variable, in that that's not entirely out  
9 of the utility's control as far as its capital spending in  
10 the age -- the age of its infrastructure. So with the  
11 benchmarking, when you are constructing your total cost  
12 benchmarking model, ideally you want to get variables that  
13 are mostly external and basically given to the utilities  
14 rather than choice, choices that they have made or the  
15 regulators have made.

16 So those -- you know, an age variable is in the realm  
17 of a choice, if you will.

18 MR. HOVDE: Okay, that's fine.

19 MR. FENRICK: I might also say, and as you're quite  
20 aware, constructing it is difficult when you're looking at  
21 accumulated depreciation, and given the different  
22 deprecation rates of utilities and those types of things.  
23 So there's kind of -- there's two issues.

24 You know, you alluded to the impossibility. To me, if  
25 it does violate that principle of including it in the total  
26 cost benchmarking because it's, you know, it's not  
27 primarily an external variable, I think that might preclude  
28 the rationale for it.

1 MR. HOVDE: Okay, we will leave it at that. Let's  
2 see, how about moving on to -- let's go down to number 69.

3 Okay, for 69, this is where we asked for some Hydro  
4 One-specific data. And for the first question, we asked  
5 for some rate of return data, and I wasn't precise enough  
6 in what I was asking for. What I really wanted was kind of  
7 like a weighted average cost of capital.

8 You provide some ROEs and I am thinking that rather  
9 than asking for you to provide that data, I think I have an  
10 alternative. And the alternative is just that the Hydro  
11 One distribution has reported all the data that I would  
12 want for Hydro One transmission. I looked at some of the  
13 values; it seemed like the ROEs were the same, at least  
14 where I was looking.

15 And I guess what I am wondering is rather than me  
16 asking for you to put together something that, you know,  
17 that might be difficult, would it be okay -- I mean, is  
18 there any reason why I couldn't use rates of return, kind  
19 of allowed rates of return of Hydro One distribution as  
20 kind of a proxy for that, for Hydro One transmission? And  
21 that might be a company, the witness question.

22 MR. VETSI: I think the reason against it would be  
23 just due to timing differences, so when it comes to the ROE  
24 parameters in the short-term debt, the rates that are set  
25 by the OEB on an annual basis. And what had been happening  
26 historically is you would have -- in one year, Hydro One  
27 distribution would file a two-year cost of service  
28 application and the rate would be locked in. And then in

1 the subsequent year, the transmission would file  
2 potentially with new parameters.

3 In some instances, the values were updated each year;  
4 in some instances, they were not. And I don't have enough  
5 of a recollection of the history to know how many years you  
6 would see a difference between transmission and  
7 distribution.

8 It might be easier, if all you are looking for is the  
9 cost of capital, to just take that as an undertaking to  
10 provide for the transmission business. So at the very  
11 least, you can make sure you are not having any of those  
12 issues with timing.

13 MR. HOVDE: That will be fine, yes. If you could  
14 provide me something that's relatively easy to get, that  
15 would provide me a basis for deciding whether or not there  
16 is a significant difference between the turnout. That  
17 would be helpful.

18 MR. SIDLOFSKY: We will --

19 MR. VETSIS: And just to be clear, it's the full cost  
20 of capital, including debt parameters as well? Or do you  
21 just want the ROE itself?

22 MR. HOVDE: Oh, no, I want the return on capital.  
23 There's a -- you know for the distribution business, I  
24 think they have a -- return on equity gets a certain  
25 weight, and long-term debt gets a certain weight, and  
26 short-term debt gets a certain weight, and they kind of  
27 weight it all up, and I am kind of looking for that  
28 calculation.

1 But if it's easier just to give me the transmission  
2 equivalent of that calculation all rolled up, that will be  
3 fine, too.

4 MR. VETISIS: Again I am still not clear. You want the  
5 output of the weighted average calculation? So you would  
6 like -- you want actually the ROE with the 40 percent  
7 applied and the debt with the 60 percent? You want -- so  
8 the final outcome?

9 So for example, you know, you might have an ROE of 9  
10 percent in a year. But weighted with the cost of debt, the  
11 weighted average cost of capital would be about 6 percent.  
12 So of those two values, which would you want?

13 MR. HOVDE: The 6 percent value, the weighted average  
14 one.

15 MR. SIDLOFSKY: We will make that JT2.11.

16 **UNDERTAKING NO. JT2.11: TO PROVIDE A WEIGHTED AVERAGE**  
17 **RETURN ON CAPITAL**

18 MR. HOVDE: Also on the same response, you have  
19 provided something called racheted peak demand, when I  
20 actually think it's just normal peak demand. I am just  
21 wondering if you can confirm that's a peak demand as  
22 opposed to a racheted peak.

23 MR. VETISIS: I would have to confirm, but this does  
24 look like just a regular peak variable.

25 MR. HOVDE: That's fine. I am not looking for any  
26 extra data here. I will ratchet myself; I just want to get  
27 that on the record.

28 And then I think you reported some 1 percent values

1 for percentage kilometres, for percentage underground. And  
2 is that still miles based?

3 MR. FENRICK: Mr. Hovde, I know in the data set I  
4 provided in the working papers, the percent under grounding  
5 variable and that is pole, pole cam, I believe -- just off  
6 the top of my head, I think the number is 1.34 percent in  
7 that data set. This looks -- they probably rounded, the  
8 company. But my guess is the pole is around 1 percent, if  
9 that helps.

10 MR. HOVDE: I am just wondering could I have an  
11 undertaking just to give me the other version of this, the  
12 percentage of plant that's underground.

13 Is that pretty easy to do? I think it's just a matter  
14 of grabbing some values off of a capital continuity  
15 schedule, I would think.

16 Just to be clear, what I would be asking for here is,  
17 you know, a value of plant that is underground, total value  
18 of plant, and then just take a ratio is what I am looking  
19 for.

20 MR. ENGELBERG: Can we discuss that matter offline,  
21 perhaps at the break?

22 MR. HOVDE: That's fine, we can move on if you wish.

23 MR. SHEPHERD: Is there something problematic with  
24 that information?

25 MR. ENGELBERG: I am not saying it's problematic to  
26 do, but to do additional work and additional  
27 interrogatories on that may be something that we are not  
28 willing to do. I just wanted to have a discussion with the

1 witness as to how much is involved in doing that.

2 MR. SHEPHERD: Okay. It should be actually on your  
3 continuity schedules, right? But fine, I understand what  
4 you are saying. It's about the effort rather than about  
5 the nature of the information. Okay, thanks.

6 MR. HOVDE: All right. Okay, if we can move on to --  
7 I think we are going to move on to what might be my last  
8 question. Staff IR 71, which is Exhibit 1, tab 1, schedule  
9 71. I think it's part F. Yeah, this has to do with the --  
10 and this might take a little more back and forth than my  
11 previous questions. We are talking about customer  
12 contributions, and we are just trying to gain a little more  
13 clarity about how this is done. We honestly just don't  
14 know how this is done.

15 So using the example of perhaps a, you know, a major  
16 transmission substation that, you know, that is constructed  
17 to, you know, to step down power so that Toronto Hydro can  
18 make use of it. And if I understand right, I know Toronto  
19 Hydro, you know, they sometimes will complain that, hey,  
20 well, we had these big contributions we had to make to  
21 Hydro One for the substation. What I am -- I am just  
22 trying to figure out how this factors into the data.

23 And so as I see it right now, I think that the way  
24 this is all -- the way this works -- and, you know, I am  
25 asking for clarification -- is that I believe that the  
26 plant values that are used to calculate capital quantity  
27 and capital cost are net of the contributions that other  
28 LDCs -- that LDCs will make towards the construction of

1 these substations, and the -- and therefore, you know, I's  
2 going to be lower by that amount.

3 And I know that some of this might -- some of these  
4 sorts of things might happen in the U.S., and I will leave  
5 that. I think we asked a question about that. I am not  
6 going to follow up and ask you about anything you don't  
7 know about for the U.S. But what I really just want to  
8 know is, am I right that the -- that the data used in the  
9 capital cost calculation kind of already nets out what  
10 Toronto Hydro's already given to you for the construction  
11 of such a station?

12 MR. VETSIS: That was my understanding of the data,  
13 that it's net of capital contributions.

14 MR. HOVDE: Okay. And then in order to give me an  
15 idea of if this is really important or not, I mean, we are  
16 only talking about, you know, some substations that will  
17 have, you know, capital contributions and trying to weigh  
18 how important that is in relation to all of the  
19 transmission assets.

20 I was just wondering if you could just undertake to  
21 just provide maybe a ratio of total -- total customer  
22 contributions as a ratio of, you know, your total plant,  
23 meaning the, you know, plant they are using in the study  
24 plus whatever other -- so basically, it would be the plant,  
25 you know, the plant net of customer contributions as a  
26 ratio of the plant net of customer contributions plus the  
27 customer contributions. So I just want to have an idea so  
28 I know how big the customer contributions are as a

1 percentage of the total plant that's in-service. Because  
2 if it's like a small amount then I am not going to worry  
3 about this, but if it's bigger then maybe I will take it  
4 into account and try and do something about it.

5 MR. FENRICK: Mr. Hovde, this is Mr. Fenrick. We are  
6 just discussing this, and it's our understanding that the  
7 U.S. data is also net and does not include the  
8 contributions in aid of construction; is that your  
9 understanding as well?

10 MR. HOVDE: Well, I mean, I consider that a little  
11 more about the distribution side of things when they're,  
12 you know, when they are building subdivisions or something  
13 like that, but when you are talking about a transmission  
14 system, I mean, you know, it's not as though the, you know,  
15 I don't know, umm, I don't know umm, Commonwealth Edison  
16 Transmission, the distribution pays Commonwealth Edison  
17 Transmission for the construction of a, you know,  
18 substation which they own. So I am just saying that this  
19 has been probably a little more prevalent in Canada than it  
20 would be in the U.S. for this particular segment of utility  
21 operations, and what I am just trying to do, I'm just  
22 trying to get an idea of what the magnitude of this is for  
23 Hydro One just to determine whether or not it's important  
24 or not. And I honestly just don't know, and I am just  
25 trying to get an idea whether it's even something worth  
26 studying additionally.

27 MR. VETSIS: From a relevance perspective, the index  
28 we are proposing is to adjust Hydro One's revenue

1 requirement itself, which would be net of capital  
2 contributions, so I am just curious why you would need the  
3 ratio for the purposes of this application for adjusting  
4 something that's already net.

5 MR. HOVDE: Yeah, that's a fair question. This is  
6 actually not some sort of trend issue as it is a levels  
7 issue. This really goes more to the benchmarking study.  
8 You know, to the extent that LDCs like, you know, Toronto  
9 Hydro and other LDCs are paying Hydro One Networks to, you  
10 know, basically build a lot of substations, and if that  
11 isn't happening in the U.S. that just means that there is  
12 an incomparability between the U.S. data and the, you know,  
13 and Hydro One. And to the extent that's large, then, hey,  
14 maybe that explains some of the superior performance that's  
15 being observed for Hydro One and I am just trying to get an  
16 idea of the magnitude, you know, that if it's -- if it's  
17 big then, hey, maybe this is a big explanation of what you  
18 are seeing, and if it isn't then, hey, maybe we can ignore  
19 it.

20 MR. VETSI: Unfortunately I am not aware of the  
21 magnitude, so I think we can -- we can look into that.

22 MR. HOVDE: Okay. Yeah, if you can just please  
23 undertake to provide whatever information you have on  
24 customer contributions and what percentage that is of the -  
25 - of the total, you know, property, plant, and equipment,  
26 that would be great.

27 MR. SIDLOFSKY: That will be JT2.12.

28 **UNDERTAKING NO. JT2.12: TO PROVIDE WHATEVER**

1           **INFORMATION AVAILABLE ON CUSTOMER CONTRIBUTIONS AND**  
2           **WHAT PERCENTAGE THAT IS OF THE TOTAL**

3           MR. HOVDE: Let's see. Going on to Staff IR 70 --  
4           sorry, I am backing up one here. We had asked for a  
5           breakdown of transmission lines by voltage, kind of  
6           equivalent to what was provided for HOSSM. And the  
7           response says that the breakdown by voltage isn't readily  
8           available. But yet -- I mean, the PSE study was able to do  
9           a kind of an average voltage calculation, so I imagine  
10          those data must be available, so I am just wondering if you  
11          can just undertake to, you know, to give me a transmission  
12          line breakdown so we just kind of know what the composition  
13          of the, you know, the 29,000 kilometres -- we are just kind  
14          of interested in, hey, how many of them are at what voltage  
15          just so we know what we are dealing with when trying to  
16          compare it to U.S. companies. The issue here is a little  
17          more level than trend. It goes more to the benchmarking  
18          than to the productivity work.

19          MR. FENRICK: Mr. Hovde, did you look through the  
20          working papers? I believe should have that breakdown for  
21          the Hydro One Networks, if I understand what you are asking  
22          for here. The Hydro One Networks should have km of lines  
23          by voltage in the asset, in the worksheets -- this is off  
24          of memory, but in the Hydro One data worksheet there's  
25          multiple worksheets that have the assets in them and that  
26          has -- that will have a breakdown of the km of line by  
27          voltage. Is that what you are --

28          MR. HOVDE: No, no, that's actually what I want, and

1 if that's been provided, if you can just -- actually, can  
2 you just undertake to just tell me where that is so we  
3 don't have to take up more time here?

4 MR. FENRICK: Yes, that's fine.

5 MR. HOVDE: That's fine, yes, because if it's there I  
6 am perfectly happy with that.

7 MR. SIDLOFSKY: That will be JT2.13.

8 **UNDERTAKING NO. JT2.13: TO ADVISE OF THE LOCATION OF**  
9 **THE BREAKDOWN IN THE WORKING PAPERS**

10 MR. HOVDE: I am just going to review my questions  
11 here to make sure I have everything. Some are out of order  
12 here.

13 Okay. I reviewed what I wanted to ask, and I believe  
14 I am finished my questions, and I thank the panel for their  
15 responses.

16 MR. ENGELBERG: Before you get off the line -- are you  
17 leaving us now?

18 MR. HOVDE: I thought I would hang on for a little  
19 bit.

20 MR. ENGELBERG: Because we were going to have the  
21 offline discussion here at Hydro One regarding the request  
22 you made about ten minutes ago.

23 MR. HOVDE: That's fine, we can do that.

24 MR. SHEPHERD: You are going to do that at the break  
25 though, right?

26 MR. ENGELBERG: We can wait until the break. That's  
27 why I was asking how long he would be on line.

28 MR. SIDLOFSKY: Mr. Hovde, if you are going to stay on

1 the line, then Hydro One will deal with this at the break  
2 and advise people on the -- and will advise after the break  
3 about that possible undertaking.

4 MR. HOVDE: Okay, that sounds great.

5 MR. SIDLOFSKY: Thanks. Mr. Shepherd?

6 **EXAMINATION BY MR. SHEPHERD:**

7 MR. SHEPHERD: I just want to follow up on one of  
8 David Hovde's questions on 71F. When you adjusted for  
9 contributions in the Hydro One data, did you make any  
10 adjustment for sort of notional contributions between  
11 distribution and transmission? Because most of the  
12 transmission stations, or many of the transmission stations  
13 actually serve Hydro One distribution.

14 So is there an adjustment for that somewhere?

15 MR. FENRICK: The adjustment is we take just the  
16 transmission expenses from Hydro One. So they delineate  
17 between the transmission expenses and the distribution, and  
18 we are just taking the transmission.

19 But there's no other type of adjustment. I am not  
20 sure what would be needed there.

21 MR. SHEPHERD: So I am going to ask Hydro One. When  
22 you build a transmission station that's serving your own  
23 distribution component, you don't allocate some of that to  
24 distribution, right?

25 MR. VETSIK: Transmission station? You are saying for  
26 a transmission station?

27 MR. SHEPHERD: Yes.

28 MR. VETSIK: No, my understanding is if it's a

1 transmission asset, it's in the -- and there is no capital  
2 contribution received, it is in the rate base of Hydro One  
3 transmission.

4 I believe if a capital contribution would have been  
5 received, you would credit down the transmission rate base  
6 and it would go to the distribution side, the way it would  
7 for any distributor.

8 MR. SHEPHERD: But you wouldn't get a capital  
9 contribution from Hydro One distribution, right?

10 MR. VETISIS: My understanding is that we would.

11 MR. SHEPHERD: You would? So then all of your  
12 transmission stations that serve distribution LDCs,  
13 including your own, have contributions unless they already  
14 pass the economic test, right?

15 Generally speaking. Obviously there's exceptions, but  
16 generally speaking.

17 MR. VETISIS: I can't say a hundred percent. I don't  
18 know those specific rules down pat.

19 MR. SMITH: Yes, obviously it depends if it's  
20 connection or network, the nature of the expense of  
21 transmission, and I am sure you are familiar. That  
22 determines whether a contribution is required.

23 MR. SHEPHERD: So the reason I ask that is because  
24 combined distribution and transmission utilities in the  
25 United States, of which most of the ones on this list are  
26 that, right? Most of them are combined distribution-  
27 transmission, right?

28 MR. FENRICK: Yes, that's correct.

1 MR. SHEPHERD: They don't have that allocation, right?  
2 They don't have a contribution from distribution to  
3 transmission to reflect the economic test that we have  
4 here, or anything similar to the that?

5 MR. FENRICK: I don't know the answer to that.

6 MR. SHEPHERD: Okay. All right, thank you. Now I  
7 will go on to my regularly scheduled questions.

8 MR. VETSIS: Actually, I would note that in part C of  
9 this same question, it does say that -- my mistake. I  
10 misread the question. Withdrawn.

11 MR. LADANYI: May I ask a question as a follow-up on  
12 Mr. Hovde's question, just one little question before you  
13 go on, Mr. Shepherd?

14 Right at the beginning in response to the questioning  
15 on Staff 72 -- and you don't have to turn it up -- he asked  
16 you to confirm that only end points matter in the long-term  
17 trend calculation and you said yes, is that right? Or did  
18 I misunderstand that?

19 MR. FENRICK: Yes, that's correct.

20 MR. LADANYI: So intermediate points don't matter in  
21 calculating long-term trends? Like intermediate years or  
22 whatever.

23 MR. FENRICK: They don't matter in sentence that the  
24 result that you get as far as your average annual growth  
25 rate won't be impacted on what occurs in the middle. It's  
26 where you begin with and end, and you are looking at that  
27 average over that entire period.

28 So it's where you start with and what you end with,

1 and then what -- if it goes up or down in the middle, it's  
2 where you start and where you end.

3 MR. SHEPHERD: And the reason for that is because the  
4 sum of all of the ups and downs, the percentages up and  
5 down on a log basis, is going to be -- is going to be the  
6 same as the difference between the end point and the  
7 beginning point, right?

8 MR. FENRICK: Yes.

9 MR. SHEPHERD: So your average necessarily  
10 mathematically has to be the same?

11 MR. FENRICK: Right, that's exactly right. It's, you  
12 know, it's where you end up. The road how you get there  
13 are the middle points. But, yes, you end up and those ups  
14 and downs are how you get to the end point.

15 MR. SHEPHERD: Well, then why do you even do the  
16 annual calculations? Why don't you just go straight to the  
17 total change for 12 years and divide by 12?

18 MR. FENRICK: As you are constructing the index, you  
19 are building -- the indexes are building on each other as  
20 far as like the capital quantity and those types of things.  
21 So you have all that information that you are calculating  
22 from year to year as you are building those indexes up.

23 I mean, you are correct. We could just not show that  
24 information and just say here is our trend, here is the  
25 beginning point, here is the end point, and here is the  
26 average annual growth rate. You know, we show that extra  
27 information just to -- for transparency's sake.

28 MR. SHEPHERD: Right --

1 MR. SMITH: I would just like to remind everyone, too,  
2 that the I believe it's 2.7. If I took it down properly,  
3 it was to determine whether a simple mathematic growth rate  
4 using open and end points only would fairly represent the  
5 trend.

6 So there is more information coming, I think, related  
7 to that question.

8 MR. SHEPHERD: Fine. So now I am going to the  
9 interrogatories to ask some follow-up questions, and my  
10 first one is SEC 19. And this talks about changes in  
11 accounting rules.

12 And just let me back up for a stage, because I didn't  
13 ask this in the question, but it's sort of implied.

14 How does working capital play into the calculation of  
15 either TFP or benchmarking? Does it play in at all?

16 MR. FENRICK: Mr. Shepherd, it's the net fixed assets  
17 that we are using that go into the capital, which is the  
18 plant addition -- in-service plant additions. So the  
19 working capital would not enter until it became an in-  
20 service addition.

21 MR. SHEPHERD: Well, no, working capital is never an  
22 in-service addition. That's why -- that's the whole point.  
23 We are not talking about capital expenditures that have not  
24 yet been placed in service. Different question.

25 MR. FENRICK: Sorry.

26 MR. SHEPHERD: Working capital is the capital you need  
27 on hand because you have expenses and revenue that you have  
28 to pay, and you have leads and lags for them, right? You

1 are familiar with this.

2 MR. FENRICK: So working capital would not enter into  
3 to the TFP or the total cost benchmarking cost definition,  
4 then.

5 MR. SHEPHERD: So even though it's a substantial  
6 impact on rates, it's not -- and controlling your...

7 MR. VETSIS: I am sorry. Is that actually true,  
8 though, the substantial impact on rates because -- so let's  
9 think in transmission here. Working capital is expressed  
10 as percentage of OM&A, right? So you are talking, I think,  
11 ballpark-ish was 4 and a half percent for Hydro One. Hydro  
12 One's OM&A is about -- I don't know, 340, 360 million, in  
13 that ballpark.

14 So you take a few percentages, you are looking at a  
15 couple million and that's not recovered dollar for dollar.  
16 You then run that through a cost of capital. So by the  
17 time you have hit the actual revenue requirement, that  
18 number is actually minuscule. So I it's a bit of stretch  
19 to say that working capital has a very material impact on  
20 rates.

21 MR. SHEPHERD: And this is because unlike  
22 distribution, where you have cost of power which overwhelms  
23 your OM&A cost, in transmission you don't have cost of  
24 power. You have some cost of power, right?

25 MR. VETSIS: No.

26 MR. SHEPHERD: Not as part of your working capital  
27 calculation?

28 MR. VETSIS: But even so, I think same would apply to

1 distribution as well. So I think distribution Hydro One --  
2 well, let's say the OEB's default parameter of 7 and a half  
3 percent. Again that's 7 and a half percent of OM&A, and  
4 then you take that and that gets added to rate base, and  
5 you add the cost of capital percentage to it. So on a  
6 revenue requirement basis, it's a tiny number.

7 MR. SHEPHERD: That's the difference, right? In  
8 distribution cost of power is, what, five, six times OM&A?  
9 So it's a completely different calculation, but you are  
10 right, in transmission it doesn't matter, so I move on to  
11 the next thing.

12 MR. FENRICK: Are they all going to be that easy?

13 MR. SHEPHERD: I wish, or maybe you wish. But your  
14 answer to this is you're making the assumption that if  
15 there are changes in accounting rules that have happened  
16 over your study period, which would affect trend; right?  
17 Would affect cost trends?

18 MR. FENRICK: To the extent the accounting changes  
19 were material and materially changed, the allocations  
20 between capital and OM&A.

21 MR. SHEPHERD: So for example, Hydro One has a change  
22 in capitalization, say, and maybe it was small. That's not  
23 my point. If there was a change in their capitalization  
24 policy during this period that was not reflected in your --  
25 the sample, then the sample would no longer be applicable  
26 in the same way to Hydro One. The difference might be  
27 large or small, but that difference still changes the  
28 comparability of the data; right?

1 MR. VETSIS: I am not aware of any major changes that  
2 have happened, so I am not sure what you would be referring  
3 to in this instance. You are talking about a hypothetical  
4 that hasn't occurred in the historical period.

5 MR. SHEPHERD: So you have had no changes in  
6 accounting rules at Hydro One since 2004?

7 MR. VETSIS: I recall there was a transition from  
8 Canadian GAAP to U.S. GAAP, and I think as this IR  
9 indicates that the impact of that was not significant. And  
10 I think we are comparing to a sample of U.S. utilities,  
11 which are also predominantly on U.S. GAAP, so I would  
12 expect that from a comparability perspective it's actually  
13 -- you are looking at the relative consistency.

14 MR. SHEPHERD: Well, that's exactly the point, is they  
15 have always been on U.S. GAAP and you haven't, and it's the  
16 change that matters; isn't that right?

17 MR. VETSIS: Again, Canadian GAAP was largely aligned  
18 with U.S. GAAP, which I think is the reason why the switch  
19 from one to the other happened to minimize the impact. So  
20 as this IR states, this decision had no or minimal  
21 financial impact.

22 MR. SHEPHERD: So then if I ask the question again, if  
23 there is a material change in accounting rules that applies  
24 to Hydro One and not the U.S. utilities, does that affect  
25 the comparability of the data, is your answer you refuse to  
26 answer the question? I am asking Mr. Fenrick.

27 MR. FENRICK: So you are stating if this hypothetical  
28 occurred, which did not actually occur, on the TFP trend,

1 given that there was no material change in the U.S. data,  
2 that TFP estimate would be just as applicable to Hydro One  
3 as if there had not been any sort of change with Hydro One,  
4 which there wasn't.

5 MR. SHEPHERD: All right. Let me go to SEC number 26.  
6 And we sort of talked about this before. But I am looking  
7 at the last sentence in this, which, your assumption is  
8 that transmission utilities costs will not go down if peak  
9 demand goes down, ever; right? That's what's built into  
10 your model?

11 MR. FENRICK: I don't think that's entirely accurate.  
12 First of all, you know, this variable followed the fourth-  
13 generation IR definition where there was also a ratcheted  
14 peak demand or maximum peak demand variable, so we mimicked  
15 that variable definition. I don't think ever where you say  
16 it's never going to go down, I don't think these accurate.  
17 I think over, you know, three to five CIR, custom IR  
18 period, or revenue cap in this case, it's unlikely that the  
19 transmission utility can -- if it was at a high capacity  
20 can then ramp down that capacity and save costs in the  
21 short run.

22 Now, in the long run, you know, our total costs model  
23 does say in the long run there could be some cost savings  
24 there, but that's in the long run over, you know -- these  
25 are assets that have a long service life. And so in the  
26 short run that's true, in the long run, then you are  
27 talking about something else.

28 MR. SHEPHERD: Well, maybe I misunderstood your

1 ratcheted peak demand. I thought your ratcheted peak  
2 demand is if demand is -- if peak demand goes up you keep  
3 it at that number, you use that number. And if it goes  
4 down you keep it at the higher number from the previous  
5 year, and that's what the ratcheting is.

6 MR. FENRICK: Yes.

7 MR. SHEPHERD: You do that forever?

8 MR. FENRICK: Through the sample period.

9 MR. SHEPHERD: Okay. So 12 years; right?

10 MR. FENRICK: Correct.

11 MR. SHEPHERD: Okay. So can you go to Staff 69, page  
12 3 -- or page 2, I guess. So these numbers on the bottom in  
13 F, which says ratcheted peak demand, that's actually not  
14 ratcheted peak demand; right? Actually, ratcheted peak  
15 demand goes -- that column -- this one is just peak demand;  
16 right? I thought I heard you say that to Mr. Hovde  
17 earlier.

18 MR. VETSIS: That's how it appears, yes.

19 MR. SHEPHERD: So the way ratcheted peak demand works  
20 is from 2002 up to 2006, 2006 is the maximum, and then for  
21 every year after that it's assumed that your maximum peak  
22 demand is 27,005 megawatts, even though in 2017 it's only  
23 22,178.

24 MR. FENRICK: Yes, that's correct.

25 MR. SHEPHERD: And your assumption is that -- that  
26 costs to deliver maximum peak demand, to transmit maximum  
27 peak demand of 22,178 is going to be the same as 27,005.  
28 Your model assumes that? You can undertake to explain this

1 if you want.

2 MR. VETSIS: I think broadly speaking what you are  
3 looking at here is these assets are in the ground for  
4 decades. You install them, you put them up, they will last  
5 longer than the study period. I think the expectation that  
6 that cost would immediately decline for something that's  
7 already in the ground is perhaps not practical. It's not  
8 like, you know, you have factors such as conservation, et  
9 cetera, driving down the peak. You don't all of a sudden  
10 start knocking down transmission lines because the peak is  
11 declining. Those assets are in the ground. They are still  
12 useful, they are still providing service.

13 MR. SHEPHERD: Actually, the cost of an asset does go  
14 down over time automatically, right, because as you  
15 depreciate it your cost of capital goes down every year;  
16 right? So that's not correct.

17 MR. FENRICK: I might just add, you know, we have this  
18 in 2006, the value of 27,005. The utility has to build  
19 capacity to meet that demand in 2006. As my colleague was  
20 pointing out here, you know, those assets aren't just going  
21 to disappear, those are in the ground for decades, and so  
22 to think, you know, the utility has to build to meet  
23 27,005, it can't just in the short run reduce its costs to  
24 go back down to, you know, by 2017 to a value of, you know,  
25 22,000. That's going to take a number of years to realize  
26 that.

27 MR. SHEPHERD: So you do not -- how should I put this?  
28 How -- the fact that you have roughly 20 percent less

1 demand doesn't affect your OM&A at all; right?

2 MR. FENRICK: I wouldn't want to speculate as far as  
3 OM&A impacts on -- from capacity.

4 MR. SHEPHERD: But your model assumes that both OM&A  
5 and capital continue to -- the amount doesn't decline  
6 because the maximum peak demand went down to 22,178.

7 MR. FENRICK: I mean, those are completely separate  
8 calculations, calculating the capital and OM&A costs. You  
9 know, there we are taking the accounting information and  
10 figuring out what the total costs of the utility are.

11 That's not connected to what the peak demand or  
12 maximum peak demand variable; those are separate  
13 calculations.

14 MR. SHEPHERD: If your costs stay the same as they  
15 were at 27,005 and your output were to go down to 22,178,  
16 but the costs stay the same, that would be negative  
17 productivity, right? It's only because you keep the  
18 ratched -- the demand up at the ratched amount that it  
19 looks like there's no negative productivity.

20 You can spend just as much and remain just as  
21 productive, true, in your model?

22 MR. FENRICK: Sorry, Mr. Shepherd, could you repeat  
23 your question?

24 MR. SHEPHERD: What were you talking about if you  
25 didn't know what my question was? Why did we have to wait  
26 all that time if you didn't know what my question was?

27 MR. ENGELBERG: Mr. Shepherd --

28 MR. SHEPHERD: I am asking a question.

1 MR. ENGELBERG: No, just repeat your question.

2 MR. SHEPHERD: Well, no. This is a gimmick that you  
3 teach your witnesses, and I am saying if you were talking  
4 about my question, give me the answer you talked about.

5 MR. ENGELBERG: It's not a gimmick that's taught to  
6 the witnesses, and your editorializing are not appreciated.  
7 If you have a question, ask it; if not, move on.

8 MR. SHEPHERD: So you won't answer the question, then;  
9 fine.

10 MR. ENGELBERG: That's not what they said.

11 MR. SHEPHERD: That's good. That's good, no, the  
12 record is clear. I will move on.

13 I am going to 28, SEC 28. Remember I gave you a  
14 chance to answer the question.

15 So in 28, you say that you didn't examine any  
16 mathematical relationships between the two factors we are  
17 talking about here, which is kilometres of line and average  
18 voltage of lines, right?

19 MR. FENRICK: Correct, we didn't examine any  
20 mathematical relationship between those.

21 MR. SHEPHERD: I have two questions about that. First  
22 of all, don't you normally -- when you have two variables,  
23 don't you normally look to see if there's any relationship  
24 between the two? There's tests you can do, right?

25 MR. FENRICK: As far as correlation in those types of  
26 things? Is that what you are referring to?

27 MR. SHEPHERD: Yes.

28 MR. FENRICK: Normally, no, you don't examine the

1 correlation. We start with the engineering theory of will  
2 these -- are these a cost driver, and we start with that a  
3 priori engineering basis. You know, is average voltage --  
4 will higher average voltage increase transmission costs.

5 MR. SHEPHERD: Clearly.

6 MR. FENRICK: Clearly, yes, right. And will having  
7 more km of lines increase transmission costs. Yes.

8 MR. SHEPHERD: Yes.

9 MR. FENRICK: And so we start with that basis and  
10 then include those variables. The correlation or the  
11 multi-collinearity between those two variables does not  
12 impact -- does not bias the estimate, does not impact the  
13 estimate. So there's no real reason to test for that  
14 correlation, so we don't.

15 MR. SHEPHERD: Because you're assuming that the two  
16 causes of cost increases are independent, they  
17 independently cause cost increases, right?

18 MR. FENRICK: I don't think that's necessarily even --  
19 it doesn't necessarily have to be independent. But it does  
20 have to have their own basis primarily to be driving total  
21 cost which, you know, the higher the voltage, that's likely  
22 to drive higher costs. And the more km of line you have  
23 out there is likely to impact costs as well. And I mean  
24 those are separate, separate impacts.

25 Is there maybe a little overlap there in some area?  
26 Possibly, but I don't think -- I don't see how that would  
27 impact the model.

28 MR. SHEPHERD: Okay. I am next looking at SEC 29.

1 Now, am I right that the loading -- you are the first ones  
2 to use the loading variable, right, that you know of?

3 MR. FENRICK: Yes, we constructed that ourselves.

4 MR. SHEPHERD: Am I right in understanding that that's  
5 essentially a weather-driven variable? It's going to be  
6 most affected by weather -- or, more correctly, climate, I  
7 guess.

8 MR. FENRICK: That is correct if you go to the  
9 appendix of the PSE report, it starts on page 53, 54, it  
10 describes the loading variable. And you have CSA and ESC  
11 loading zones that primarily take in the climatic  
12 conditions of the service area to determine what a minimum  
13 requirement would be for construction.

14 MR. SHEPHERD: Okay. So in studying -- in doing  
15 benchmarking around North America, everybody has climate  
16 impacts; nobody uses a loading variable. So what do they  
17 use to reflect that?

18 MR. FENRICK: Unfortunately, you know, throughout  
19 North America sometimes the benchmarking isn't to the  
20 quality that this study is. But there have been times  
21 where I have seen weather temperature type variables, or  
22 things like that.

23 This is a much more sophisticated and accurate  
24 approach to getting at what the minimum requirements are to  
25 build in the service territory.

26 MR. SHEPHERD: When you invented this new variable,  
27 did you look at what other people had done to capture the  
28 same sorts of effects, the same sort of cost drivers?

1 MR. FENRICK: No. To my knowledge, this is the most  
2 innovative variable to capture this and there's really not  
3 any other variables that are comparable throughout the  
4 industry that I am aware of, unless --

5 MR. SHEPHERD: How would you know if it's the most  
6 innovative if you haven't looked at what other people have  
7 used?

8 MR. FENRICK: There's nothing out there. Are you  
9 aware of anything else that's like this?

10 MR. SHEPHERD: I just asked you whether other studies  
11 have climate variables of some sort and they do, right?  
12 It's not that everybody ignores climate. That's not true,  
13 right?

14 MR. FENRICK: There have been temperature -- there's  
15 some temperature variables. I mean, I think we included  
16 one for our study in Hydro Ottawa. But there's nothing --  
17 I mean, that's not really comparable to what we are doing  
18 here, which is an engineering analysis on the minimum  
19 requirements for construction for transmission assets.

20 You know, I wouldn't say that's comparable at all.  
21 This is much more sophisticated.

22 MR. SHEPHERD: You could capture that with things like  
23 a wind variable, which -- a wind variable, by the way, you  
24 have seen before, right?

25 MR. FENRICK: Yes, we tested a wind variable.

26 MR. SHEPHERD: And you could use, for example, snow  
27 level variables, how much snow falls in a particular area.  
28 And that's been done, too, right?

1 MR. FENRICK: I believe so. But again, that's not  
2 comparable to the engineering analysis that we did here for  
3 this variable, which was far and beyond just looking at  
4 precip levels or snow levels. This is looking at the  
5 actual codes and what the minimum requirements are in the  
6 given service territory to construct a pole.

7 MR. SHEPHERD: What you are trying to measure, Mr.  
8 Fenrick, is the effect of the local area's climate on the  
9 costs of the transmission utility, than whether you measure  
10 it through your loading variable or through precipitation  
11 or through wind, or anything else, it's a question of  
12 statistics whether or not there's a relationship, right,  
13 and if one predicts the other?

14 It has nothing to do with whether your engineering is  
15 good, does it?

16 MR. FENRICK: I think it does matter how well we  
17 constructed the variable, and how good the engineering was  
18 that constructed the variable. That will matter.

19 MR. SHEPHERD: I guess my question is, you're saying  
20 nobody does a loading variable, but other people measure  
21 the effect of climate. So I am trying to get you to  
22 explain why your method of calculating or portraying the  
23 relationship between climate and costs is better than what  
24 everybody else in North America uses, and how you came to  
25 that determination without looking at what everybody else  
26 does?

27 MR. FENRICK: I would say one of the key differences  
28 here is we are actually looking at the standards from the

1 Canadian Standards Association, CSA, the National  
2 Electrical Safety Code, NESC, so these are actually  
3 regulatory standards that utilities need to meet for the  
4 minimum requirements within the service territories that  
5 they serve, and so that's -- my opinion is that's a far  
6 more sophisticated and better approach to take in the  
7 regulatory environment that each utility is operating in  
8 and meeting those -- and what minimum requirements that  
9 they need to meet. That's far superior than a snow  
10 variable or whatever climatic variable you want to insert.

11 MR. SHEPHERD: Why has nobody else used anything like  
12 this, then? It seems sort of straightforward that you  
13 could -- like, if you were a utility in Alaska I would  
14 think that you would want to use this. Why has nobody used  
15 this before?

16 MR. FENRICK: That would just be speculation on my  
17 part.

18 MR. SHEPHERD: Okay, thank you. I am going to SEC 31,  
19 and I have two questions about this. You'll agree, I  
20 guess, that having four of the eight items on this, the  
21 variables on the list, in the top decile, suggests that  
22 Hydro One is a relative outlier; yes? Or let me put it a  
23 different way. There are no other utilities in your sample  
24 for -- that have four out of the eight variables in the top  
25 decile; is that correct? And you can undertake if you  
26 want.

27 MR. FENRICK: Mr. Shepherd, I would not characterize  
28 Hydro One as an outlier in the sample. I am thinking

1 through the efforts of your request where I have to  
2 basically create this table for 57 utilities. I am just  
3 thinking of the level of effort required in that  
4 undertaking request. It seems like a lot of work to  
5 recreate this table 57 times and then report on it.

6 MR. SHEPHERD: Well, you don't have to look up the  
7 data, right? The data's already in.

8 MR. FENRICK: The data's there, right, but I have to  
9 make these calculations then for 57 different utilities and  
10 then look and see if there's any one of them or how many of  
11 them have four out of eight or five out of eight. I don't  
12 know to what end that would serve.

13 MR. SHEPHERD: Do you know any off the top of your  
14 head that are in the top decile at four out of the eight?

15 MR. FENRICK: I haven't examined that at all, so I  
16 have no idea.

17 MR. SHEPHERD: And in fact, if you were to use the  
18 loading variable as well, and you -- and I thank you for  
19 this -- provide us with information on the loading variable  
20 in SEC 39, and the loading variable, Hydro One is also in  
21 the top decile; right?

22 MR. FENRICK: Correct, that's one of the four out of  
23 the eight that you cited. It's --

24 MR. SHEPHERD: Sorry, is it there? Oh, yes, you're  
25 right --

26 MR. FENRICK: The construction standards, right.

27 MR. SHEPHERD: The construction standard is loading  
28 variable.

1 MR. FENRICK: We changed the name on you to --

2 MR. SHEPHERD: Yeah, well, that was sneaky, but okay.  
3 Sorry about that.

4 Then my next one is 36. And this is sort of a  
5 motherhood-and-apple-pie question. Your study doesn't look  
6 at all and you don't have any information to provide the  
7 Board on why transmission costs, whether here or throughout  
8 North America, are increasing at more than inflation; do  
9 you?

10 MR. FENRICK: That's right, yeah, that's not an  
11 empirical issue that we have researched.

12 MR. SHEPHERD: Okay. All right. Number 37 is labour  
13 percentage, and I have two questions about that. The first  
14 one is, you said you -- Hydro One didn't provide you with  
15 the expenses broken out by labour. But could we get that  
16 data? Could we get the Hydro One percentage of labour  
17 calculated in the same way to see where they stand on this  
18 scale? Presumably Hydro One has the information.

19 MR. VETSIS: I don't know if we have the data broken  
20 up in exactly the same way that it's shown here on page 49  
21 of Steve's report.

22 MR. SHEPHERD: Okay, so I am going to ask you to take  
23 a look at SEC 37 and undertake to provide us, if you have  
24 the information or you can readily -- it's readily  
25 available, to provide us with the Hydro One percentage, and  
26 if you can't, just tell us it's something you can't  
27 calculate easily.

28 MR. ENGELBERG: We will give that undertaking.

1 MR. SIDLOFSKY: JT2.14.

2 **UNDERTAKING NO. JT2.14: TO PROVIDE THE HYDRO ONE**  
3 **PERCENTAGE OR IF NOT POSSIBLE TO ADVISE IT'S SOMETHING**  
4 **NOT CALCULATED EASILY**

5 MR. SHEPHERD: And then my next question, on the next  
6 page you see the list of the 56 utilities that's in this  
7 benchmarking analysis, and am I right that a big portion of  
8 these differences is contracting out, is what their  
9 contracting-out practices are, some have a bigger workforce  
10 and some have a smaller workforce and use outside  
11 contractors? Is that a fair extrapolation?

12 MR. FENRICK: That's a possibility for why the  
13 differences exist.

14 MR. SHEPHERD: Because I would have thought the  
15 transmission companies -- this is all transmission data;  
16 right?

17 MR. FENRICK: Correct.

18 MR. SHEPHERD: Transmission companies should need  
19 roughly the same amount of labour, I mean, not exactly, but  
20 roughly the same amount. They have similar businesses; is  
21 that fair?

22 MR. FENRICK: They certainly have similar businesses.  
23 Whether they have similar needs for labour versus capital,  
24 that's -- I am not aware if that's true or not.

25 MR. SHEPHERD: You don't know whether that's true?

26 MR. FENRICK: No, I don't.

27 MR. SHEPHERD: Okay. So if the differences in this  
28 list are due to contracting out, how does your model factor

1 in the underlying labour component of contract costs?

2 MR. FENRICK: As far as the expenses go?

3 MR. SHEPHERD: Yeah, whether you have a -- whether the  
4 guy building a tower, putting up a tower, is working for  
5 Hydro One or working for a contractor, that's still a  
6 person, they're still putting up a tower, that's still  
7 labour, and the question is how do you adjust for that in  
8 your model.

9 MR. FENRICK: It's my understanding that, you know, if  
10 you are doing some sort of transmission project or whatever  
11 it might be, those expenses, whether it's internal or  
12 outside, are going to be booked to the transmission  
13 category. And so those costs are all going to show up,  
14 whether it's outsourced or internal, the expenses that the  
15 utility incurs are going to all -- they are going to show  
16 up into the cost definition.

17 MR. SHEPHERD: In the labour cost definition? I am  
18 asking about the difference between labour and non-labour.  
19 So it's all transmission, right?

20 MR. FENRICK: Right.

21 MR. SHEPHERD: You have transmission labour and  
22 transmission non-labour, and I would have thought that if  
23 you contract out, it's treated as non-labour even -- and if  
24 the same people do it, but they work for the utility, it's  
25 labour, is that right?

26 MR. FENRICK: In constructing this table and our  
27 inflation factor? No, we assumed outside labour or outside  
28 services were labour and included that as a labour expense.

1 MR. SHEPHERD: All outside services?

2 MR. FENRICK: Well, I believe we had an allocator  
3 attached to it. But we included the -- we included that  
4 component into that definition. It's on page 49 of the PSE  
5 report, where we show that equation.

6 MR. SHEPHERD: Okay. I missed that, thank you. My  
7 next question is on Staff 55, and this is a fairly  
8 straightforward one and it may be for Hydro One.

9 Hydro One said that the formula ensures that the  
10 transmitter's revenue requirement will increase at a rate  
11 no greater than inflation. But any ICM or capital factor  
12 would mean that it would be greater than inflation, right?  
13 Is that correct?

14 MR. VETSIS: Yes, but those are not within the I minus  
15 X formula.

16 MR. SHEPHERD: No, no, I understand that. But it's  
17 true that what it really shows is it can't be less than  
18 inflation. It can be more because you have adders of  
19 various types. But it can't be less, right?

20 MR. VETSIS: Sure.

21 MR. SHEPHERD: Thanks. My next question is on Staff  
22 58, and it was really something that just confused me.

23 This is a question -- you will see it on page 2. The  
24 PSE has -- you did this study for Hydro One Networks,  
25 right, not for HOSSM?

26 MR. FENRICK: That's correct. The original intention  
27 was for Hydro One Networks.

28 MR. SHEPHERD: And you've suggested that the same

1 factors should apply to HOSSM, right? The same -- the  
2 results of your study should apply to HOSSM?

3 MR. FENRICK: Correct. I believe we say that in  
4 part B. PSE's recommendation for parameters of the Hydro  
5 One SSM revenue cap remain unchanged from our  
6 recommendations for Hydro One Networks.

7 MR. SHEPHERD: And why do you assume that HOSSM has  
8 the same results as Hydro One Networks? Why is that?

9 MR. FENRICK: Same results pertaining to what portion?  
10 The TFP? Trend?

11 MR. SHEPHERD: Benchmarking, for example.

12 MR. FENRICK: For the benchmarking? We are not making  
13 an assumption that Hydro One SSM would have the same  
14 results separately. We are making the assumption that the  
15 results would be very unlikely to change if the two -- you  
16 know, if we benchmarked Hydro SSM plus Hydro One Networks.

17 Just given the size of Hydro One Networks in relation  
18 to SSM, if we added SSM to the Hydro One Network  
19 definition, it would be unlikely to change the recommended  
20 CIR values.

21 MR. SHEPHERD: Why would you be adding Hydro One SSM  
22 to Hydro One Networks? I don't understand how that  
23 follows.

24 I am asking the question if you study HOSSM  
25 separately, could you get a different result? You might  
26 get a deferent result?

27 MR. VETSIK: The companies are in the middle of an  
28 integration in the process of becoming one consolidated

1 entity. Going forward, it seems reasonable that the  
2 productivity expectations for a consolidated entity would  
3 be the more reasonable benchmark to use, rather than this  
4 unstudied historical performance of a much smaller utility  
5 whose operations have changed.

6 MR. SHEPHERD: So it's Hydro One's opinion that this  
7 study is applicable to HOSSM, it's not Mr. Fenrick's?

8 MR. FENRICK: No, it's also my opinion that the  
9 recommended parameters that I am recommending would be  
10 unchanged for SSM versus Hydro One Networks, on the basis  
11 that while there isn't a total cost benchmarking study for  
12 SSM, our TFP findings are quite negative, right, negative  
13 1.29 percent or negative 1.1 -- you know, they are largely  
14 negative, which implies an implicit stretch factor already.

15 So Hydro One SSM, if they do get the recommended X  
16 factor of 0.0 percent, that essentially implies an implicit  
17 stretch factor that is well over 1 percent. And that's a  
18 very large, extraordinarily large stretch factor to begin  
19 with.

20 So our stretch factor recommendation would stay at  
21 zero percent because of that presence of that implicit  
22 stretch factor.

23 But I would add, Mr. Shepherd, ideally the X factor  
24 would be calibrated based on the TFP trend and take the  
25 actual TFP trend, and then a total cost benchmarking study  
26 would serve as the stretch factor, the basis for the  
27 stretch factor.

28 MR. SHEPHERD: So you haven't studied HOSSM at all,

1 right? Zero?

2 MR. FENRICK: Correct.

3 MR. SHEPHERD: But because there is so much room in  
4 the negative productivity factor, it basically means it  
5 doesn't matter what stretch factor number -- what  
6 benchmarking number you come up with, it's going to be  
7 subsumed in the negative productivity. As long as you take  
8 from 1.71 to zero, there's never going to be a stretch  
9 factor that big anyway, right?

10 MR. FENRICK: The implicit stretch factor is already  
11 extraordinarily large. If the X factor is set at 0.0  
12 percent, that is already an extraordinarily large stretch  
13 factor being implicitly applied.

14 MR. SHEPHERD: So I am not sure I understand why in  
15 this case -- I understand why in the transmission case you  
16 would be filing these studies. Why would you file these  
17 studies in this case when your answer to the question of  
18 how do they apply to HOSSM is, well, they don't, but it  
19 doesn't matter?

20 I don't get it. Can you explain? How does your study  
21 relate to HOSSM?

22 MR. FENRICK: For the total cost benchmarking? I mean  
23 obviously it relates to the inflation -- the inflation  
24 factor is pertinent for HOSSM, just like Hydro One  
25 Networks. The productivity research is just as applicable.  
26 The total cost benchmarking, I think that's what you are  
27 alluding to here. We have not studies Hydro One SSM, and  
28 so we do not have results for Hydro One SSM.

1 MR. SHEPHERD: All right. I am just going to try to  
2 get a couple more in before the break, if you don't mind.

3 I am looking at Staff 59, and I am looking at page 4.  
4 And this looks like -- except for the very small areas that  
5 are other LDCs, you're saying the service territory of  
6 Hydro One Networks is the entire province. Is that fair?

7 MR. FENRICK: Correct, that's the service territory of  
8 Hydro One.

9 MR. SHEPHERD: And there is probably -- well, at least  
10 50 percent, maybe 75 percent of the province that's not  
11 actually served by Hydro One. Did you adjust for that in  
12 any way? Nobody lives there.

13 MR. FENRICK: So in the total cost benchmarking, we  
14 did not include a service territory or service area  
15 variable in the transmission benchmarking because we had --  
16 we actually had good km of line data from the utilities and  
17 from the U.S. utilities.

18 You may recall in the distribution application, we did  
19 have a square km of line -- or a square km of service  
20 territory because there's not good distribution line  
21 lengths available in the U.S. that's reliable. But on the  
22 transmission side of things, there is reliable data on km  
23 of line. And so we include that variable in there to  
24 account for how much line length and service territory that  
25 there is in each utility's service territory. So there was  
26 no need for a service area variable, if you will.

27 MR. SHEPHERD: Okay. I am going to number 60. And on  
28 page 4 of Staff 60 you say:

1                   "Our engineering experts do believe that  
2                   kilowatts and line length are the main drivers of  
3                   transmission costs."

4           Blah, blah, blah. And I guess you're not an engineer;  
5 right?

6           MR. FENRICK: Correct, I am a lowly economist.

7           MR. SHEPHERD: Well, okay, the engineers say they are  
8 lowly engineers. Those engineering experts, do we have  
9 their evidence somewhere? Do we know who they are?

10          MR. FENRICK: Yes, if you look at the PSE report it's  
11 co-authored by myself as the lead author and then Mr. Erik  
12 Sonju, who is a licensed engineer.

13          MR. SHEPHERD: Okay. So he is the expert that you are  
14 relying on?

15          MR. FENRICK: Yes.

16          MR. SHEPHERD: And he is going to be a witness at the  
17 hearing if there is one?

18          MR. FENRICK: That hasn't been determined.

19          MR. SHEPHERD: All right. Number 63 is -- and this is  
20 sort of -- is probably an undertaking. What I'd like you  
21 to do if you could, and tell me if this is too hard to do,  
22 but what I would like you to do is look at the TFP and cost  
23 benchmarking approaches that have been used by the Board in  
24 the past that are currently used, now, for distribution,  
25 and the two studies that you did for TFP and benchmarking,  
26 put them side by side, and tell us what the differences  
27 are. And if you can give an explanation as to each  
28 difference that would be great, but just a side-by-side.

1 It's not that many; right? You know, obviously there's  
2 going to be little stuff that doesn't matter, but anything  
3 that has a material impact on any results, could you do  
4 that fairly easily?

5 MR. FENRICK: Sorry, I am just trying to think through  
6 what I would be doing.

7 MR. SHEPHERD: Can I ask it a different way? Can you  
8 use your best efforts, and if it turns out to be too much  
9 then you can tell us?

10 MR. ENGELBERG: We will give an undertaking to look at  
11 it and see how much effort there would be.

12 MR. SHEPHERD: All right. And if it's a reasonable  
13 amount of effort you will provide it?

14 MR. ENGELBERG: Yes.

15 MR. SHEPHERD: Thank you. And maybe that's a good  
16 time to take a break.

17 MR. SIDLOFSKY: That will be JT2.15.

18 **UNDERTAKING NO. JT2.15: TO MAKE BEST EFFORTS TO LOOK**  
19 **AT THE TFP AND COST BENCHMARKING APPROACHES USED BY**  
20 **THE BOARD IN THE PAST AND CURRENTLY USED NOW FOR**  
21 **DISTRIBUTION, AND THE TWO STUDIES DONE FOR TFP AND**  
22 **BENCHMARKING, PUT THEM SIDE BY SIDE, AND EXPLAIN WHAT**  
23 **THE DIFFERENCES ARE**

24 MR. SIDLOFSKY: Just to try to plot out the rest of  
25 the afternoon, Mr. Shepherd, do you have a sense of how  
26 much longer you might be?

27 MR. SHEPHERD: Ten or 15 minutes.

28 MR. SIDLOFSKY: Okay. Why don't we take a break now.

1 It's 3:05. We'll come back at 3:20.

2 --- Recess taken at 3:05 p.m.

3 --- On resuming at 3:23 p.m.

4 MR. SIDLOFSKY: We are back. Mr. Hovde, are you still  
5 on the line?

6 MR. HOVDE: I am.

7 MR. SIDLOFSKY: Okay, great. Just one thing before we  
8 go back to Mr. Shepherd. Has Hydro One given more thought  
9 to the requested undertaking on the percentage of plant  
10 that's underground?

11 MR. ENGELBERG: Yes, and Mr. Vetsis will answer what  
12 it is that Hydro One will be able to do.

13 MR. SIDLOFSKY: Okay, thanks. Mr. Vetsis?

14 MR. VETISIS: I think we can provide a percentage of  
15 the value of plant, of underground plant as compared to  
16 overall net plant for a recent historical year. So if that  
17 should be helpful for your purposes.

18 MR. HOVDE: That would be good. In fact, I wouldn't  
19 even mind if it was gross plant, if that's possible. I  
20 would take either, but of the two, I might prefer gross  
21 plant because that is the ratio that I would be able to do  
22 in the United States for comparative purposes.

23 MR. VETISIS: I will do my best. I think we have that.  
24 If not, we will provide net.

25 MR. HOVDE: That would be great.

26 MR. SIDLOFSKY: That will be taking JT2.16.

27 **UNDERTAKING NO. JT2.16: TO ADVISE THE PERCENTAGE OF**  
28 **THE VALUE OF UNDERGROUND PLANT AS COMPARED TO OVERALL**

1           **NET PLANT FOR A RECENT HISTORICAL YEAR.**

2           MR. SIDLOFSKY: Mr. Shepherd?

3           MR. SHEPHERD: I just have a few questions left. I am  
4 on Staff 66, and Staff 66 says that -- I think it says that  
5 the construction cost assumed for Hydro One was the Toronto  
6 construction cost. Is that right, from the RSMeans index?

7           MR. FENRICK: Yes. Consistent with how we did the  
8 rest of the sample, we used the headquarter city as the  
9 map.

10          MR. SHEPHERD: How does construction costs feed into  
11 your model? It affects your capital model, right?

12          MR. FENRICK: It flows into the capital price. So  
13 when you do a benchmarking study, you want to levelize for  
14 the regional differences in the prices the utilities have  
15 to pay for, you know, for labour or for capital.

16          And so we use the RSMeans to provide that levelization  
17 on the capital price, to correct for the regional -- or  
18 adjust for the regional differences between utilities in  
19 construction costs.

20          MR. SHEPHERD: Now, the only component of this that  
21 matters is the Delta from year to year, right, because this  
22 is a rate of change calculation, right?

23          MR. FENRICK: No, that's not right. This is a  
24 levelization, so we are taking -- we did the levelization  
25 in 2012. So we took the RSMeans in 2012, and it's a book  
26 that has heavy construction costs for a whole host of  
27 cities through North America. We took the values, the  
28 headquarter city values for every utility in the sample,

1 set that, and then we changed that trend using the Handy  
2 Whitman indexes. But in 2012, the levelization is based on  
3 the differences in the cities as reported by RSMeans.

4 MR. SHEPHERD: So basically you are saying that the  
5 expected costs for Hydro One, for example, will be  
6 different than for somebody whose headquarters is in  
7 Philadelphia, because construction costs are different in  
8 those two cities, right?

9 MR. FENRICK: Correct.

10 MR. SHEPHERD: All right. So did you adjust for the  
11 fact that Toronto is notoriously -- has the largest amount  
12 of construction activity of any city in North America?

13 MR. FENRICK: No, there was no adjustment made. We  
14 took -- we thought we were consistent throughout the whole  
15 sample and we didn't make adjustments to cities.

16 MR. SHEPHERD: So if Toronto's construction costs are  
17 affected by the high amount of construction activity and  
18 the inability to get people and cranes and stuff like that,  
19 how would that affect your results?

20 MR. FENRICK: Are you saying if those -- that reality  
21 increased the value found in RSMeans?

22 MR. SHEPHERD: Yes.

23 MR. FENRICK: It would increase the levelization  
24 factor for Hydro One.

25 MR. SHEPHERD: So it would mean that Hydro One's costs  
26 would be expected to be higher than peers in cities with  
27 lower construction costs.

28 MR. FENRICK: If the construction costs are higher in

1 Toronto then, all else being equal, the benchmark would be  
2 higher for Hydro One.

3 MR. SHEPHERD: So what is included in heavy  
4 construction? Does it including building condos and stuff  
5 like that? Or does it only include things that are  
6 specifically relevant to Hydro One, like transmission lines  
7 and things like that?

8 MR. FENRICK: It's the heavy construction, so it's not  
9 specific to the utility transmission business. So it would  
10 include, you know, condos and those types of things, heavy  
11 construction type.

12 MR. SHEPHERD: My next question is on Staff 68, and  
13 you've said in your answer to B that the incentives under  
14 the FERC rate plans are generally weaker than the  
15 incentives in Ontario plans, right? Is that a fair  
16 statement about what you said there?

17 MR. FENRICK: Yes, I consider formula rates to have  
18 weaker incentives than the typical incentive regulation  
19 regime here in Ontario.

20 MR. SHEPHERD: And the incentives we are talking are  
21 Basically cost control incentives, right -- mostly they are  
22 cost control incentives?

23 MR. FENRICK: That's fair.

24 MR. SHEPHERD: So wouldn't that necessarily mean that  
25 for regulatory reasons, U.S. transmitters would have worse  
26 productivity than Ontario transmitters? All other things  
27 being equal, that should be the case, right?

28 MR. FENRICK: With the caveat that formula rates have

1 been in place for, you know, throughout the sample period,  
2 so there hasn't been a change. And that's -- that's done  
3 at the federal level, so it's consistent across the U.S.,  
4 the FERC regulates transmission primarily in the U.S. And  
5 so there hasn't been a change or move from, you know,  
6 incentive regulation to formula rates. It's been a  
7 consistent series throughout the sample period.

8 But all else being equal, I would think that someone  
9 under a formula rate form of regulation would have weaker  
10 incentives than under incentive regulation.

11 MR. SHEPHERD: So if you are giving a utility in the  
12 U.S. 3 percent a year in rate increases and inflation's  
13 only going up 2 percent a year, all other things being  
14 equal, they should have negative productivity, right?

15 MR. FENRICK: That would depend on their output  
16 growth.

17 MR. SHEPHERD: I said all other things being equal.

18 MR. FENRICK: What are we setting equal here?

19 MR. SHEPHERD: I am trying to understand whether if  
20 relative to your outputs, you have more money in the U.S.  
21 than you do in Canada each year, that that will tend to  
22 make you less productive.

23 MR. FENRICK: Just so I can understand your example,  
24 you are saying if the U.S. utilities are spending more  
25 money then, you know, their level of spending is higher  
26 than other utilities or Canadian utilities or Ontario  
27 utilities, all else being equal, yes, then the productivity  
28 would be lower.

1 MR. SHEPHERD: Sorry, I was saying if they are allowed  
2 to spend more money by their regulator. If their regulator  
3 gives them a weaker incentive, gives them basically more  
4 money each year so they are not as pushed to keep their  
5 rates down, then is that going to mean that they will  
6 generally have lower or more negative productivity,  
7 generally?

8 MR. FENRICK: I think it would mean the incentives are  
9 weaker. How that would actually play out in real life and  
10 reality, I haven't seen a study that has examined what that  
11 would actually play out as far as the realization of  
12 productivity.

13 MR. SHEPHERD: Your study assumes that the regulatory  
14 format of your study sample, and the differences between  
15 that regulatory model and the one in Ontario, has no effect  
16 on productivity, right? That's what your study assumes?

17 MR. FENRICK: The PSE study, our study is a  
18 calculation of the total factor productivity trends of the  
19 U.S. industry, and we are using that that estimate on the  
20 TFP to serve as the basis for X factor. I think there's  
21 likely to be differences between Canada and the U.S., but  
22 that doesn't mean the calculations have any of those  
23 assumptions put in them. We are doing a calculation  
24 exercise in calculating the TFP.

25 MR. SHEPHERD: The only reason you can use your -- the  
26 results of your U.S. model to assume the expected costs of  
27 Hydro One is by assuming that the U.S. results are directly  
28 applicable to Hydro One; that is, they have the same basis,

1 right? That's the whole concept you are using; right?

2 MR. FENRICK: Are you talking on the TFP study or the  
3 benchmarking?

4 MR. SHEPHERD: Well, either would be true but, yes.  
5 TFP is what I am talking about right now.

6 MR. FENRICK: Okay. To the extent that the formula  
7 rates have been in place for the entire sample period,  
8 which means they have had weaker incentives throughout the  
9 entire sample period, we wouldn't -- we wouldn't  
10 necessarily expect that to skew -- you know, it's been a  
11 consistent, consistent reality in the U.S. throughout that  
12 sample period. And so, you know, we wouldn't expect that  
13 to skew the trend in any sort of way.

14 MR. SHEPHERD: So an easier regulatory regime in the  
15 United States is not an explanation for the negative  
16 productivity throughout the table that we saw earlier of  
17 all the U.S. utilities? The vast majority of the results  
18 being negative productivity each year, that's not because  
19 of a weaker regulatory regime? If you don't know you can  
20 just say so.

21 MR. FENRICK: It's a possibility, but I really can't  
22 sit here and tell you what the end real causes are of that  
23 negative productivity, so I would be speculating.

24 MR. SHEPHERD: You didn't adjust for the different  
25 regulatory regimes; right?

26 MR. FENRICK: That's correct.

27 MR. SHEPHERD: Okay. My next question is in 69. And  
28 actually, I think I already asked these questions when we

1 talked about SEC 20. So my next question is in Energy  
2 Probe 24. And this is -- and this may be my last question,  
3 so it's appropriate that I end on what may be a stupid  
4 question. Am I right that if you calculated the TFP for  
5 each company and averaged that in some way, you would get a  
6 similar result to the result you got? Or would that --  
7 would that not be the case?

8 MR. FENRICK: I believe that's what Dr. Schwartz in  
9 his exhibit showed. Because that's essentially, if I  
10 understand you correctly, that's the procedure he undertook  
11 that showed very similar results.

12 MR. SHEPHERD: So that result, that simple versus log,  
13 his result was simple versus log; right?

14 MR. FENRICK: Right, but that really was not a very  
15 meaningful difference either. So it's wholly similar, it's  
16 not going be identical, but...

17 MR. SHEPHERD: It's not going be the same.

18 And then one last point. Remember that table that is  
19 secret and highly confidential and we can't talk about it  
20 that has the list of all the annual productivity. Is it  
21 possible to model that, is it easy to do to figure out what  
22 the productivity trend is if you take out all the outliers  
23 above a certain level, let's say, I don't know, 10 percent?  
24 Is it easy to do that?

25 MR. VETSI: What would be the basis for taking out  
26 the 10 percent?

27 MR. SHEPHERD: No, I am just asking the question. We  
28 are going to ask the Board to consider whether those big

1 changes are outliers. It would be useful if the Board  
2 knows how much of a difference that makes, and so I am  
3 asking whether it's easy to calculate. I mean, I suppose I  
4 can get the spreadsheet and do it myself, but it's better  
5 if you do it.

6 MR. FENRICK: Why is that?

7 MR. SHEPHERD: Because you know what you are doing.

8 MR. FENRICK: I think you can take simple averages;  
9 right?

10 MR. SHEPHERD: Anyway. Is it easy to do?

11 MR. FENRICK: I would say it's actually easier for Dr.  
12 Schwartz, given that he has the Excel spreadsheet. I don't  
13 have the Excel spreadsheet put together at this time.

14 MR. SHEPHERD: Didn't he send you the Excel  
15 spreadsheet with the --

16 MR. FENRICK: No, I just have the paper copy.

17 MR. SHEPHERD: Okay. Anyway, if you had the Excel  
18 spreadsheet could you do it?

19 MR. FENRICK: That would be a fairly easy exercise to  
20 take. It wouldn't be my study, but it would --

21 MR. SHEPHERD: Can I ask you to do that then? It's  
22 the data you collected. I am just asking you to take the  
23 data you collected and produce a result with a different --  
24 with one different parameter.

25 MR. ENGELBERG: Would you be comfortable doing that  
26 with somebody else's Excel?

27 MR. FENRICK: I think the issue is that I am producing  
28 results that I don't think are appropriate and are not my

1 results, when, I mean, Mr. Shepherd, you can just as easily  
2 as I can get the Excel spreadsheet and make that  
3 calculation.

4 MR. SHEPHERD: I had to ask. I have asked. That's  
5 fine.

6 MR. FENRICK: Okay.

7 MR. SHEPHERD: That's all my questions, thanks.

8 MR. SIDLOFSKY: Thanks, Mr. Shepherd.

9 So I believe that's it for Mr. Fenrick. The remaining  
10 two members of the panel are still needed. Ms. O'Connell  
11 has some questions about the scorecard and DBAs -- sorry,  
12 and cost allocation. So Mr. Fenrick, if you want to head  
13 out, Board Staff are fine with that.

14 MR. FENRICK: That sounds great to me. Thank you.

15 MR. SIDLOFSKY: Ms. O'Connell.

16 **ISSUE D, PERFORMANCE SCORECARD**

17 **EXAMINATION BY MS. O'CONNELL:**

18 MS. O'CONNELL: Good afternoon. So I am just going to  
19 start right now with some questions about the scorecard.  
20 If you go Staff IR No. 42, Exhibit I, tab 1, schedule 42.  
21 In part E, basically I asked why Hydro One Sault Ste. Marie  
22 had not consulted with any customers or external  
23 stakeholders in the production of the scorecard. Your  
24 response was, no, there are no consultations.

25 So I am just wondering if you could provide an  
26 explanation as to why no consultations were performed,  
27 considering the prominence of customers' needs and  
28 preferences in the scorecard. So when I refer to the

1 scorecard report, I am referring to -- I am referring to  
2 EB-2010-0379, a report of the Board performance measurement  
3 for electricity distributors, a scorecard approach dated  
4 March 5th, 2014.

5 So back to my question, if you could just explain why  
6 in particular customers and also as well external  
7 stakeholders, why they weren't consulted.

8 MR. VETSIS: As we mentioned before, the intent with  
9 the scorecard was to align to the extent possible with that  
10 of Hydro One Networks in light of the eventual integration  
11 of the two utilities. I would note that Hydro One Networks  
12 itself did do some form of engagement in the original  
13 development of its scorecard for its 2017/2018 application,  
14 and I am sure that that informed the work done here as  
15 well.

16 MS. O'CONNELL: Okay, my next question is also related  
17 to Staff IR No. 42. 42F and G basically asked why  
18 benchmarking wasn't done against your peers. Basically  
19 what I am trying to get at in this question is the targets  
20 column on the scorecard for industry. Once again they are  
21 blank, and I'm just -- with these questions in 42F and G  
22 I am just trying to get a stake as to what's being planned  
23 for the industry targets. And I know you are saying that  
24 there's integration with Hydro One Networks, but even if  
25 you are integrated with Hydro One Networks you should have  
26 comparators to your peers.

27 MR. VETSIS: If you take a look at Exhibit C2-1 you  
28 will see that the actual reliability statistics have

1 results that are compared to CEA, so that would be to  
2 industry peers.

3 MS. O'CONNELL: I guess what I am getting at is  
4 there's no column for the scorecard for industry targets,  
5 and that's what I am getting at.

6 MR. VETSIS: You would note that in the case of  
7 distributors which you've compared to, OEB created its own  
8 sector-specific scorecard. It relied on existing  
9 expectations of performance that have been established for  
10 the sector. There's no corollary on the transmission side  
11 for us to draw from.

12 So what Hydro One has provided, Hydro One SSM has  
13 provided is a set of targets that it intends to achieve by  
14 2023. And again, it has aligned its metrics with those of  
15 Hydro One Networks, to have some degree of comparability  
16 between the two.

17 MS. O'CONNELL: So are you saying that comparable  
18 industry targets -- like, for example, for CNPI, Five  
19 Nations, et cetera -- that they would not be applicable to  
20 consider when you are developing the industry targets on  
21 your scorecard.

22 MR. VETSIS: I don't know the specifics of their  
23 operating territories. I do understand that they have  
24 different characteristics certainly than -- my  
25 understanding is they have different characteristics than  
26 Hydro One SSM. So I don't -- I don't have anything more to  
27 say beyond that.

28 MS. O'CONNELL: Okay, thank you. My next question is

1 regarding SEC No. 14, Exhibit I, tab 5, schedule 14.

2 So you will note that on the next page, there's a  
3 scorecard there. So is it your intention that this is the  
4 most latest version that I should look at?

5 MR. LEWIS: That's correct, yes.

6 MS. O'CONNELL: Okay, thank you. My next question is  
7 in -- so it's IR No. 42, so Exhibit I, tab 1, schedule 42.

8 So in this IR, basically I asked why the scorecard, A,  
9 does not specify improvement initiatives, and B, why Hydro  
10 One Sault Ste. Marie believes that its current scorecard  
11 has addressed the deficiencies.

12 In part A, basically you said that the figure 5  
13 scorecard in your prefiled evidence is largely similar to  
14 that submitted by Hydro One Networks as approved by the OEB  
15 in 2017. You also said that your Hydro One Sault Ste.  
16 Marie scorecard is substantially aligned with the Hydro One  
17 TX scorecard, and basically it should now be treated as  
18 acceptable because it includes the expected outcomes and  
19 timelines.

20 So is it fair to say that you are saying that the OEB  
21 should approve this scorecard that's on the record in the  
22 Hydro One Sault Ste. Marie proceeding because it's similar  
23 to that submitted by Hydro One Networks TX in the 2017 and  
24 '18 proceeding? Is that what you are saying?

25 MR. VETSI: What we are saying is the revised  
26 scorecard addresses the concerns of the OEB in the Hydro  
27 One SSM decision, which were that having performance  
28 metrics with specific performance outcomes and

1 implementation timelines, targets have been provided along  
2 with metrics that are aligned with the OEB's IRF.

3 I would also turn to the OEB's handbook for utility  
4 rate applications. On page 17, the OEB talks about, in  
5 reviewing scorecards, its key considerations are whether  
6 measures capture key factors of utility performance.

7 I think that's the case here. You have execution --  
8 metrics related to customer satisfaction, reliability, cost  
9 performance and execution.

10 Whether the scorecard enables assessments over time.  
11 That's the case. There's a full five years' worth of data  
12 here.

13 And appropriate comparisons with other utilities; it's  
14 aligned with that of Hydro One.

15 The third target is whether the utility has set  
16 reasonable targets for its performance metrics. You will  
17 notice in the revised scorecard that was mentioned in the  
18 interrogatory you had before shows improvements in  
19 performance in virtually all measures across the board.

20 So once again we believe that the provided scorecard  
21 aligns substantially with the requirements of the OEB and  
22 as well from the prior decision as well as its handbook and  
23 existing policies.

24 MS. O'CONNELL: Okay. But back to my question, are  
25 you of the view that the Board should accept this scorecard  
26 because it's substantially aligned with the Hydro One  
27 Networks scorecard?

28 MR. VETISIS: No, we are of the view it should accept

1 the scorecard because it meets the criteria the OEB  
2 mentions in the OEB rate handbook, and because it addresses  
3 the OEB's concern in the last decision for Hydro One Sault  
4 Ste. Marie, EB-2016-0356.

5 MS. O'CONNELL: Okay. I am just going to also  
6 basically refer to the Hydro One Networks decision EB-2016-  
7 0160, dated September 20, 2017, revised October 11, 2017,  
8 on page 38.

9 Basically, there the OEB did not approve Hydro One  
10 Networks' scorecard basically saying that expected the  
11 Hydro One Networks scorecard to further evolve. It's my  
12 understanding that it's likely you are still evolving and  
13 that this -- is this Hydro One Sault Ste. Marie scorecard  
14 also a work in progress?

15 MR. VETSIK: As stated before, Hydro One Sault Ste.  
16 Marie's scorecard, we believe should be approved by the OEB  
17 in this proceeding for Hydro One Sault Ste. Marie, because  
18 it meets the criteria outlined in the handbook for utility  
19 rate applications, as well it addresses the OEB's concern  
20 in the last decision.

21 MS. O'CONNELL: Okay. One of the concerns in the last  
22 decision was regarding implementation timelines. I looked  
23 and basically I -- like for example, some of the measures  
24 that you are planning on implementing you were silent in  
25 the scorecard.

26 MR. VETSIK: I believe the evidence indicates that all  
27 these metrics are in place and are being tracked currently.  
28 So the implementation has occurred.

1 MS. O'CONNELL: No, that's not accurate. For example,  
2 the customer satisfaction survey still shows NA.

3 MR. VETISIS: As was noted in the evidence, HOSSM did  
4 not have a customer satisfaction survey in the past. But  
5 going forward following the operational integration that  
6 just happened a couple of months ago, they will be included  
7 with that of Hydro One Networks.

8 MS. O'CONNELL: So I will get to this later on in my  
9 questions regarding MD&A, but at this point in time, are  
10 you willing to basically revise your scorecard to include  
11 an MD&A, including the implementation timelines? Because  
12 normally at a utility when it's implementing measures, it  
13 include a discussion in the MD&A section. Like, for  
14 example, you know, customer satisfaction survey. You know,  
15 we surveyed customers on issues such as reliability, things  
16 of that nature.

17 MR. VETISIS: I am struggling to understand what you  
18 are asking for, and how that's distinct from what's  
19 provided in Exhibit C1-1.

20 My understanding of the MD&A portion of the scorecard  
21 was it's a place where utilities put explanations for when  
22 the performance is placed publicly for people to look at.  
23 The explanations for the things that you are asking about  
24 are actually on the record in Exhibit C1-1.

25 MS. O'CONNELL: Yeah, unfortunately the scorecard  
26 needs the MD&A sections. Customers, when they come to your  
27 application, I think it would be reasonable to have a  
28 separate MD&A section embedded in the scorecard, so that's

1 all in one place.

2 And then furthermore, the MD&A section should discuss  
3 the implementation timelines.

4 MR. VETSIS: We believe we have provided a complete  
5 record with respect to the scorecard. Should the OEB  
6 determine in this proceeding that an MD&A will be helpful  
7 when we post our scorecard annually and report to the OEB,  
8 we would be happy to adopt that.

9 MS. O'CONNELL: Okay. And then if -- so basically,  
10 you wouldn't take an undertaking to revise the scorecard  
11 with an MD&A section?

12 MR. VETSIS: No, because everything you are seeking  
13 for is already on the record in Exhibit C1, tab 1, schedule  
14 1, the descriptions of all the measures, what's being  
15 tracked, what they mean, what the historical performance  
16 is. I don't even know what we would provide you beyond  
17 that.

18 MS. O'CONNELL: Okay. So basically what you are  
19 saying is, is that even though the MD&A sections are  
20 required section of the scorecard report you are not  
21 willing to revise your scorecard to meet the OEB's  
22 expectations?

23 MR. VETSIS: What we are saying is that if the OEB in  
24 its decision in this proceeding would like us to include an  
25 MD&A section, we will include such descriptions annually  
26 when we publicly post our scorecard for reporting purposes.

27 For the purposes of this specific hearing, there's no  
28 need to refile a scorecard with an MD&A section, because

1 the information that you are seeking is already fully  
2 described in Exhibit C, tab 1, schedule 1. And I should  
3 note as well for specifics reliability, Exhibit C, tab 2,  
4 schedule 1.

5 MS. O'CONNELL: Okay, thank you. Okay. You'll note  
6 that there's the operational effect of the section of the  
7 RRF, the renewed regulatory framework. And basically in  
8 your prefiled evidence you stated that:

9 "Continuous improvements in productivity and cost  
10 performance will drive cost efficiencies inherent  
11 in the integration."

12 Can you let me know on the scorecard where these  
13 inherent efficiencies in integration are captured?

14 MR. VETSIS: I believe yesterday you asked a similar  
15 question, and our response was in terms of efficiencies, we  
16 have Exhibit B2, tab 2, schedule 1, which shows the savings  
17 that have arisen from the initial work with integration of  
18 the two utilities.

19 Additionally, this application includes benchmarking  
20 studies with respect to productivity performance and  
21 incentive rate-setting mechanism, which includes  
22 productivity expectations. As noted again yesterday, the  
23 OEB's findings with respect to continuous improvement in  
24 the last proceeding were related to the stretch factor and  
25 productivity factor.

26 MS. O'CONNELL: Okay, thank you. I move along to  
27 AMPCO number IR No. 31, Exhibit 1, tab 4, schedule 31.  
28 Basically, AMPCO asked about on the differences between the

1 Hydro One TX scorecard and the Sault Ste. Marie scorecard.  
2 I looked up your most recent Hydro One TX scorecard, so  
3 that was EB-2016-0160, filed May 31, 2016. I did a cross-  
4 check, and they didn't seem to match.

5 Is it my understanding, then, that your answer in  
6 AMPCO 31 includes new measures that weren't on the Hydro  
7 One Networks TX scorecard in EB-2016-0160?

8 MR. VETSIS: I think what occurred here was just the  
9 evidence -- initially I think the timing, the expectation  
10 was that Hydro One were to have filed its custom IR  
11 application last year, which would have included a revised  
12 transmission scorecard. Subsequent to that, this  
13 application would have been filed. And I think the  
14 evidence was referencing the work done there.

15 So the metrics here that are missing that you don't  
16 see in the prior application reflect the current work that  
17 Hydro One has made in terms of updating its own scorecard.  
18 That will be reflected when Hydro One does file its custom  
19 IR application next year -- or this year.

20 MS. O'CONNELL: Okay. So is the intent then in IR  
21 AMPCO 31 to roll these new measures then in the Sault Ste.  
22 Marie scorecard?

23 MR. VETSIS: I don't believe so. I think some of  
24 these metrics are specific to the work programs of those of  
25 Hydro One Networks. I do believe that the reliability  
26 evidence has indicated that with respect to T-SAIFI  
27 ultimately the metrics will be able to be split between  
28 momentary and otherwise -- here, just give me a second to

1 find you the exact quote.

2 So, yes, on Exhibit C, tab 1, schedule 1, page 21 at  
3 the bottom it states:

4 "As the integration with Hydro One progresses  
5 this metric, specifically T-SAIDI, T-SAIFI, will  
6 be divided into momentary T-SAIFI M and sustained  
7 outages, T-SAIFI S, to align with Hydro One's  
8 tracking of these metrics."

9 MS. O'CONNELL: Okay. So I guess what you are saying  
10 is other than the T-SAIFI you are not planning on rolling  
11 these AMPCO IR number 31 measures into the Sault Ste. Marie  
12 scorecard?

13 MR. VETSIS: No, we don't believe they apply.

14 MS. O'CONNELL: Okay. Then just linking again to IR  
15 number 42, Exhibit 1, tab 1, schedule 42, you talked about  
16 some measures that you could possibly implement, one being  
17 the level of public awareness and the other one being  
18 transmission system plan implementation progress.

19 If you were able to incorporate these measures into  
20 the scorecard, what would be the timing?

21 MR. VETSIS: It would be pure speculation as to what  
22 the timing would be for the inclusion of these metrics. As  
23 stated, we believe we have provided a fulsome scorecard,  
24 and that's the scorecard that we are proposing at this  
25 time.

26 MS. O'CONNELL: Okay, thank you. Now, I also direct  
27 you to IR No. 42, Exhibit I, tab 1, schedule 42. Basically  
28 just to summarize what we just discussed, you're saying

1 that it's your understanding that you are in compliance  
2 with the OEB's requirements even though an MDA is not  
3 required; right? That's your assumption, that's your  
4 position?

5 MR. VETISIS: Correct.

6 MS. O'CONNELL: Okay, thank you.

7 Okay. Okay. If you go to IR No. 42. So that's  
8 Exhibit I, tab 1, schedule 42. This is talking about  
9 targets. So I asked an IR about the targets for 2023.  
10 Your response is saying that it aligns with the TSP for  
11 five years and Hydro One TX's -- Hydro One Network's  
12 transmission scorecard. I asked you more information about  
13 the targets. You basically said that they were set by  
14 senior management. Some were based on a discretionary  
15 basis, some where there was an algorithm -- algorithm was  
16 used to develop the targets, and other areas where targets  
17 were not meaningful.

18 So I just have a few follow-up questions regarding the  
19 targets and your management team. So how do you monitor  
20 the progress of utility -- areas of the utility that do not  
21 have targets set?

22 MR. VETISIS: Could you be more specific, which metrics  
23 you are referring to?

24 MS. O'CONNELL: Okay, for example, customer  
25 satisfaction. The survey.

26 MR. LEWIS: So for the example you state regarding  
27 customer surveys, given this wasn't something that Hydro  
28 One Sault Ste. Marie had established in the past, it was

1 difficult for Hydro One Sault Ste. Marie to establish a  
2 target.

3 With that being said, given that we are in the midst  
4 of operational integration and, as my colleague noted, we  
5 are moving forward to aligning with Hydro One's scorecard  
6 and their approach with customer surveys, when we file the  
7 scorecard in the future, the N/As will likely be replaced  
8 once better information is available in terms of what a  
9 successful metric would be for customer survey response.

10 MS. O'CONNELL: Okay, thank you. Regarding  
11 implementation timelines for metrics that cannot be  
12 feasibly calculated, how do you determine those timelines  
13 with -- based on your plan to implement going forward?  
14 Like, for example, satisfaction with outage planning  
15 procedures?

16 MR. VETSIK: To be clear, these metrics are  
17 implemented and they are in place to be tracked. Where  
18 there's N/As in the scorecard, it's in instances where  
19 there's no history of performance which you can draw from  
20 to determine a target. And that's where you see N/A.

21 So as time goes on, these metrics are in place, they  
22 are ready to be tracked. You gain experience with them for  
23 a couple years to see what performance is, and then from  
24 there determine what targets are appropriate or reasonable.

25 MS. O'CONNELL: And then regarding the scorecard  
26 report that I referred to earlier, basically can you  
27 explain how basically targets are set with the requirements  
28 of the scorecard reports, basically to deliver services

1 that would be reasonably expected by the customer at  
2 reasonable rates?

3 MR. VETSIS: I feel you are sort of comparing apples  
4 and oranges here. Again, my recollection is when the OEB  
5 established the scorecard for DX, it talked specifically  
6 about leveraging triple-R information of utilities. It  
7 specifically talks about targets being established based on  
8 whatever expectations existed already. For example,  
9 minimum standards for service calls, et cetera, those are  
10 established in the Distribution System Code and those are  
11 pulled through into the scorecard itself.

12 Where there were new measures, the OEB itself actually  
13 established no target for performance. So again, all I see  
14 is absolute alignment with what it is we have done here.  
15 Where there was a history of existing information and  
16 performance, we have set targets there for expectation.  
17 And in almost every instance, it's a target of improved  
18 performance.

19 Where no history exists, we are waiting to gain  
20 experience before setting those targets. So again,  
21 absolutely aligned with the DX report.

22 MS. O'CONNELL: Okay. So basically what you are  
23 saying is your scorecard, in your opinion, is aligned with  
24 the objectives of the scorecard report, which is to provide  
25 a reasonable level of service for customers at reasonable  
26 rates.

27 MR. VETSIS: Correct.

28 MS. O'CONNELL: Okay, thank you. Now, talking more

1 again about the targets, thank you for updating the  
2 response in the SEC interrogatory. I am just asking --  
3 generally, the scorecards, there's a year, the year of  
4 targets will relate to the year of the scorecard. So I  
5 noted that this is a 2017 scorecard, but there's no target  
6 for the year 2017.

7           Could you undertake -- A, could you undertake to  
8 include that target; and B, if you revise the target for  
9 2018 values? Would that be an onerous task at this point  
10 in time?

11           MR. SMITH: Excuse me, Ms. O'Connell. What number SEC  
12 is that again? Do you have that number handy?

13           MS. O'CONNELL: SEC No. 14, Exhibit I, tab 5, schedule  
14 14.

15           MR. VETISIS: This scorecard wasn't in place prior to  
16 the integrat -- like before. I don't know what targets we  
17 would be able to give you, because it's something that was  
18 just been established.

19           So what 2017 targets would you want? We couldn't give  
20 you anything; it wasn't in place at the time.

21           MS. O'CONNELL: But you did submit a scorecard with  
22 your EB-2016-0356 application towards the end of 2016.

23           MR. VETISIS: Sorry, you want us to update a scorecard  
24 that was rejected by the OEB with new targets?

25           MS. O'CONNELL: No, no, I am talking about the  
26 scorecard that's in SEC number 14 in this proceeding.  
27 Basically, A, either update with 2017 targets; or B -- I am  
28 asking you would it be totally onerous to update the whole

1 scorecard with 2018 values?

2 MR. VETSIS: We have given you '17 actuals. I  
3 don't...

4 MS. O'CONNELL: Yeah, I'm talking about 2018 actuals.  
5 I'm asking you...

6 MR. VETSIS: I don't think audited financials have  
7 come in yet, so we wouldn't be able to provide you updated  
8 values for everything. No audited...

9 MS. O'CONNELL: I agree. But some of the values  
10 aren't dependent on audited financial statements. So is it  
11 your position that -- I guess it would be too onerous to  
12 update this scorecard?

13 MR. VETSIS: Yes, and of questionable value.

14 MS. O'CONNELL: Okay. Including a target year for  
15 2017, if you're keeping the status quo target?

16 MR. VETSIS: Again, there's no '17 target; it didn't  
17 exist at the time and you have actuals for that year.

18 MS. O'CONNELL: Okay. Key performance indicators;  
19 this is Staff IR No. 43, Exhibit I, tab 1, schedule 43.  
20 Basically, I asked for a list of the historical KPIs and  
21 targets for 2018 and 2019.

22 Basically what you've said is that the KPIs are built  
23 into the scorecard and with the operational ongoing  
24 integration, you're solely focussed on the scorecard with  
25 minor adjustments.

26 So my question to you is: Is it fair to say that the  
27 scorecard replaces your KPIs, your scorecard and your  
28 dashboard? Is that fair to say, based on your

1 interrogatory response?

2 MR. LEWIS: Yes, the scorecard as presented in SEC 16  
3 is what we would use to measure our performance going  
4 forward, and any KPIs would be reflected in that scorecard.

5 MS. O'CONNELL: Okay, so -- okay. So what you are  
6 saying is the KPIs are now being replaced by your dashboard  
7 and scorecard?

8 MR. LEWIS: Yes.

9 MS. O'CONNELL: Okay. So what do you do to mitigate  
10 the risk that some KPIs are no longer covered off, such as  
11 the 2017 KPI called execution of vegetation lines and  
12 stations preventative maintenance?

13 MR. LEWIS: We believe the metrics, as presented in  
14 the scorecard in SEC 14, represent the best measures of our  
15 performance going forward.

16 MS. O'CONNELL: So basically you are saying you  
17 covered off all the KPIs with the scorecard?

18 MR. VETSIS: No, I think it was that the KPI process  
19 has been replaced with the scorecard and in some instances  
20 where we felt the existing measures were appropriate they  
21 have been pulled in, but going forward the scorecard is the  
22 performance measurement tool.

23 MS. O'CONNELL: Okay, thank you. And then just  
24 another question regarding part A of your response to IR  
25 43. You said that you only made minor adjustments to  
26 further align with Hydro One. I am just wondering, why did  
27 you say minor adjustments? You made quite a few  
28 adjustments.

1 MR. LEWIS: So it is our interpretation that the  
2 changes made were minor.

3 MS. O'CONNELL: Because?

4 MR. VETSIS: The bigger change in '17 was shifting  
5 from an annual review process of KPI performance to a  
6 monthly one. So in our opinion that was the more drastic  
7 change, was a more regular review of performance to ensure  
8 that you can change and realign throughout the year. And  
9 the change in the metrics to reflect the new scorecard is  
10 more minor. The big deal is the new process for reviewing  
11 performance.

12 MS. O'CONNELL: Okay, thank you. I just have one  
13 final question regarding standards. So this is -- one  
14 final question relating to this area of the issues list.  
15 So if you go to IR No. 46, Exhibit I, tab 1, schedule 46, I  
16 asked a question as to how you're complying with the MAADs  
17 decision, in particular with the OEB -- complying with the  
18 OEB's approved customer delivery point standards.  
19 This question -- part of the question was not answered, so  
20 I'd just like to you to confirm whether or not you're  
21 compliant with the OEB-approved customer delivery point  
22 standards.

23 MR. VETSIS: The performance standards that I believe  
24 have been OEB-approved are shown in Attachment 1 of C2-1.

25 MS. O'CONNELL: So are you saying you are in  
26 compliance with the OEB-approved customer delivery point  
27 standards?

28 MR. VETSIS: Yes, for Hydro One Sault Ste. Marie.

1 MS. O'CONNELL: Okay, thank you. I have a couple  
2 questions relating to other sections of the issues list. I  
3 am just wondering if anyone else has anything to chime in  
4 regarding the scorecard? No? Okay.

5 **ISSUE E, ACCOUNTING**

6 **EXAMINATION BY MS. O'CONNELL:**

7 MS. O'CONNELL: So I just have -- I have one -- if you  
8 go to regarding deferral and variance accounts, IR number  
9 79. So it's Exhibit 1, tab 1, schedule 79. My first  
10 question is, Table 1, the total balance, you have a total  
11 credit balance in Table 1 of 1.094 million. I added up  
12 these numbers and I came to 1.21 million. So...

13 MR. LEWIS: Yes, the two numbers, the 94,909 and the  
14 1,115,000, should have been added together, so we  
15 acknowledge that the total is incorrect.

16 MS. O'CONNELL: Okay, thank you.

17 So the next part of my question is, so, A, could you  
18 take an undertaking to revise this number to the correct  
19 amount and; B, if you could revise Table 2 to clear the  
20 full amount of 1.2 million credit against the 2019 revenue  
21 -- proposed revenue requirement?

22 MR. LEWIS: Yes, we can accept that undertaking.

23 MS. O'CONNELL: Thank you.

24 MR. SIDLOFSKY: That will be JT2.18.

25 **UNDERTAKING NO. JT2.18: TO REVISE THE NUMBER OF THE**  
26 **TOTAL CREDIT BALANCE TO THE CORRECT AMOUNT AND TO**  
27 **REVISE TABLE 2 TO CLEAR THE FULL AMOUNT OF 1.2 MILLION**  
28 **CREDIT AGAINST THE 2019 PROPOSED REVENUE REQUIREMENT**

1           **ISSUE F, COST ALLOCATION**

2           **EXAMINATION BY MS. O'CONNELL:**

3           MS. O'CONNELL:   Okay, thank you.   And then my last  
4 question has to do with cost allocation.   So you'll note  
5 that in IR Staff 73, which is Exhibit 1, tab 1, schedule  
6 73, I asked you some questions about cost allocation, and I  
7 would just like to confirm whether you agree -- Hydro One  
8 Sault Ste. Marie agrees that the final allocations approved  
9 for Hydro One Networks in the EB-2018-0130 proceeding, 2019  
10 revenue requirement proceeding, if the allocation tool is  
11 approved on a final basis in that proceeding, EB-2018-0130  
12 proceeding will be used for the pools for Hydro One Sault  
13 Ste. Marie.

14          MR. VETISIS:   I will note that the cost -- that  
15 application is also a revenue cap index proceeding, so  
16 Hydro One is actually not proposing a change to the  
17 allocation.   My understanding is Hydro One Networks is not  
18 proposing a change to the allocation in that proceeding.  
19 It's still based on EB-2016-0160.

20          MS. O'CONNELL:   Okay.   Because the reason why I bring  
21 this up is that in your -- in the interim decision for  
22 Hydro One Networks that came out in December 20th there  
23 were some adjustments made, for example 2017 foregone  
24 revenue was backed out and that changed the allocations to  
25 the pools.   So I am just thinking, like, if --

26          MR. VETISIS:   Can you confirm, did you actually check  
27 the math?   My understanding that the -- was that the  
28 deferral accounts were apportioned to the three rate pools

1 in accordance with the allocation of the revenue  
2 requirement itself.

3 MS. O'CONNELL: This was the foregone revenue, and it  
4 was not gone done in proportion, so that's why I am asking  
5 basically do you agree that the final allocations approved  
6 in EB-2018-0130 will carry forward and be used on an  
7 underlying basis for this proceeding, Hydro One Sault Ste.  
8 Marie?

9 MR. VETSIS: I believe they should still be based on  
10 2016-0160, because that's the actual cost allocation  
11 exercise that the OEB actually approved. The proceeding  
12 you are referencing has not concluded. I don't know what  
13 the outcome will be. So currently our proposal stands to  
14 align with what has actually been approved by the OEB.

15 MS. O'CONNELL: Okay, but -- so in general you'll  
16 agree with the outcome -- that the outcome of the 2018-0130  
17 proceeding, the outcome of that, whatever it may be, will  
18 align to the Hydro One Sault Ste. Marie proceeding?

19 MR. VETSIS: No, I believe I have cited that we are  
20 keeping our proposal as it was. There's no reason to hold  
21 up this proceeding to wait for the outcome of the other  
22 when we are comparing to a Board-approved cost allocation,  
23 and my understanding from what Hydro One Networks has  
24 proposed in the other proceeding is just to maintain what  
25 has already been approved.

26 MS. O'CONNELL: Okay. I will leave that for now.  
27 Thank you. Those are my questions.

28 MR. SIDLOFSKY: Does anyone else have questions on

1 those other items? Seeing and hearing none, I think that  
2 the technical conference is complete, thank you very much  
3 witnesses.

4 --- Whereupon the conference adjourned at 4:24 p.m.

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