



“When You Talk - We Listen!”



MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA HYDRO  
GENERAL RATE APPLICATION  
2014/15 AND 2015/16

Before Board Panel:

- Regis Gosselin - Board Chairperson
- Marilyn Kapitany - Board Member
- Richard Bel - Board Member
- Hugh Grant - Board Member

HELD AT:

Public Utilities Board  
400, 330 Portage Avenue  
Winnipeg, Manitoba

May 29, 2015

Pages 1231 to 1420

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1 --- Upon commencing at 9:02 a.m.

2

3 THE CHAIRPERSON: Good morning. I  
4 think that we're ready to begin today's proceedings. I  
5 don't think there are any initial matters to attend, or  
6 there are? I guess no.

7 MR. SVEN HOMBACH: Nothing that I'm  
8 aware of. So I would suggest we turn it over to Mr.  
9 Williams to start his cross-examination.

10 THE CHAIRPERSON: Okay. Thank you.

11

12 MANITOBA HYDRO PANEL 3 - PLANNING AND OPERATIONS

13 RESUMED:

14 DARREN RAINKIE, Previously Sworn

15 SANDY BAUERLEIN, Previously Sworn

16 DAVID CORMIE, Previously Sworn

17 TERRY MILES, Previously Sworn

18 ROB ELDER, Previously Sworn

19 DAVE BOWEN, Previously Sworn

20 MICHEL MORIN, Previously Sworn

21 DAVID SWATEK, Previously Sworn

22 NICK READ, Previously Sworn

23

24 MR. BYRON WILLIAMS: Good morning,

25 members of the panel. Just to my right is student-at-

1 law Ms. Rachel Wood, who's on an access to justice  
2 project with our centre this summer. So we're very  
3 happy to have her.

4                   And I'll just indicate that I'll  
5 probably during the course of the day have five (5)  
6 exhibits. But I'm going to -- just because I know how  
7 much paper you end up getting on your desk, I'm going  
8 to try and give you just a couple at a time and -- and  
9 work around the breaks.

10                   And so, Mr. Chair, be -- before you,  
11 hopefully you -- you should have two (2) documents.  
12 One on the front it should say, Need for an Alternative  
13 CAC/MH-I-1145(a). It's a -- it's a thick, heavy  
14 document, Mr. Chair. I don't know if you have it or...  
15 Sixteen (16), yes, Exhibit 16. I apologize. Yeah,  
16 yeah.

17                   And -- and I just want to let the panel  
18 know we're a little short staffed at our centre. So  
19 there's actually two (2) documents in there, and the one  
20 that you're going to want to pay a lot of attention to  
21 is about three (3) pages in after the green leaflet.  
22 And it is the distribution asset condition report of  
23 Manitoba Hydro from 2012.

24                   DR. DAVID SWATEK: Oh, excuse me, Mr.  
25 Williams. Can we get one (1) more copy of this

1 document, just in case? Okav.

2

3

(BRIEF PAUSE)

4

5 DR. DAVID SWATEK: Missing one, yeah.

6

MR. BYRON WILLIAMS: I just want to go  
7 right on the record and say, Dr. Swatek, I gave you  
8 that and you -- you gave it back to me. But I'll  
9 happily give it back. You'll concede that, sir?

10 DR. DAVID SWATEK: That was my mistake.

11

MR. BYRON WILLIAMS: So we'll be --  
12 we'll be going through that document a fair bit this  
13 morning. Perhaps after the coffee break, we'll get to  
14 a COALITION/MH-I-81(a), which is marked as Exhibit 17.  
15 Yes.

16

17 --- EXHIBIT NO. COALITION-17: COALITION/MH-I-81(a)

18

19 MR. BYRON WILLIAMS: And just for the  
20 panel, there's probably one (1) other -- excuse me,  
21 Kurt, is that -- what's that? Yes, there should be one  
22 (1) other document which is not an exhibit. It's an  
23 excerpt from the record. It's the Kinectrics report,  
24 which is COALITION-II-53(a), I believe. And that's  
25 also -- fif -- oh, so, 53(a), I apologize. And it's a

1 document that we'll be going through a fair bit today,  
2 too.

3

4 (BRIEF PAUSE)

5

6 MR. BYRON WILLIAMS: And, Mr. Chair,  
7 you're looking puzzled, so I just want to make sure  
8 that -- you're okay. Thank you.

9

10 (BRIEF PAUSE)

11

12 MR. BYRON WILLIAMS: Thank you. And I  
13 -- I perhaps should just check with Dr. Swatek. Did I  
14 say that right, sir?

15 DR. DAVID SWATEK: Yes.

16 MR. BYRON WILLIAMS: Okay. And I just  
17 want to make sure you have all the documents since  
18 we've had this miscommunication already this morning.

19 DR. DAVID SWATEK: I believe I have  
20 everything now. Thank you.

21 MR. BYRON WILLIAMS: And just before I  
22 start, members of the panel, I'll also note that there  
23 was a fair bit of overlap between the cross I had  
24 prepared yesterday and Mr. Peters's cross, so I did  
25 stroke out about a hundred pages of notes. So I don't

1 know if that will leave us finishing at -- I don't know  
2 when it'll leave us finishing, but I'm -- I anticipate  
3 being done a bit sooner than I expected, so.

4

5 CROSS-EXAMINATION BY MR. BYRON WILLIAMS:

6 MR. BYRON WILLIAMS: Ms. Bauerlein, I  
7 don't know if this is your document or not, but I  
8 wonder if we can go to Figure 4.12 which we can find in  
9 Tab 4 of the -- the filing of Manitoba Hydro. We'll  
10 just pull it up on the screen for you.

11

12 (BRIEF PAUSE)

13

14 MR. BYRON WILLIAMS: And it's page 12  
15 of 26, Diana. And if you could scroll towards the  
16 bottom of the page. And just for the entire Manitoba  
17 Hydro front row who I think most of my questions will  
18 be addressed to, if I say your name, I'm -- I don't  
19 care who answers, it's -- it may be the only name I  
20 remember or it may be -- you know, please feel free to  
21 chime in.

22 Ms. Bauerlein though, what we have here  
23 is a snapshot of the 2014/'15, 2015/'16, and 2016/'17  
24 sustaining capital actual or projected inve -- or  
25 projected investments. Is that right, Ms. Bauerlein?

1 MS. SANDY BAUERLEIN: That is correct.

2 MR. BYRON WILLIAMS: And we see that in  
3 '14/'15 it's about \$570 million, agreed, is a total?

4 MS. SANDY BAUERLEIN: With rounding  
5 571, correct, \$571 million.

6 MR. BYRON WILLIAMS: We're going to be  
7 that precise. Fabulous. You'll see that for the  
8 2016/'17 year it's up to a bit over \$600 million,  
9 agreed?

10 MS. SANDY BAUERLEIN: I agree.

11 MR. BYRON WILLIAMS: Okay. And I just  
12 want to look at -- just to get a bit of a look at  
13 under, "Customer services and distribution," going,  
14 first of all, to, "Poles." You'll see that over  
15 those three (3) years the annual cost for wooden poles  
16 under, "Distribution," ranges from a low of 38.5  
17 million to a high of 48.3 million, agreed?

18 MS. SANDY BAUERLEIN: I agree.

19 MR. BYRON WILLIAMS: You'll agree with  
20 me as well that overhead conductors are a big ticket  
21 item ranging from 33.3 million to 39.1 million,  
22 correct?

23 MS. SANDY BAUERLEIN: That is correct.

24 MR. BYRON WILLIAMS: We see as well,  
25 staying on the distribution side, underground cable

1 between 31.3 million and as high as 45.5 million,  
2 agreed?

3 MS. SANDY BAUERLEIN: Agreed.

4 MR. BYRON WILLIAMS: And just a couple  
5 of the other highlights, station transformers up to  
6 24.7 million in '16/'17 and pad mount trans --  
7 transformers -- excuse me, and overhead transformers up  
8 to about 22.5 million at its highest.

9 Would that be fair? I -- I asked a  
10 compound question. Let me just ask it individually.  
11 And I apologize for that. The highest number for  
12 overhead transformers, Ms. Bauerlein, is about 22.5  
13 million, agreed?

14 MS. SANDY BAUERLEIN: I agree.

15 MR. BYRON WILLIAMS: And for station  
16 transformers, 24.7 million, correct? Being in the  
17 '16/'17 year?

18 MS. SANDY BAUERLEIN: Correct.

19 MR. BYRON WILLIAMS: So just the -- the  
20 big five (5) under distribution, all of them are in  
21 excess of \$20 million for each of the fiscal years,  
22 agreed?

23 MS. SANDY BAUERLEIN: That is correct.

24 MR. BYRON WILLIAMS: Just if we could  
25 go up to transmission for a moment, please. That's

1 fine. Thank you. I'll direct your attention seven (7)  
2 lines down under "Transmission." You'll see, Ms.  
3 Bauerlein, the -- the term 'steel structures'.

4 And am I correct in suggesting to you  
5 that that's around 7.3 million in '14/'15?

6 MS. SANDY BAUERLEIN: That is correct.

7 MR. BYRON WILLIAMS: Up to 12.4 in  
8 '15/'16, correct?

9 MS. SANDY BAUERLEIN: Correct.

10 MR. BYRON WILLIAMS: And up to -- a --  
11 a big jump up to 34 million in 2017, agreed?

12 MS. SANDY BAUERLEIN: Correct.

13 MR. BYRON WILLIAMS: And just one (1)  
14 more under "Transmission." We'll see wood poles coming  
15 in at 6.7 million in '14/'15, agreed?

16 MS. SANDY BAUERLEIN: Correct.

17 MR. BYRON WILLIAMS: And up to 33.2  
18 million in -- in '15/'16?

19 MS. SANDY BAUERLEIN: Correct.

20 MR. BYRON WILLIAMS: Just finally,  
21 Diana, if you could scroll down one (1) more time,  
22 under "Human Resources and corporate services," Ms.  
23 Bauerlein, you'll see that for buildings in the '14/'15  
24 year there's a \$22.4 million expenditure?

25 MS. SANDY BAUERLEIN: That is correct.

1 MR. BYRON WILLIAMS: And the next year  
2 being the '15/'16 year it's a \$24.3 million  
3 expenditure?

4 MS. SANDY BAUERLEIN: Correct. I would  
5 also -- I just wanted to note for the Board that when  
6 we're managing our expenditures, we actually manage  
7 them by project. So of course a project can entail the  
8 replacement of many asset components. So this is a  
9 view of trying to look at the types of components  
10 within a project in any year that would be replaced.  
11 But we do manage by project.

12 MR. BYRON WILLIAMS: And -- and that's  
13 helpful, Ms. Bauerlein, because I was going to suggest  
14 to you that if for some sick reason I wanted to take  
15 these expenditures, being Figure 4.12, and look  
16 retrospectively, look back in time, I wouldn't be able  
17 to get this kind of breakdown looking backwards to the  
18 -- the years being '13/'14, '12/'13, '11/'12.

19 Would that be fair?

20 MS. SANDY BAUERLEIN: It is fair. We  
21 did this exercise specifically for this hearing to  
22 provide the Board with some context given that we were  
23 also providing information on the asset condition  
24 report. So this was a -- a unique sort of exercise for  
25 Manitoba Hydro to view its expenditures by asset

1 component.

2 We traditionally manage and monitor our  
3 expenditures by project.

4 MR. BYRON WILLIAMS: Would it be more  
5 accurate to say you manage them by cost element and  
6 depreciation category?

7 MS. SANDY BAUERLEIN: That would not be  
8 correct. On the capital expenditures we manage  
9 primarily by project. And within the project then we  
10 would look at the types of expenditures, being the cost  
11 elements. So we would look at our expenditures for  
12 consulting on that particular project, or internal  
13 labour, but we are project focused.

14 MR. BYRON WILLIAMS: Now, Ms.  
15 Bauerlein, just so I understand, if, again, our client  
16 wanted to take one (1) or two (2) lines and -- and go  
17 back in time, would Hydro be able to -- to tell us how  
18 much they spent on wood poles for distribution in  
19 2012/'13?

20 MS. SANDY BAUERLEIN: It would be a --  
21 a difficult exercise as Manitoba Hydro doesn't manage  
22 its costs this way. It manages it again by project.  
23 We could get a -- a depreciation view, but again it --  
24 it's not something that is information that is readily  
25 available in our system.

1 MR. BYRON WILLIAMS: Okav.

2 THE CHAIRPERSON: So iust so I -- I  
3 understand what you're saving. So there's a project  
4 for poles would be fixing all the poles on one (1)  
5 highway up until winter or something like -- is that  
6 what you mean? That would be one (1) project?

7 MS. SANDY BAUERLEIN: A project could  
8 be to replace a line which would involve then your  
9 poles, your conductors, your transformers. So it  
10 necessarily isn't replacing a single asset. It would  
11 be replacing a -- or a substation. And so again,  
12 multitudes of components within that station  
13 potentially, depending on the nature of the project.

14 MR. MICHEL MORIN: I -- I guess I could  
15 comment a little bit on that. Like, some projects  
16 involve overhead, underground, all in one (1) project  
17 transformers. So you might have a multitude of asset  
18 classes, but the driver was a capacity or a reliability  
19 type project. So within that project you're adjusting  
20 a certain risk, but changing many assets within there.

21 And some -- but some projects are  
22 strictly a pole project and those would high -- or  
23 likely be the majority. Poles would be easier to -- to  
24 look at that if it's iust strictly a pole program. But  
25 other programs involve many assets to get to that

1 objective that you're looking to achieve.

2

3 CONTINUED BY MR. BYRON WILLIAMS:

4 MR. BYRON WILLIAMS: Thank you. And  
5 I'll reflect upon and I appreciate your -- your  
6 answers.

7 MR. NICK READ: Could I add to that  
8 discussion?

9 MR. BYRON WILLIAMS: Mr. Read, welcome.  
10 You can always add to the discussion.

11 MR. NICK READ: Thank you. My staff  
12 actually went through this exercise and, you know, we'd  
13 have -- you know, each other over fifty (50) projects  
14 and in order to do this they had to pore over each  
15 project. And one (1) of them would be, like, Great  
16 Falls unit number 4. You know, we did the head cover,  
17 we did the exciters, we did the -- the generator. We  
18 did welding repairs to the embedded parts,  
19 transformers.

20 And then we have these categories to try  
21 to sprinkle the money over. Well, there's no head  
22 covers in here so somehow that's just -- just -- that's  
23 spread in here somewhere. It's -- it's -- we gave you  
24 as meaningful as data as we could, but going backwards  
25 it's -- it loses some of its meaning I think.

1 MR. BYRON WILLIAMS: Let me take it  
2 going forward, Ms. Bauerlein.

3 If -- if I were to express appreciation  
4 from our clients for doing this exercise this year, is  
5 this something that Manitoba Hvdro would anticipate  
6 carrving on into the future?

7 MS. SANDY BAUERLEIN: Right now  
8 Manitoba Hvdro is exploring various alternatives to  
9 present our capital information to the Public Utilities  
10 Board. We're not certain that this is really the best  
11 way to present this information so I'm not sure if in  
12 the -- in go-forward basis we'll continue with this  
13 approach. Or we may suggest a different approach.

14 Again, what we're trying to do is trying  
15 to convey an understanding to the Board of -- of the  
16 need and where the dollars are being spent. And we're  
17 just not certain that this is -- is really the best  
18 approach. We did try this approach this time to again  
19 provide some additional context to the Board in light  
20 of the asset condition report. But we're not certain  
21 that this is -- is the -- the best way to represent  
22 this information.

23 MR. BYRON WILLIAMS: Ms. Bauerlein,  
24 we'll have a chance to get into prioritize --  
25 prioritization (sic) later, perhaps this morning or early

1 in the afternoon. I know you're chomping at the bit to  
2 talk about it. But I'm just -- I'm not quite ready to  
3 go there yet.

4 But I would ask you to confirm, without  
5 elaborating, that in your evidence on Wednesday you  
6 mentioned that as part of your distribution budget  
7 prioritization you took into account the 2012 report on  
8 distribution asset condition, agreed?

9 MS. SANDY BAUERLEIN: I believe my  
10 comment was in reference to the allocation of the  
11 overall sustaining capital investment dollars to each  
12 of -- whether generation, transmission, distribution,  
13 or corporate infrastructure. So when determining how  
14 much of the overall investment should be allocated to  
15 distribution we took into account the 2012 distribution  
16 asset condition report as one (1) of the inputs.

17 MR. BYRON WILLIAMS: And -- and thank  
18 you for that. And -- and just for the panel, you'll  
19 confirm, Ms. Bauerlein, that that's -- the -- about  
20 four (4) pages into Coalition Exhibit 16? That's that  
21 document? Maybe you'd just accept that subject to  
22 check.

23

24

(BRIEF PAUSE)

25

1 MS. SANDY BAUERLEIN: I can confirm  
2 that is the document.

3 MR. BYRON WILLIAMS: And, Mr. Morin,  
4 without asking you to elaborate about that report at  
5 this point in time, I'll ask you to confirm that you  
6 were part of the team that assembled this document,  
7 being the 2012 Distribution Asset Condition Report.

8 Would that be fair, sir?

9 MR. MICHEL MORIN: Yes.

10 MR. BYRON WILLIAMS: And we -- we had  
11 the pleasure indeed of chatting about it during the  
12 2013/'14 General Rate Application.

13 Would that be fair, sir? And it was  
14 pleasure?

15 MR. MICHEL MORIN: That's correct. And  
16 it was a pleasure, thanks.

17 MR. BYRON WILLIAMS: And I would be  
18 accurate in saying that this report, the primary  
19 authors were an internal Manitoba Hydro team.

20 Would that be fair, sir?

21 MR. MICHEL MORIN: That is correct.

22 MR. BYRON WILLIAMS: Okay. Dr. Swatek,  
23 good morning again. Would I be right in suggesting to  
24 you -- let me try that again. Would it be correct to  
25 suggest to you that, in terms of its asset condition

1 assessments, the transmission business unit began in  
2 2012 by hiring a third-party consultant with expertise  
3 in the development of condition asset meth --  
4 methodologies, and in particular for utility-grade  
5 high-voltage, or HV, equipment?

6 DR. DAVID SWATEK: That's correct, yes.

7 MR. BYRON WILLIAMS: And that firm was  
8 Kinectrics, K-I-N-E-C-T-R-I-C-S, for the record?

9 DR. DAVID SWATEK: Yes, it was.

10 MR. BYRON WILLIAMS: And would it be  
11 accurate to suggest that Kinectrics worked with  
12 transmission subject matter experts to provide asset  
13 condition assessment methodologies and statistical  
14 failure models for the trans -- transmission system  
15 transformers, tap changers, breakers, and wood pole  
16 structures?

17 DR. DAVID SWATEK: Yes, that's correct.

18 MR. BYRON WILLIAMS: And we don't need  
19 to turn there right now, but you'll accept that we can  
20 find that rather weighty document in Coalition/Hydro  
21 II-53(a)?

22 DR. DAVID SWATEK: Yes, it's -- it's  
23 here.

24 MR. BYRON WILLIAMS: And it looks like  
25 you've got a big fat binder with -- with that.

1 DR. DAVID SWATEK: That document, yeah.

2 MR. BYRON WILLIAMS: So Kinectrics  
3 assisted Manitoba Hvdro in developing an -- an approach  
4 with -- with regard to certain assets such as breakers  
5 and transmission poles, agreed?

6 DR. DAVID SWATEK: Yes.

7 MR. BYRON WILLIAMS: And then the  
8 remaining asset condition assessment methodologies  
9 presented in Appendix 4.2 of Hvdro's filing were  
10 developed by your transmission asset strategies group,  
11 although they were generally similar in approach to  
12 Kinectrics.

13 Would that be fair?

14 DR. DAVID SWATEK: That is fair, yes.

15 MR. BYRON WILLIAMS: And by generally  
16 similar in approach, what is that approach, Dr. Swatek?

17 DR. DAVID SWATEK: What is that  
18 approach? The -- the same meth -- the -- the -- well,  
19 using a similar methodology, gathering -- gathering  
20 asset condition data, con -- converting those test  
21 results to asset condition scores, then combining those  
22 -- those scores to de -- determine an asset health  
23 index.

24 MR. BYRON WILLIAMS: Okay. And  
25 generally -- and we'll leave aside steel structures and

1 overhead conductors --

2 DR. DAVID SWATEK: Okay.

3 MR. BYRON WILLIAMS: -- for a moment.

4 But generally, you -- you assessed following the  
5 Kinectrics approach a number of factors that were  
6 likely to be representative of the health of a  
7 particular asset. Would that be fair, sir?

8 DR. DAVID SWATEK: That is -- that is  
9 fair, yes.

10 MR. BYRON WILLIAMS: And recognizing  
11 that some assets might be more important to the health  
12 or the degradation of that asset, you would assign them  
13 more weight while others you would assign less weight.  
14 Would that be correct?

15 DR. DAVID SWATEK: That is correct,  
16 yes.

17 MR. BYRON WILLIAMS: And it would also  
18 be fair to say, sir, that when an -- in -- in your  
19 group, when an asset had a statistical failure model  
20 available, that model was incorporated into the AHI  
21 scoring methodology?

22 DR. DAVID SWATEK: Again, yes.

23 MR. BYRON WILLIAMS: And the intention  
24 there was to increase the extent to which the AHI  
25 reflected the likelihood of failure?

1 DR. DAVID SWATEK: Yes, exactly.

2 MR. BYRON WILLIAMS: Okay. Without  
3 asking you to elaborate too much at this point in time,  
4 would it be fair to say that in terms of steel  
5 structures you used a methodology a bit different from  
6 that used by the third party consultants?

7 DR. DAVID SWATEK: I don't believe so.  
8 There are condition aspects. We apply a weight to  
9 those -- those aspects and we calculate a health index  
10 --

11 MR. BYRON WILLIAMS: Okay.

12 DR. DAVID SWATEK: -- on that -- on  
13 that basis.

14 MR. BYRON WILLIAMS: We'll come back to  
15 that one. Would it be fair to say that, in terms of  
16 the overhead conductors, you used a methodology  
17 different from that used by the third party consultant,  
18 focussing on age?

19 DR. DAVID SWATEK: With the overhead  
20 conductors, at this time, the -- the age of the  
21 conductor is our -- yeah, is our -- our primary  
22 condition input.

23 MR. BYRON WILLIAMS: And you did retain  
24 Kinectrics to do a kind of a pilot in terms of  
25 conductor data, did you not, sir?

1 DR. DAVID SWATEK: They were -- at the  
2 -- towards the end of the study, they used their line  
3 view robot to try to gather some conductor health data.  
4 Unfortunately, the results they -- the results they  
5 obtained appeared to be -- appear to be incorrect, we  
6 assume, because they performed the test on energized  
7 lines, and their robot was not intended for that  
8 purpose.

9 We would have had to have -- we would  
10 have had to have de-energized the -- the lines to have  
11 performed the test. And it was not really practical to  
12 -- to have done that at that point.

13 MR. BYRON WILLIAMS: Okay, fair enough.  
14 Would it be fair to say that Kinectrics provided you  
15 with a comprehensive report that included a description  
16 of its methodologies and approaches and included the  
17 weighing of factors applied to assess the health of  
18 each asset?

19 DR. DAVID SWATEK: That would be  
20 correct, yes.

21 MR. BYRON WILLIAMS: And am I also  
22 correct in suggesting to you that those weights that  
23 Kinectrics gave you are still being applied?

24 DR. DAVID SWATEK: Those -- those  
25 weights were developed in collaboration with our in --

1 with -- with Manitoba Hydro's subject matter experts.  
2 And we continue to improve the -- the methodology by  
3 continuously examining our choices there.

4 MR. BYRON WILLIAMS: Would it be  
5 accurate to say that the Kinectrics report for each of  
6 the asset classes assessed provided an age  
7 distribution, a health index distribution, and a data  
8 availability distribution?

9 DR. DAVID SWATEK: There -- there's an  
10 asset health that can be related to an effective age of  
11 the asset, but they both -- they are -- they are two  
12 (2) ways -- two (2) ways of -- of looking at the same  
13 aspect, how close is the asset to end of life.

14 MR. BYRON WILLIAMS: Was that a 'yes',  
15 sir?

16 DR. DAVID SWATEK: That's mostly -- I'd  
17 say a yes, yeah. Okay. We'll go with that.

18 MR. BYRON WILLIAMS: I don't mind you  
19 adding some insight, sir, but a yes or no in the midst  
20 of it is always helpful, but --

21 DR. DAVID SWATEK: Okay.

22 MR. BOB PETERS: -- you know, if you  
23 don't, I'll -- I'll just come back anyways, so we'll...

24 DR. DAVID SWATEK: Sure.

25 MR. BYRON WILLIAMS: Would it also be

1 accurate to sug -- suggest to you that for transformers  
2 and breakers, Kinectrics provided you with a risk based  
3 priortiza -- prioritized list of units requiring  
4 attention?

5 DR. DAVID SWATEK: They provided a -- a  
6 list of -- I'll sav ves. Okav.

7 MR. BYRON WILLIAMS: And they also  
8 provided you with a long-term, in quotation marks,  
9 "flagged for action plan." Agreed?

10 DR. DAVID SWATEK: That is -- that is  
11 true, ves.

12 MR. BYRON WILLIAMS: This can go to anv  
13 of the panel, but certainly, Dr. Swatek, if you're  
14 feeling on a roll you can -- you can work with me.

15 It would be accurate to sav that  
16 Kinectrics has worked with numerous utilities on  
17 condition asset related projects, to your knowledqe?

18 DR. DAVID SWATEK: That is true, ves.

19 MR. BYRON WILLIAMS: Toronto Hvdro,  
20 Hvdro One, PowerStream?

21 DR. DAVID SWATEK: There's a list  
22 there, ves.

23 MR. BYRON WILLIAMS: And, Mr. Morin,  
24 you're aware that Kinectrics has worked on dis --  
25 distribution asset management practices as well, are

1 you not, sir?

2 MR. MICHEL MORIN: When the original  
3 transmission project was undertaken the evaluations of  
4 the vendors had to be able to do distribution as well,  
5 because the plan was to begin with transmission then  
6 carry that aspect on to distribution at the further  
7 point. So part of that selection process was finding a  
8 vendor that did both.

9 So when they chose that vendor at the  
10 time of transmission, it was under the understanding  
11 they would be able to do distribution. So we're quite  
12 aware that they did distribution.

13 MR. BYRON WILLIAMS: Okay. And they're  
14 well known for their work in distribution with -- with  
15 organizations like Toronto Hydro, for example?

16 MR. MICHEL MORIN: That's correct.

17 MR. BYRON WILLIAMS: And, Dr. Swatek or  
18 Mr. Morin, you're aware as well that in addition to its  
19 full condition asset services for utilities, Kinectrics  
20 also performs an audit function on the ongoing asset  
21 management practices of corporations?

22 DR. DAVID SWATEK: That is correct,  
23 yes.

24 MR. BYRON WILLIAMS: And so, for  
25 example, it could do a -- an asset condition assessment

1 project for Toronto Hvdro in 2009 and then do a -- an  
2 audit three (3) vears later, agreed?

3 DR. DAVID SWATEK: Yes, exactlv.

4 MR. BYRON WILLIAMS: And it could do an  
5 audit even if it didn't do the original work as well?

6 DR. DAVID SWATEK: It could, ves.

7 MR. BYRON WILLIAMS: Now, Dr. Swatek --  
8 and, Mr. Read, don't worry, I'll get to you in a couple  
9 moments. Dr. Swatek, has -- has your unit, your  
10 business unit retained Kinectrics to do any additional  
11 work for its line of business such as an updated asset  
12 condition assessment or an audit?

13 DR. DAVID SWATEK: Yes, we have.

14 MR. BYRON WILLIAMS: And when were they  
15 retained?

16 DR. DAVID SWATEK: They were retained  
17 this vear, I believe, in the month of March.

18 MR. BYRON WILLIAMS: And what were they  
19 retained for, sir?

20 DR. DAVID SWATEK: They were retained  
21 to perform an audit of our condition assessment meth --  
22 our condition assessment methodologies.

23 MR. BYRON WILLIAMS: And in terms of  
24 the audit process, is there a recommended time frame  
25 between the development of the initial plan and the

1 audit? Two (2), three (3) years, is that like...

2 DR. DAVID SWATEK: I'm not aware of a  
3 recommended time frame.

4 MR. BYRON WILLIAMS: Now, we'll --  
5 we'll get to a few of the recommendations from the  
6 Kinectrics' report a bit later, but you'll agree with  
7 me that they made a number of recommendations to  
8 Manitoba Hvdro?

9 DR. DAVID SWATEK: I think they made  
10 twelve (12), yeah.

11 MR. BYRON WILLIAMS: I was going to  
12 suggest twelve (12).

13 Has Manitoba Hvdro prepared a report  
14 summarizing its progress in addressing the Kinectrics  
15 recommendations?

16 DR. DAVID SWATEK: No, we do not have a  
17 report yet, but we can speak to our progress on  
18 addressing those recommendations.

19

20 (BRIEF PAUSE)

21

22 MR. BYRON WILLIAMS: I would -- I would  
23 like to do that with you, Dr. Swatek, but just a bit  
24 later. So I'm asking my colleague just to make a note  
25 of that and we'll -- we'll come back to that. And I

1 appreciate that offer.

2 Mr. Morin, has distribution retained  
3 Kinectrics to do any additional work for its line of  
4 business such as an updated asset condition assessment  
5 or an audit?

6 MR. MICHEL MORIN: We're in discussions  
7 right now about looking at that next stage of  
8 consultation.

9 MR. BYRON WILLIAMS: And if you can't  
10 answer that -- that's fine, but is it with Kinectrics  
11 or are you in -- in discussions with a number of  
12 vendors? And if you can't answer that's fine, sir.

13 MR. MICHEL MORIN: Like I said, when we  
14 first looked at the transmission project Kinectrics was  
15 chosen because of their ability to do distribution and  
16 we've had discussions with them even prior a few years  
17 ago regarding where we are with our information. And -  
18 - and, yeah, so it's -- it's continuing with  
19 Kinectrics, yes.

20 MR. BYRON WILLIAMS: So -- leaving  
21 aside the discussions with Kinectrics, I -- you haven't  
22 retained anyone else or had anyone else go back and do  
23 an audit.

24 That's -- that's -- is that fair, sir?

25 MR. MICHEL MORIN: That -- that's fair

1 for -- part of the audit that we're engaging with is to  
2 start looking at the distribution asset condition.

3 MR. BYRON WILLIAMS: And let's just be  
4 clear and -- and I -- I'm clear that there's a audit  
5 function going on for the transmission side.

6 On the distribution side are you really  
7 looking at an audit or perhaps at a -- an -- a -- a  
8 more broad or robust asset condition assessment?

9 MR. MICHEL MORIN: Actually, both. An  
10 initial review and then to move towards that more  
11 comprehensive approach.

12 DR. DAVID SWATEK: Oh, I can add that  
13 perhaps I was not clear in my response to you, but we  
14 had retained Kinectrics earlier this year to do an  
15 audit of the transmission and --

16 MR. BYRON WILLIAMS: Okay.

17 DR. DAVID SWATEK: -- the distribution  
18 assets.

19 MR. BYRON WILLIAMS: Thank you. And --  
20 and I -- that was -- that was not your fault that was  
21 my question, not your answer.

22 But, Mr. Morin, just so -- just so I'm  
23 clear it may go beyond an audit is what you're --  
24 you're suggesting to me?

25 MR. MICHEL MORIN: Yes, that's correct.

1 THE CHAIRPERSON: Mr. Williams, if I  
2 iust have -- iust ask a few questions. I want to  
3 reconcile the -- the approach that's used by Manitoba  
4 Hvdro involving projects and trving to reconcile a -- a  
5 campaign to address some of the conditions that were  
6 flagged for action plan.

7 So -- so if you identivy conditions that  
8 are flagged for action plans does that become a  
9 project?

10 DR. DAVID SWATEK: In the case of trans  
11 -- in -- in the case of the power transformers and  
12 circuit breakers we had created a -- we -- we had  
13 created asset sustainment programs to -- to look at  
14 these assets. Now, they -- they tvpical -- the Power  
15 Transformer Sustainment Program does not really kick in  
16 until about ten (10) -- ten (10) years from now.

17 The -- the circuit breaker replacements  
18 we are doing a -- a small amount now, but the majority  
19 of those would be -- would be ten (10) years down --  
20 down the road. In each case, however, we -- we would  
21 be -- we would be looking at individual assets and --  
22 and assessing how close they are to actual end of life  
23 before we change them out, ves.

24 MR. NICK READ: I'd like to add to that  
25 answer. Would I be able to refer to COALITION-II-49(a)

1 to (d)? And we have a -- a condition mat -- we have a  
2 -- a matrix, a risk matrix in there that I'd like to  
3 just refer to, to help answer that question as well.  
4 That -- that's it.

5                   So I have capital planners that are  
6 looking at the condition of these individual assets.  
7 And they get to see this risk map. And I can tell you  
8 right now that the way it works is the very top corner  
9 is a place you don't want to live in.

10                   We have seven (7) -- seven (7) governors  
11 in there. And if you go right down below that,  
12 there'll be another box in red that we don't want to be  
13 in. And there's four (4) generators, two (2)  
14 transformers, and -- and one (1) turbine.

15                   I can tell you right now that we have  
16 created projects for all -- all those assets on that  
17 basis. So we watched the individual assets, but then  
18 we create projects that will take care of -- one (1)  
19 project may take care of the generator, the  
20 transformer, the governor, the exciter all at the same  
21 time.

22                   So that -- I hope that's helpful.

23                   THE CHAIRPERSON: Yeah. Yes, yeah.

24

25

(BRIEF PAUSE)

1 CONTINUED BY MR. BYRON WILLIAMS:

2 MR. BYRON WILLIAMS: We'll come to this  
3 document a fair bit later, but just while I'm -- while  
4 you're here, if I could ask Diana to go to the previous  
5 matrix for transmission, which is probably just above  
6 on this document. It's below. I apologize. Okay.  
7 Scroll down. And whoa, whoa -- sorry, Diana. If you  
8 scroll up on -- on -- whoops. Right there. Perfect.

9 And if you could focus at the horiz --  
10 right at the bottom of transmission, you'll see, Mr.  
11 Read, tiers: tier -- tier 1, tier 2, tier 4, tier 5.

12 Do you see that, sir? And then if we --

13 MR. NICK READ: Yes, I do.

14 MR. BYRON WILLIAMS: Then if we go up -  
15 - up to your risk table, we don't have that same --  
16 excuse me. Just on consequence, Diana. Just scroll up  
17 a little bit. Oh, other way, sorry. I have to get my  
18 -- yeah. We don't see that same kind of legend or  
19 delineation.

20 Do you have that -- that tier kind of --

21 MR. NICK READ: No, we do not.

22 MR. BYRON WILLIAMS: Okay.

23 MR. NICK READ: One (1) of the reasons  
24 is that, you know, we -- we've actually looked at the  
25 transmission scoring methodology because it's -- it's

1 really quite good for them. We actually tried copying  
2 it, using it on our assets, but it just doesn't work  
3 for us.

4 We looked at lost generation risk.  
5 We've created a multi-page project value scoring tool  
6 that works better for us. And -- and we're  
7 reevaluating that currently. We're going to be looking  
8 at can we change that tool so it actually looks at not  
9 just lost generation, but dam safety, public safety,  
10 the whole variety of projects that we have. That's the  
11 difference.

12 MR. BYRON WILLIAMS: Okay. And just --  
13 I'm so happy to hear that you have a multi-page  
14 document. That multi-page document's not on the  
15 record, is it, sir?

16 MR. NICK READ: I believe it's referred  
17 in -- in a number of the IRs as project value template.

18 MR. BYRON WILLIAMS: Okay. Would --  
19 would you -- would you be able by way of undertaking to  
20 provide that document?

21 MR. NICK READ: Yes.

22 MR. BYRON WILLIAMS: Okay. So the  
23 undert -- kindly -- kindly made by Mr. Read is the  
24 project value template, to -- to file that. You're --  
25 you're prepared to do that, Mr. Read? You'll say yes?

1 MR. NICK READ: Would you like it with  
2 an example?

3 MR. BYRON WILLIAMS: I -- I would love  
4 it with an example. That would be very helpful. More  
5 importantly, my consultants would love it with an  
6 example, so thank you.

7 MR. NICK READ: You're welcome.

8

9 --- UNDERTAKING NO. 24: Manitoba Hydro to provide  
10 the project value template

11

12 CONTINUED BY MR. BYRON WILLIAMS:

13 MR. BYRON WILLIAMS: Mr. Morin -- am I  
14 missaving your name, Monin (sic)? I'm sorry, Monin  
15 (sic)?

16 MR. MICHEL MORIN: Morin.

17 THE CHAIRPERSON: Morin.

18 MR. BYRON WILLIAMS: M-O-N-I-N (sic),  
19 yeah. I should know that. I -- I appear before a  
20 number of judges with that last name. Now I'm hoping  
21 you're not related. I -- I just -- we're going to  
22 bounce around a little bit, as you can tell, this  
23 morning. But Coalition Exhibit 16, the distribution  
24 asset condition, if I look to the very first page of  
25 that, I'll see that engineer seal, right, Mr. Monin

1 (sic)?

2 MR. MICHEL MORIN: That's correct.

3 MR. BYRON WILLIAMS: Since this report  
4 was prepared, in terms of its distribution asset  
5 condition methodology, has distribution made any  
6 material or significant methodological changes?

7 MR. MICHEL MORIN: Yes, on -- on  
8 several of the assets, yes.

9 MR. BYRON WILLIAMS: And which assets  
10 are those, sir?

11 MR. MICHEL MORIN: Underground cables,  
12 we've started a testing program which is now giving us  
13 better health information that -- of our cables. And  
14 on streetlights, we've got a -- a new program going out  
15 to inspect some direct buried streetlights that we're  
16 having trouble with that are corroding below grade that  
17 are extremely difficult to assess.

18 Across North America, utilities are  
19 struggling with it. And we're launching a new program  
20 there that has -- that will provide additional asset  
21 information into our -- our models.

22 MR. BYRON WILLIAMS: Okay. And I  
23 apologize, I've got your name wrong twelve (12) times,  
24 Morin, and I'm very sorry. Is there a updated  
25 distribution asset condition report, sir?

1 MR. MICHEL MORIN: In the one we filed  
2 as part of this hearing, it's been updated accordingly  
3 as part of this hearing.

4 MR. BYRON WILLIAMS: Well, sir, you're  
5 -- you're not referring to Appendix 4.2, are you?

6 MR. MICHEL MORIN: That -- that's  
7 correct. Some of the -- where -- wherever some  
8 adjustments were made. Some adjustments were made in  
9 there.

10 MR. BYRON WILLIAMS: Well, that's --  
11 that's fine. But in Appendix 4.2 --

12 MR. MICHEL MORIN: Four point two  
13 (4.2). Yeah, sorry, go ahead, yeah.

14 MR. BYRON WILLIAMS: -- I'm going to  
15 find your conclusions. I'm not going to find your  
16 methodology or your analysis in the detail that I would  
17 have found in the 2012 distribution asset condition  
18 report, agreed?

19 MR. MICHEL MORIN: Yeah, agreed.

20 MR. BYRON WILLIAMS: Okay. So in terms  
21 of the two (2) areas where you've changed the  
22 methodology, being underground cable and street  
23 lighting, sir, would you be able, by way of  
24 undertaking, to provide a -- a brief summary of the  
25 change and approach?

1 MR. MICHEL MORIN: Yes, we can.

2 MR. BYRON WILLIAMS: And iust to  
3 finish, because I'd like to understand both the  
4 methodol -- methodological changes in terms of how you  
5 -- you're doing your assessment, but then also how  
6 you're doing your twenty (20) year projection.

7

8 (BRIEF PAUSE)

9

10 MR. MICHEL MORIN: I guess your  
11 question's with your asset or underground methodology,  
12 what type of -- like, maybe we can go through this  
13 right now and discuss what you're looking for.

14 MR. BYRON WILLIAMS: What I'll do iust  
15 because I don't want to lose my -- my groove, such as  
16 it is, sir, is I'll make a note of it, and we'll come  
17 back. And I'll either talk to your legal counsel at  
18 the break --

19 MR. MICHEL MORIN: Okay.

20 MR. BYRON WILLIAMS: -- if -- if we  
21 could. And so there's no undertaking at this point in  
22 time, but we'll discuss it at the break.

23 MR. BRENT CZARNECKI: And, Mr.  
24 Williams, I iust mentioned to Michel that if we can  
25 deal with it right now while he's here as opposed to

1 waiting to have an undertaking, he can probably  
2 highlight some of those changes that you've asked for.  
3 And if necessary, we could follow it up with a written  
4 document. That's just my intent, is to get the  
5 information out as soon as possible.

6 MR. BYRON WILLIAMS: Yeah, and I  
7 understand your good judgment and your generous intent  
8 there -- there. Just for the panel, if you go to the  
9 appendices, there's a lot of material there, and it  
10 would be -- there's a -- a lot to go through in a...  
11 Okay. Got that. It's street lighting, too.

12

13 (BRIEF PAUSE)

14

15 MR. BYRON WILLIAMS: Mr. Morin, there  
16 were a lot of recommendations contained in the 2012  
17 Distribution Asset Condition Report, agreed?

18 MR. MICHEL MORIN: It was a very open  
19 document of some of our areas of -- that we're looking  
20 into, yeah.

21 MR. BYRON WILLIAMS: And there were  
22 high-priority recommendations, and medium-priority  
23 recommendations, and low-priority recommendations for  
24 each of the assets that you looked at, agreed, sir?

25 MR. MICHEL MORIN: That's correct.

1 MR. BYRON WILLIAMS: Has Hvdro prepared  
2 a report summarizing its progress in -- in addressing  
3 these recommendations?

4 MR. MICHEL MORIN: No, we've iust been  
5 working on the individual recommendations, but there  
6 hasn't been a -- a final report on those  
7 recommendations, no.

8 MR. BYRON WILLIAMS: Okay. And iust  
9 for your legal counsel, we'll chat about that, because  
10 while Mr. -- Dr. Swatek's list is only twelve (12), I  
11 think your list might be, I'm going to suggest,  
12 probably over twenty (20).

13 Would that be fair, sir? In terms of  
14 your recommendations?

15 MR. MICHEL MORIN: Yeah, we can -- we  
16 can go through them. Like, I'd be able to speak to  
17 them, if you want.

18 MR. BYRON WILLIAMS: Okay. We'll --  
19 we'll come back to that a bit later today.

20

21 (BRIEF PAUSE)

22

23 MR. BYRON WILLIAMS: Mr. Read, I'm  
24 going to ask you to remind me of the -- the name you  
25 use for the -- the valuation template. What's the

1 proper name for it, sir?

2 MR. NICK READ: Project value template.

3

4 (BRIEF PAUSE)

5

6 MR. BYRON WILLIAMS: Could you -- well,  
7 to back up, I've seen the -- in terms of con -- in  
8 terms of condition asset methodology, I've seen a -- a  
9 lot of reference to something known as Hvdro, and then  
10 -- and 3 AMP, A-M-P, the last three (3) letters being  
11 capitalized.

12 Is that a term you're familiar with,  
13 sir?

14 MR. NICK READ: Very much so.

15 MR. BYRON WILLIAMS: I thought you  
16 might be. For this very humble lawyer, could you help  
17 me to distinguish between hvdroAMP versus the project  
18 value template? And I'll -- I'll let you know that I  
19 have gone to the hvdroAMP, looked at some of the stuff  
20 online, but I -- I wonder if you -- analytically,  
21 what's the difference between the two (2)?

22 MR. NICK READ: Sure, I'm pleased to do  
23 that. So first of all, hvdroAMP is a methodology for  
24 doing condition assessment. And unlike my colleagues,  
25 who -- who chose Kinectrics to help them with condition

1 assessment, we collaborated with other utility -- other  
2 hydraulic utilities who have built this hydroAMP tool,  
3 and we're -- actually sit on the hydroAMP group through  
4 CEATI. And I wish I could remember what CIA -- the  
5 acronym CEATI stands for. It's Centre for Electrical  
6 something or other.

7                   And so we -- we sit on that group. We  
8 influence any changes to the hydroAMP methodology. So  
9 basically what it is, is through that group of  
10 utilities, they've brought their experts together and  
11 looked at how to evaluate the health of various assets  
12 like transformers.

13                   They've come up with complex  
14 methodologies where they -- you know, age is one (1)  
15 factor, but also oil tests. They'll take oil tests.  
16 And they'll do -- check for furans, which is a gas that  
17 comes off when -- when there's an electrical  
18 disturbance in the oil. They do things like resistance  
19 testing on the transformer. They do a number of tests.

20                   And the final output of all these tests  
21 -- all the various parameters are given different  
22 weights, and the final output is a number between zero  
23 and ten (10) as to the health of that transformer.  
24 Now, the -- that project health, or the condition  
25 assessment, we use for long-term planning.

1                   And in fact in our model, you know, I  
2 believe we've mentioned we bought Copperleaf as an  
3 asset investment planning tool, and we've done so as a  
4 pilot for -- for the rest of the group. And we -- one  
5 (1) -- one (1) of the early -- one (1) of the second  
6 company to join Copperleaf and now just about every  
7 utility in Canada is there: BC Hydro, Quebec Hydro  
8 (sic), Hydro One. Most of the hydraulic utilities have  
9 joined in. So we -- we use it for long-term planning.  
10 And with our tool, we can actually forecast how the  
11 condition will change over the next twenty (20), thirty  
12 (30), forty (40) years.

13                   In addition to that, we use this project  
14 value template that you've asked: What's the  
15 difference? But when -- when a project comes into the  
16 near term, we don't let the computer work out what the  
17 risks are. We do it through this project template, and  
18 we feed it into the computerized -- the computer  
19 system.

20                   And the project value template has the  
21 probability that an asset will fail. It has the  
22 probability that if it fails, can we fix it? It has  
23 the costs, the one (1) time costs of pushing a project  
24 back. It's got the benefits of the project if we're,  
25 let's say, putting in a new runner, and we're going to

1 get more megawatts out of the machine. Well, if we  
2 push a project back, then those benefits are pushed  
3 back. So all those one (1) time costs or -- or annual  
4 costs are in this template. And it's -- it's a multi-  
5 page workbook, Excel workbook.

6 MR. BYRON WILLIAMS: And -- and thank  
7 you for that. And -- and you've -- that's very  
8 helpful. You've articulated it's got a probability of  
9 failure. I -- I've often seen the term called  
10 'criticality'.

11 Is -- is that a term you're familiar  
12 with, sir?

13 MR. NICK READ: Yes.

14 MR. BYRON WILLIAMS: And would the --  
15 and -- and by 'criticality', I'll suggest to you that  
16 we mean not just the probability of failure, but the  
17 consequences of failure ---

18 MR. NICK READ: Yes.

19 MR. BYRON WILLIAMS: -- the -- the  
20 magnitude.

21 Is -- would that be accurate, sir?

22 MR. NICK READ: That is.

23 MR. BYRON WILLIAMS: And would the  
24 project value template make provision for a criticality  
25 assessment --

1 MR. NICK READ: Yes.

2 MR. BYRON WILLIAMS: -- as well?

3 MR. NICK READ: Because as part of the  
4 project value template, we use the probability of  
5 failure times the -- the expected duration of the  
6 failure and the marginal cost of that unit to come out  
7 -- the project template does all its calculation in  
8 dollars. So by the time we're done, we've got the  
9 annual costs of a -- of an outage. We've got the total  
10 cost, because we know the -- you know, we know if a  
11 generator fails, it's going to be out for a year and a  
12 half. If a breaker fails, it's going to be out for a  
13 month. We know the importance of the unit, the size,  
14 the megawatts of the unit. So the criticality will  
15 definitely show a -- a generator up in -- in Kettle  
16 will be much more important than a generator down in  
17 Pointe.

18 MR. BYRON WILLIAMS: Thank you. Now,  
19 there's been a -- when you use the term 'Copperleaf', I  
20 guess sometimes I've seen Copperleaf CC55 or -- is that  
21 the -- we're talking about the same docu -- or program?

22 MR. NICK READ: Yes, C55. And it's  
23 obviously their commercial take on trying to get  
24 themselves closer to ISO55000.

25 MR. BYRON WILLIAMS: Okay. And

1 ISO55000 is an international standard for project asset  
2 management, sir?

3 MR. NICK READ: Well, it's just for  
4 asset management.

5 MR. BYRON WILLIAMS: Asset manage --  
6 excuse me. Thank you. And when you say, Get closer,  
7 is it certified by ISO5500 (sic) --

8 MR. NICK READ: It's not certified, but  
9 it makes many of the processes recommended by ISO55000  
10 that much easier to do. I mean, ISO55000 is about  
11 knowing your assets. Well, all our assets are in this  
12 database.

13 MR. BYRON WILLIAMS: And am I fair in  
14 suggesting that you haven't persuaded Dr. Swatek to  
15 accept that technology, but that Mr. Morin is looking  
16 pretty closely at it?

17 DR. DAVID SWATEK: Oh, actually, trans  
18 -- transmission, we have engaged Copperleaf. At -- at  
19 this moment, we are working with them to develop a  
20 methodology to incorporate transmission risk into the  
21 Copperleaf model. As -- as Mr. Read had pointed out,  
22 Copperleaf was developed for the hydraulic to -- for  
23 the hydraulic industry.

24 The -- the type of risks -- the nature  
25 of risk is very different from a generating unit to a

1 transmission asset. So the Copperleaf people are very  
2 excited, actually, to be working with Manitoba Hydro to  
3 develop a way to incorporate transmission asset risk so  
4 that we could be using that same -- that same program,  
5 yes.

6 MR. NICK READ: If I could just  
7 elaborate on that, it's -- it's not just hydraulic that  
8 Copperleaf was -- had their history with. It was with  
9 hydraulic generation. And so when we first bought into  
10 Copperleaf, they really didn't have the experience on  
11 the distribution and transmission side.

12 Now they've worked with Hydro One and  
13 some of the other utilities. We actually avoided being  
14 on the bleeding edge there, and I think this is just  
15 the perfect time for my colleagues to be talking to  
16 them.

17 MR. MICHEL MORIN: We -- we -- on the  
18 distribution side there again, we met with them early  
19 on, and they had yet to be fully involved with a  
20 distribution company.

21 But they had the methodology that, you  
22 know, when you look at asset management, just the sheer  
23 cost of generation assets and the consequence of those  
24 assets -- they were working with more the complex  
25 hydraulic portions of a utility and -- and working

1 towards bringing in transmission and distribution.

2                   Just recently, they've been starting to  
3 work with those companies and getting that  
4 methodologies -- you know, trying to -- like we were  
5 talking earlier, trying to compare different risk  
6 models within each line of business. They're quite a  
7 bit different.

8                   Like, that's where at the end of the day  
9 we've got to keep a customer on and -- and the -- and -  
10 - and the cost of that versus lost generation. They're  
11 -- they're unique, and Copperleaf's -- is coming across  
12 to bridge those. It's still not a unified process  
13 between all three (3) business units, but it's  
14 definitely gaining momentum in the Canadian utility for  
15 using it.

16                   MR. BYRON WILLIAMS:    Mr. Read, just to  
17 go back to you just for a -- a last -- well, a few more  
18 questions. But -- so in terms of the interaction  
19 between the data gathered in the project value template  
20 and Copperleaf C55, am I correct in suggesting that  
21 that's -- that's an input into -- to Copperleaf 55 --  
22 C55?

23                   MR. NICK READ:       Which are you referring  
24 to as an input?

25                   MR. BYRON WILLIAMS:    The data gathered

1 through the -- the project value template?

2 MR. NICK READ: Yes.

3 MR. BYRON WILLIAMS: Okay. Now, sir, I  
4 don't think you need to go to the -- the reference, but  
5 if you are looking for one, Mr. Read, it's COALITION-I-  
6 98(b). And I -- I honest -- well, you can go there.  
7 There -- there you go.

8 MR. NICK READ: I'll reserve the right  
9 --

10 MR. BYRON WILLIAMS: No, no --

11 MR. NICK READ: -- to go there if I  
12 find it --

13 MR. BYRON WILLIAMS: Yeah, yeah.

14 MR. NICK READ: -- too confusing.

15 MR. BYRON WILLIAMS: Yeah. Well, feel  
16 free. Is -- I -- I think Hydro used language to the  
17 effect that some of the teams at generation use  
18 hydroAMP condition assute -- assest assessment  
19 methodology. Some have modified hydroAMP, and in the  
20 case of turbines, developed their own condition asset  
21 tool.

22 MR. NICK READ: That's correct.

23 MR. BYRON WILLIAMS: And what's the  
24 turbine condition asset tool?

25 MR. NICK READ: It's a more in-depth

1 study of the turbine. It splits the turbine into about  
2 twenty (20) different sub-components. And on our  
3 initial effort to do this, we have a hundred and  
4 seventeen (117) hydraulic turbines out there. So you  
5 really can't crawl through them all over a two (2) or  
6 three (3) year period.

7                   So our first effort to do this, we went  
8 through a paper exercise where my engineering staff sat  
9 down with the plant staff, went through the maintenance  
10 records, and did an assessment on each of these  
11 multiple components.

12                   And then the components were scored on  
13 the basis that some were given additional weight in  
14 that if you have some critical component down in the  
15 scroll case, and this component can cause the whole  
16 unit to be torn apart if it's in bad shape, it becomes  
17 a critical component for that turbine.

18                   So -- so what we've done is come up with  
19 this assessment tool that looks at the twenty (20)  
20 components. But if one (1) of these three (3) or four  
21 (4) items that are kind of red items is in bad shape,  
22 well, then that dominates the overall score for that  
23 turbine, because it means the turbine needs to be  
24 ripped apart.

25                   And we've shown this methodology to our

1 colleagues at CEATI at hvdroAMP, and they're very  
2 interested in it. It's certainly much more in detail  
3 than they use, and what we're doing now is my staff are  
4 crawling through these turbines and actually phvsally -  
5 - phvsically examining all these components. And as --  
6 over about a twelve (12) year period we'll have finally  
7 gotten through every turbine and phvsically examined it  
8 over and above the initial paper exercise where we did  
9 it based on maintenance records.

10 MR. BYRON WILLIAMS: And when did this  
11 crawling trough the catacombs exercise begin, sir?

12 MR. NICK READ: Oh, about two (2) years  
13 ago.

14 MR. BYRON WILLIAMS: Two (2) years ago.

15 MR. NICK READ: Not that we didn't  
16 crawl through those things before. But we came up with  
17 this templated methodology. And that's when we started  
18 crawling with a purpose.

19 MR. BYRON WILLIAMS: Are -- are you  
20 married, sir? That's -- I -- I strike that question.  
21 I'm iust teasing you.

22 MR. BRENT CZARNECKI: On -- on that  
23 note and iust for the record to be clear, I think we  
24 were talking about COALITION-I-98(b). And I'm not sure  
25 if we said 'D', but we did have 'D' on the screen, so.

1 MR. BYRON WILLIAMS: Oh, I -- I  
2 apologize. I -- I must have misspoke. I -- I meant  
3 First Round 98(b). Thank you, Ms. Fernandes.

4

5 CONTINUED BY MR. BYRON WILLIAMS:

6 MR. BYRON WILLIAMS: Sir, is this  
7 turbine condition assessment tool a three thousand  
8 (3,000) page document or a five (5) page document?

9 MR. NICK READ: Oh, it's probably more  
10 like a five (5) page document.

11 MR. BYRON WILLIAMS: By way of  
12 undertaking, would you consider filing that, sir?

13 MR. BRENT CZARNECKI: I -- I think  
14 we'll consider filing it. But I'm mindful of your  
15 comment earlier about more for the use of your  
16 consultant. So I have to be careful about what, if  
17 any, commercially sensitive information there may be to  
18 Hydro in providing that document to yourself, and then  
19 to your consultant in the east coast of the US because  
20 there could be some value to Hydro maintaining that as  
21 its own document.

22 MR. BYRON WILLIAMS: Well, we can  
23 perhaps talk about that on -- online. Our interest is  
24 looking at the weights, how they're developed, and the  
25 criteria. And I'm assuming it'll be fairly analogous

1 to some of the other documents that we're seeing, just  
2 so -- so you understand.

3 MR. BRENT CZARNECKI: And I understand.  
4 And so you understand my point, too, further and -- and  
5 if I can articulate it better is I think we can see  
6 that this is a very emerging area of utilities, that  
7 they have lots of focus. So the weightings themselves  
8 and how Hydro does those, there -- there can be some  
9 value to that, so I -- I just want to be very careful  
10 in sharing that information, but we'll -- we'll  
11 definitely work with you.

12 MR. BYRON WILLIAMS: Okay. And I'll --  
13 just to finish the thought. Obviously for the panel  
14 and for our client being able to look at the process is  
15 -- is highly -- highly important, so we'll certainly  
16 encourage Hydro to make all efforts. And we'll --  
17 we'll have some additional submissions if need be. And  
18 thank you.

19

20 CONTINUED BY MR. BYRON WILLIAMS:

21 MR. BYRON WILLIAMS: Mr. Read, in -- in  
22 2011, Generation South, I think, hired Pinchin, P-I-N-  
23 C-H-I-N, Environmental to perform a condition  
24 assessment in which they inspected and determined the  
25 quality of the roofing system through Generation South.

1 Is that correct, sir?

2 MR. NICK READ: That's correct.

3 MR. BYRON WILLIAMS: And again, the --  
4 the roofs were scaled on a -- a weighted pointed system  
5 and given a scale between zero and ten (10), agreed?

6 MR. NICK READ: That's right. And it's  
7 a system that we helped them design. They have  
8 expertise in -- in roof inspections, but they didn't  
9 have a condition assessment methodology that gave a  
10 score between zero and ten (10), which we want for all  
11 our assets that we do condition assessments on.

12 So we helped them build a methodology  
13 using their expertise but our -- our need to move in  
14 the one (1) to ten (10) -- or zero to ten (10)  
15 direction.

16 MR. BYRON WILLIAMS: Okay. And, sir,  
17 as I understand it, they developed for you a worst-to-  
18 best list or best-to-worst list. Would that be fair?

19 MR. NICK READ: That's correct.

20 MR. BYRON WILLIAMS: And, in essence,  
21 you're using that worst-to-best list to plan your next  
22 eight (8) years of roof replacements starting with the  
23 one that's in the poorest condition and -- and moving  
24 towards the one that's in the best condition.

25 Is that correct, sir?

1 MR. NICK READ: That's generally  
2 correct. The only reason I hold back and say,  
3 "generally," sometimes other work at the station can  
4 make it a little messier. On some stations we have  
5 transmission lines crossing the roof and we can only do  
6 the roof -- roofing work if we shut off the  
7 transmission line and that can cause a problem.

8 MR. BYRON WILLIAMS: The -- my point,  
9 sir, is -- and I accept I didn't have it perfect, but  
10 generally correct is the -- that has enabled you to  
11 have a -- a measured approach to addressing your  
12 problems in which you can prioritize the ones that are  
13 with an objective measure of kind of what -- where you  
14 need to do the most work --

15 MR. NICK READ: If we --

16 MR. BYRON WILLIAMS: -- the mostest the  
17 soonest?

18 MR. NICK READ: -- if we can get  
19 outages when we need them that would be the order in  
20 which we'd do the work, from worst to best, although  
21 there's not too many 'best' ones on our work list.

22 MR. BYRON WILLIAMS: Mr. Read, you've  
23 seen me waving around Mr. Morin's Distribution Asset  
24 Condition Report and Kinectrics's Asset Condition  
25 Report. Is -- is there a big report like that for

1 generation?

2 MR. NICK READ: No, there's not. We  
3 have all our data within Copperleaf and there's just  
4 been no requirement for it.

5 MR. BYRON WILLIAMS: I'm not sure who  
6 this goes to, but if we could just go back to Tab 4,  
7 page 12 of 26, Figure 4.12. Thank you, Diana. And  
8 right there is perfect.

9 I'm not sure who on -- who on the panel  
10 has got human resources and corporate services?

11 MS. SANDY BAUERLEIN: Between Mr.  
12 Rainkie and myself we should be able to address.

13 MR. BYRON WILLIAMS: Super. Mr.  
14 Rainkie has been so bashful today, which I'm enjoying,  
15 so, Ms. Bauerlein, I'm going to ask you and if he has  
16 to chime in, whatever. You'll see -- you'll see under  
17 "Human Resources and Corporate Services," figures of  
18 22.4 million in '14/'15 and 2015/'16 another 24.3  
19 million, agreed? For buildings?

20 MS. SANDY BAUERLEIN: That is correct.

21 MR. BYRON WILLIAMS: And is there some  
22 sort of asset health index that was developed for these  
23 buildings, Ms. Bauerlein?

24

25 (BRIEF PAUSE)

1 MS. SANDY BAUERLEIN: There wouldn't be  
2 a specific asset health index. However, the work  
3 effort here, subject to check, I'm going by my  
4 recollection, is for work required to the district  
5 offices. I just -- I just want to confer with Mr.  
6 Morin.

7

8 (BRIEF PAUSE)

9

10 MR. DARREN RAINKIE: Mr. Williams,  
11 maybe I could be unbashful for a second. Ms. -- Ms.  
12 Bauerlein is, I think, looking at the specific projects  
13 that -- or as, you know, the larger projects that make  
14 up these numbers, but interesting you asked, because I  
15 think within the last month we had a presentation at  
16 the executive committee on just that, going through our  
17 buildings and looking at the condition to try to get a  
18 long-term plan on it.

19 So that's something that's in the works  
20 as well.

21 MR. BYRON WILLIAMS: By something being  
22 in the works, first of all, what do you mean by that,  
23 Mr. Rainkie? Some sort of a -- a weighted system for -  
24 - for looking in a strategic asset planning  
25 fashion at your existing buildings?

1 MR. DARREN RAINKIE: Yes, I mean, it's  
2 a -- it's a similar exercise to the other asset  
3 categories we have of going and making assessments of  
4 the condition of the buildings and trying to get a  
5 longer term plan on terms of capital requirements.

6 MR. BYRON WILLIAMS: And I appreciate  
7 your good intentions. Would it be fair to say that  
8 there's -- there's nothing like that in place right  
9 now, sir?

10 MR. DARREN RAINKIE: I see a number of  
11 pre -- presentations every week, Mr. Williams. And I -  
12 - from what I saw it was very -- it was very well  
13 advanced. In fact, it init -- I have to refresh my  
14 memory and certainly I can -- I can do that, but it  
15 wasn't -- I wouldn't want to leave the impression it  
16 was at the starting point. I think they're well into  
17 it. I can -- I can undertake to look at that and  
18 advise, if -- if it would be of assistance to the  
19 Board.

20 MR. BYRON WILLIAMS: Yeah, and let me  
21 be clear. What I'm asking, is there a -- a weighted  
22 kind of mechanism for analyzing your -- your building  
23 reinvestment or sustainability decision, sir?

24 MR. DARREN RAINKIE: You know, I'd have  
25 to refresh my memory, Mr. Williams. And -- and it -- I

1 can -- I can report back if you'd like.

2 MR. BYRON WILLIAMS: Yeah. So by way  
3 of undertaking, I'll -- I'll ask you, with regard to  
4 ongoing buildings and their sustainability, whether  
5 there is currently in place a tool analogous to an  
6 asset health index.

7 You'll accept that undertaking, sir?

8 MR. DARREN RAINKIE: That sounds like a  
9 good way to phrase it, Mr. Williams.

10

11 --- UNDERTAKING NO. 25: Manitoba Hydro to confirm  
12 whether there is currently  
13 a tool analogous to an  
14 asset health index with  
15 regard to ongoing buildings

16

17 MR. BYRON WILLIAMS: As long as you're  
18 going to flatter me, Mr. Rainkie, you can -- don't have  
19 to be bashful any more today, so.

20 THE CHAIRPERSON: I have a question --  
21 I do have a question I want to clarify. Because you  
22 called in a third party to do the transmission  
23 condition assessment, yet the other condition  
24 assessments were done internally mostly, or being done  
25 internally.

1                   Why bring in a third party for the  
2 transmission and -- and not for the other areas?

3                   MR. MICHEL MORIN:     Pin -- Pinchin is  
4 more of a -- a known company, I think, for that type of  
5 work, what we're looking for, to doing -- when we look  
6 at assessments on poles or staff. On those kind of  
7 things we do -- we do use third-party contractors for  
8 pole inspections. So we have a company that's national  
9 and -- well, one (1) local and one (1) national company  
10 that take part in these inspections.

11                   So various parts of our business  
12 depending on the asset we use a third party. Our  
13 manholes, downtown Winnipeg manholes, we've had a  
14 third-party engineering firm look at those. So  
15 depending on the asset we do bring in those expertise.  
16 In other things that we're good at, you know, I mean --  
17 or -- or we can take on ourselves, you know.

18                   MR. NICK READ:     So you were -- you were  
19 referring to Pinchin in that comparison? Oh, well,  
20 Pinch -- you know, like, I've got a group of -- a lar -  
21 - a large group of technicians and engineers that do  
22 that kind of work, but we try to keep to the core  
23 electrical business. So when it comes to something  
24 like building roofs, Pinchin does that kind of work and  
25 there's really no value in my adding staff to focus on

1 roof -- roofing. So that was the reason. But when it  
2 comes to our core business, transformers, stators,  
3 governors, we have plenty of trained subject matter  
4 experts to do that.

5

6 CONTINUED BY MR. BYRON WILLIAMS:

7 MR. BYRON WILLIAMS: Mr. Morin, if --  
8 if I could and -- oh, actually, Mr. -- Dr. Swatek, you  
9 wanted to chime in?

10 DR. DAVID SWATEK: Well, just to follow  
11 up on what Mr. Read was saying. With -- with respect  
12 to transmission we have the internal -- the internal  
13 subject matter experts who -- who have been carrying  
14 out the -- the routine -- the routine maintenance  
15 inspections and the analyses of -- of those test --  
16 test results for going back decades. We brought in the  
17 external consultants to get us started in -- in -- to  
18 get us started in the best direction with respect to  
19 putting together an overarching Asset Management  
20 Program.

21 MR. BYRON WILLIAMS: And -- and, Mr.  
22 Morin, you'll agree with me that the consultants you  
23 might use for manholes or -- or otherwise, you're not --  
24 -- they're of -- of a different ilk than the strategic  
25 management assessment skills of a Kinectrics or a Kema,

1 K-E-M-A?

2 MR. MICHEL MORIN: I -- I think I was  
3 more responding to the -- the Chairman's question about  
4 these assessments of roofs. So roofs, poles is more of  
5 assessments, not asset management strategies, which  
6 those are the vendors you're discussing, where I  
7 thought more -- your question was more related do we  
8 bring in people for assessments, third-party  
9 contractors. So I don't know if that's -- you want to  
10 -- if I was on the right track there or not, sorry.

11 THE CHAIRPERSON: Well, it -- it  
12 certainly strikes me that having a third party come in  
13 and -- and do an assessment is -- is a more independent  
14 and -- is a more independent approach to asse --  
15 assessing actually what's going on with -- with respect  
16 to each of the areas. I'm just trying to understand  
17 the tactical reasons why you did that.

18

19 CONTINUED BY MR. BYRON WILLIAMS:

20 MR. BYRON WILLIAMS: Mr. Rainkie, just  
21 to take us to coffee break, I'll suggest to you, sir,  
22 that you have a good memory.

23 You'll agree with that?

24 MR. DARREN RAINKIE: Yes, but it's  
25 short.

1 MR. BYRON WILLIAMS: Well, you'll  
2 accept, subject to check, that since at least the  
3 2008/'09 General Rate Application, Manitoba -- and I'm  
4 not asking you to elaborate but just to confirm --  
5 Hydro's been identifying issues relating to its aging  
6 infrastructure?

7 MR. DARREN RAINKIE: Yes, sir. In  
8 fact, I think in Order 43/'13 and in the Interim Order  
9 from last year, one (1) of the reasons that the Public  
10 Utilities Board granted the rate increases for -- was  
11 for that very reason. That was how they stated it.  
12 So, yes, we've been chatting about this issue for a  
13 number of GRAs.

14 MR. BYRON WILLIAMS: And you'll agree  
15 that for just as long, my client, the Coalition, has  
16 been urging Manitoba Hydro to present capital asset  
17 assessments as part of a broader capital asset  
18 management strategy?

19 MR. DARREN RAINKIE: I can remember a  
20 discussion at the 2012 GRA. I'm not sure my memory  
21 extends back to 2008 or '09, Mr. Williams.

22 MR. BYRON WILLIAMS: And if I'm putting  
23 too much pressure on it, you'll just say no. But I  
24 wonder if you would accept, subject to check, that Mr.  
25 Harper gave evidence to -- to that effect in the

1 proceedings leading to Order 116/'08? And if you need  
2 a reference, I'll refer you to pages 101 and 102.

3 Will you accept that subject to check,  
4 sir?

5 MR. DARREN RAINKIE: Yes. I -- I  
6 remember perhaps a general reference to it in his  
7 evidence. I think he appeared at that -- at that  
8 hearing.

9 MR. BYRON WILLIAMS: And, Mr. Rainkie,  
10 as you just mentioned, we revisited the issue of asset  
11 condition assessments in -- in 2013 in the proceedings  
12 leading to Board Order 43/'13, agreed?

13 MR. DARREN RAINKIE: Yes. It was one  
14 (1) of many things we chatted about during that  
15 hearing.

16 MR. BYRON WILLIAMS: And you may  
17 recall, Mr. Rainkie, or accept, subject to check, with  
18 references to pages 3774 and '75, that -- that at that  
19 time I asked Mr. Warden for a copy of the 2012  
20 Kinectrics study. But it was like hot off the press,  
21 and he didn't feel able to share it at that point in  
22 time.

23 Does -- does that ring a bell, sir?

24 MR. DARREN RAINKIE: Not specifically,  
25 Mr. Williams.

1 MR. BYRON WILLIAMS: Fair enough.

2 Mr. Chair, I've got a couple of short  
3 snappers that I could probably take another two (2) or  
4 three (3) minutes or -- or so.

5 And I believe it's Manitoba Hvdro  
6 Exhibit 36, which is the PowerPoint presentation of  
7 planning and operations. And I'm directing you to page  
8 48, Mr. Morin. Just a -- just a small point. When we  
9 look at wood poles, which is about four (4) from the  
10 bottom, you'll see a reference to their life expectancy  
11 being seventy (70) years, sir?

12 MR. MICHEL MORIN: That's correct. The  
13 industry was usually around forty (40), growing to  
14 forty-five (45). And Manitoba Hvdro since maintained  
15 their pole -- poles well beyond that, and we're using  
16 near that seventy (70), seventy-five (75) year range.

17 MR. BYRON WILLIAMS: Sir -- yeah. I  
18 was going to suggest to you that the figure that you  
19 used both in Appendix 4.2 as well as in your 2012  
20 distribution study is seventy-five (75) years.

21 Would that be right?

22 MR. MICHEL MORIN: Correct.

23 MR. BYRON WILLIAMS: And that's -- that  
24 would be the figure that -- that you currently employ?

25 MR. MICHEL MORIN: Employ in what

1 context, I guess?

2 MR. BYRON WILLIAMS: Well, sir, if I --  
3 if I -- if -- if one looked -- the seventy-five (75)  
4 year in terms of the mac -- in terms of the life  
5 expectancy, that's -- that's the figure you use is  
6 seventy-five (75) years, agreed?

7 MR. MICHEL MORIN: Yeah. It's a high  
8 level. Like I said, we don't change any poles on age,  
9 but it's a -- it's an estimate for planning purposes.  
10 But some poles last longer, some sooner, but it's a --  
11 it's a general sort of reference to the expected life  
12 of that asset.

13 MR. BYRON WILLIAMS: And that's  
14 seventy-five (75) years?

15 MR. MICHEL MORIN: I have seventy (70)  
16 on the screen, sir.

17 MR. BYRON WILLIAMS: Yes. And I'm  
18 going to suggest to you that if you went to Appendix  
19 4.2 --

20 MR. MICHEL MORIN: Yeah.

21 MR. BYRON WILLIAMS: -- or your 2012  
22 distribution study, that you'd see the seventy-five  
23 (75) year figure? We -- we'll -- I'll let you look at  
24 that over the break. That is not an undertaking.

25 MR. MICHEL MORIN: Okay, thanks.

1 MR. BYRON WILLIAMS: Mr. Read, just on  
2 page 42 under, "Asset replacement generation," you --  
3 you talk about -- directing your attention to the  
4 transformer line, you suggest that the turnover in  
5 years is -- would take one hundred and fifty (150)  
6 years.

7 Do you see that reference, sir?

8 MR. NICK READ: Yes.

9 MR. BYRON WILLIAMS: Now, my  
10 understanding is that you have one hundred and fifty-  
11 three (153) transformers. So, in essence, you -- you  
12 would -- the turnover calculation is based upon the  
13 expectation you'd be turning over one a year.

14 Would that be fair?

15 MR. NICK READ: Subject to check.

16 MR. BYRON WILLIAMS: Yeah. And if  
17 you're looking for a reference, it's COALITION-I, First  
18 Round, 88(b).

19 Would it be accurate to say that in 2014  
20 you replaced six (6) transformers at Kettle?

21 MR. NICK READ: Yes.

22 MR. BYRON WILLIAMS: And would it be  
23 accurate to say that in 2013 you replaced two (2)  
24 transformers at Kettle and another two (2) at Pointe du  
25 Bois?

1 MR. NICK READ: Yes. I would like to  
2 add that that's because there was a defect found in the  
3 transformers at Kettle which is not usual, and as a  
4 result, we had to replace really some middle-aged  
5 transformers and had to replace all of them.

6 It doesn't -- it doesn't take away from  
7 the fact that in Gen South, the Winnipeg River, there's  
8 still many, many old transformers that are operating  
9 beyond their expected life.

10 MR. BYRON WILLIAMS: Now, Do -- thank  
11 you. Dr. Swatek, in slide 45 you provide some  
12 estimates of turnover years, as well. Do you see that,  
13 sir?

14 DR. DAVID SWATEK: I do see it, yes.

15 MR. BYRON WILLIAMS: And perhaps you  
16 recollect that in Coalition First Round Information  
17 Request 88(d) we asked you to provide a schedule of  
18 replacements used to calculate the turnover and -- and  
19 to compare it with actual replacements conducted in the  
20 past three (3) years.

21 Do you remember that, sir?

22 DR. DAVID SWATEK: There was the  
23 request, yes.

24 MR. BYRON WILLIAMS: And would it be  
25 fair to say that you advised the Coalition that the

1 information for transmission assets is not readily  
2 available?

3 DR. DAVID SWATEK: It was -- it -- it  
4 was not available. It was not easily available at that  
5 time, ves.

6 MR. BYRON WILLIAMS: Is it available  
7 now?

8 DR. DAVID SWATEK: No, we have not done  
9 additional work on -- on that.

10

11 (BRIEF PAUSE)

12

13 MR. BYRON WILLIAMS: I'll reflect...  
14 Sorry, I said I -- I'll reflect upon that. I'll --  
15 I'll note the time, Mr. Chair, and suggest that we  
16 might have a brief break.

17 THE CHAIRPERSON: Thank you for, Mr.  
18 Williams. We'll -- we'll recess for about ten (10)  
19 minutes, as usual. Thank you.

20

21 --- Upon recessing at 10:29 a.m.

22 --- Upon resuming at 10:43 a.m.

23

24 THE CHAIRPERSON: Mr. Williams, I  
25 believe that we're ready to resume the proceedings.

1 MR. BYRON WILLIAMS: And I'll just let  
2 you know, while -- while I was feeling optimistic about  
3 the timing after getting rid of that many notes, the  
4 good quality of the answers has made me a little more  
5 pessimistic about the -- the timing, so we'll see how -  
6 - how it goes.

7 I want to direct the panel to COALITION-  
8 II-53(a), the Kinectrics report.

9

10 (BRIEF PAUSE)

11

12 MR. BYRON WILLIAMS: And this looks  
13 like the PowerPoint. I'm looking for the main  
14 document. So and that in particular, to start with,  
15 page 5 of 172. Perhaps if I could stand down for just  
16 a minute, Mr. Chair. Oh, there we go. Page 5 of 172.

17 Dr. Swatek -- and I apologize if I'm not  
18 doing justice to your -- your name. An asset condition  
19 assessment has to be visualized as part of a broader  
20 asset management strategy, agreed?

21 DR. DAVID SWATEK: It would be one (1)  
22 part of, yes.

23 MR. BYRON WILLIAMS: And the purpose of  
24 a document such as the report you got from Kinectrics  
25 was in part to give you a quantifiable evaluation of

1 asse -- asset condition, agreed?

2 DR. DAVID SWATEK: Aareed.

3 MR. BYRON WILLIAMS: And as well, to  
4 aide in prioritizing and allocating sustainment  
5 resources, correct?

6 DR. DAVID SWATEK: Yes. Yes.

7 MR. BYRON WILLIAMS: And finally, to  
8 facilitate the development of a long-term strategy.  
9 Would that be fair?

10 DR. DAVID SWATEK: Yeah, to be one (1)  
11 part of a long-term strategy.

12 MR. BYRON WILLIAMS: And when you look  
13 at your business unit and the investment decisions that  
14 you have to me -- to -- to make, I presume that you  
15 want to have some -- some options in terms of the level  
16 of investment and to -- to understand the consequences  
17 of -- of those different options.

18 Would that be fair?

19 DR. DAVID SWATEK: That is -- that is  
20 fair, ves.

21 MR. BYRON WILLIAMS: You want to know  
22 how much safety reliability and whatever other values  
23 you're buying for a particular investment.

24 Would that be fair?

25 DR. DAVID SWATEK: Tho -- those are all

1 part of our project ranking method -- methodology that  
2 we -- we were looking at earlier, yes.

3 MR. BYRON WILLIAMS: Okay. And when  
4 Kinectrics uses the term 'health index', you would  
5 agree that they're using it as an indicator of the  
6 asset's overall health and that it's typical --  
7 typically given in terms of a percentage with 100  
8 percent representing an asset in pristine or brand new  
9 condition.

10 Would that be fair?

11 DR. DAVID SWATEK: That's what they do,  
12 yes.

13 MR. BYRON WILLIAMS: And in essence,  
14 health indexing is a measure of long-term degradation,  
15 agreed?

16 DR. DAVID SWATEK: Yes. True.

17 MR. BYRON WILLIAMS: It's a test of the  
18 relative health of a -- one (1) of your assets against  
19 a brand new one?

20 DR. DAVID SWATEK: Yes.

21 MR. BYRON WILLIAMS: And it would be  
22 accurate to say that in this study Kinectrics performed  
23 a health index for particular assets and then with  
24 those where there was sufficient data they prepared a  
25 distribution for those specific asset categories, a

1 health index distribution?

2 DR. DAVID SWATEK: They did, yes.

3 MR. BYRON WILLIAMS: And another  
4 element of their analysis was to calculate a, in  
5 quotation marks, "flagged for action plan" based on  
6 asset condition for -- for a number of the assets?

7 DR. DAVID SWATEK: That is correct,  
8 yes.

9 MR. BYRON WILLIAMS: And the purpose  
10 was to identify units requiring actions within the next  
11 ten (10) to twenty (20) years, agreed?

12 DR. DAVID SWATEK: Agreed, yeah.

13 MR. BYRON WILLIAMS: And when  
14 Kinectrics uses the term 'plan for action', you'll  
15 agree with me that while that could mean replacement,  
16 that does not necessarily mean replacement, agreed?

17 DR. DAVID SWATEK: Agreed.

18 MR. BYRON WILLIAMS: Indeed, a pla --  
19 tagged for action or flagged for action could involve  
20 refurbishment, a modified spare parts strategy, or  
21 doing nothing?

22 DR. DAVID SWATEK: True. Yes.

23 MR. BYRON WILLIAMS: And that's an  
24 important part of an integrated asset management  
25 strategy, making that call in terms of which particular

1 option -- replacement, refurbishment, do nothing -- is  
2 more desirable, agreed?

3 DR. DAVID SWATEK: Agreed.

4 MR. BYRON WILLIAMS: And would it be  
5 fair to say that Kinectrics in doing their analysis was  
6 taking the perspective of the least cost sustainable  
7 life cycle?

8 Would that be a fair characterization?

9 DR. DAVID SWATEK: I'm not sure.

10 MR. BYRON WILLIAMS: I might have to  
11 dig up a Pow -- a PowerPoint slide with that on it,  
12 sir.

13 DR. DAVID SWATEK: Cost sustainable  
14 life cycle?

15 MR. BYRON WILLIAMS: Yeah.

16 DR. DAVID SWATEK: I -- I recall  
17 language like that, but to what extent it -- it works  
18 into their -- their mathematics I'm -- I am not sure.

19 MR. BYRON WILLIAMS: Okay. And I'll --  
20 I'll see if I can refresh both your and my memory on  
21 that. I wonder if you could turn to pages 8 and 9 of  
22 172. Perhaps we'll look at page 9. And, sir, this is  
23 the Kinectrics report to you in terms of the -- both  
24 the wood pole structure health index distribution and  
25 the spar arm health index distribution.

1                   Would that be fair?

2                   DR. DAVID SWATEK:     That's what that is,  
3     ves.

4                   MR. BYRON WILLIAMS:     So if we look to  
5     the legend at the bottom of either figure 3 or 4 we see  
6     that "Very good" is in a -- a blue.

7                   Is that right, sir?

8                   DR. DAVID SWATEK:     That's true, ves.

9                   MR. BYRON WILLIAMS:     And "Good" is in a  
10    green.

11                   Would that be fair?

12                   DR. DAVID SWATEK:     Yes.

13                   MR. BYRON WILLIAMS:     And then we see a  
14    orange and some types of yellow and -- and -- anyways  
15    we see the other legends for "Very poor," "Poor," and  
16    "Fair" as well.

17                   DR. DAVID SWATEK:     Yes.

18                   MR. BYRON WILLIAMS:     And we don't need  
19    to turn there, but if we went back one (1) page we  
20    would see that same type of result for circuit breakers  
21    and transformers and LTCs?

22                   DR. DAVID SWATEK:     Yes.

23                   MR. BYRON WILLIAMS:     And would it be  
24    fair to say that in terms of the health of your power  
25    transformers and Load Tap changers or LTCs that

1 Kinectrics in 2012 concluded that the overwhelming  
2 majority of them were in good shape?

3 DR. DAVID SWATEK: Yes. That's  
4 correct.

5 MR. BYRON WILLIAMS: And likewise in  
6 terms of circuit breakers they concluded that the vast  
7 majority of that population was in good or very good  
8 condition, agreed?

9 DR. DAVID SWATEK: Yes.

10 MR. BYRON WILLIAMS: And similarly wood  
11 pole structures were in good or very good condition as  
12 per health index results translated into, in quotation  
13 marks, "Effective age," agreed?

14 DR. DAVID SWATEK: Agreed, yes.

15 MR. BYRON WILLIAMS: And I just want to  
16 explore that concept with you, sir, in terms of  
17 effective age.

18 Would it -- in using that term would it  
19 be fair to say that Kinectrics is distinguishing  
20 between the actual health of an asset as determined  
21 through a condition assessment as compared to its  
22 chronological age?

23 DR. DAVID SWATEK: That's what the  
24 effective age is, yes.

25 MR. BYRON WILLIAMS: And Kinectrics, in

1 terms of effective age, is distinguishing from  
2 chronological age based upon asset condition and the  
3 stresses experienced by that particular asset, agreed?

4 DR. DAVID SWATEK: Agreed.

5 MR. BYRON WILLIAMS: I wonder if I  
6 could ask Diana to pull up -- and we'll come back to  
7 this document so don't put it away -- but to COALITION-  
8 II-52(a)(f).

9

10 (BRIEF PAUSE)

11

12 MR. BYRON WILLIAMS: And I'll probably  
13 have some questions for -- for all three (3) of the --  
14 the business unit experts in a second. But, Dr.  
15 Swatek, I just want to turn you to page 5 of 9. And  
16 you'll see at the top of that page a -- the parameter  
17 for transmission wood pole structures.

18 Do you see that heading, sir?

19 DR. DAVID SWATEK: Yes, I do.

20 MR. BYRON WILLIAMS: Okay. And when we  
21 use weight in terms of the development of an asset  
22 health index, one is trying to get insight into the  
23 factors, into the health of the asset and -- and also  
24 insight into the factors that are reflective of its  
25 mechanism of degra -- degradation and the risk to that

1 asset.

2 Would that be fair?

3 DR. DAVID SWATEK: Yes.

4 MR. BYRON WILLIAMS: And by 'risk', I  
5 mean risk of failure?

6 DR. DAVID SWATEK: Yes.

7 MR. BYRON WILLIAMS: And so when we  
8 weight the -- if you're assigned a higher rate, that's  
9 reflective of it's more -- more -- offers more insight  
10 into the health of that particular asset.

11 Would that be fair?

12 DR. DAVID SWATEK: Yes.

13 MR. BYRON WILLIAMS: Okay. So we see  
14 for transmission poles that pole strength is given a  
15 five (5), agreed?

16 DR. DAVID SWATEK: Agreed.

17 MR. BYRON WILLIAMS: Physical condition  
18 is given a four (4).

19 DR. DAVID SWATEK: Yes.

20 MR. BYRON WILLIAMS: Auxiliary  
21 accessories are given one (1) point, agreed?

22 DR. DAVID SWATEK: Agreed.

23 MR. BYRON WILLIAMS: And then we see  
24 service record being given three (3) points, correct?

25 DR. DAVID SWATEK: Yes.

1 MR. BYRON WILLIAMS: And that's based  
2 upon a two (2) to one (1) weighting applied to age and  
3 overall condition, agreed?

4 DR. DAVID SWATEK: Agreed.

5 MR. BYRON WILLIAMS: And I'll ask you  
6 to confirm that these are the -- the weightings jointly  
7 developed by Kinectrics and -- and Manitoba Hydro.

8 DR. DAVID SWATEK: These were, yes.

9 MR. BYRON WILLIAMS: And I wonder, just  
10 in terms of service record, if you can explain to me  
11 what that two (2) to one (1) weighing applied to age  
12 and overall condition means? Does that mean out of the  
13 three (3) points, I give (2) to age and one (1) to  
14 overall condition? Is that what that means, sir?

15 DR. DAVID SWATEK: Yes. Exactly.

16 MR. BYRON WILLIAMS: And so if I looked  
17 at the -- totalled this weight, we'd see thirteen (13)  
18 points.

19 Would that be fair, sir, in the  
20 combination of five (5), four (4), one (1), and three  
21 (3)?

22 DR. DAVID SWATEK: Yes.

23 MR. BYRON WILLIAMS: Which is probably  
24 the limits of my mathematical skills.

25 DR. DAVID SWATEK: And that's all I

1 want to do on the fly myself, so.

2 MR. BYRON WILLIAMS: I -- I thought I  
3 heard an answer yesterday that you'd -- someone didn't  
4 have a calculator. I thought, Manitoba Hydro doesn't  
5 have a calculator? That was -- Mr. Rainkie always has  
6 a calculator. We don't need one here, though, sir.

7 In terms of the weighting given for  
8 transmission wood pole structures, would it be fair to  
9 say that age accounts for a relatively small proportion  
10 of this AHI?

11 DR. DAVID SWATEK: In -- in this  
12 weighting, yes.

13 MR. BYRON WILLIAMS: And, sir, we could  
14 go through all your fascinating weightings for  
15 transmission, but I'll -- I'll suggest that, with  
16 perhaps the exception of transmission conductors which  
17 I'll come to in a second, you do a similar assessment  
18 where different weights are assigned to different  
19 factors.

20 Would that be fair?

21 DR. DAVID SWATEK: Yes.

22 MR. BYRON WILLIAMS: And just to turn  
23 very quickly to transmission conductors at page 4 of 9  
24 -- and I think we've already discussed this, so I won't  
25 belabour it -- that would be the one exception where the

1 only parameter is age.

2 Is that fair, sir?

3 DR. DAVID SWATEK: Yes.

4 MR. BYRON WILLIAMS: If we look down  
5 one (1) below it, perhaps you'd agree with me that the  
6 -- the weighting for transmission steel towers would  
7 appear a little less sophisticated than you might do  
8 for -- for other -- other assets?

9 DR. DAVID SWATEK: There's a lot built  
10 in to the -- to that inspection records. For the --  
11 say for example the HVDC Bipole lines, each -- each  
12 tower is in -- inspected annually with a primary  
13 inspection in -- involving high-powered binoculars and  
14 examining every component of the tower.

15 And in addition to that primary in --  
16 inspection, there's a secondary visual inspection of  
17 each tower every year just by helicopter or however  
18 just to look for standout anomalies.

19 MR. BYRON WILLIAMS: Okay.

20 DR. DAVID SWATEK: So there's quite a  
21 lot that goes into that inspection records.

22 MR. BYRON WILLIAMS: Okay. And let's -  
23 - that's -- that's helpful. You don't -- or when you  
24 speak of inspection records, would I be correct in  
25 suggesting that you're not talking about a lengthy

1 record of ultrasonic inspections of burv -- buried  
2 footings, for example?

3 DR. DAVID SWATEK: No, we don't  
4 normally do that.

5 MR. BYRON WILLIAMS: Okay. And as part  
6 of your inspection records, would it be fair to say  
7 that the normal course of events you don't employ steel  
8 structure climbing inspections?

9 DR. DAVID SWATEK: That is correct,  
10 yes.

11 MR. BYRON WILLIAMS: Okay. And one (1)  
12 of the recommendations to you by Kinectrics was that  
13 you start both steel structure climbing instructions  
14 and ultrasonic inspections of buried footings, agreed?

15 DR. DAVID SWATEK: Agreed, yes.

16 MR. BYRON WILLIAMS: And, sir, when we  
17 talk about the value of the steel structures to the  
18 Corporation it's pretty big, isn't it?

19 DR. DAVID SWATEK: Probably, yes.

20 MR. BYRON WILLIAMS: Give me one (1)  
21 second and I'll have a suggestion for you.

22

23 (BRIEF PAUSE)

24

25 MR. BYRON WILLIAMS: Both of us should

1 have this at our fingertips, I'm thinking. I  
2 apologize. Is it with reference to page 36 of  
3 Appendage -- Appendix 4.2? Is -- is that the  
4 appropriate reference for steel structures, sir?

5 DR. DAVID SWATEK: Page 36.

6 MR. BYRON WILLIAMS: Yeah.

7 DR. DAVID SWATEK: This -- this would  
8 be the appropriate reference, yes.

9 MR. BYRON WILLIAMS: The replacement  
10 value for these structures would be, what, 4.6 billion?

11 DR. DAVID SWATEK: That's what --  
12 what's shown, yes.

13 MR. BYRON WILLIAMS: Thank you.

14 DR. DAVID SWATEK: Oh, just to -- just  
15 to follow up on one (1) of your previous questions. As  
16 part of the inspections we do in the work. With  
17 regards to the work, we are doing a lot of effort right  
18 now to work on tower -- tower footings, so there is a  
19 lot of effort there.

20 MR. BYRON WILLIAMS: And is that in  
21 particular, sir, in the northern part of the province  
22 and related to some --

23 DR. DAVID SWATEK: Well, all -- this  
24 would be all over --

25 MR. BYRON WILLIAMS: All over, okay.

1 DR. DAVID SWATEK: -- the -- the  
2 province, ves.

3 MR. BYRON WILLIAMS: Okay, thank you.

4 THE COURT REPORTER: Sorry, Dr. Swatek,  
5 was that fittings or footings?

6 DR. DAVID SWATEK: I -- I apologize.  
7 It is -- and we'll try it again. It -- it was  
8 footings.

9 THE COURT REPORTER: Footings.

10 DR. DAVID SWATEK: Yeah, F-O-O-T.

11 THE COURT REPORTER: Thank you.

12 DR. DAVID SWATEK: Do -- yeah, please  
13 do not be shy, yeah, okay.

14

15 CONTINUED BY MR. BYRON WILLIAMS:

16 MR. BYRON WILLIAMS: Mr. Read, just  
17 going back to COALITION-II-52(a) to (f), and directing  
18 your attention quickly to pages 6 and 7 of 9. Let's  
19 perhaps scroll down on -- on page 6 onto page 7. We're  
20 getting into your territory, are we, Mr. Read, in terms  
21 of, it sounds exciting, governors, excitors, generation  
22 breakers. That's your turf, sir?

23 MR. NICK READ: That's the exciting  
24 territory that I'm in.

25 MR. BYRON WILLIAMS: And just suggest

1 to you that what we see there again is a number of a  
2 parameters for -- for most, if not all, of the  
3 generation assets.

4 Would that be fair, sir?

5 MR. NICK READ: That's correct.

6 MR. BYRON WILLIAMS: And I think you  
7 actually spoke of this earlier, but if we just went  
8 down to generators, we'd see insulation resistance, the  
9 HVDC ramp test, the TVA probe, which sounds  
10 distressing, and the DF Tip-up. So those would be  
11 examples of some of the parameters that you use in  
12 determining the health index for generators.

13 Would that be fair, sir?

14 MR. NICK READ: Yes, and -- and this  
15 may sound like a commercial, but Manitoba Hydro is a  
16 world leader when it comes to generator inspections.  
17 And I would defer to my colleague here, but we've had  
18 an expert in Manitoba Hydro for many years that is  
19 world renowned when it comes to testing insulation.

20 DR. DAVID SWATEK: Okay. And I -- I  
21 can elaborate on that. I had the pleasure for approx -  
22 - approximately ten (10) years of managing a gentleman  
23 by the name of Bill -- Bill McDermott, who is an  
24 internationally renowned expert in the field of  
25 insulation testing, and is one (1) of the key authors

1 of the IEEE standard for how to do -- how to do  
2 insulation testing on the stat -- stator of a rotating  
3 machine.

4 MR. BYRON WILLIAMS: Than -- thank you.

5 DR. DAVID SWATEK: So yeah, there's  
6 quite a lot of --

7 MR. BYRON WILLIAMS: Yeah.

8 DR. DAVID SWATEK: -- we are world --  
9 world leaders here, yes.

10 MR. BYRON WILLIAMS: I'll allow --  
11 allow you both one (1) advertising pitch every -- in  
12 between coffee breaks. So, Mr. Morin, when we -- when  
13 we look to the -- page 3 and -- of 9, we start to see  
14 the parameters used with regard to the distribution  
15 side.

16 Is that correct, sir? Page 3 of 9 of  
17 COALITION-II-52(a) to (f)?

18 MR. MICHEL MORIN: That's correct.

19 MR. BYRON WILLIAMS: And we'll go into  
20 some detail about this later, perhaps, but we -- we see  
21 age as a parameter coming up fairly frequently with --  
22 in terms of the distribution assets, sir?

23 MR. MICHEL MORIN: Yes.

24 MR. BYRON WILLIAMS: And at times, the  
25 weights assigned to age are 100 percent, sir?

1 MR. MICHEL MORIN: That's correct.

2

3 (BRIEF PAUSE)

4

5 MR. BYRON WILLIAMS: Dr. Swatek, if we  
6 could go back to Kinectrics's report, page 11 of 172.  
7 And if I could direct your attention to the bottom of  
8 that page, being Figure 8?

9 DR. DAVID SWATEK: Yes. Okay.

10 MR. BYRON WILLIAMS: Page 11 of 172,  
11 Coal -- Kinectrics, so it's II-53(a). So it's -- thank  
12 you very much. Page 11 of 172. Thank you. And it  
13 towards the bottom, Figure 7 -- Figure 8, actually.  
14 Thank you.

15 Now, Mr. -- or excuse me, Dr. Swatek, we  
16 -- we spoke of the effective age versus chronological  
17 age.

18 You'll recall that discussion?

19 DR. DAVID SWATEK: Yes.

20 MR. BYRON WILLIAMS: And what we see  
21 here is when we see the condition based -- I -- I can  
22 use that interchangeably for the purpose of this very  
23 specific discussion with effective age?

24 DR. DAVID SWATEK: With -- I -- yes, I  
25 -- you can, here.

1 MR. BYRON WILLIAMS: And I can use the  
2 term 'age based' interchangeably with 'chron' --  
3 'chronological', at least for this figure here, sir?

4 DR. DAVID SWATEK: Yes. Yes.

5 MR. BYRON WILLIAMS: Okay. And this is  
6 the figure -- this -- this is looking at wood pole  
7 structures flagged for action, comparing the condition  
8 based in the brown, I'm going to suggest, versus the  
9 age-based in terms of the green.

10 Would that be fair, sir?

11 DR. DAVID SWATEK: That's -- yes. Yes.

12 MR. BYRON WILLIAMS: And it would be  
13 fair to conclude in all ten (10) years of this figure  
14 that the number of poles in each year flagged for  
15 action based upon effective age or condition-based is  
16 lower than if they were flagged on age-based.

17 Would that be a correct interpretation  
18 of this figure, sir?

19 DR. DAVID SWATEK: Yes, it would.

20 MR. BYRON WILLIAMS: And just to  
21 reiterate, and -- and you were kind enough to share  
22 this with us before, when we say, "flagged for action,"  
23 that doesn't mean a replacement, necessarily. It could  
24 -- it could, but it could be refurbishment.

25 It could be a -- a different approach to

1 spare parts or it could be, do nothing?

2 DR. DAVID SWATEK: Yes, exactly.

3 MR. BYRON WILLIAMS: Okay. And I can  
4 give you a reference if you require it, but I'll ask  
5 you to accept that Kinectrics also found that the  
6 effective age for transformers and LTCs and circuit  
7 break -- breakers was, in most cases, less than the  
8 corresponding chronological age?

9 DR. DAVID SWATEK: I recall that from  
10 the report, yes.

11 MR. BYRON WILLIAMS: Okay. I wonder if  
12 I could direct you to page 146 of this document, sir?  
13 Page 146 of 172.

14 DR. DAVID SWATEK: Yes, I do.

15 MR. BYRON WILLIAMS: And I want to --  
16 Diana, if you wouldn't mind scrolling down to two (2)  
17 paragraphs above fig -- section 32? That's beautiful.  
18 Thank you. Just in terms of the second paragraph on  
19 this page that's being displayed, being page 146 of  
20 172, you'll see here a -- a reference to the many  
21 factors considered by utilities when establishing  
22 conditions of wood poles.

23 Do you see that reference, Dr. Swatek?

24 DR. DAVID SWATEK: Yes, I do.

25 MR. BYRON WILLIAMS: And I want to

1 direct your attention in particular to line 3.  
2 However, perhaps the most significant is the policy of  
3 routine line inspections, and suggesting that a foot  
4 patrol of overhead lines undertaken on a regular cycle  
5 is extremely effective in addressing the safety and  
6 security obligations.

7 Do you see that reference, sir?

8 DR. DAVID SWATEK: I do.

9 MR. BYRON WILLIAMS: And can you  
10 explain why that is?

11 DR. DAVID SWATEK: To be able to have a  
12 -- to -- to be -- to have current knowledge of the --  
13 the actual condition, what you can tell of it by way of  
14 visual inspection.

15 MR. BYRON WILLIAMS: Okay. Now, I -- I  
16 want to go one (1) step further. And, Mr. Morin, this  
17 may go to you or Dr. Swatek. I'm not quite sure who.

18 But if we look at drivers of outage  
19 frequency such as SAIFI, all caps, S-A-I-F-I, we know  
20 that outage frequency is -- has been responsible for  
21 over 30 percent of outages in Hydro's experience  
22 recently?

23 MR. MICHEL MORIN: That's correct, yes.

24 MR. BYRON WILLIAMS: Would it be fair  
25 to say that the second most prevalent contributor to

1 SAIFI performance has been tree contact?

2 MR. MICHEL MORIN: That's correct.

3 MR. BYRON WILLIAMS: And again, while  
4 we recognize that outage duration, the number 1 driver  
5 is equipment failure, you'll agree with that, Mr.  
6 Morin?

7 MR. MICHEL MORIN: Yes.

8 MR. BYRON WILLIAMS: You'd agree as  
9 well that tree contact also is a very significant  
10 factor?

11 MR. MICHEL MORIN: Tree contacts is  
12 definitely a -- a significant factor in outages, but  
13 it's relatively stayed the same over the last decade.  
14 It kind of fluctuates, but it hasn't increased. It's  
15 kind of bounced around depending on the air, but it's  
16 fairly consistent in what it contributes to SAIDI and  
17 SAIFI.

18 MR. BYRON WILLIAMS: Okay. Now, if I  
19 could just -- focussing -- and it could certainly go to  
20 either you or Dr. Swatek. I don't think overhanging  
21 trees are as much a generation issue, although I could  
22 be wrong. If we're looking at an interest integrated  
23 asset management approach, then apart from replacement,  
24 rehabilitation, an important component for distribution  
25 in particular, but perhaps for transmission as well, is

1 vegetative maintenance.

2 Would that be fair?

3 MR. MICHEL MORIN: That's correct.

4 MR. BYRON WILLIAMS: And if we're  
5 trving to understand the value of in -- investments  
6 into capital and into refurbishment and replacement as  
7 part of an integrated asset management strategy, it --  
8 it also would be important to have a sense of the  
9 investment in vegetative management as well, agreed?

10 MR. MICHEL MORIN: Agreed.

11

12 (BRIEF PAUSE)

13

14 MR. BYRON WILLIAMS: And I'm going to  
15 suggest to you that, really, when we look at a capital  
16 asset management approach, there's the cap ex side of  
17 it, there's the operational side of it, but there's  
18 also the -- the maintenance side of it.

19 Would that be fair?

20 MR. MICHEL MORIN: That's correct.

21 MR. BYRON WILLIAMS: And so as senior  
22 executives, you would want insight into the tradeoffs  
23 and the cost/benefits of -- of each of those  
24 interrelated aspects.

25 Would that be fair?

1 MR. MICHEL MORIN: That's correct.

2 MR. BYRON WILLIAMS: Dr. Swatek, I --  
3 I'm -- I'm -- I -- I assure you I -- I don't have that  
4 much more to do in Kinectrics, but it's such an  
5 interesting study, I -- I have a bit more. You'll  
6 forgive me?

7 DR. DAVID SWATEK: Okay. Yeah.  
8 That's...

9 MR. BYRON WILLIAMS: And if we can turn  
10 -- go to page 40 of 172 --

11 MS. MARILYN KAPITANY: Mr. Williams,  
12 can I just ask a question before we move from these  
13 charts?

14 MR. BYRON WILLIAMS: Yeah. And -- and  
15 I would invite the panel any time. So you see --  
16 you're the bosses. You don't need my permission.

17 MS. MARILYN KAPITANY: I just don't  
18 want to distract your -- your train there, but I'm  
19 curious about the -- the report that we're looking at  
20 and -- and the tables that were just up, Figure 7 and  
21 Figure 8, in particular, the wood pole issue.

22 And earlier in the hearing, you talked  
23 about -- not you specifically, but Hydro talked about,  
24 in the application, the elec -- rural electrification  
25 and the two hundred and fifty thousand (250,000) poles

1 that were installed between 1940 and 1960, and how  
2 they're aging and -- and need to be replaced.

3 I'm having trouble squaring that with  
4 the information here. And I understand that this is  
5 transmission and there's the distribution side as well.  
6 But could you just explain how these pieces fit  
7 together in terms of the asset management and the  
8 sustaining capital discussion that we had earlier in  
9 the week?

10 MR. MICHEL MORIN: That -- that's a  
11 good question. When we look at the transmission pole  
12 assets, they're generally made out of different  
13 materials, cedar poles installed, and they usually have  
14 a longer life cycle.

15 Your distribution poles, like I kind of  
16 mentioned before, is kind of like the Bic lighters.  
17 They're very inexpensive poles, but there's millions of  
18 them. And those poles -- the -- this graph doesn't  
19 illustrate what's happening to the distribution poles.

20 I -- I think we have roughly eight  
21 thousand (8,000) -- eighteen thousand (18,000)  
22 structures in the transmission side. We have over a  
23 million on the distribution side.

24 So we can flip to that chart, and it  
25 really explains the demographics of those poles, which

1 would kind of represent how many of these poles we have  
2 still in service today, which then ties to kind of the  
3 condition of how many are coming in service.

4 So -- so maybe we can reference that  
5 from the report, and then you can see by demographics  
6 of -- of how many are in each -- each group, which  
7 paints a picture of how many are working through their  
8 life cycle.

9 MS. MARILYN KAPITANY: That would be  
10 helpful.

11 MR. MICHEL MORIN: Sure. You -- you  
12 know what, it -- this would be a -- a -- there's a --  
13 can -- can -- to add insight, something was provided  
14 earlier in regards to a power stream. We'd mentioned  
15 that before. Can I put in a -- a document that  
16 references what was submitted on the power stream asset  
17 management report?

18 MR. BYRON WILLIAMS: So I -- I believe  
19 Mr. Morin's referring to my letter --

20 MR. MICHEL MORIN: Yeah.

21 MR. BYRON WILLIAMS: -- of April, which  
22 wasn't an evidentiary letter. I think we had a -- kind  
23 of a hot discussion about that, but we certainly, on  
24 behalf of our clients, do not object --

25 MR. MICHEL MORIN: To that?

1 MR. BYRON WILLIAMS: -- to sharing that  
2 information. It's more information to the Board.

3 I would say though, Mr. Morin, if --  
4 just with reference to your legal counsel, what I'd --  
5 I'd suggest -- perha -- perhaps if I might have a  
6 moment just to talk with your legal counsel?

7 MR. MICHEL MORIN: Sure --

8 MR. BYRON WILLIAMS: We won't object to  
9 this document --

10 MR. MICHEL MORIN: Okay.

11 MR. BYRON WILLIAMS: -- but just one  
12 (1) sec.

13 MR. MICHEL MORIN: Okay.

14 MR. BYRON WILLIAMS: Mr. Chair, might  
15 I have just a second?

16

17 (BRIEF PAUSE)

18

19 MR. BYRON WILLIAMS: Could -- could I -  
20 - and could I just -- I'm just going to urge -- we have  
21 no objection that's coming in. We just -- let's take a  
22 -- slow it down just a bit, because I... My  
23 understanding is we had made our budget letter, and we  
24 had in -- included reference to PowerStream, which  
25 wasn't part of the record.

1 I think this is something that Mr. Morin  
2 pulled out of our reference, and I commend him for  
3 that. And I believe I've discussed with My Learned  
4 Friend, we have no objection to this going in, but we -  
5 - we -- from our client's perspective, we think the  
6 whole document should go in. We'll file that  
7 subsequent to today.

8 So my suggestion is, let's have the  
9 whole document in that was...

10 MR. BRENT CZARNECKI: That -- that's  
11 agreeable to us. And just to -- to be clear, the  
12 document was -- the link to the document was marked as  
13 Exhibit Coalition 10-4, so it -- it is properly before  
14 the Board, I think, as an exhibit. And I think what  
15 you'll see is Mr. Monin (sic) has included that  
16 document and put his undertaking, if I'd call it, to  
17 paint the picture, the -- the existing Manitoba Hydro  
18 picture, so you have a direct comparison of it.

19 MR. BYRON WILLIAMS: It's the -- and as  
20 I said, we're happy to share this information. No,  
21 there's no undertaking. But my understanding is that  
22 we will -- I don't think that that document is in  
23 evidence. It was a procedural letter. So what I am  
24 suggesting is we -- we make available for the record.

25 THE CHAIRPERSON: Agreed.

1 MR. BRENT CZARNECKI: I -- I agree with  
2 that. And I guess with this recent document, I would  
3 need an exhibit number. And if I'm on track, would it  
4 be Manitoba Hvdro 37, Mr. Simonsen?

5 MR. KURT SIMONSEN: That's correct, Mr.  
6 Czarnecki.

7 MR. BRENT CZARNECKI: Thank you.

8 THE COURT REPORTER: If we're entering  
9 it as an exhibit, can we get a description of the  
10 document?

11 MR. BRENT CZARNECKI: Yes, certainly.  
12 The -- the title of the document, the Exhibit 37, is  
13 called, "Scope of PowerStream's Vegetation Management  
14 Program," and it is a three (3) page document.

15  
16 --- EXHIBIT NO. MH-37: Document entitled "Scope of  
17 PowerStream's Vegetation  
18 Management Program"

19

20 MR. MICHEL MORIN: Oh --

21 MR. BRENT CZARNECKI: And --

22 MR. MICHEL MORIN: -- there's two (2) -  
23 - there's two (2), actually. Sorry, there's wood pole  
24 and vegetation management, so.

25 MR. BRENT CZARNECKI: Thank you for the

1 clarification. So the Vegetation Management Program,  
2 could it be 37, Mr. Simonsen, and the wood pole be  
3 number 30 -- Manitoba Hvdro 38, please?

4

5 --- EXHIBIT NO. MH-38: Document entitled "Scope of  
6 PowerStream's Wood Pole  
7 Management Program"

8

9 MR. KURT SIMONSEN: Thank you.

10 MR. MICHEL MORIN: I -- I guess what --  
11 what I'd like to start with is if we brought up an  
12 example of a document of a -- an Ontario Energy Board  
13 jurisdictions PowerStream, fairly large utility, as  
14 well. It was a large -- it was a -- I think it was a  
15 seven hundred fifty (750) page filing document.

16 And we just took a quick view of some of  
17 the items within there. And just to kind of compare  
18 sort of where we are with our asset management -- or  
19 assets and health index. And -- and one (1) of them  
20 was their -- their -- a significant urban-type utility.  
21 And they have thirty-eight thousand (38,000) poles in  
22 their -- in their system.

23 So if we flip to the next page.  
24 Manitoba Hvdro has a million distribution poles. So  
25 it's the sheer context of size of poles that we

1 maintain. It's roughly about twenty (20) times greater  
2 than PowerStream, and so it just gives a picture of  
3 where we have, and -- and also sort of by life, you'd  
4 mentioned before and we'll touch on that later, of how  
5 many pole in each age and -- and where we sit in that  
6 volume.

7                   If you go to the next slide. And this  
8 is, just like I said, we just took a report that was  
9 filed recently and just did a high level look real  
10 quick. But if you look at their 2015 pole replacement  
11 budget, you know, understanding they're smaller in  
12 urban poles, they had about a \$4.6 million budget  
13 represented. On their whole population it would be  
14 just over a hundred dollars (\$100) a pole, like a  
15 hundred and twenty-two dollars (\$122) a pole that  
16 they're investing in their assets, in their wood pole  
17 assets.

18                   If we scroll a little bit, you can see  
19 there's a little bit missing at the bottom there. If  
20 this rate was applied to Manitoba Hydro's wood pole --  
21 pole population we'd need \$132 million per year to  
22 match that -- that cost of what they're investing in  
23 their rates through their -- you know, their -- their  
24 process in Ontario is a very rigorous process of how  
25 looking asset management strategies.

1                   So there's a significant difference in  
2 what they're investing. And -- and what really brings  
3 it to light is the next slide. So if we have a look at  
4 that, that's the demographics of poles. And -- and I  
5 think Mr. Williams was getting into age versus  
6 effective age. Well, their PowerStream is using age  
7 just like we are in the distribution side. So they're  
8 using their actual age of their assets. And -- and  
9 they roughly have -- most of their poles are thirty  
10 (30) years or newer.

11                   So if you see the graph, zero to ten  
12 (10), you know, eleven (11) to twenty (20), twenty (20)  
13 to thirty (30), and then they have some stragglers over  
14 in that area which represents about 24 percent,  
15 understanding they have a way less population, but  
16 about a 24 percent population of their assets are in  
17 that -- that age, over thirty (30) years of age. And  
18 they're afforded that a hundred and twenty-two dollars  
19 (\$122) per pole to maintain those poles.

20                   And if we flip to the next chart, which  
21 kind of ties into Ms. Kapitany's question. So if you  
22 look at Manitoba Hydro's population we have six hundred  
23 thousand (600,000) poles over the age of thirty (30).  
24 So to -- to look at how we've managed our assets,  
25 maintained our assets, we -- we kind of lose context of

1 -- of the good story here.

2           Manitoba Hydro has maintained its assets  
3 longer than most in Canada on a very good budget. You  
4 know what I mean, maintaining it while -- while not  
5 eroding our -- our reliability issues and we're just at  
6 the start of that and -- and talking about the  
7 prudence of being able to buy that many years out of  
8 that many assets is a benefit to the ratepayers.

9           So if we look at it, we have sixty (60)  
10 times the poles over -- over than age than they would  
11 and we would take -- you -- you know what I mean, like  
12 we're talking -- so if it was 132 million a year having  
13 poles that are just over thirty (30) years, what would  
14 we translate that to having six hundred thousand  
15 (600,000) poles over thirty (30) years old.

16           You know what I mean, so -- so you'd  
17 almost have to account for even a greater package where  
18 we're looking at it, that we're identifying our poles.  
19 We use age as a quantifier just to understand where our  
20 poles are in their life cycle, but we inspect every  
21 pole before its been changed. We physically go to that  
22 pole and touch it before anyone changes that pole over.

23           So it's worked for us because we've been  
24 able to kind of, you know, pinpoint where we're  
25 prioritizing our expenditures and we've been able to

1 limit it and -- and stretch that asset investment out  
2 way longer than most of our peers. And so it was just  
3 more of an example on -- on how we sit versus others  
4 and -- and they're -- you know, in Ontario they're a  
5 bit more advanced on their regulatory side on some of  
6 the filing stuff.

7                   But at the end of the day it goes back  
8 to what you're spending. You know what I mean, you can  
9 do a lot of process changes, but when you're driving  
10 down to the actual spend, it's considerably higher than  
11 what we're spending here in our -- in our jurisdiction  
12 and with probably as good or better reliability right  
13 now. But that time is coming -- you know, you want to  
14 know that time is coming. You can't keep wringing that  
15 life out of those poles.

16                   It's -- it's near the end and we need to  
17 start making changes. The next slide we have was on --  
18 because we touched on the vegetation side. And there  
19 again. And -- and there's a lot of variables in there.  
20 Now, this was just a high-level compare of them, urban  
21 poles versus rural.

22                   Like we can -- you know, I mean, it --  
23 it was just a very quick math on -- on -- just for  
24 context-wise. But by no means -- like, you know, you  
25 can shrink that down, but proportionately it's still

1 quite a bit bigger than that.

2                   So if we looked at the same thing, the  
3 wood poles, the reason we use it in vegetation, it  
4 usually kilometres of line that you'd have to maintain.  
5 So they would have thirty-eight (38) -- thirty-eight  
6 thousand (38,000) poles, which roughly would be about  
7 2,500 kilometres of line that they're maintaining. You  
8 know, that -- it's proportional to that.

9                   Like them, these are just estimates. If  
10 we flip to the next page... We have 72,000 kilometres  
11 of line that we maintain, which is, you know, there  
12 again, relative to the pole side. This is what we  
13 maintain throughout the province. And if -- we're  
14 going to the next slide if that's all right.

15

16   (BRIEF PAUSE)

17

18                   MR. MICHEL MORIN:    So -- so their  
19 budget for vegetation is -- is roughly I think in 2015,  
20 2 million. So the 2015 budget would be 2 million. You  
21 -- you'd basically save price per kilometre for  
22 vegetation management would be about eight hundred  
23 dollars (\$800). While if we -- if we had that same  
24 sort of budget it would roughly be \$58 million we'd  
25 need per year for vegetation management. We roughly

1 spend between six (6) and ten (10) right now.

2           You can see their growth. Like,  
3 everyone's trying, to -- as -- as Mr. Williams pointed  
4 out, pinpointing where your best investment is on your  
5 whole asset management and -- and how vegetation plays  
6 a role in that. By 2020 their budget moves up to  
7 eighteen hundred (1,800) per kilometre which represent  
8 133 million per year for veg -- you know, for  
9 vegetation.

10           So we have other things we use because  
11 of rule, you know what I mean? But there's going to be  
12 an acceptance on taking on some of that vegetation risk  
13 because to be able to have it to that level, the -- the  
14 cost to rates when -- when it's really impacting our  
15 system around that 20, 25 percent year after year. It  
16 fluctuates, but it hasn't skyrocketed where -- or  
17 equipment failures that's the one (1) when it starts to  
18 go it's going to have a significant impact on  
19 reliability and -- and frequency.

20           So it was just more to paint a picture  
21 of how other areas are spending. There's some  
22 comprehensive asset management plans in these -- in  
23 these areas. What identity, what does it drive to the  
24 spend, and it's understanding that spend and -- and  
25 where we are in that spend range as well. So I don't

1 know if that was helpful for talking about what we had  
2 in the distribution, how many we have coming in the  
3 distribution side if that -- if that answered your  
4 question, Ms. Kapitany.

5 MS. MARILYN KAPITANY: Yes, it did.  
6 Thank you. And, Mr. Williams, I apologize. You may  
7 have been getting to the distribution side. And I  
8 didn't want to take us off track, but I just wanted to  
9 ask about those charts before we moved on. So thank  
10 you for that.

11 MR. MICHEL MORIN: And -- and it is  
12 definitely a high level. We use -- in the rule we do  
13 different tools with -- you know, we'll use heavy  
14 equipment to clear in the rule which drives costs down  
15 which we -- we do quite a bit of so this was just for  
16 context.

17

18 CONTINUED BY MR. BYRON WILLIAMS:

19 MR. BYRON WILLIAMS: Thank you. And it  
20 was a helpful question. Just let me -- in terms of the  
21 expected age of the transmission poles, Dr. Swatek, you  
22 -- on the transmission side you have that it's seventy-  
23 five (75) years, agreed? Based upon Exhibit 36, page  
24 45? I'm referring you to your PowerPoint. She -- she  
25 tells at me a lot, too, so don't be hurt.

1 DR. DAVID SWATEK: Okav. Okav.

2 Thanks. I see this now. Okav.

3 MR. BYRON WILLIAMS: Your life  
4 expectancy you have for transmission wood poles is  
5 seventy-five (75) years?

6 DR. DAVID SWATEK: That's what we have  
7 there, yes.

8 MR. BYRON WILLIAMS: And, Mr. Morin,  
9 you'll -- you'll recall our discussion from this  
10 morning. I'm -- I'm sure I've refreshed your memory  
11 and your life expectancy for your distribution wood  
12 poles is also seventy-five (75) years?

13 MR. MICHEL MORIN: Yes.

14 MR. BYRON WILLIAMS: And in terms of  
15 the inspections that Manitoba Hydro does on the  
16 distribution side I would be correct -- oh, excuse me.

17 I -- I would suggest to you that you do  
18 roughly seventy thousand (70,000) a year, agreed?

19 MR. MICHEL MORIN: No. Basically,  
20 depending on the asset it -- there's a different policy  
21 for inspection frequency. So the overhead lines have a  
22 six (6) year inspection cycle where we physically stop  
23 at every pole. But for just due diligence purposes we  
24 do a drive by. You know, that's a more of a quicker  
25 assessment to make sure nothing is majorly obvious.

1 But every six (6) years we do a physical inspection to  
2 every pole.

3 Our under account equipment I think is  
4 on a three (3) year cycle -- or three (3) or six (6).  
5 I -- you know, I'd have to get the policy where we now  
6 go to each piece of equipment on a set parameter and  
7 enter that into our system now, our -- our maintenance  
8 system. So depending on the asset. But, yeah, there -  
9 - there's definitely a frequency, but it's -- it's --  
10 there's a change depending on the asset that you're --  
11 you're looking at.

12 MR. BYRON WILLIAMS: So that has  
13 changed since 2012 then, sir?

14 MR. MICHEL MORIN: Yes, since 2012. So  
15 part of that 2012 report. It was very, you know,  
16 opening to where assets were going and understanding  
17 the age of that. So since then we've ramped up our  
18 inspection program. One (1) of the recommendations  
19 that we had talked about earlier and Mr. Williams  
20 alluded to some of the recommendations. We jumped on  
21 those fairly quickly. We didn't have a very robust  
22 inspection program.

23 We've since implemented an electronic  
24 program and we -- you know, we had some areas that  
25 might have been 30 percent compliant, 80 percent

1 compliant. In the last two (2) years we've hit a  
2 hundred percent compliant on our inspections. So if it  
3 -- if it had a -- an inspection ratio over 98 percent  
4 compliance for that, an inspection ratio of -- of a six  
5 (6) year -- we one-sixth (1/6) of our system, and we  
6 have documented reports on -- on each area completing  
7 their inspections.

8                   So we've moved that forward considerably  
9 because part of that, as -- as Mr. Williams was  
10 alluding to, was inspections are a key part of asset  
11 management on the distribution system. So we've made a  
12 major change in -- in our frequency, our quality.

13                   We -- we've -- we've brought in staff  
14 for training. Where typically a lot of utilities,  
15 including us, used to send staff to go out and inspect  
16 line, you've worked on it for many years, you should be  
17 able to inspect it, we viewed that as a -- as an  
18 opportunity for an improvement.

19                   So now to -- to be able to be that  
20 employee that might have worked on the line for many  
21 years, you still had to come in for training to  
22 recalibrate everyone so that, when they're identifying  
23 problems, they were consistent throughout the province.  
24 So that's been a major undertaking.

25                   And then also the electronic component,

1 where it used to be done on paper, we've since improved  
2 our software where now we have the assets on a -- on a  
3 computerized -- like a tablet-type idea. And they can  
4 go in and enter the data, so we don't lose that data.  
5 It actually goes into a system and is viewed on a map,  
6 which we didn't have before.

7                   So quite a bit of stuff is coming  
8 together. And I think most utilities across Canada are  
9 moving towards that, so -- so it's making it a lot  
10 easier to manage millions of assets where before, on  
11 paper, that would have been a very big challenge. So  
12 there's some big improvements industry-wide on that  
13 aspect.

14                   MR. BYRON WILLIAMS:    Sir, in terms of  
15 the distribution wood poles, are you able now to do a  
16 wood pole structure age distribution?

17                   MR. MICHEL MORIN:    Pardon me? Can you  
18 repeat that question, sorry?

19                   MR. BYRON WILLIAMS:    Are you able to do  
20 a wood pole structure age distribution?

21                   MR. MICHEL MORIN:    I believe we've --  
22 we've barcoded our poles now, so we have in excess of a  
23 million poles. Our third-party contractor that comes  
24 in to do some ground line inspection and treatments  
25 actually tag the poles and pick up the age. I think

1 we're roughly around the seven hundred and fifty  
2 thousand (750,000) records now that match.

3                   So we have a million that are barcoded,  
4 and now this third-party group that does our  
5 inspections that knows wood products very well, they're  
6 the ones that tell us what type of pole, manufacture  
7 year. And I believe right around seven hundred and  
8 fifty thousand (750,000) records to date. It might be  
9 a little higher or a little lower, but we use those to  
10 extrapolate it on our complete asset base. So there  
11 would be some extrapolation on those numbers.

12                   MR. BYRON WILLIAMS: And is there a  
13 document like that that's prepared in terms of your  
14 wood pole structure age distribution?

15                   MR. MICHEL MORIN: Well, I think that  
16 reference in the report -- maybe I --

17                   MR. BYRON WILLIAMS: Those are just  
18 installation dates, sir.

19                   MR. MICHEL MORIN: So which -- what was  
20 the question you're asking then, sorry?

21                   MR. BYRON WILLIAMS: And we'll get back  
22 on track here, but just -- I was asking whether your --  
23 have a wood pole structure age distribution analysis  
24 for the distribution side?

25                   MR. MICHEL MORIN: I apologize. I

1 don't understand the structure age distributions. My  
2 apologies.

3

4

(BRIEF PAUSE)

5

6

MR. BYRON WILLIAMS: Sir, I -- I think  
7 from your 2012 report, we know when you put in the  
8 poles, agreed?

9

MR. MICHEL MORIN: Correct.

10

MR. BYRON WILLIAMS: Are we able to  
11 know the age of the poles that are still in place? So,  
12 for example, in the Kinectrics report at page 151 of  
13 172, they do an age distribution for the poles. And  
14 I'm asking you if, on the distribution side, you have  
15 that same analysis.

16

MR. MICHEL MORIN: I'm hoping I'm  
17 answering the question here, but I -- I think what I  
18 meant was, when we barcoded the poles, we physically  
19 identified a million poles. And then a contractor that  
20 does our inspections gathers more records and uses that  
21 same barcode, so now it's a unique identifier for that  
22 asset.

23

And he adds age, you know, manufacturer,  
24 those type, even the condition from the assessment. So  
25 we have seven hundred and fifty thousand (750,000)

1 records that would identify -- if you went to map and  
2 you clicked on that pole, which -- you'd be able to  
3 find the age.

4                   So we can -- we basically use that  
5 information. We're not going installation dates that  
6 we put in poles in the '30s and '40s. We're going by  
7 how many poles out there matches the records with that  
8 installation date to give us a -- a proportionate  
9 population of what we have in our system.

10                   I don't know if that -- so it's really  
11 actually from what we're finding and -- and putting  
12 them into our asset management system.

13                   MR. BYRON WILLIAMS:    Yeah. We'll --  
14 we're talking at cross-purposes. I apologize.

15                   MR. NICK READ:        Sorry, could I ask --  
16 are you asking equivalent age?

17                   MR. BYRON WILLIAMS:    And -- that's  
18 okay. We'll move on. Dr. Swatek, back to page 40 of  
19 172. And I had a bit of this discussion with Mr. Read.

20                   But to assist in prioritization, it's  
21 important to understand not just the probability of  
22 failure, but the consequences of failures as well,  
23 agreed?

24                   DR. DAVID SWATEK:     Yes, agreed.

25                   MR. BYRON WILLIAMS:    And the -- we've

1 already talked about the probability of failure being  
2 determined by an assets health index, correct?

3 DR. DAVID SWATEK: Yes.

4 MR. BYRON WILLIAMS: And there's also  
5 in the Kinectrics analysis an additional metric used to  
6 measure consequences of failure which is referred to as  
7 criticality, agreed?

8 DR. DAVID SWATEK: That is correct,  
9 yes.

10 MR. BYRON WILLIAMS: And what we see  
11 here on -- on this page is an illustration of some of  
12 the factors that -- that may be taken into account,  
13 such location, number of consequence -- customers, et  
14 cetera, agreed?

15 DR. DAVID SWATEK: Yes.

16 MR. BYRON WILLIAMS: And that's because  
17 you're trying, in terms of prioritization, to get your  
18 investment, not just where there's the highest risk of  
19 failure, but where there's the most significance in  
20 terms of consequences?

21 DR. DAVID SWATEK: Well, the  
22 significance of consequences is -- is what is  
23 incorporated into risk, yes. It's all about risk.

24 MR. BYRON WILLIAMS: Fair enough. Just  
25 a few more questions about the Kinectrics report. And

1 --

2 DR. DAVID SWATEK: Oh, but -- sorry,  
3 but what are -- are you asking do we -- do we use these  
4 or...? Because our -- our recommendations, the  
5 equipment that gets changed out is based on -- is based  
6 on risk, but it's the risk that we calculate by way of  
7 our long-term planning studies.

8 The other day, during the presentation,  
9 I talked about the 'N' minus one (1) cri -- criteria.  
10 The -- the information we get from the Kinectrics  
11 report helps us determine the -- the likelihood that a  
12 particular asset will -- that a particular asset will -  
13 - will fail in -- in service. But then that asset is  
14 just one (1) com -- component in a larger tran --  
15 transmission system simulation.

16 And we are looking at the impact of that  
17 failure on our ability to serve -- serve load. In  
18 fact, we do a probabilistic calculation now that we've  
19 just recently developed where we calculate the expected  
20 unserved energy associated with a particular  
21 transmission -- with a particular transmission  
22 improvement.

23 We -- we are looking at how a  
24 transmission project will improve the state of this  
25 expected unserved energy which essentially translates

1 to the number of homes without power.

2 So although the Kinectrics report has  
3 this table, they do show it as an exa -- they do --  
4 they do identifv this table as an example of some  
5 criticalities. But when it comes right -- right down  
6 to it, it goes into the long-term system planning  
7 studies, number of customers without power, and the  
8 end, the criticality, are we talking hospital or a  
9 subdivision.

10 MR. BYRON WILLIAMS: Okay. Thank you.  
11 Just to -- just to go to page 10 of 172.

12

13 (BRIEF PAUSE)

14

15 MR. BYRON WILLIAMS: In terms of the  
16 analysis that Kinectrics offers, it also provides an  
17 analysis of consideration of pacing of exte --  
18 expenditures.

19 Would that be fair?

20 DR. DAVID SWATEK: Yes.

21 MR. BYRON WILLIAMS: And what we see  
22 here is a comparison in red, looking at Figure 6  
23 between an optimized plan versus maximum deferral,  
24 being in green?

25 DR. DAVID SWATEK: Yes.

1 (BRIEF PAUSE)

2

3 MR. BYRON WILLIAMS: Just in terms of  
4 the -- Dr. Swatek, in terms of the recommendations,  
5 there's -- there's just one (1) in particular that --

6 DR. DAVID SWATEK: Okay.

7 MR. BYRON WILLIAMS: -- that was  
8 flagged that I do want to ask about. There was talk of  
9 multipurpose -- recommendation 12 from Kinectrics. It  
10 may be on page 17 of 172.

11 DR. DAVID SWATEK: Yes, I -- I do have  
12 it here.

13 MR. BYRON WILLIAMS: And there was talk  
14 of -- annually update the results, prioritize  
15 investments, and analyse the impact of what if.

16 DR. DAVID SWATEK: Yes.

17 MR. BYRON WILLIAMS: And can you just  
18 update me on where you are in terms of that, sir?

19 DR. DAVID SWATEK: Yes, I -- I had  
20 alluded to -- I had alluded to that earlier in -- in  
21 the discussion. We have currently engaged Copperleaf  
22 to -- to work with them to develop an appropriate  
23 methodology to inc -- incorporate the transmission  
24 assets and the risks associated with the failure of  
25 those assets into the Copperleaf program, which

1 provides an overall integrated asset and invest --  
2 investment planning process.

3 MR. BYRON WILLIAMS: Okay. Thank you.

4 DR. DAVID SWATEK: So we are currently  
5 working on that.

6 MR. BYRON WILLIAMS: Mr. Morin, in  
7 terms of evaluating the condition of distribution  
8 assets, would it be accurate to say that Manitoba Hydro  
9 does not currently use a stat -- statistical model for  
10 the evaluation of the condition of distribution assets?

11 And I base that on Coalition 101(d).

12

13 (BRIEF PAUSE)

14

15 MR. BYRON WILLIAMS: 101(d), sir.

16

17 (BRIEF PAUSE)

18

19 MR. MICHEL MORIN: That's correct.

20

21 (BRIEF PAUSE)

22

23 MR. BYRON WILLIAMS: Now, we've heard  
24 talk from Mr. Read, as well as Dr. Swatek, about  
25 Copperlife -- Copperleaf C55 system.

1                   And you've mentioned that you're --  
2 without asking you to elaborate too much quite yet,  
3 you've mentioned about using it to assist with  
4 distribution asset management in the future, agreed?

5                   MR. MICHEL MORIN:    We've already  
6 engaged Copperleaf on a substation, the larger, more  
7 expensive assets, so there's already work been done on  
8 that. And eventually on the rest of the distribution  
9 assets, yes.

10                  MR. BYRON WILLIAMS:   And so Copperleaf,  
11 as I understand it, is a software-driven model, agreed?

12                  MR. MICHEL MORIN:    Agreed.

13                  MR. BYRON WILLIAMS:   And just -- how,  
14 if at all, will the current asset health indexes for  
15 distribution assets be used by Copperleaf C55?

16                  MR. MICHEL MORIN:    Can -- can you  
17 repeat the question, please?

18                  MR. BYRON WILLIAMS:   How, if at all,  
19 will the current asset health indexes for distribution  
20 be incorporated into the Copperleaf C55?

21                  MR. MICHEL MORIN:    I -- I believe part  
22 of that engagement would be to understand what they  
23 could make use of in their modelling tool, but I -- I  
24 believe a lot of the -- what you do have and having an  
25 understanding of how many, how old, what -- what type

1 is going to be definitely entered into that system.

2 I believe PowerStream uses Copperleaf as  
3 well. And -- and on their poles, they -- they use age  
4 -- age in their -- in their description to their  
5 filing.

6 MR. BYRON WILLIAMS: Okay. Now, am I  
7 correct -- there -- there was a -- a response that  
8 puzzled us a little bit, the response to COALITION-I-  
9 101(a), suggesting that risk is not incorporated into  
10 distribution asset condition assessment.

11 I wonder if you can explain that, sir?

12

13 (BRIEF PAUSE)

14

15 MR. MICHEL MORIN: That's correct. In  
16 the distribution, the asset health evaluation doesn't  
17 take into account risk, but the capital decisions do.  
18 So in our -- because we have millions of assets, those  
19 assets are just rated on their health or -- or  
20 estimated life expectancy and health. But when it  
21 comes time to trigger an expenditure, then risk is  
22 taken into consideration.

23 MR. BYRON WILLIAMS: Okay.

24 MR. NICK READ: Could I add that that's  
25 the same for generation?

1 MR. BYRON WILLIAMS: Okay.

2 MR. NICK READ: That in generation, the  
3 condition assessment is done just on the condition of  
4 the asset. And then in the risk assessment, we  
5 determine the -- the string of assets that are running  
6 together. And when the -- what the probability is of  
7 the various assets in the string failing and what the  
8 marginal cost of the power is. And so we do the risk  
9 assessment later.

10 MR. BYRON WILLIAMS: Okay. Thank --  
11 and that's --

12 DR. DAVID SWATEK: That is a universal  
13 approach that -- that risk does not factor into  
14 determining the health of the asset. Risk comes in to  
15 determine the --

16 MR. BYRON WILLIAMS: Criticality.

17 DR. DAVID SWATEK: -- consequence. The  
18 criticality.

19 MR. BYRON WILLIAMS: The criticality.

20 DR. DAVID SWATEK: Yes. Okay.

21 MR. BYRON WILLIAMS: And, Mr. Read,  
22 just for you as well, risk comes in in the criticality  
23 analysis?

24 MR. NICK READ: We don't necessarily  
25 call it that. We just call it a risk analysis. We

1 actually do have a -- another -- a process where we  
2 actually look at the criticality of our various units  
3 and sort of rank them as to which generating units are  
4 the most critical. And so that's what we call our  
5 critic -- criticality list.

6 THE CHAIRPERSON: But C55, from what I  
7 can read here, is suggest -- in -- incor -- encompasses  
8 risk management, doesn't it?

9 MR. NICK READ: C55?

10 THE CHAIRPERSON: Yes.

11 MR. NICK READ: Absolutely.

12 MR. BYRON WILLIAMS: But not the --

13 MR. NICK READ: The other thing I'd  
14 like to add, even though distribution is not my area,  
15 so Michel may jump on me here. But the thing that  
16 doesn't come out so far in our story, I don't think, is  
17 that in generation, we can't afford to run our assets  
18 to failure, because the losses are so great. So we do  
19 all this condition assessment on these assets at -- at  
20 great cost. I think in -- in the distribution area,  
21 many of the assets are literally run to failure because  
22 of the redundancy.

23 MR. MICHEL MORIN: It -- it wouldn't be  
24 necessarily redundancy or just the overall consequence,  
25 you know, where we have an outage. We accept outages

1 to a certain point, you know what I mean? But then  
2 there's a threshold of customer expectations. But  
3 those first few outages there, you know what I mean?  
4 They're part of being an electrical system. But as  
5 they get more and more frequent, you escalate your risk  
6 of -- of your replacements, you know.

7 Or -- or other means, like, he brought  
8 up a good point -- or, sorry, Mr. Williams brought up a  
9 very good point of looking at an overall asset  
10 management strategy. When we have a very poor  
11 performing feeder, we don't necessarily just go  
12 changing the feeder. We cut some trees. We might look  
13 at protection in relay settings at trip lines. You  
14 know, depending on what they're exposed to.

15 We've even changed designs. Certainly,  
16 aspects of a -- a line might be a design issue, so  
17 we'll go back and redesign and just change that  
18 component. So you integrate the approach on the  
19 overall problem. It -- it's not just go put -- put new  
20 parts in it. It could be a relation of many things  
21 that contribute to that remediation of that -- that  
22 section of line.

23

24 CONTINUED BY MR. BYRON WILLIAMS:

25 MR. BYRON WILLIAMS: Okay. Mr. Read,

1 iust to -- I want to follow-up in the short time  
2 available before the -- before lunch. Hopefully, a  
3 short time available before lunch.

4                   You had a bit of a discussion yesterday  
5 with the Chairperson and Mr. Peters in terms of  
6 outages. And in essence, the message, in part, I took  
7 from it is that the significant drivers of outages are  
8 -- are stations, historically like Jenpeg and Pointe du  
9 Bois.               Is that right, sir? Let me put it a  
10 different way.

11                   MR. NICK READ:    I didn't quite  
12 understand it, so I hesitate in saying that.

13                   MR. BYRON WILLIAMS:    Would I be right  
14 in saying that generally, in recent years, Jenpeg and  
15 Pointe du Bois have been the top two (2) contributors  
16 for outages?

17                   MR. NICK READ:    That would be correct.

18                   MR. BYRON WILLIAMS:    And would it also  
19 be Manitoba Hvdro's current position that its larger  
20 units are still performing better than the CEA average?

21                   MR. NICK READ:    That would be correct.  
22 In fact, we submitted an IR showing that.

23                   MR. BOB PETERS:    Mr. Chair, I'm iust  
24 seeing if there's a couple of questions I can finish  
25 off with.

1 (BRIEF PAUSE)

2

3 MR. BYRON WILLIAMS: I wonder if -- I  
4 think it might be more efficient just to take a short  
5 break, the lunch break.

6 THE CHAIRPERSON: Okay. Looking at the  
7 clock, I'd suggest that we resume the proceedings at  
8 twenty (20) to 1:00. So have a good lunch, everyone.

9

10 --- Upon recessing at 11:55 a.m.

11 --- Upon resuming at 12:46 p.m.

12

13 THE CHAIRPERSON: I believe that we're  
14 ready to resume the proceedings. Mr. Williams,  
15 please...?

16 MR. BRENT CZARNECKI: I'm -- just --  
17 sorry, Mr. Williams. Just by way of housekeeping, Mr.  
18 Chairman, earlier this morning, we introduced Exhibits  
19 37 and 38. We also -- there was three (3) sets of  
20 documents, so we need an Exhibit number 39 for the  
21 document entitled, "Asset Base of PowerStream  
22 Underground Cable Population."

23 So we would have had the vegetation  
24 management, the poles, and the last one of that set was  
25 the underground cable population.

1 MR. BYRON WILLIAMS: No.

2

3 (BRIEF PAUSE)

4

5 MR. BRENT CZARNECKI: Yeah. And we did  
6 only talk about the wood poles and vegetation. We're  
7 not -- we -- we can put it on as an additional exhibit,  
8 and I would afford my friend, Mr. Williams, and others,  
9 an opportunity to question on that document. It -- it  
10 seems to go with that series, and I apologize for the  
11 confusion. I thought it was circulated initially.

12 MR. BYRON WILLIAMS: As always, Mr.  
13 Chair, just from -- we have no objection. It's --  
14 certainly on this issue, we're trying to under -- bring  
15 as much perspective as we can, so we have no objection  
16 with that proposed course of action.

17 MR. BRENT CZARNECKI: Thank you, Mr.  
18 Williams. So, Mr. Simonsen, that will be 39?

19 MR. KURT SIMONSEN: That's correct, Mr.  
20 Czarnecki. Thank you.

21

22 --- EXHIBIT NO. MH-39: Document entitled "Asset  
23 Base of PowerStream  
24 Underground Cable  
25 Population"

1 MR. BRENT CZARNECKI: And -- and, Mr.  
2 Chairman, just one (1) more issue. You had an  
3 exchanger question yesterday with Mr. Read about the  
4 generating stations, a couple in particular, and Mr.  
5 Williams had, right before lunch, asked a couple of  
6 questions. And Mr. Read would just like to clarify his  
7 answer so that you have a better understanding of -- of  
8 the issues. So if you would give a moment, we would  
9 appreciate it.

10 MR. NICK READ: Yes, thank you. We  
11 were talking about this, and we thought that maybe the  
12 impression was left that if we dealt with Pointe and --  
13 and Jenpeg, that our troubles were behind us with  
14 regard to aging assets, and I didn't want to leave that  
15 impression.

16 Pointe, as I said before, was going to  
17 be replaced in 2016, and -- and so we've gone on a  
18 change of direction there with regard to putting in new  
19 units. And then at Jenpeg, we have this problem with  
20 this shaft cracking that we are dealing with.

21 But -- but our other stations, if I can  
22 just refer to COALITION-II-49(a) to (d), the risk map?

23

24

(BRIEF PAUSE)

25

1 MR. NICK READ: So I mentioned earlier  
2 that we have projects in -- in the -- in the plan right  
3 now in CEF14, and those would be the ones in red. I  
4 said all the -- all the very highest risks in red are  
5 taken care of with projects. But also we've got  
6 projects for many of the situations developing in  
7 yellow there which is still a medium-high risk. And  
8 those -- those risks are all moving in the direction of  
9 the red.

10 And so we've got a comprehensive program  
11 under CEF14 dealing with many of our old assets at all  
12 our generating stations, not just Pointe and -- and  
13 Jenpeg. So I just wanted to make -- make that  
14 clarification, which I hope you find helpful.

15 THE CHAIRPERSON: I think it's a very  
16 important clarification. Now, looking at the yellow,  
17 which of these would get it as first, and on what  
18 basis, do you know? Is it the high likelihood ones  
19 that would get addressed, or would it be the high-risk  
20 -- high-consequences ones?

21 MR. NICK READ: You're -- you're  
22 looking at a risk map. So if they're in a particular  
23 box there, within that box, they're roughly in the same  
24 risk category. But I will admit that, even within a  
25 box, when we look at the actual risk score, some will

1 be higher than others.

2                   So I'd -- I'd have to actually look at  
3 the individual assets. And we have it -- we have the  
4 risks for each of these assets at the asset level.

5 Thank you.

6                   MR. BYRON WILLIAMS:    Mr. Chair, just --  
7 there's two (2) additional exhibits. One is called  
8 Exhib -- well, "Selected Results," Coalition Ex --  
9 Exhibit 18. It's one that we'll be using both this  
10 week just for a couple of questions, then more next --  
11 next week.

12

13 --- EXHIBIT NO. COALITION-18:        Document Entitled  
14    "Selected Results"

15

16                   MR. BYRON WILLIAMS:    And then there's  
17 also Exhibit 19, which is climate in the Lake Winnipeg  
18 watershed.

19

20 --- EXHIBIT NO. COALITION-19:        Document Entitled  
21    "Climate in the Lake  
22    Winnipeg Watershed"

23

24                   MR. BYRON WILLIAMS:    I've had a  
25 discussion with My Friend. There's one (1) more

1 document that we had hoped to introduce today. It is -  
2 - our friends at Manitoba Hydro identified some updated  
3 information to include in it.

4 I don't know if it will make its way  
5 over here this afternoon or -- or not. I think my  
6 understanding with My Friend is that we will still  
7 introduce it and certainly provide his -- his panel  
8 with an opportunity to comment on it.

9 I doubt that I would have any cross in -  
10 - in response, but I just reserve that -- that right.  
11 That's my understanding, and I see My Friend nodding  
12 his head.

13 MR. BRENT CZARNECKI: That's fine, Mr.  
14 Williams. Thank you.

15

16 CONTINUED BY MR. BYRON WILLIAMS:

17 MR. BYRON WILLIAMS: Mr. Rainkie and  
18 Ms. Bauerlein -- Bauerlein, we -- we've chatted in --  
19 in terms of -- largely in the discussion of asset  
20 management and -- and prioritization (sic) at -- along  
21 lines of businesses.

22 You'll agree -- Ms. Bauerlein, without  
23 asking for elaboration, there's been a fair bit of  
24 discussion on the 35:25:25 ratio between transmission  
25 distribution and generation, agreed? There's been

1 some?

2 MS. SANDY BAUERLEIN: I would agree  
3 there's been some, yes.

4 MR. BYRON WILLIAMS: Where -- and  
5 you'll excuse me for a lengthy preamble which is not  
6 that typical for me. But -- or maybe it is. Where our  
7 client is hoping to get some insight from you or Mr.  
8 Rainkie is in terms of the alternative analysis that  
9 goes into the tradeoffs between ma -- major generation  
10 and -- and transmission versus sustaining capital.

11 And again, just to -- how exactly does  
12 the executive committee assess operational risk factors  
13 versus capital borrowing and impact on rates, in -- in  
14 that context?

15 MR. DARREN RAINKIE: Sorry, Mr.  
16 Williams. Maybe you can just narrow that question  
17 down. I think there's many components to it. Can we  
18 take one (1) step at -- at a time?

19 MR. BYRON WILLIAMS: Mr. Rainkie,  
20 there's -- in the package of -- of expenditures for the  
21 Corporation, there's puts and takes with every choice  
22 you make, agreed?

23 MR. DARREN RAINKIE: Yes, I would agree  
24 with that.

25 MR. BYRON WILLIAMS: And presumably, in

1 its budget prioritization process, the Corporation has  
2 to make a call in terms of how much goes into the mix  
3 for major generation transmission versus how much goes  
4 into sustaining capital, agreed?

5 MR. DARREN RAINKIE: Agreed, Mr.  
6 Williams.

7 MR. BYRON WILLIAMS: And in making  
8 those determinations there has to be a consideration to  
9 a number of factors, including operational risk  
10 factors, capital boring, and impact on rates, agreed?

11 MR. DARREN RAINKIE: Yes, that's part  
12 of the balancing act I was chatting about on Monday.

13 MR. BYRON WILLIAMS: Well, it might be  
14 a balancing act, sir, but presumably when the  
15 Corporation at that executive level is making those  
16 deliberations, you're looking at a series of  
17 alternatives?

18 MR. DARREN RAINKIE: In fact, we looked  
19 at a series of alternatives last year in the NFAT as it  
20 relates to major generation trans -- trans -- major  
21 generation.

22 MR. BYRON WILLIAMS: In your setting  
23 your annual budget though, presumably, sir, would you -  
24 - would Manitoba Hydro not undertake alternative  
25 analysis in terms of how much goes into major GNT

1 versus how much goes into sustaining capital?

2 MR. DARREN RAINKIE: Yes, for instance,  
3 we -- to judge the level of our sustaining capital,  
4 from a financial perspective we look at our capital  
5 coverage ratio. The review of major generation and  
6 transmission projects would tend to be looking at the  
7 business case through the Power Resource Plan and those  
8 types of considerations.

9 I think we -- we had an IR that outlined  
10 some of this at some point in the material, Mr.  
11 Williams.

12 MR. BYRON WILLIAMS: Yes, and -- and  
13 what we're trying to get at, Mr. Rainkie, is whether  
14 you look at alternative spending scenarios where each  
15 scenario reflects an alternative level of capital  
16 spend, including rate impacts, and then based on the  
17 best allocation of these dollars, looks at the  
18 associated operational risk.

19 Does the Corporation undergo that type  
20 of exercise?

21 MR. DARREN RAINKIE: Well, Mr.  
22 Williams, I mean, in this context we have plans in  
23 place. I mean, the largest of the new generation and  
24 transmission projects, of course, are Keevask and  
25 Bipole III. We've gone through all the justification

1 and licensing of those. And so we have budgets that  
2 are in place on those in order to meet certain in  
3 service dates based on operational requirements.

4 And then on the sustaining capital we do  
5 look at various scenarios. We try to at the -- at the  
6 -- if you look at back to the pyramid that Ms.  
7 Bauerlein talked about in her presentation yesterday,  
8 we, at the investment level, look at our -- our level  
9 of capital coverage and our level of boring  
10 requirements and the effects on rates in terms of  
11 trying to figure out what the right level of spending  
12 is and the pace, as we've talked about at these  
13 proceedings.

14 MR. BYRON WILLIAMS: And, sir, what I'm  
15 asking is, in terms of those scenarios, are there  
16 explicit runs the Corporation undertakes and assesses  
17 against express criteria?

18

19 (BRIEF PAUSE)

20

21 MR. DARREN RAINKIE: Sorry, Mr.  
22 Williams, can you repeat that question? We just had a  
23 sidebar.

24 MR. BYRON WILLIAMS: I thought it was a  
25 good question, Mr. Rainkie. You recall mentioning that

1 the Corporation looks at different scenarios, agreed?

2 MR. DARREN RAINKIE: Yes, we run a  
3 number of different scenarios in -- in the preparation  
4 of an IFF.

5 MR. BYRON WILLIAMS: And presumably,  
6 you run those scenarios and test them against a set of  
7 concrete values or objectives, agreed?

8 MR. DARREN RAINKIE: Yes. Yes, I would  
9 agree with that.

10 MR. BYRON WILLIAMS: Are there examples  
11 of those scenarios you could provide by way of  
12 undertaking to illustrate the type of tradeoffs made?

13 MR. DARREN RAINKIE: Well, in Appendix  
14 -- I think it is 3.4 of the -- of the application, we  
15 do provide a number of scenarios in terms of different  
16 rate progressions and the financial outputs of those,  
17 Mr. Williams, so that would be one (1) example. I  
18 think it's Appendix 3.4 or 3.3, one or the other, of --  
19 of some of the tradeoffs that we're -- we've been  
20 talking about from the financial perspective.

21 MR. BYRON WILLIAMS: So that's your  
22 evidence? That's the only -- those would be the only  
23 scenarios you'd consider, sir?

24 MR. DARREN RAINKIE: Well, no. I  
25 think, as we -- we talked about back on day 1, we look

1 at -- and going back to Ms. Bauerlein's pyramid  
2 approach, we look at different levels of sustaining  
3 capital, try to understand the risks. And there's the  
4 intersection of the bottom-up processes, which we've  
5 been talking about all morning in terms of identifying  
6 projects with the greatest need. That, of course, the  
7 bottom-up process always has to intersect with the top-  
8 down process in terms of trying to have levels of  
9 borrowing and levels of capital expenditures that make  
10 financial sense over time.

11 MR. BYRON WILLIAMS: And, sir, just to  
12 -- with -- with -- perhaps at the risk of belabouring  
13 the point, in terms of the risks associated with  
14 different levels of sustaining capital expenditures,  
15 presumably some of those risks relate to issues such as  
16 reliability, safety, and consumer impacts, right?

17 MR. DARREN RAINKIE: Not just some, Mr.  
18 Williams. I mean, those are the primary tenants of a  
19 public utility, as you know.

20 MR. BYRON WILLIAMS: Are there any  
21 examples other than the one (1) that you've cited me  
22 from Appendix 3.4 that you'd be able to provide to give  
23 insight into the consequences of a different level or a  
24 different pace of sustaining capital expenditure?

25 MR. DARREN RAINKIE: Mr. Williams, may

1 -- I -- I will take that one (1) away, because we -- we  
2 do a lot of different runs and considerations in -- in  
3 the preparation of a -- of a financial forecast. It  
4 all isn't as nice and tidy as perhaps Appendix 3.4 is  
5 in terms of discrete runs that we presented in  
6 the application, but we do, do a lot of material.

7                   And let me take that away. And I can --  
8 I can bring some material back. There's also a lot of  
9 discussion, you know, between business units in terms  
10 of tradeoffs. Now, whether those are documented in  
11 reports or -- or discussions that were had and  
12 decisions made, that's just where I'm hesitating.

13                   MS. SANDY BAUERLEIN: I could just add  
14 to that. There is a lot of discussion understanding  
15 what the risks are of various levels of investment in  
16 sustaining capital. And each of the vice-presidents  
17 who's responsible for each one (1) of those major asset  
18 categories feels that they can manage the risk within  
19 the level that we have allotted.

20

21   (BRIEF PAUSE)

22

23                   MR. BYRON WILLIAMS: Ms. Bauerlein, the  
24 Corporation would never put its business unit leaders  
25 in a position where they felt they couldn't manage the

1 risk, would it?

2

3

(BRIEF PAUSE)

4

5

MS. SANDY BAUERLEIN: Correct. The Corporation would not -- decisions that they make ensure -- it's not that really the Corporation -- that the ratepayers -- the -- the Mani -- Man -- people of Manitoba, that the reliability that they expect to -- to have or -- is -- is what we can deliver on, balancing, again, that financial risk, the financial constraints.

13

MR. BYRON WILLIAMS: And -- and you would never present, as a Corporation, a CEF, being capital expenditure forecast, that, in your judgment, put the risk of the public in peril, would you?

17

MS. SANDY BAUERLEIN: Correct.

18

MR. BYRON WILLIAMS: So when you presented CEF13, that was it -- with confidence that that was the best balance for that particular time, agreed?

22

MS. SANDY BAUERLEIN: When we presented CEF13 or CEF14, at those points in time, that would be with the confidence and understanding at that point in

25

time. MR. BYRON WILLIAMS: And presumably,

1 that would have been the case with CEF12, as well?

2 MS. SANDY BAUERLEIN: With the  
3 information that we have available at that point in  
4 time, we make the best business decision, and the best  
5 decision for the ratepayers of Manitoba.

6 MR. BYRON WILLIAMS: Mr. Rainkie, I  
7 always worry when we have an understanding. I'm never  
8 quite sure what that means.

9 For -- what is our understanding, sir?

10 MR. DARREN RAINKIE: Sorry, sir, our  
11 understanding of what?

12 MR. BYRON WILLIAMS: You said you were  
13 going to go away and do something. What are you going  
14 to go away and do?

15 MR. DARREN RAINKIE: You're referring  
16 to the previous line of questioning?

17 MR. BYRON WILLIAMS: Yes.

18 MR. DARREN RAINKIE: I was going to go  
19 away and ruminate on the various discussions that have  
20 happened between executive committee members and  
21 controllers division on assessing different levels of  
22 sustaining capital expenditures, I think is what you  
23 were -- what you were after, and I was going to refresh  
24 my memory on what we have in terms of different  
25 analysis, or discussions, because I'm not sure that it

1 all is just as easy as a -- as a financial run, sir.

2 I mean, there's discussions that go on  
3 in the budgeting process, obviously, of a Corporation  
4 of our size.

5 MR. BYRON WILLIAMS: Okay. And so let  
6 me just be clear. What we would appreciate you to  
7 reflect upon is -- is both the -- the tradeoffs in  
8 terms of the -- the level of sustaining capital  
9 expenditures, and also tradeoffs in terms of the mix  
10 between the different business units.

11 And my understanding is that this is not  
12 an undertaking to provide information, but you will  
13 report back, and presumably if there's something you  
14 feel that's of utility, you will share it. And I'll  
15 rephrase that better, but is that where we are, sir?

16 MR. DARREN RAINKIE: That's very  
17 helpful, Mr. Williams, in terms of what the takeaway  
18 is, yes.

19 MR. BYRON WILLIAMS: And -- and for the  
20 reporter, my understanding is Mr. Rainkie is going to  
21 examine the records that -- that may reflect  
22 deliberations in terms of alternatives can -- canvassed  
23 with regard to sustaining capital expenditures, both in  
24 terms of their magnitude and their mix.

25 Is that satisfactory, Mr. Rainkie?

1 MR. DARREN RAINKIE: I didn't catch the  
2 very last part of that, Mr. Williams, but you had a  
3 good start 90 -- 90 percent of the way through, but --  
4 but I -- I -- it's clear. I'll -- I'll look at the  
5 transcript, and then I -- I understand what you're  
6 asking. And I think there is some valuable information  
7 we can provide the Board, so we'll look at that.

8

9 --- UNDERTAKING NO. 26: Manitoba Hydro to examine  
10 the records that may  
11 reflect deliberations in  
12 terms of alternatives  
13 canvassed with regard to  
14 sustaining capital  
15 expenditures, both in terms  
16 of their magnitude and  
17 their mix

18

19 THE CHAIRPERSON: Let -- let me try to  
20 address this topic in a different way. I guess the --  
21 the rate being applied for is underpinned by a certain  
22 level of sustaining expenditures -- sustaining capital  
23 expenditures. And -- and to the extent that the  
24 cashflow allows you to spend 570 million, as for the  
25 sake of argument, we're -- we're not limiting our

1 capital expenditures in order to keep ourselves  
2 underneath the cashflow levels that are allowed by the  
3 -- by the rate.

4 I -- I guess what I'm asking is that:  
5 Are you increasing your capital expenditures to get to  
6 that three point nine-five (3.95) rate application  
7 level, or are you prepared to spend more than that if  
8 you think you need to, to meet the experiences you have  
9 in the coming year?

10 I -- I -- like, I wouldn't want to -- as  
11 a Board member, I wouldn't want to say, you know, We're  
12 going to limit -- you -- you can only spend this amount  
13 of money without knowing that you're -- have the  
14 ability, if you think it's important enough, to spend  
15 more money than what we've been allocating to you in  
16 order to maintain the reliability of a system, and  
17 maintain the risk level at an appropriate level.

18 MR. DARREN RAINKIE: Yes, sir, that --  
19 that -- sorry if I left the wrong impression. That  
20 goes without saying. Our board and our management  
21 would never put at risk safe and reliable service.  
22 And, in fact, the executive committee meets every  
23 Tuesday, and we talk about the various risks and  
24 tradeoffs between the expenditures, you know, every  
25 time we meet, practically.

1                   So we are -- we -- we would never  
2 artificially hold the expenditures if there was a  
3 situation that was required to spend. I mean, that's  
4 one (1) of the reasons we want to maintain our  
5 financial health is to maintain our ability to borrow  
6 money if tough circumstances present themselves that  
7 weren't anticipated.

8                   So, you know, at the same time, I think  
9 there would be the expectation of the Board and  
10 ratepayers and all of our stakeholders that we live  
11 within our means just like a family does in terms of  
12 setting some budget limits and trying to, you know,  
13 trying to work within those, so.

14                   But certainly, the mandate of Manitoba  
15 Hydro is for safe, reliable, and economical service.  
16 And I think there's a reason that the economical  
17 service is at the end of that -- that line. And it  
18 means that if you don't have a reliable, safe service,  
19 it doesn't really matter what the cost is.

20

21   (BRIEF PAUSE)

22

23 CONTINUED BY MR. BYRON WILLIAMS:

24                   MR. BYRON WILLIAMS: Thank you. And,  
25 Mr. Rainkie, I appreciate you going back and reflecting

1 on that. It's much appreciated.

2 Mr. Cormie, it's been a long time since  
3 we've sat down together. Welcome back.

4 MR. DAVID CORMIE: Thank you, Mr.  
5 Williams.

6 MR. BYRON WILLIAMS: Mr. Cormie, a -- a  
7 couple days ago, you had a conversation with Board  
8 member Grant about recent water patterns and whether at  
9 a certain point in time, there might be a need to  
10 adjust the forecast.

11 Do you recall that discussion, sir?

12 MR. DAVID CORMIE: I -- I do, yes.

13 MR. BYRON WILLIAMS: And I'm hoping to  
14 get your commentary about a -- well, to back up, Mr.  
15 Cormie, I'm not going to obsess about the Lake Winnipeg  
16 hearing, but you were there? You spent much of your  
17 time at that hearing, sir?

18 MR. DAVID CORMIE: I did, yes.

19 MR. BYRON WILLIAMS: And there was some  
20 considerable discussion, at least for Manitoba Hydro  
21 and witnesses retained by the Clean Environment  
22 Commission, in terms of the water level pattern.

23 You'll recall that, without asking you  
24 to elaborate?

25 MR. DAVID CORMIE: I do, and there was

1 the concern that under a scenario where inflows would  
2 increase over time because of climate change, it would  
3 make it more difficult to regulate the lake within the  
4 licence parameters that we have.

5 MR. BYRON WILLIAMS: And just -- I --  
6 I'd like to refer you to Coalition Exhibit 19, the  
7 executive summary. And -- and first of all, I want to  
8 just ask you if you are familiar with this piece of  
9 evidence provided by Dr. McCullough, who testified as a  
10 witness bef -- retained by the Clean Environment  
11 Commission?

12 MR. DAVID CORMIE: Yes, I'm familiar  
13 with this report.

14 MR. BYRON WILLIAMS: And, Mr. Cormie,  
15 I'll give you -- just to perhaps assist those who are  
16 less familiar with it, what I'm going to do is just  
17 present to you some statements from this document.  
18 I'll just ask you to confirm that I've kind of fairly  
19 represented them and then give you a -- a chance to  
20 comment at the end, if that's satisfactory with you,  
21 sir?

22 MR. DAVID CORMIE: Yes, it is.

23 MR. BYRON WILLIAMS: What we see in the  
24 -- the second paragraph is just a reference to the --  
25 the scientific literature and -- and precipitation

1 increasing in the watersheds of the Winnipeg and Red  
2 Rivers, but with no significant trend being identified  
3 in the precipitation record for the Saskatchewan  
4 watershed.

5 So you see that, sir?

6 MR. DAVID CORMIE: Yes, I do.

7 MR. BYRON WILLIAMS: And you also see a  
8 suggestion that annual discharge of the Winnipeg and  
9 Red Rivers has also increased significantly with the  
10 discharge of the Saskatchewan River decreasing  
11 partially due to increased consumptive use in the -- in  
12 that particular watershed, agreed?

13 MR. DAVID CORMIE: That's what --  
14 what's what it says, yes.

15 MR. BYRON WILLIAMS: Yes. And I'm --  
16 I'm not asking you to agree with the -- the var --  
17 veracity of this -- the -- the conclusions, merely that  
18 I'm presenting them. In addition to precipitation, we  
19 see in the next paragraph a -- a suggestion, going to  
20 the fourth-last line, that higher precipitation will  
21 produce higher runoff in spite of higher  
22 evapotranspiration.

23 Do you see that, sir?

24 MR. DAVID CORMIE: Yes, I see that.  
25 Yeah.

1 MR. BYRON WILLIAMS: Okay. And if we  
2 could just scroll down the page a bit, Diana? You see  
3 at the start of the second last paragraph on -- on this  
4 page, the suggestion that the peak decadal -- decadal,  
5 I don't know how to say it, mean inflow is currently  
6 about 50 percent higher than the peak in another  
7 relatively wet period at the beginning of the 20th  
8 century.

9 Do you see that, sir?

10 MR. DAVID CORMIE: Yeah. Yes, I see  
11 that, yes.

12 MR. BYRON WILLIAMS: Okay. Of course,  
13 there's a -- a recognition that the -- it's unlikely  
14 that the 21st century will see a continuous progression  
15 of increasing runoff, because there does tend to be a -  
16 - a wet-dry cycle evident, agreed?

17 MR. DAVID CORMIE: Yes, I see that,  
18 yes.

19 MR. BYRON WILLIAMS: Okay. If I could  
20 just direct your attention finally to the -- the last -  
21 - the next page and the -- the last paragraph in the  
22 executive summary. And, sir, you'll see a -- a  
23 reference that both precipitation and tributary  
24 discharge are at or nearing century-long peaks in the  
25 southeastern watershed of Lake Winnipeg, as is the

1 total tributary inflow to the lake.

2 You see that reference?

3 MR. DAVID CORMIE: Yes, I do.

4 MR. BYRON WILLIAMS: And also a  
5 suggestion that, historically, each succeeding wet  
6 period has gener -- generated higher D-E-C-A-D-A-L mean  
7 total inflow into the river -- Winni -- Lake Winnipeg.

8 You see that?

9 MR. DAVID CORMIE: Yes, I do.

10 MR. BYRON WILLIAMS: Of course, a  
11 suggestion that the watershed may return to drier  
12 conditions, lower inflow, if it's succeeded by a dry  
13 spend -- spell.

14 But finally, that both historical and  
15 predicted climate trends suggest that future wet  
16 periods will produce more runoff than previous ones,  
17 and suggesting increasing inflow will -- will make --  
18 raise challenges on Lake Winnipeg.

19 And, sir, I'm -- I'm less interested in  
20 this hearing about the challenges of Lake Winnipeg at  
21 seven fifteen (715). I'm more interested in Hydro's  
22 perspective of the idea that there is a -- that future  
23 wet periods will produce more runoffs than -- than  
24 previous ones, and I'd certainly just appreciate your  
25 comments on that.

1 MR. DAVID CORMIE: Yes. Our -- our  
2 views on -- on this report, generally we concur with  
3 the high-level conclusions of the -- of the report.  
4 And -- and those are consistent with our climate change  
5 studies that we've done that -- that indicate over the  
6 long run, there would be a -- a slight increase in  
7 average inflow into the system.

8 We do have some issues with -- regarding  
9 the -- the science behind that and -- and the spe --  
10 specific details that he's laid out in his report. But  
11 generally, we -- our -- our work in climate change has  
12 indicated that the -- that the average inflow will --  
13 will slowly increase over time.

14 It's very difficult to see, though, in  
15 the historic record, that occurring, because there's  
16 such a great amount of natural variability.

17 And I -- I think to help the panel look  
18 -- if we could turn to Tab 9, page 18, we'll show you  
19 the -- the pattern of inflows here on this chart that --  
20 -- that we've seen in the past. And if we could have  
21 that brought up?

22 This is the -- the water supply,  
23 historical water supply, to -- to the Manitoba Hydro  
24 system. And Lake Winnipeg makes up a large portion of  
25 this inflow. And you can see from this chart there's

1 these long periods of high flows like we're in now.

2                   And you can see in the last eleven (11)  
3 years, how the blue bars are above the -- above the  
4 average line, the 100 percent line. And so we're in  
5 this wet period. And then if you go back for the  
6 previous twenty (20) years, you can see that generally,  
7 the average, it was -- it -- the flows are below that.

8                   And then you get in the period of '60s  
9 and '70s. There's a -- a long period of wet, and then  
10 -- and in the '50s, there's a period of -- of wet. And  
11 then in the '30 -- the '20s and the '30s and the '40s  
12 period.

13                   So you have these long periods of high  
14 flows and long periods of low flows, and there's a  
15 large amount of variability from as -- as much about --  
16 it goes from as -- in the low -- in the low year, about  
17 40, 45 percent of the average to the flood of 2005,  
18 where it was about 160 percent of average. So there's  
19 a -- a lot of variability.

20                   And in that, the question is: Is the  
21 average changing over time? And -- and Mr. McCullough,  
22 in his report, suggests that -- that that kind of  
23 variability that we will see in the future will  
24 continue. There will be high periods and low periods.

25                   And -- and I think he's suggesting, in

1 the high-water periods, there's going to be more won --  
2 more runoff, because agricultural lands have been  
3 developed, so there's -- more water will run off than  
4 occurred in the past because of agriculture development  
5 and drainage has -- is -- is making more water  
6 available to run -- run off in -- into the system.

7           But given this variability, it's -- it's  
8 really hard to see the effects of climate change in the  
9 past. And we probably won't be able to see the effects  
10 of climate change into the future until after. You  
11 know, we get to 2050, we can look back, and we might be  
12 able to see it.

13           But given the large amount of  
14 variability that exists in -- in the record, and -- and  
15 that kind of variability will still be there in the  
16 future, it'll be hard to see the effects of climate  
17 change. And there -- there's such a small percent  
18 relative to the hundred percent variation that we  
19 already see.

20           MR. BYRON WILLIAMS:    Mr. Cormie, when  
21 you said, "When we get to 2050 and" -- "and look back,"  
22 were you referring to you and I both making it to 20 --

23           MR. DAVID CORMIE:    Absolutely.

24           MR. BYRON WILLIAMS:    You are -- you are  
25 an optimist, sir. And just one (1) last question. I

1 thank you for this. You talked about the impacts of  
2 climate change being difficult to recognize. But you  
3 also -- correct, you -- you mentioned that?

4 But you also referenced the increasing  
5 drainage from the -- from agricultural land and -- is  
6 that correct, sir?

7 MR. DAVID CORMIE: Yes, especially in  
8 the Red River Valley. If you look back to a hundred  
9 years ago and how much of the drainage basin at that  
10 time was undrained and still forested and look at it  
11 today, there's been a huge change in land use, and  
12 that's causing increased runoff.

13 MR. BYRON WILLIAMS: So just going to  
14 levels going -- or inflow into Lake Winnipeg, while in  
15 isolation climate change may be imperceptible, do you  
16 have any observations in terms of the combined effects  
17 of those, sir?

18 MR. DAVID CORMIE: Well, I think -- I  
19 think the combined effects is reflected in our climate  
20 change studies where we've -- we've looked at these  
21 factors. And we've -- as -- as we did in NFAT, we  
22 commented on that -- that we expect that there will be  
23 a slow increase in -- in the water supply. And -- and  
24 we -- we have some understanding what that will be, but  
25 that will evolve over time.

1 MR. BYRON WILLIAMS: Okay, I have some  
2 more questions for Mr. Cormie on a different subject.  
3 But, Mr. Miles, you look -- are you just being patient  
4 or were you anxious to get in on -- on something here?

5 MR. TERRY MILES: I'm just being  
6 patient --

7 MR. BYRON WILLIAMS: Okay.

8 MR. TERRY MILES: -- Mr. Williams. I'm  
9 seeing where you're going, and I'm being very patient.

10 MR. BYRON WILLIAMS: Well, don't be  
11 that confident that I'm going anywhere, sir, this --  
12 this afternoon.

13 MR. TERRY MILES: I won't comment on  
14 that.

15 MR. DAVID CORMIE: I guess the other  
16 point, and I raised it the other day when I talked  
17 about high water years, because we have limited  
18 generating capacity, it doesn't matter how high the  
19 water goes, we just have to open the spillways; it  
20 doesn't result in any more generation.

21 It's what -- what we're most concerned  
22 about is -- is droughts and the frequency of droughts.  
23 And Mr. McCullough, in his report, says you can  
24 continue to expect droughts in the future in spite of  
25 climate change, and -- and that's where we want to

1 focus on. High water years, they -- they're very  
2 unfortunate for the people who are affected by the  
3 flooding, but it really do -- has very little impact on  
4 -- on Manitoba Hydro's operations. It's the droughts  
5 that we're concerned about.

6 And that -- that would be our area of  
7 interest.

8 MR. BYRON WILLIAMS: Okay. Mr. Cormie,  
9 you had an extensive and interesting conversation with  
10 Mr. Peters over the last -- I guess two (2) days ago in  
11 terms of export prices.

12 You recall that conversation?

13 MR. DAVID CORMIE: Yes.

14 MR. BYRON WILLIAMS: And I don't want  
15 to trench too much on his territory, but there are a  
16 few questions that I -- I do wish to just walk through  
17 with -- with you. And I wonder if I could, first of  
18 all, ask you to turn to Coalition Exhibit 18, page 5,  
19 in the top right-hand corner. And do you have that,  
20 Mr. -- just one (1) second.

21

22 (BRIEF PAUSE)

23

24 MR. DAVID CORMIE: Yes, I see that on  
25 the screen.

1 MR. BYRON WILLIAMS: Yeah. And, Mr.  
2 Cormie, the 2013 GRA seems a long time ago now, doesn't  
3 it?

4 MR. DAVID CORMIE: It does, yes.

5 MR. BYRON WILLIAMS: You'll recall that  
6 Manitoba Hydro 11-2 was the foundation for the initial  
7 application for the -- the rate application that  
8 proceeding -- or you'll accept that subject to check?

9 MR. DAVID CORMIE: I accept that.

10 MR. BYRON WILLIAMS: And I'll suggest  
11 to you what's presented here is just a comparison of  
12 the -- the forecast in -- in 11-2 to the actual results  
13 in both 2012/'13 and 2013/'14.

14 Do you see that, sir?

15 MR. DAVID CORMIE: Yes, I -- I see  
16 that. Maybe you can help me, Mr. Williams, 11-2 was  
17 prepared when?

18 MR. BYRON WILLIAMS: Mr. Cormie, you'll  
19 have to -- I -- I know that it was filed in support of  
20 a rate application in June of 2012, but I don't know  
21 when it was prepared, sir.

22 MR. DAVID CORMIE: That was probably  
23 prepared in the fall of 2000 -- in 2011.

24 MR. BYRON WILLIAMS: Yeah. I'll --

25 MR. DAVID CORMIE: Okay.

1 MR. BYRON WILLIAMS: And, sir, iust --  
2 iust in terms of the -- this base forecast from the  
3 last general rate application, we -- we see first of  
4 all in terms of the export volume that it was  
5 significantly higher actually than in the forecast.

6 Would that be fair?

7 MR. DAVID CORMIE: That's correct, ves.

8 MR. BYRON WILLIAMS: And focussing on  
9 the 2012/'13 year, the average unit revenue was a bit  
10 smaller actually than -- than forecast. Would that be  
11 correct, for the 2012/'13 year?

12 MR. DAVID CORMIE: That's what the  
13 chart shows, ves.

14 MR. BYRON WILLIAMS: Yes. It's -- it's  
15 when we get out to 2013/'14 that we see a more  
16 significant gap between the 42.54 -- forecast for the  
17 purposes of the general rate application, and the  
18 actual of 36.71.

19 Would that be fair?

20 MR. DAVID CORMIE: Yes. I see that,  
21 ves.

22 MR. BYRON WILLIAMS: Mr. Cormie, if you  
23 could turn to page 11 of the same document...

24 MR. DAVID CORMIE: Mr. Williams, sorry,  
25 iust -- iust for context, remind the witness panel MH-

1 11-2 was the basis of the initial Rate Application, but  
2 we did file MH-12 right before the public hearing that  
3 resulted in the last general rate application Order  
4 43/'13.

5                   So -- so there was -- just for context  
6 of the Board there was an update of forecast and  
7 results right before the hearing that largely formed  
8 the discussion at the hearing. I remember us filing  
9 numerous exhibits right before the hearing refreshing  
10 all the -- a number of key IRs, and -- and schedules.

11                   So just -- just for the understanding  
12 that -- I wouldn't want to leave it on the record that  
13 11-2 was -- was all that was provided to the Board in  
14 that -- in that proceeding because certainly my  
15 recollection is that IFF12 or MH-12 was a big part of  
16 the discussion at the actual public hearing that  
17 resulted in the decision.

18                   MR. BYRON WILLIAMS: Mr. Rainkie, can  
19 we agree that MH-12 was -- was filed? We'll -- so  
20 certainly we'll agree with you on that. You'll --  
21 you'll agree with me that MH-11-2 was the foundation of  
22 the initial application, and also the focus of a  
23 substantial discussion in the course of the hearing.

24                   MR. DARREN RAINKIE: It was, but I -- I  
25 would suggest that maybe we'll disagree on this part,

1 Mr. -- Mr. Williams, because the fact that MH-12 was  
2 filed right before the hearing is a fact. I don't  
3 think it's --

4 MR. BYRON WILLIAMS: Yeah. I think we  
5 both agree on that, sir.

6 MR. DARREN RAINKIE: -- it's -- we can  
7 prove that if we have to, but I don't think we need to  
8 --

9 MR. BYRON WILLIAMS: No.

10 MR. DARREN RAINKIE: -- but my  
11 recollection is we were asked to update a significant  
12 amount of material right before the hearing based on  
13 Manitoba Hvdro IFF12, or MH-12, and that a substantial  
14 portion of the discussion at the hearing was based on  
15 the new forecast as opposed to the old. That's my  
16 recollection.

17 MR. BYRON WILLIAMS: And again -- and  
18 then I'll get back to you, Mr. Cormie -- but the  
19 judgment that Manitoba Hvdro made in terms of filing  
20 and seeking the rate increase was based on MH-11-2,  
21 sir.

22 MR. DARREN RAINKIE: Yes, it was, and I  
23 would assume that the judgment that the Public  
24 Utilities Board made in terms of allowing the rate  
25 increase was based on the -- the '12 forecast. So --

1 so I think you need both components to have an  
2 understanding of how you get to Order 43/'13.

3 MR. BYRON WILLIAMS: Mr. Cormie, just  
4 if we look at -- and you've got -- you've had a chance  
5 to peek at -- at page 11 of Coalition Exhibit 18. And  
6 what this does, sir, I'll suggest to you, is compare  
7 the -- the forecast from MH-11-2 running from the years  
8 '14/'15 out to '16/'17 with the forecast of MH-14 for  
9 that same time period.

10 Do -- would you accept that, sir?

11 MR. DAVID CORMIE: Yes, that's what  
12 this chart compares.

13 MR. BYRON WILLIAMS: And -- and, sir,  
14 if we look at the -- the middle -- or the -- the second  
15 line in terms of export revenues, you'll agree that, in  
16 terms of the -- the comparative forecasts, there's been  
17 a small deterioration from MH-14 as compared to MH-11-  
18 2?

19 Would that be fair?

20 MR. DAVID CORMIE: In terms of Canadian  
21 export revenue? Yes.

22 MR. BYRON WILLIAMS: When we look to  
23 the export unit revenue, you'll -- you'll agree that  
24 the MH-14 cumulative export unit revenue of forty-five  
25 point zero-nine (45.09) cents per megawatt -- megawatt

1 hour is -- is substantially lower than the export unit  
2 revenue from -- forecast in MH-11-2, sir?

3 MR. DAVID CORMIE: Yes, it's about  
4 fifteen dollars (\$15) a megawatt hour on average.

5 MR. BYRON WILLIAMS: Okay. And, Mr.  
6 Cormie, I -- just if I could ask Diana to pull up  
7 Coalition First Round to Hydro 71 for just a moment,  
8 please.

9

10 (BRIEF PAUSE)

11

12 MR. BYRON WILLIAMS: And, Mr. Cormie,  
13 again, you did go through similar information with Mr.  
14 Peters, but I just want to go back to this for a second  
15 -- or go to this for the first time.

16 What this response is comparing are the  
17 results for dependable on-peak sales versus opportunity  
18 on-peak sales for the time period between '05/'06  
19 through 2014/'15.

20 Is that right, sir?

21 MR. DAVID CORMIE: Yes, that's correct.

22 MR. BYRON WILLIAMS: And so if we focus  
23 on the average price on the -- the left-hand side of  
24 the -- the table on dependable on-peak sales, if we  
25 were to compare '05/'06 to 2014/'15, it'd be fair to

1 suggest that there's been the -- the average price  
2 projected for '14/'15 is getting back up there in terms  
3 of its -- the earlier prices, sir?

4 MR. DAVID CORMIE: Yes. And I'd  
5 caution, Mr. Williams, that most of the variation  
6 you'll see in this table is as -- as a result of  
7 exchange rates. And so even though this implies a  
8 lower amount at some time -- in some years in US  
9 revenue, we also have lower than US expense revenue.

10 So the -- the effect on Manitoba Hydro  
11 of this type of variation in the export price on the  
12 dependable sales is -- doesn't make any difference to  
13 Manitoba.

14 MR. BYRON WILLIAMS: Yeah, and I have  
15 your point on the dependable side. The -- the more  
16 spectacular or perhaps more depressing results, sir,  
17 are on the on-peak side?

18 MR. DAVID CORMIE: It even applies on  
19 the -- it even applies on the on-peak because in our  
20 hedging program we do recognize that -- that most of  
21 our opportunity revenues will be in the -- in US  
22 dollars, and -- and they influence the amount of hedge  
23 that we have.

24 MR. BYRON WILLIAMS: That being said,  
25 sir, that -- when we look at the deterioration in the

1 opti -- on-peak sales from seventy-two point seven-  
2 three (72.73) on '05/'06 to thirty-three point three-  
3 three (33.33) in '14/'15, you're not suggesting that  
4 the hedge is the primary explanation for that?

5 MR. DAVID CORMIE: No, it isn't. It's  
6 not -- that's not -- that's not the primary factor.

7 MR. BYRON WILLIAMS: And just one (1)  
8 more visual. If I could turn you COALITION-II-23(a)  
9 and, Diana, the page 3 of 3, please. Mr. Cormie,  
10 that's Coalition MH-II-23(a). And I don't know how  
11 your eyesight is lately, sir. I have one (1) paper one  
12 if -- you can see it all right? Because I'm struggling  
13 right now.

14 And -- and, sir, what -- what this  
15 attempts to portray, I'll suggest to you, is the change  
16 in extraprovincial revenue forecast in IFF11-2 versus  
17 IFF14 for the time period from 2015 out to 2031.

18 Would that be fair, sir?

19 MR. DAVID CORMIE: Yes, that's what the  
20 chart shows.

21 MR. BYRON WILLIAMS: And total variance  
22 is captured in the, whether we call it grey or brown.

23 Is that correct, sir?

24 MR. DAVID CORMIE: Yes, the -- the --

25 MR. BYRON WILLIAMS: The shaded area?

1 MR. DAVID CORMIE: The large area of  
2 arev starts around 2026 because of Conawapa --

3 MR. BYRON WILLIAMS: Conawapa.

4 MR. DAVID CORMIE: -- not coming into  
5 service.

6 MR. BYRON WILLIAMS: And, sir, just to  
7 -- in terms of the starting closer to where we are  
8 today, if -- when I look at the 2015 year, would I  
9 interpret that as suggesting in that particular year  
10 the variance is -- is in favour of IFF14, like the  
11 results are a bit better?

12 MR. DAVID CORMIE: Yes, and again, what  
13 -- what the problem is in -- in comparing IFF11 to '14  
14 for 2015, you know, IFF11 2015, it was the average of  
15 all flow conditions. So you take the -- get average  
16 revenue and the average expense. So it reflects some  
17 droughts, some floods, and some in-between years.

18 Whereas in IFF14, 2015 was reflected in  
19 -- in current conditions in storage. And it -- it's --  
20 there's -- there -- you're kind of comparing apples and  
21 oranges when you compare those --

22 MR. BYRON WILLIAMS: Fair enough.

23 MR. DAVID CORMIE: -- two (2) forecasts  
24 for, you know, actual conditions against our -- our  
25 method that -- that says we need to capture the cost of

1 drought over the long run, and we do that by using the  
2 average.

3 MR. BYRON WILLIAMS: Out to about when,  
4 sir, 2017?

5 MR. DAVID CORMIE: Well, in any IFF the  
6 first sub --

7 MR. BYRON WILLIAMS: Yeah.

8 MR. DAVID CORMIE: -- first -- first  
9 two (2) years --

10 MR. BYRON WILLIAMS: First two (2)  
11 years, exactly.

12 MR. DAVID CORMIE: -- reflect current  
13 conditions. And after that Mr. Miles carries on with  
14 the analysis of the hundred and two (102) flow cases in  
15 order to get the average rev -- debt revenue.

16 MR. BYRON WILLIAMS: And again, what --  
17 leaving aside the Conawapa store at 2025, this suggests  
18 on the positive side for Manitoba Hydro higher volumes  
19 out -- based upon IFF14, but significantly lower price  
20 expectations.

21 Do I have that right, sir?

22 MR. DAVID CORMIE: Yes, and I think we  
23 went through an exhibit yesterday that showed how our  
24 long-term price forecast was deteriorating over time.  
25 And -- and so fundamentally, for the same volumes of

1 energy we were -- we were going to generate less  
2 revenue.

3                   And I -- I remember, Mr. Williams, when  
4 we were in -- in the midst of drought ten (10) years  
5 ago in rate hearings we would always that -- that we  
6 would like to believe that it's going to return to  
7 average because we were losing a lot of money in -- in  
8 low water years. And the forecast would look  
9 optimistic. It was -- and -- and so you have to think  
10 about at some times you're going to have favourable  
11 conditions as -- as the starting to -- and sometimes  
12 you're going to dig yourself out of a hole.

13                   And -- and it's just that our  
14 forecasting method recognizes that, recognizes current  
15 conditions and -- and that over a couple years we'll --  
16 we'll get back to the average.

17                   MR. BYRON WILLIAMS:    Mr. Cormie, just -  
18 - and I actually don't have the reference for the  
19 Information Request, but Manitoba Hydro was asked if --  
20 for an -- an explanation for the -- the forecast  
21 variance between IFF11-2 and where we are today. And  
22 one (1) of the -- I'll suggest to you, and I can  
23 provide you a reference if you -- although not right at  
24 hand, was that when -- in -- flowing from IFF11-2 it --  
25 for the years '11/'12 through '13/'14, there was a

1 general belief that natural gas and coal prices would  
2 rebound quickly as oil -- oil prices would.

3 Does that sound familiar to you, sir --  
4 Mr. Miles?

5 MR. DAVID CORMIE: I'm going to let Mr.  
6 Miles speak to that.

7 MR. TERRY MILES: That sounds familiar  
8 to me, yes.

9 MR. BYRON WILLIAMS: And if I could ask  
10 Diana to pull up COALITION-II-47(a)(b) -- or excuse me,  
11 the second page. And before -- and -- and scroll up --  
12 or down, Diana. Thank you. Keep going.

13 We don't need to look at it just quite  
14 here yet, Mr. Miles, but I'm going to suggest to you  
15 that, in terms -- for forecasting, if we were to go back,  
16 let's say, a decade ago, one might have expected an  
17 increase in oil prices to be also moving in tandem with  
18 an increase in natural gas prices.

19 Does that sound fair, sir?

20 MR. TERRY MILES: That sounds  
21 reasonably fair, yeah. And I think there was a time  
22 when oil and gas prices were a little more correlated,  
23 if you will, or they -- they went up and down together.

24 MR. BYRON WILLIAMS: And if I look at  
25 page 3 of 4 of this exhibit, COALITION/MH-II-47(a) and

1 (b), on this page we see a -- a representation of the  
2 relationship of the price of natural gas versus the  
3 price of electricity from January '06 through January  
4 2015, agreed?

5 MR. TERRY MILES: That's agreed.  
6 That's the price of the relationship in its US price  
7 electricity -- pricing elec -- the US market.

8 MR. BYRON WILLIAMS: That you for that  
9 precision. And what you're concluding -- what you  
10 conclude in the narrative that appears underneath this  
11 -- this representation -- and just scroll down a bit  
12 more Diana, thank you -- is that electricity price is  
13 strongly linked to changes in natural gas price.

14 Would that be fair?

15 MR. TERRY MILES: That's fair, and  
16 that's because a large amount of generation in the  
17 United States is thermal based. It's natural-gas  
18 based, so that goes hand in hand.

19 MR. BYRON WILLIAMS: No surprise there.

20 MR. TERRY MILES: No surprise.

21 MR. BYRON WILLIAMS: If we go to page 4  
22 of 4, and if -- what you see here is a representation  
23 of the relationship between crude oil versus the price  
24 of electricity in that same time period, being January  
25 '06 through January of 2015, agreed?

1 MR. TERRY MILES: Yes.

2 MR. BYRON WILLIAMS: And the conclusion  
3 drawn in the paragraph underneath this figure is that  
4 the statistical correlation over this time frame does  
5 not show a relationship between the price of oil and  
6 the price of electricity, apart from macroeconomic  
7 shocks.

8 MR. TERRY MILES: That's a good point  
9 in adding apart from some of those major economic  
10 downturns where they -- they can be linked, yes.

11 MR. BYRON WILLIAMS: And, Mr. Miles,  
12 this can go to you, Mr. Cormie, whoever this is right  
13 for. It won't hurt my feelings. And, Mr. Miles, if  
14 you don't remember, it will not hurt his feelings, but  
15 you may recall that Mr. Doug Gotham appeared as a  
16 witness for the Coal -- for my clients during the NFAT  
17 --

18 MR. TERRY MILES: I recall that.

19 MR. BYRON WILLIAMS: -- hearing?

20 MR. TERRY MILES: Yes.

21 MR. BYRON WILLIAMS: And he was -- he's  
22 from the State Utility Forecast Group in -- in Purdue  
23 University, sir?

24 MR. TERRY MILES: Yes.

25 MR. BYRON WILLIAMS: If you recall

1 that. You're nodding your head.

2 MR. TERRY MILES: I recall that, yes,  
3 yes.

4 MR. BYRON WILLIAMS: And currently does  
5 a -- a fair bit of work for MISO. You'll recall that  
6 as --

7 MR. TERRY MILES: I recall that --

8 MR. BYRON WILLIAMS: -- as well.

9 MR. TERRY MILES: -- yes.

10 MR. BYRON WILLIAMS: And I -- I guess  
11 my question, look forward, Mr. Miles, just if you're  
12 wondering where I'm -- I'm going, is also --

13 MR. TERRY MILES: I always wonder where  
14 you're going, Mr. Williams.

15 MR. BYRON WILLIAMS: I don't think this  
16 is adverse to you, sir. We'll see. Some -- some  
17 writers, and I'll suggest to you including Dr. Gotham,  
18 have suggested that there's been shifts in the  
19 fundamental drivers for natural gas prices starting in  
20 about 2009.

21 You're aware of that in the literature,  
22 sir?

23 MR. TERRY MILES: I'm aware of that,  
24 yes.

25 MR. BYRON WILLIAMS: And they would

1 suggest that, prior to that time, natural gas prices  
2 were heavily influenced by petroleum prices, with both  
3 moving in the same direction.

4                   Would that be fair?

5                   MR. TERRY MILES: I'd say that's fair.  
6 And it's likely largely because natural gas was  
7 associated with actually the mining or -- or the  
8 extraction of oil. So they were sort of linked  
9 together, yes.

10                   MR. BYRON WILLIAMS: And there's a  
11 suggestion in -- in some parts of the literature that  
12 since 2009, natural gas prices have been not only  
13 lower, but much less volatile.

14                   Are you aware of that as well, sir?

15                   MR. TERRY MILES: The lower aspect.  
16 Maybe there's still volatility in the chart, as we see  
17 here, but definitely on the lower side, yes.

18                   MR. BYRON WILLIAMS: Sir, are you  
19 familiar with the -- the term 'wet gas'?

20                   MR. TERRY MILES: Generally? Yes.

21                   MR. BYRON WILLIAMS: And -- and, sir,  
22 it goes to forecasting out into the future, so bear  
23 with me. But wet gas is a mixture of natural gas and  
24 petroleum liquids.

25                   You'll -- you'll accept that?

1 MR. TERRY MILES: I'll accept that,  
2 ves.

3 MR. BYRON WILLIAMS: And whereas drv  
4 gas is just natural gas, agreed?

5 MR. TERRY MILES: That's mv  
6 understanding, ves.

7 MR. BYRON WILLIAMS: And there's a  
8 suggestion in the literature that the shale gas boom of  
9 the last six (6) years was driven by high petroleum  
10 prices, not natural gas prices. Are you familiar with  
11 that, sir?

12 MR. TERRY MILES: No, I think mv  
13 understanding, Mr. Peters (sic), it's probably a bit of  
14 both going forward. Probably high oil prices, high  
15 natural gas prices, driving exploration, and -- and  
16 probably technology wise as the cost of drilling gets  
17 more expensive, if the price is higher you're able to  
18 drill in more complex areas, implement more higher  
19 price technology. So there's probably a combination of  
20 both of those.

21 MR. BYRON WILLIAMS: And poor Mr.  
22 Peters for you suggesting that I'm Mr. Peters, but I'll  
23 take that as a compliment --

24 MR. TERRY MILES: Oh, did I say Mr.  
25 Peters?

1 MR. BYRON WILLIAMS: -- Mr. Miles.

2 Yeah.

3 MR. TERRY MILES: That's okay, I've  
4 been called several names since I've been sitting here,  
5 so.

6 MR. BYRON WILLIAMS: Mr. Terry is a  
7 very popular one lately.

8 MR. TERRY MILES: Okay.

9 MR. BYRON WILLIAMS: I guess my -- my  
10 question to you, Mr. Miles, is would you accept the  
11 proposition that we've collectively been a bit slow in  
12 understanding all -- all the ramifications of what  
13 happened to natural gas prices since 2009?

14 MR. TERRY MILES: 'We' as in the  
15 collective 'we' --

16 MR. BYRON WILLIAMS: 'We' as --

17 MR. TERRY MILES: -- Mr. Williams?

18 MR. BYRON WILLIAMS: -- the collective  
19 'we', yes.

20 MR. TERRY MILES: I'm not sure I share  
21 that perspective, but if that's your perspective that's  
22 -- that's fine, yeah.

23 MR. BYRON WILLIAMS: Well, let me put  
24 it this way. The farther we get from 2009, sir, are we  
25 getting to the time where we're starting to have more

1 confidence in our forecast looking out a few years?

2 MR. TERRY MILES: I'm not sure we'll  
3 ever have more confidence in our forecast looking out  
4 in years, Mr. Williams. I mean, there's always  
5 something that comes into play no matter where we're --  
6 where we're at. So in terms of confidence in  
7 variability looking forward, we might have an  
8 understanding of things today.

9 I -- I think in the NFAT I believe, I  
10 can't say exactly what the quote was and where it came  
11 from, but there was a quote from the 1980s or 1970s  
12 that had the same context that said something in the  
13 order that, We have never had such uncertainty and --  
14 and variability. And here we are thirty (30) years  
15 later and I think what you're suggesting is the exact  
16 same context to what that comment was made.

17 MR. BYRON WILLIAMS: Mr. Miles, I think  
18 I might have put that comment on the record, so thanks  
19 for reminding me of that.

20 MR. TERRY MILES: Well, thank you for  
21 putting that on the record --

22 MR. BYRON WILLIAMS: Yeah.

23 MR. TERRY MILES: -- Mr. Williams. I  
24 appreciate that.

25 MR. BYRON WILLIAMS: Well, let me --

1 let me just finish off. Would you accept the  
2 proposition that price volatility associated with  
3 natural gas has some prospects of dropping off because  
4 we have much more geographic diversity in our supply  
5 than we might have had ten (10) years ago?

6 MR. TERRY MILES: I think I'd suggest,  
7 Mr. Williams, that given the discovery of shale gas and  
8 the advancements into actually extracting shale gas,  
9 and the production that we're getting out of some of  
10 the shale gas finds now that has -- is -- at least  
11 currently anyways in the recent -- in the last year or  
12 two (2) higher than what has been expected that's  
13 there, I -- that will reduce some of the volatility, if  
14 you will, in the short term.

15 I think there is still some uncertainty  
16 as to how far into the future that will continue, and I  
17 think they're learning a lot about the shale gas  
18 industry, and how we can extract things, and the cost  
19 related to that. So to predict the future on -- on the  
20 last couple years of experience with that industry, I -  
21 - you know, they've made some advancements.

22 The costs are down. The supplies are  
23 there. They're extracting from those finds. But  
24 realistically what's going to happen in the next two  
25 (2) or three (3) years, that industry seems to change

1 relatively quickly with -- with drivers around it. So  
2 we might still be a little too early in that -- in that  
3 process.

4 MR. BYRON WILLIAMS: So you're not  
5 accepting my suggestion that more geographic diversity  
6 in the supply of shale gas has had some impact in  
7 tempering price volatility associated with natural gas?

8 MR. BRENT CZARNECKI: Mr. Chairman, I -  
9 - I think Mr. Miles has provided an answer to an  
10 extremely complex question already to Mr. Williams, and  
11 I'm just -- I'm getting uneasy with where this is going  
12 as well, and at such a high level I'm worried that  
13 something Mr. Miles is going to say will be perhaps  
14 taken out of context.

15 So I -- I'm fine with him to continue to  
16 answer, but I just want to put my -- my concern on the  
17 record.

18

19 CONTINUED BY MR. BYRON WILLIAMS:

20 MR. BYRON WILLIAMS: And -- and I just  
21 -- Mr. Chair, I don't intend to belabour this. I think  
22 -- I'm just trying to understand. I accept Mr. Miles's  
23 thoughtful answers. I'm just trying to zone in a  
24 little bit on -- on the tempering effect, if any, in  
25 his view, of more geographic diversity.

1 MR. TERRY MILES: I -- I would -- I  
2 would agree with that. More diversity and supply will  
3 tend to temper the -- the variability, just like when  
4 we talk about our export portfolios. Diversity in our  
5 portfolios (sic) in -- in the export market will  
6 help to temper our variability in revenues, et cetera.

7 So I -- it -- it just goes to say I'd  
8 have to agree with that.

9 MR. DAVID CORMIE: Mr. Williams, I -- I  
10 can't help but jump in here. There's almost an  
11 infinite supply of coal in the ground. The price of  
12 coal is very low. But nobody's building coal fired  
13 generating stations because the risk of carbon. We  
14 don't know where carbon regulation is going in the  
15 future. Gas can be as -- as -- could essentially be  
16 free, but that doesn't mean that we will continue  
17 wherever to burn natural gas because of the carbon  
18 effect.

19 So I think -- I think, as Mr. Miles  
20 indicated, there's -- there's a lot of uncertainty in  
21 the future, and it may not have anything to do with the  
22 supply of gas, but whether we are going to be able to  
23 afford to -- or we want to burn it because of the  
24 effect on the climate.

25 MR. BYRON WILLIAMS: Okay. Thank you.

1 That's a helpful segue, Mr. Cormie. It would be fair  
2 to say, focussing on the state of Minnesota, that a --  
3 another energy supplier with which there is uncertainty  
4 associated would be the -- the nuclear industry in  
5 Minnesota, sir? Would that be fair, the nuclear power  
6 industry?

7 MR. DAVID CORMIE: Yes, there's a -- a  
8 lot of uncertainty over whether new nuclear generating  
9 stations will ever be built, or whether the existing  
10 ones will be able to extend their licences.

11 MR. BYRON WILLIAMS: And in terms of  
12 the existing nuclear facilities in -- in Minnesota, am  
13 I correct in suggesting that they're up for re-  
14 licensing in the early 2030s?

15 Would that be correct, sir?

16 MR. DAVID CORMIE: Yes, most of those  
17 units in Minnesota will be getting to about sixty (60)  
18 years of age, and -- and they will require a -- a  
19 licence renewal around 2030.

20 MR. BYRON WILLIAMS: And without trying  
21 to get into any of your business secrets, Mr. Cormie,  
22 presumably those are at least theoretical targets of --  
23 of opportunity for Manitoba Hydro, agreed?

24 MR. DAVID CORMIE: Yes. And -- and our  
25 customers are concerned about whether there -- the life

1 of those units will be extended and -- and they're  
2 concerned about the risk that they won't. And Manitoba  
3 Hydro provides a potential solution to that problem.

4 MR. BYRON WILLIAMS: Just to -- and,  
5 Mr. Cormie, if you're unable or uncomfortable or  
6 unfamiliar with the answer, no worries. But currently  
7 in Minnesota, there is a state law -- law that bans the  
8 construction of new nuclear plants.

9 Is that correct?

10 MR. DAVID CORMIE: I -- I'm not  
11 familiar with that, no.

12 MR. BYRON WILLIAMS: Okay. And again  
13 with this answer, if you're unfamiliar, that's --  
14 that's not a problem. You're not aware whether or not  
15 there's any legislative efforts to -- to overturn any  
16 such bans on the construction of new -- new nuc --  
17 nuclear plants? You're not familiar with that?

18 MR. DAVID CORMIE: I'm -- I'm not  
19 familiar, no.

20

21 (BRIEF PAUSE)

22

23 MR. BYRON WILLIAMS: Mr. Elder, I -- I  
24 had all sorts of questions for you on Bipole III until  
25 my namesake, Mr. Peters, asked most of them. Is Mr. --

1 oh, there you are. And, you know, just a couple  
2 questions. So if -- if we could move -- that's  
3 perfect.

4

5

(BRIEF PAUSE)

6

7 MR. BYRON WILLIAMS: Mr. Elder, in  
8 terms of the -- the negative variance in the capital  
9 cost estimates for Bipole III, the dominant driver of  
10 that obviously is the -- the differences bet -- in the  
11 converter stations?

12

MR. ROB ELDER: Yes.

13

14

(BRIEF PAUSE)

15

16 MR. BYRON WILLIAMS: And in terms of  
17 the earlier ested -- estimates for Manitoba Hvdro  
18 dating back to CEF10-2 through CEF13, is part of that  
19 narrative in -- in terms of the lower expectations, in  
20 terms of the costs of Bipole III, some hope being  
21 placed in a technology that -- that didn't bear out,  
22 sir?

23

24

25

MR. ROB ELDER: Is your question, Was  
the -- our estimate based on the voltage source  
converter technology? Is that the question?

1 MR. BYRON WILLIAMS: Yes.

2 MR. ROB ELDER: Okay. Good. Yeah.

3 MR. BYRON WILLIAMS: You -- you asked  
4 it better than me, sir.

5

6 (BRIEF PAUSE)

7

8 MR. BYRON WILLIAMS: Is there an  
9 answer?

10 MR. ROB ELDER: Yes, I'm just getting  
11 ready. So -- yeah, so to answer that question, when we  
12 had that estimate and were considering voltage source  
13 technology, we did about two (2) years of vendor  
14 development. At the time, all three (3) vendors were  
15 indicating that they could provide that technology.  
16 It's not -- it's not that the technology is new. It's  
17 the application we were looking at using it.

18 So there was actually a project in  
19 Skaqarat Fort (phonetic), which is a -- which is a  
20 slightly lower voltage, being it had already been sold  
21 at that time. So the difference for Bipole III is the  
22 -- the length of the line and the volta -- the -- the  
23 size of the system.

24 So all three (3) vendors were telling us  
25 at the time that it was a possibility. We've got -- we

1 had some external opinions on it, so no, it was -- it  
2 was a newer technology in that application, but -- but  
3 not a new technology to industry.

4                   And that's why we -- that's why we  
5 structured our -- our contract in -- in such a way.  
6 You had competing interests from the vendors. You had  
7 a -- you had an established technology which required  
8 you to have sch -- synchronous condensers, and you had  
9 a newer technology that our market intelligence was  
10 telling us was more expensive, but you wouldn't need  
11 the synchronous condensers.

12                   And then you had the technology risk.  
13 It hadn't been done -- done in this size before, so.  
14 So that's why we put together a performance spec, and -  
15 - and really put it on the vendors to come back to us  
16 with something that they could stand behind from both a  
17 -- a performance and a delivery perspective.

18                   So -- so, no, I don't think it was -- it  
19 was unrealistic to expect that at the time. But we did  
20 have to do our due diligence. And -- and really, the  
21 day of reckoning is when those vendors give you binding  
22 proposals for that and -- and when -- when we got to  
23 that point, they had to balance the risks, the costs,  
24 and everything else.

25                   And in their opinion, all three (3) of

1 them came back with -- with the more classic  
2 technology.

3 MR. BYRON WILLIAMS: You talked about a  
4 two (2) year process with the vendors. Over what time  
5 frame was that two (2) year process, sir?

6 MR. ROB ELDER: From -- roughly around  
7 2011 to -- to -- '11 to '13 we were talking to the  
8 vendors. And from '13 to '14, we were out, so we had  
9 about a -- if my memory serves me right, about a nine  
10 (9) month procurement process where we're out to  
11 market.

12 MR. BYRON WILLIAMS: And you'll --  
13 you'll forgive me, I'm unfamiliar with the procurement  
14 process. Just in terms of the timing of the  
15 procurement process, over -- when did it take place?

16 MR. ROB ELDER: Yeah.

17 MR. BYRON WILLIAMS: When did it start  
18 and end?

19 MR. ROB ELDER: Subject -- subject to  
20 clarification, I think we went out September of --  
21 September of '13, and signed the contract October of  
22 '14. So I might add, too, that -- as I mentioned the  
23 other day there's -- there's really only three (3)  
24 vendors in the world that can provide this technology.

25 At the time we were going -- before we

1 went out to bid, and during the time we're out at bid,  
2 the feedback we were getting from all of the vendors  
3 and independent research was that the market was  
4 extremely busy, and so we -- we really didn't -- we did  
5 our homework in my opinion, but we run the total gambit  
6 of not getting any bids, not getting competitive bids,  
7 or getting three (3) competitive bids.

8                   And -- and at the end of the day, I  
9 think because we did our homework we did get three (3)  
10 competitive bids for the work.

11                   MR. BYRON WILLIAMS:   And, sir, just --  
12 the first bids would have been received when?

13                   MR. ROB ELDER:   Just one (1) second.

14                   MR. BYRON WILLIAMS:   Approximately,  
15

16   (BRIEF PAUSE)  
17

18                   MR. ROB ELDER:   The -- we would have  
19 had bid information for around June of 2014. So -- and  
20 -- and maybe further to the Chair's question the other  
21 day, getting those -- getting those bids, that contract  
22 itself is about an \$800 million contract. That also  
23 swung the decision on whether we'd need synchronous  
24 condensers or not.

25                   But the other big variable in there is

1 we -- one, we needed to know the technology but, two  
2 (2), being -- the market being as competitive it was,  
3 those vendors may have come back and said, Yes, we can  
4 give you the system but it's going to cost twice as  
5 much, or it may take twice as long. So if we were  
6 looking at a -- say at a two (2) year delay from what  
7 we were assuming for a schedule, there would have been  
8 significant cost drivers there, too.

9

10 (BRIEF PAUSE)

11

12 MR. BYRON WILLIAMS: I think I'm still  
13 on fine ground, but your legal counsel will keep you --  
14 alert me if -- if I'm not. So, Mr. Elder, you get the  
15 bid which is not perhaps -- it wasn't the bid you were  
16 hoping for obviously, agreed, in terms of it -- its  
17 price?

18 MR. ROB ELDER: It -- it was higher  
19 than the -- it was higher than the original estimate we  
20 had back in CPJ6-A, B, and C, yes. Did -- were we  
21 happy with pricing? I think we got fair market  
22 pricing.

23 MR. BYRON WILLIAMS: And what's the  
24 process within the Corporation? You alert your boss,  
25 We -- we got \$800 million of bad news. Is that how it

1 works?

2 MR. ROB ELDER: Well --

3 MR. BYRON WILLIAMS: That's how it  
4 would work in my place.

5 MR. ROB ELDER: Yes. And -- and each  
6 bid was over five thousand (5,000) pages of  
7 information. So just to give you a bit of a sense how  
8 big they are. Pricing, technology, so we take a team  
9 of three (3) -- a team of people with -- with --  
10 various experts from around the Corporation to work our  
11 way through those bids. Compare them to our evaluation  
12 criteria. Put a recommendation up to our executive.

13 And then we need to sit down with the  
14 vendor then once we've established who are preferred  
15 proponent is, so who we think has -- has the best bid,  
16 and then we need to sit down and -- and negotiate the  
17 final contract, which is -- which is another -- hence,  
18 as I mentioned, we got pricing around June of '14. We  
19 signed the contract October 17 of -- October 7th of  
20 '14.

21 MR. BYRON WILLIAMS: Mr. Elder, thank  
22 you. Those are -- those are my questions.

23 MR. ROB ELDER: You're welcome.

24 MR. BYRON WILLIAMS: And, Mr. Chair,  
25 I'm sorry to disappoint the panel by not taking the

1 whole day. I -- that won't happen again, I assure you.  
2 So it's pretty atypical for me. So I thank Hydro's  
3 witnesses for their courtesy.

4 THE CHAIRPERSON: Just give us a  
5 second, please.

6

7 (BRIEF PAUSE)

8

9 THE CHAIRPERSON: I believe this -- the  
10 business for today is ended, and we will adjourn for  
11 the day. I expect we'll be back here Monday morning at  
12 nine o'clock, hopefully.

13 And so unless there's some  
14 administrative business to attend to, we will be  
15 adjourned for the day.

16 MR. BRENT CZARNECKI: Mr. Chairman,  
17 we'll -- we do have some undertakings, but we will hold  
18 off until filing them on Monday morning. I think  
19 there's four (4) or five (5), and there could be more  
20 that we develop over the weekend.

21 The one (1) other point I'll just raise  
22 is that Mr. Elder has -- and Mr. Bowen have let me know  
23 that they will not be available on Tuesday of next  
24 week. So on the assumption that we complete this  
25 entire panel on Monday, that won't be a problem. But

1 if it were to spill over, I would hope that counsel who  
2 are to cross will finish with them on Monday.

3 THE CHAIRPERSON: With that, I believe  
4 today's business is ended, so we'll adjourn. We'll --  
5 have a good weekend, everyone. We'll see you on  
6 Monday. Oh, sorry, Ms. Fernandes.

7 MR. BRENT CZARNECKI: I'm sorry to  
8 interrupt you once again. Mr. Miles does have one (1)  
9 undertaking he could speak to right now.

10 THE CHAIRPERSON: Mr. Miles, please.

11 MR. TERRY MILES: Okay, yes, thank you.  
12 Yesterday, I was asked I believe by Mr. Peters to  
13 provide a financing cost related to the seven (7) year  
14 drought. And we were going to undertake to review that  
15 and provide that.

16 We did a quick search through the IRs,  
17 and we had provided that in an IR, and it's MH/PUB-II-  
18 90(b), and it includes both the -- the value for a  
19 seven (7) year drought and the financing cost which is  
20 \$.3 billion.

21 THE CHAIRPERSON: Thank you, Mr. Miles.  
22 We're adjourned. Thank you.

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(PANEL RETIRES)

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1 --- Upon adjourning at 2:09 p.m.

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4 Certified Correct,

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9 Cheryl Lavigne, Ms.

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