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MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA HYDRO'S APPLICATION  
FOR APPROVAL OF NEW ELECTRICITY RATES  
FOR 2010/11 AND 2011/12

Before Board Panel:

Graham Lane - Board Chairman  
Robert Mayer, Q.C. - Board Member

HELD AT:

Public Utilities Board  
400, 330 Portage Avenue  
Winnipeg, Manitoba  
April 14, 2011  
Pages 5515 to 5672

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25

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4		to August the 13th, 2010, Hydro had	
5		undertaken actions to slow down the	
6		spending rate on OM&A in the form of a	
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1 --- Upon commencing at 9:37 a.m.

2

3 THE CHAIRPERSON: Okay. Good morning,  
4 everyone. Ms. Ramage, I understand that you have  
5 something for us to begin.

6

7 (BRIEF PAUSE)

8

9 MS. PATTI RAMAGE: Yes, Mr. Chairman, and  
10 good morning. Mr. Warden was -- just wished to speak to  
11 a couple of -- and I'm not sure if they're undertakings  
12 or if they were exchanges between the Vice-Chair and Mr.  
13 Warden. And there was two (2), one (1) regarding Cross  
14 Lake, and the other regarding -- Mr. Warden advises me  
15 we're not going to deal with that one right now, but the  
16 insurance provisions that I believe the Chairman asked  
17 about.

18 THE CHAIRPERSON: Oh, yes, about whether  
19 you had catastrophic insurance. Fine. Good morning, Mr.  
20 Warden. Please proceed.

21 MR. VINCE WARDEN: Yes. Good -- good  
22 morning, Mr. Chairman, Mr. Vice-Chairman, ladies and  
23 gentlemen. I -- sorry, with respect to Cross Lake I just  
24 did want to confirm that there's been no settlement  
25 agreement. That's -- that's all I wanted to -- wanted to

1 state on -- with respect to -- with respect to Cross  
2 Lake, so I just wanted to be clear on that.

3                   The other one though, the insurance, and  
4 I'm not sure whether this was an undertaking, but I just  
5 wanted to clarify the amount of insurance that we do, in  
6 fact, have on property. So all risk property insurance  
7 is up to \$5.7 billion per occurrence, and the deductible  
8 on that is \$5 million. On commercial and general  
9 liability, the limit on that is \$200 million, with a two  
10 hundred and fifty thousand dollar (\$250,000) deductible.

11                   THE CHAIRPERSON: Thank you, sir. And  
12 you confirmed there is no business interruption  
13 insurance?

14                   MR. VINCE WARDEN: Yes, there's no  
15 business interrup -- interruption insurance.

16                   THE CHAIRPERSON: Thank you. Mr.  
17 Hacault?

18                   MR. ANTOINE HACAULT: I believe Ms.  
19 Ramage has one (1) undertaking to file.

20                   THE CHAIRPERSON: Oh, okay.

21

22   (BRIEF PAUSE)

23

24                   MS. PATTI RAMAGE: Yes, Mr. Hacault is  
25 correct, and our intention is to distribute a package of

1 undertakings probably after the break, but one that we'll  
2 pull from that that the parties already have, and I'm not  
3 sure that the Chairman or Vice-Chair have, is Undertaking  
4 number 122, which Manitoba Hydro has assigned Exhibit  
5 number 112, which will be out of order, but we'll have  
6 that fixed up after the break, and that is the  
7 undertaking dealing with cost con -- cost-constraint  
8 measures. And Mr. Hacaault wanted to be able to refer to  
9 that this morning and -- and requested that we provide  
10 that to him ahead of time, so that was provided by email  
11 to all the parties, so everyone should have that one in  
12 their possession already.

13 THE CHAIRPERSON: And we do. Thank you.

14

15 --- EXHIBIT NO. MH-112: Response to Undertaking  
16 number 122

17

18 MR. ANTOINE HACAULT: Good morning, Mr.  
19 Chairman, Mr. Vice-Chair. Good morning, all. There's  
20 two (2) preliminary matters that I need to deal with  
21 also. Distributed to all parties this morning, I  
22 believe, would be PUB MH Round One 25, which should be  
23 inserted at Tab 17, and we provided an electronic copy of  
24 the revised index together with that document and  
25 distributed it to all parties, as I say, electronically.



1 So if that could be confirmed for the record as part of  
2 our exhibit.

3 THE CHAIRPERSON: We have it.

4 MR. ANTOINE HACAULT: The next matter is  
5 just to explain what my plan is, at least for this  
6 morning. I intend to ask questions more around the  
7 finance issues until the break. I had asked Mr. Cormie,  
8 as a result of some of the material I had put at the end  
9 of my -- or our binder with respect to antecedent  
10 forecasting techniques and Hermes and SPLASH models, to -  
11 - if he could prepare something which would assist me in  
12 my cross-examination by way of kind of an illustration.  
13 So I believe he's worked on that, and we'll be able to  
14 distribute that during the break.

15 So after the break, when it has been  
16 distributed, my intention would be to cross-examine Mr.  
17 Cormie on that issue with respect to the materials that's  
18 currently in the binder but also having the benefit of  
19 that kind of illustration or graph that he has prepared.

20 MR. ROBERT MAYER: Do you think it might  
21 be possible to distribute it at the break so we'd have  
22 the fifteen (15) or twenty (20) minutes maybe to look at  
23 it before we wandered back in?

24 MR. ANTOINE HACAULT: If it's the Board's  
25 wish, I believe he --

1 MS. PATTI RAMAGE: We have --

2 MR. ANTOINE HACAULT: -- may have it.

3 MS. PATTI RAMAGE: -- the copies here  
4 right now, so that won't be a problem at all. And -- and  
5 maybe something I should add at this point, just so it's  
6 on the record and all parties understand again, by email  
7 we advised Mr. Cormie is here today. He won't be  
8 available tomorrow, so we're -- if anyone has any  
9 questions of him, we're really hoping they can deal with  
10 that today.

11

12 MANITOBA HYDRO PANEL:

13

14 VINCE WARDEN, Resumed

15 DARREN RAINKIE, Resumed

16 MANFRED SCHULZ, Resumed

17 DAVID CORMIE, Resumed

18

19 CONTINUED CROSS-EXAMINATION BY MR. ANTOINE HACAULT:

20 MR. ANTOINE HACAULT: Thank you. Then  
21 the first issue I'd like to deal with this morning is the  
22 reliability of estimates for capital projects and major  
23 capital projects. There's been quite a bit of talk about  
24 that. I'm not going to go through everything that's been  
25 gone through before, but could the witnesses pull out PUB

1 Exhibit 19 or 19A. They're both substantially similar.  
2 One was the -- this is the unapproved capital project  
3 justification addendum. And then also with that there  
4 was produced as part of this hearing the approved capital  
5 project justice -- justification addendum, which is  
6 Manitoba Hydro Exhibit 99, so Manitoba Hydro Exhibit 99,  
7 and also either PUB Exhibit 19 or 19A.

8

9

(BRIEF PAUSE)

10

11 MR. ANTOINE HACAULT: My first question  
12 of the panel is a very general one.

13 Is there a document that gets produced  
14 internally by Manitoba Hydro that best summarizes the  
15 status of an estimate with respect to capital projects,  
16 and if so, what is it?

17 MR. VINCE WARDEN: Mr. Hacault, yes,  
18 there is -- there are a number of documents prepared with  
19 respect to capital estimates. We do prepare annually the  
20 integrated financial forecast of which the capital  
21 expenditure forecast is a component part. We also  
22 produce monthly reports re -- which report on capital  
23 expenditures, actual costs incurred, as well as any  
24 revisions that have been made to capital estimates since  
25 the annual update to the capital expenditure forecast.

1                   So if a -- it's recognized that a capital  
2 forecast proje -- project estimate has changed, then that  
3 estimate is updated when that is recognized and approved  
4 by executive committee. Those approvals occur at any  
5 time during the year but are incorporated in the annual  
6 update. So we'll have updates occurring during the year.  
7 When it comes to the fall re -- revision of the IFF, all  
8 of those updates are incorporated in that IFF revision.

9                   MR. ANTOINE HACAULT: Is there some kind  
10 of a pattern for a review of the estimate with respect to  
11 major capital projects, and I specifically focus on  
12 Bipole 3, Wuskwatim, and Conawapa in this case.

13                   Is it done every two (2) years every year?  
14 Is there some -- some kind of a regular review, or is it  
15 just a random review?

16                   MR. VINCE WARDEN: No, Mr. Hacault, as I  
17 just indicated, it's ongoing. So when a -- when a  
18 capital project is in need of revision, once recognized,  
19 a revision is required. CPJ -- as we've talked about  
20 before, CPJs are presented to executive committee for  
21 approval, so that can happen at any time during the year.

22                   MR. ANTOINE HACAULT: Does it occur  
23 during at least a minimum interval? In other words, if  
24 it hasn't been reviewed for two (2) years, is somebody  
25 going to look at it, or could it go on for several years

1 without being looked at?

2 MR. VINCE WARDEN: Capital estimates are  
3 constantly under review. All major projects are assigned  
4 to a project manager, and that project manager will  
5 ensure that the capital estimate is as current as  
6 possible under the circumstances.

7 MR. ANTOINE HACAULT: Could I direct your  
8 attention to page 1 of 7 of either Exhibit 19A or 19.  
9 And I just want to better understand your answer. First,  
10 I'll start with the heading, "Background," and where it  
11 says, "CPJ addendum 04." Do you see that? And there's a  
12 short summary with respect to that Capital Project  
13 Justification Addendum number 4. And I'm the last line:

14 "The budget submitted with CPJA -- CPJ  
15 addendum 4 was a placeholder only  
16 pending completion" --

17 MS. PATTI RAMAGE: Mr. Hacault, we  
18 haven't found the... Is it the first block or are you on  
19 the second page?

20 MR. ANTOINE HACAULT: That's on page 1 of  
21 7. There's the first block entitled, "Background."

22 MR. VINCE WARDEN: Yes, we have it.  
23 Thank you.

24

25 CONTINUED BY MR. ANTOINE HACAULT:

1 MR. ANTOINE HACAULT: Okay. Has  
2 everybody located it? Okay. Under that block entitled,  
3 "Background," there is a first paragraph that provides  
4 two (2) sentences describing what CPJ Addendum 04 was  
5 about in a very summary way. Do you agree?

6 MR. VINCE WARDEN: Yes, it's summary.

7 MR. ANTOINE HACAULT: Okay. And the last  
8 sentence which I was starting to read was:

9 "The budget submitted with CPJ Addendum  
10 04 was a placeholder only, pending  
11 completion of studies by system  
12 planning, and was based on a 2001  
13 estimate prepared by Teshmont  
14 Consultants."

15 So in the context of your answer, that the  
16 estimates are updated continually and, as I understand  
17 it, annually, was there since 2001 going to 2005 an  
18 actual revision of that 2001 estimate, or did it stay as  
19 the estimate that was used?

20 MR. VINCE WARDEN: Mr. Hacault, I just  
21 want to make clear estimate -- project estimates are  
22 reviewed continuously, not necessarily revised though.  
23 It's -- it's not -- wouldn't be uncommon for a project to  
24 be estimated and not to be changed.

25 So in the annual capital review process

1 all capital projects would be reviewed to ensure that  
2 they are -- they represent the most current estimate. It  
3 could very well be that an estimate that came -- that was  
4 prepared in 2001 would remain unchanged to the end of the  
5 project. That's what the intent of estimating is is to  
6 come up with an in-service cost of -- of a facility. And  
7 if there are no changes to the underlying assumptions,  
8 then there's no reason to change the estimate.

9 MR. ANTOINE HACAULT: So what paperwork  
10 flows then after and in-between this particular Addendum  
11 04 to decision makers indicating that the 2001 estimate  
12 continues to be accurate?

13 MR. VINCE WARDEN: Well, unless -- unless  
14 the executive committee is advised, informed of a -- of a  
15 revision to an estimate, the estimate that was provided  
16 previously is the estimate that remains in place.

17 MR. ANTOINE HACAULT: So focussing  
18 specifically with respect to Addendum 04 then, would  
19 there have been a written report that had gone up the  
20 chain of command on the issue of the accuracy of the 2001  
21 estimate by the time it came to being submitted as  
22 Addendum 4 in April of 2005?

23 MR. VINCE WARDEN: Well, as -- as I  
24 mentioned, unless there's a reason to revise an estimate  
25 at executive committee, we don't get any fur -- there's

1 no reason for any further paperwork.

2 MR. ANTOINE HACAULT: So you wouldn't  
3 even get a short note saying, Looked at the 2001  
4 estimate, believe it's still accurate, no need to change?  
5 You wouldn't even get that kind of report?

6 MR. VINCE WARDEN: No, and I wouldn't say  
7 it wouldn't even. I mean, it's -- that's not to suggest  
8 that all capital projects aren't under review. The  
9 projects are all assigned to a business unit. The  
10 responsible vice-president for that business unit is at  
11 executive committee, and he or she would certainly be  
12 aware of any revisions that would be required and would  
13 make sure that they're brought forward to executive  
14 committee for revision as required.

15 MR. ANTOINE HACAULT: Okay. Let's move  
16 on to the next paragraph at page 1 of 7 of Exhibit 19A  
17 which deals with CPJ Addendum 05.

18 The summary indicates that there was an  
19 addendum submitted in 2007 to address the increase of 45  
20 kilometres to the length of the transmission line, as  
21 well as increases being experienced in transmission line  
22 material and construction costs due to market prices.

23 Now, the next sentence, and I quote:

24 "The cost of licensing, property, and  
25 converters were not updated at that



1                   time, nor was contingency identified in  
2                   that estimate."

3                   So my question to you then is: Here we  
4 have an identified area where there wasn't an update,  
5 there's no indication that it's accurate or not, what  
6 information is passed on to executive with respect to the  
7 lack of updating on converters?

8                   MR. VINCE WARDEN: Well, Mr. Hacault, I  
9 described to you the -- the process that is followed for  
10 CPJs, capital projects, to -- to get approval through  
11 executive committee, and ultimately by the board of  
12 Manitoba Hydro. I think we've talked previously a lot  
13 about Bipole 3. Bipole 3 is a -- a -- certainly a  
14 special situation that I think we've described in  
15 previous proceedings, so I'm not sure of the value in  
16 dwelling on that again. The process that I described is  
17 what normally happens. I wouldn't say that Bipole 3 is -  
18 - is a normal situation for -- for obvious reasons.

19                   MR. ANTOINE HACAULT: The reason I was  
20 trying to understand specific issues and -- and the lack  
21 of information on specific issues is to get some idea of  
22 the accuracy of what flows into the capital and  
23 expenditure forecasts in the IFFs. So specifically with  
24 respect to these items which were not up -- updated, how  
25 old was the estimate with respect to the cost of

1 licensing, property, and converters in May of 2007 when  
2 this was submitted to the executive?

3 MR. VINCE WARDEN: Well, as I mentioned  
4 to you previously, Mr. Hacault, the -- the age of the  
5 estimate has no bearing whatsoever on whether or not the  
6 -- the project estimate is -- is accurate. When a  
7 project is estimated, the provision is made for  
8 escalation in that project, contingency is also  
9 provided, and it's reviewed on an annual basis. And it  
10 could very well be that -- that there's no need to revise  
11 an estimate. So, therefore, the age of the estimate is  
12 really irrelevant.

13 MR. ANTOINE HACAULT: Wouldn't you  
14 expect, though, sir, that if there's an indication that  
15 the costs were not updated and they seem to be very old,  
16 that somebody should at least let the executive know  
17 whether the estimates are still good?

18 MR. VINCE WARDEN: Mr. Hacault, no. The  
19 -- the age of the estimate again has no bearing on the  
20 accuracy of that estimate. Provision is provided in the  
21 estimate for escalation, and as long as that escalation -  
22 - there's no need to change the assumptions of  
23 escalation, then there's no need to change the estimate.  
24 So the age of the -- of the forecast, the estimate for  
25 capital project, is not relevant.

1                   Now, Bipole 3 is a special circumstance  
2 which we've talked about, and I -- again, we can go over  
3 what we -- we talked about previously, but I'm not sure  
4 of the value of that.

5                   MR. ANTOINE HACAULT:     Maybe I'm not  
6 expressing my question clearly enough. I -- when I see  
7 something in this document indicating it's not updated, I  
8 fully understand you say, Well, maybe it's an old one, an  
9 old estimate, and it's still good. But what I'm trying  
10 to understand is:

11                   Is there an actual statement by somebody  
12 that's looking at this, saying, in 2007 when it goes in  
13 front of the executive committee, there's no need to  
14 revise this estimate, even though it's old, because it  
15 continues to be accurate?

16                   MR. VINCE WARDEN:     No, there is not a --  
17 a need for that, Mr. Hacault, because, as I mentioned,  
18 each project, each major project, is assigned to -- to a  
19 vice-president. So the vice-president of the power  
20 supply has perhaps fifty (50) projects that he is  
21 responsible for, and he has a number of division managers  
22 that report to him that have -- also have responsibility  
23 for those projects.

24                   It's his responsibility, in the case of  
25 power supply, to advise executive committee if an update

1 to an estimate is required. There are no notes required  
2 for that purpose. We are on top of these projects on --  
3 on a monthly basis and reporting on the expenditures  
4 against these projects. The estimate is reviewed in the  
5 process of looking at the costs compared to that  
6 estimate.

7 So, yeah, there's no need -- reason for  
8 someone to pass a note along saying, Yeah, the estimate's  
9 okay. We -- unless we are advised otherwise, the  
10 estimate is okay.

11 MR. ANTOINE HACAULT: Now, then what  
12 happens when certain items which are usually in the  
13 estimate are missing, and that's the last part of this  
14 sentence under the heading, "Background CPJ Addendum 05."  
15 The very last words, and I'm quoting:

16 "Nor was contingency identified in that  
17 estimate."

18 MR. VINCE WARDEN: Well, if we're talking  
19 specifically about Bipole 3 as opposed to the general  
20 process that's followed for updating estimates, then the  
21 -- it was recognized for some time that a revision to  
22 Bipole 3 was required.

23 We've gone through a very extensive  
24 process by which we've engaged external assistance with  
25 updating that estimate. That updated estimate is now

1 before this Board. I think the story has been told on  
2 that. So, again, I'm not sure of the value of retracing  
3 those steps.

4 MR. ROBERT MAYER: Mr. Hacault, we have  
5 your point.

6

7 CONTINUED BY MR. ANTOINE HACAULT:

8 MR. ANTOINE HACAULT: There's just one  
9 (1) or two (2) items which I'd like to address with  
10 respect to Manitoba Hydro Exhibit 99. And, specifically,  
11 if you could turn to the addendum which is number 06B, it  
12 relates to converter stations. I don't have an easy way  
13 to direct people to that, it's somewhere in the middle of  
14 the package, converter stations Addendum number 60B  
15 (sic).

16 And once you've found that document could  
17 you please turn to page 3, so the converter station  
18 estimate, page 3.

19 MR. VINCE WARDEN: I have that, yes.

20 MR. ANTOINE HACAULT: Now, I'm directing  
21 your attention on page 3 to the heading which has some  
22 dashes under Riel Converter Stations, that's B Riel  
23 Converter Station. And then there's a sentence that star  
24 -- starts:

25 "The following risks create a potential

1                   for additional costs."

2                   Have you located that?

3                   MR. VINCE WARDEN:    Yes, I see that.

4                   MR. ANTOINE HACAULT:   Okay.  Now, the  
5 first dash -- first I'll ask a question.  These items  
6 don't have a number attributed to them, the three (3)  
7 items in the dashes in this current CPJ.

8                   Is that correct?

9                   MR. VINCE WARDEN:    Yes.

10                  MR. ANTOINE HACAULT:   Okay.  So if I  
11 wanted to know whether the first dash, and I'll quote it:

12                               "Potential for greater requirement for  
13                               engineering project management and  
14                               construction management."

15                  As to whether that's a high-probability  
16 item, could I find the answer in Exhibit 19?  And I  
17 direct your attention to page 6 of Exhibit 19A.

18

19                               (BRIEF PAUSE)

20

21                  MR. VINCE WARDEN:    Well, Mr. Hacault, if  
22 I look at page 6 of 7 that you've directed me to in -- in  
23 Exhibit 19A, I do see the third item being described as  
24 allowance for greater requirement for engineering project  
25 management and construction management, which aligns with

1 the item that you've referenced in Exhibit 99.

2 MR. ANTOINE HACAULT: Do you agree, then,  
3 that the item that I quoted from -- on the record with  
4 respect to Exhibit 99 is a high-probability item?

5 MR. VINCE WARDEN: I would have no way of  
6 knowing that.

7 MR. ANTOINE HACAULT: So although you're  
8 able to correlate what seems to be similar titles, you've  
9 got no way of knowing whether the identified risk for  
10 potential additional costs continues to be a high-  
11 probability item?

12 MR. VINCE WARDEN: I'm -- I'm not sure  
13 what you're referencing in the -- to say that it's a high  
14 probability.

15 MR. ANTOINE HACAULT: Well, sir, first  
16 you'll agree with me that, in Exhibit 99, there's two (2)  
17 converter stations listed: the Northern converter  
18 station and Riel converter station.

19 Are we in agreement on that, at page 3 of  
20 4 of Exhibit 99, where we're talking about the converter  
21 stations?

22 MR. VINCE WARDEN: Yes.

23 MR. ANTOINE HACAULT: Okay. So that  
24 matches with the dash on page 6 of 7, agreed?

25

1 (BRIEF PAUSE)

2

3 MR. VINCE WARDEN: The -- you'll --  
4 you'll notice on page 5 of 7 of PUB 19A there's a  
5 reference to converter-related items. So they would  
6 appear to be consistent in that regard.

7 MR. ANTOINE HACAULT: Okay. And the  
8 second -- or the first part on page 6 of 7 on PUB Exhibit  
9 19A, and I'll read for the record, indicates:

10 "Allowance for a greater requirement  
11 for engineering, project management,  
12 and construction management on Northern  
13 converter station and Riel converter  
14 station projects."

15 That wording, I'm suggesting to you, is  
16 practically identical to the Exhibit 99 dash that  
17 indicates, for the record:

18 "Potential for greater requirement for  
19 engineering, project management, and  
20 construction management."

21 Do you agree?

22 MR. VINCE WARDEN: Well, I think I'd  
23 pointed that out to you in a previous response.

24 MR. ANTOINE HACAULT: So my question to  
25 you is: When you have two (2) division or vice-



1 presidents signing off on a document indicating that this  
2 is a high-probability item, why do we choose as -- to  
3 exclude the \$14 million that's identified?

4 MR. VINCE WARDEN: I'm not sure where  
5 your reference is to high probability. Could you just  
6 point that out for me?

7 MR. ANTOINE HACAULT: On page 6 of 7 of  
8 Exhibit 19A. The thing that I didn't read into the  
9 record was immediately after the words:

10 "Riel converter station projects (14  
11 million, high probability)."

12 MR. VINCE WARDEN: Yes. I -- I see that  
13 now. I -- I -- we -- we do have to be careful, though,  
14 because we're look -- we're comparing one (1) estimate  
15 that was superceded by another. So we have -- we really  
16 -- although the wording is very similar between the two  
17 (2), we ha -- we don't really know. We're -- we're  
18 speculating as to whether or not that -- that 19 million,  
19 or sorry, \$14 million that -- that you referenced or not,  
20 whether any, or part, of that has been included in the  
21 updated estimate. And, you know, we just don't -- I  
22 don't really have that information here, so I can't  
23 answer that.

24 MR. ANTOINE HACAULT: So how does an  
25 executive committee know with respect to these three (3)

1 identified risks whether they are high-probability items,  
2 sir?

3 MR. VINCE WARDEN: Well, Mr. Hacault,  
4 again, the Bipole 3 estimate has been one that has been  
5 scrutinized previously through previous cross-examination  
6 and documents have been filed with this Board. It does  
7 represent Manitoba Hydro's most recent updated estimate  
8 for the bipole and the components related thereto. It's  
9 been signed off by people that have expertise in this  
10 area. That's the best evidence we have of a current  
11 estimate.

12 So I -- I'm not going to through line by  
13 line and second-guess whether or not it's included in the  
14 estimate or not. I -- I have confidence that -- that the  
15 process we've followed to come up with a revised estimate  
16 for Bipole 3 is sound.

17 MR. ANTOINE HACAULT: Unfortunately, this  
18 is the only CPJ I have otherwise, I -- my intent is  
19 really to try and get a better idea of how Manitoba Hydro  
20 vets its capital projects for the estimates that go  
21 through and see -- and when I asked the question --

22 MR. VINCE WARDEN: And, Mr. Hacault, I  
23 think that -- that is a fair question. I did describe  
24 the process that we go through for all capital projects.  
25 Now you're delving into a specific project that was just

1 revised and presented to this Board.

2                   So I'm not going to co -- comment on the  
3 specific details of the Bipole 3 estimate. I -- I have  
4 no problem at all describing the process that we follow,  
5 which we -- which I've done.

6                   MR. ANTOINE HACAULT: Therefore, sir, in  
7 the process there's a difference between the two (2)  
8 CPJs, as I see it. One (1) that we looked at, being the  
9 Exhibit 19A, PUB 19A, when it talks about management  
10 reserves or risks in that regard, they identify the  
11 amount and they identify the degree of probability that  
12 that amount will be incurred.

13                   Is that the normal process for contingency  
14 items, that the executive will get, firstly, an expected  
15 quantum and, secondly, the degree of probability that  
16 that quantum will be an expense?

17                   MR. VINCE WARDEN: Well, we have had a  
18 discussion about the difference between contingency and a  
19 management reserve. The management reserve is a set-  
20 aside and identified separately from the project  
21 estimate, not something that's been used to date by  
22 Manitoba Hydro, but we did comment -- or I did comment on  
23 how it's used at other utilities, something we may  
24 consider using in the future. We don't -- we don't use  
25 that currently, or at least it doesn't -- it hasn't been

1 applied to any existing capital projects at Manitoba  
2 Hydro.

3 MR. ANTOINE HACAULT: So do I take your  
4 answer that in none of the other capital justification  
5 projects' addendums that get produced, will there be an  
6 estimate of the amount with respect to a particular item  
7 and a categorization as to whether it's a high  
8 probability or low probability? This is only found in  
9 the Exhibit 19A with respect to Bipole 3 but in no other  
10 capital project justification addendum submitted to  
11 executive.

12 MR. VINCE WARDEN: Well, if -- if the  
13 responsible vice-president thinks it's important enough  
14 to bring to the attention of the executive committee,  
15 that will done.

16 MR. ANTOINE HACAULT: So there's no  
17 standard, and that's why we see in Exhibit 99 identified  
18 risks but no amounts, and no indication on probability of  
19 those amounts being incurred. Is that correct?

20 MR. VINCE WARDEN: Well, there is a  
21 standard to the extent that it's applicable, but if it's  
22 -- if there's no -- if -- if a project -- if a capital  
23 project doesn't have a lot of risk associated with,  
24 something we -- we build on a regular basis, then there's  
25 no need to talk about risks that aren't there -- not to

1 say that there aren't contingencies built into the  
2 estimate for unforeseen events that may occur, but the  
3 standard that -- that we follow for capital project  
4 justifications is a -- is a standard format, but the  
5 content isn't always the same, and -- and it shouldn't  
6 be. There are different circumstances for every project.

7 MR. ANTOINE HACAULT: So do we have a  
8 threshold amount? For example, it seems that we related  
9 a \$14 million amount here.

10 Is that too low to be concerned with,  
11 providing an amount and a probability to that amount?

12 MR. VINCE WARDEN: No, no. There --  
13 there's -- there's no particular threshold. Capital  
14 projects are reviewed and updated on a regular basis as -  
15 - as needed, and if risks are identified, they're  
16 assessed. And if it becomes evident that a certain event  
17 is more likely to occur than not, then the -- the  
18 estimate will be revised to -- to incorporate that --  
19 that update.

20 MR. ROBERT MAYER: Mr. Warden, I'm sure  
21 that the question has been asked and answered, but  
22 neither the Chair nor I can remember. Exactly when was  
23 Mr. Wang -- I think that's the name of the individual --  
24 when was he commissioned to do what became Addendum 6A?

25

1 (BRIEF PAUSE)

2

3 MR. VINCE WARDEN: Are you referring to  
4 the outside consultant?

5 MR. ROBERT MAYER: Yes. I -- I thought  
6 that was his name. It appears on the document.

7 MR. VINCE WARDEN: No, no. No. If you  
8 can just give me one (1) second, I'll pull up that  
9 information.

10

11 (BRIEF PAUSE)

12

13 MR. VINCE WARDEN: Yes, actually I do  
14 have it here now, Mr. Mayer. It is Exhibit number 102 in  
15 which Manitoba Hydro provided information with respect to  
16 the engineering firm engaged by Manitoba Hydro for this  
17 purpose. The consultant was a Dr. Mohamed Rashwan, and  
18 the date of that --

19 MR. ROBERT MAYER: I think we found it,  
20 Mr. Warden. January 5th, 2011?

21 MR. VINCE WARDEN: Correct.

22 MR. ROBERT MAYER: Mr. Warden, on what  
23 I'm looking as the -- as the Exhibit Addendum number 6A,  
24 in the first page there's an item listed as "Risk  
25 Matrix." Do you see that, sir?

1 MR. VINCE WARDEN: Yes, I do.

2 MR. ROBERT MAYER: It says:

3 "Tier 2, nine hundred and fifty (950)  
4 points."

5 What does that mean?

6 MR. VINCE WARDEN: Actually, we -- we  
7 have an undertaking to explain that, and that undertaking  
8 has not been put together yet.

9

10 CONTINUED BY MR. ANTOINE HACAULT:

11 MR. ANTOINE HACAULT: Just for the  
12 record, the -- on page 6 of 7, the item under the  
13 allowance for greater engineering was, and I'll quote:

14 "Allowance for poor soil conditions  
15 during construction of the Northern  
16 converter station (12 million, high  
17 probability)."

18 And, for the record, I see on Exhibit 99  
19 the next dash on page 3 of 4 with respect to converters:

20 "Potential for poor site conditions  
21 during construction."

22 You'll agree with me again that there's no  
23 amount set out in the new CPJ or an indication of whether  
24 that's a high-probability item?

25

1 (BRIEF PAUSE)

2

3 MR. VINCE WARDEN: Well, as I answered to  
4 the previous items, Mr. Hacault, we -- we don't know. We  
5 don't have the sufficient information here to know what  
6 exactly is included for those items, if anything. So, we  
7 can only -- we can only, you know, base that assessment  
8 on the documents we have before us.

9 MR. ANTOINE HACAULT: Thank you very much  
10 for this discussion, and I'll move on to just some short  
11 -- very short matters leading to operating and  
12 maintenance administrative costs.

13 Firstly, could you go to Tab 17 which is a  
14 new document that was distributed this morning?

15

16 (BRIEF PAUSE)

17

18 MR. ANTOINE HACAULT: Have you located  
19 that document? It should be identified as page 139(a),  
20 firstly, and then 139(b).

21 MR. VINCE WARDEN: Yes, we have it here.  
22 Thank you.

23 MR. ANTOINE HACAULT: The reference, as  
24 previously indicated on the record, was PUB/MH First  
25 Round 25(a).





1 right with respect to the IR response, and I think we --  
2 we clarified that was mostly related to the payments to  
3 the province for the guarantee fee.

4 MR. ANTOINE HACAULT: And there's a  
5 guarantee fee in sinking funds because generally -- am I  
6 correct in understanding that there would be a  
7 corresponding borrowing to allow the sinking fund payment  
8 to be made?

9 MR. VINCE WARDEN: Yes, you're right.

10

11 (BRIEF PAUSE)

12

13 MR. ANTOINE HACAULT: Just a  
14 clarification of the response here. There's a heading in  
15 the middle of the table on page 139-B at Tab 17 that  
16 indicates, "US-dollar sinking funds in Canadian dollars."

17 Am I correct in interpreting this table  
18 that the monies which would actually be invested in US  
19 sinking funds would be in US dollars, but that Manitoba  
20 Hydro has converted those amounts to Canadian dollars so  
21 we get a uniform number at the bottom of the table?

22 MR. VINCE WARDEN: Yes.

23

24 (BRIEF PAUSE)

25

1                   MR. ANTOINE HACAULT:   Now, we had started  
2 the other day to have some discussion on OM&A, and your  
3 counsel has kindly distributed Manitoba Hydro Exhibit  
4 112. I know it's out of order, but we may as well refer  
5 to it as that because the other numbers will be filled  
6 out.

7                   Am I right to, firstly, understand that  
8 Mr. Brennan's memo basically deals with the same issues  
9 as you had dealt with in your presentation, and we had  
10 put an extract of your presentation to this Board at Tab  
11 20, it deals with travel expenses, hiring freeze,  
12 overtime reductions? So you've got six (6) items listed  
13 at Tab 20 which seem to be covered, to a large extent, by  
14 the inter-office memorandum that's now been marked as  
15 Exhibit 112.

16                   MR. VINCE WARDEN:   Yes.

17                   MR. ANTOINE HACAULT:   Now, on the first  
18 page of this exhibit, am I correct in understanding --  
19 there's the heading before a table, "February 2010 versus  
20 February 2011." So are the numbers on this table for  
21 eleven (11) months as opposed to a full calendar year?

22                   MR. VINCE WARDEN:   Yes, that's right.  
23 There we're talking to the end of February. It doesn't  
24 include March, so it's eleven (11) months versus twelve  
25 (12), yes.

1                   MR. ANTOINE HACAULT:    You wouldn't happen  
2 to have at least preliminary finals for -- I know it's  
3 only a couple weeks in, so we have calendar years? Most  
4 of all the other tables are in calendar years, so it  
5 makes it very difficult to correlate this table to other  
6 tables.

7                   MR. VINCE WARDEN:    Yeah, I think the only  
8 purpose of this schedule really was to show progress in -  
9 - in achieving OM&A reductions as a result of the cost  
10 constraint measures. And as this table indicates,  
11 savings in -- in the range of \$16.7 million have been  
12 achieved over -- over that eleven (11) month comparative  
13 period.

14                  MR. ANTOINE HACAULT:    I'm always amazed  
15 what accountants can do. If I look at the top number, is  
16 there actually a decrease in actual expenses from 2010 to  
17 2011? Is it not increasing, not very much, but  
18 increasing?

19                  MR. VINCE WARDEN:    Yeah, we're -- Mr.  
20 Hacault, we're going through a transition period towards  
21 international financial reporting standards, and that's  
22 why it's necessary to indicate these changes. So, yes,  
23 you're absolutely right that the -- the -- for the eleven  
24 (11) month period the -- the amount that will get  
25 recorded as expense has gone up slightly from the year

1 previous, very close but it's up -- it's up slightly from  
2 -- from what was -- what was actually recorded in that  
3 same eleven (11) month in the previous year, but on the  
4 surf -- looking at that on the surface is misleading  
5 because of all the adjustments that have occurred over  
6 that two (2) year period. And that was the purpose of  
7 showing the adjustments so that we could compare numbers  
8 on a -- on a like basis.

9 MR. ANTOINE HACAULT: So there's two (2)  
10 lines we should look at, you're suggesting: the very  
11 bottom one, which is net of accounting changes, and the  
12 top one. Even though costs actually incurred increased,  
13 we shouldn't consider that. Is that a fair  
14 characterization?

15 MR. VINCE WARDEN: No, no. We'll be  
16 reporting on the costs that were actually incurred. It's  
17 just whenever you report on any number, it's necessary to  
18 delve into the reasons why those costs were incurred and  
19 explain them. So this is just a -- a very brief snapshot  
20 of some of the major influences on those costs over --  
21 over that period of time.

22 MR. ANTOINE HACAULT: Thank you. Could  
23 you flip to the next page, which is the actual memo? The  
24 very first sentence under the heading "Cost Constraint  
25 Mensur -- Measures" in this inter-office memorandum says,

1 "The economic downturn." People have different views as  
2 to when the economic downturn started. Some say in 2008.

3 What would be the view of Manitoba Hydro?

4 MR. VINCE WARDEN: I think we would agree  
5 with that view: it started in 2008.

6 MR. ANTOINE HACAULT: So were there any  
7 other memos, when Hydro realized that there was an  
8 economic downturn, which were provided either in 2008 or  
9 2009 to deal with what every other company in Manitoba  
10 was dealing with, controlling its costs?

11 MR. VINCE WARDEN: Yes, yes, there would  
12 have been previous correspondence. This was to provide  
13 the most recent correspondence that -- that was issued  
14 from the president's office.

15 MR. ANTOINE HACAULT: Would they be  
16 documents that would be similar to this directive? When  
17 we got into this area last time, it was -- I had asked  
18 whether there were any directives from the -- the board,  
19 from the executive, and we got into the conversation,  
20 Well, there is one from our president.

21 So at what level would there have been a -  
22 - a directive with respect to cost-constraint measures in  
23 2008, firstly?

24 MR. VINCE WARDEN: Yeah. Mr. Hacault, I  
25 don't think we indicated there was only one (1), so there

1 would have been previous memos issued by the pres --  
2 president. This was to provide an indication of the  
3 types of correspondence that Mr. Brennan issues with  
4 respect to -- to costs. So would there have been  
5 previous ones? Yes.

6 MR. ANTOINE HACAULT: If there is a memo  
7 from either the board or from the president and CEO of  
8 Manitoba Hydro directing cost constraint -- constraint  
9 measures for 2008 and 2009, would you be prepared to file  
10 that memo, or those memos?

11 MS. PATTI RAMAGE: I'm a little concerned  
12 in terms of the nature of the question, simply because  
13 this isn't a discovery to see what we can find. We've --  
14 Mr. Warden has provided the -- the most recent memo  
15 outlining the most recent -- the cost-cutting measures,  
16 and -- and I'm unclear on what can be gained by going  
17 back and -- and treating this as a discovery to see what  
18 other documents are there.

19 Mr. Warden has confirmed that cost cus --  
20 cost-cutting measures were implemented and I -- I fail to  
21 see the -- the import of going back this way. It's --  
22 this is a rate hearing and -- and this is what's being  
23 done.

24 MR. ANTOINE HACAULT: Well, I was just  
25 trying to better understand what, if any, efforts Hydro

1 was making with respect to cost-cutting measures. The  
2 Board has expressed concern on a number of occasions.  
3 And we have a directive with respect to a couple areas  
4 here, but it's certainly not dealing with all of the  
5 different cost elements. And I was just trying to better  
6 understand Manitoba Hydro's efforts in 2008 and 2009.

7                   The costs go directly -- and under the  
8 Hydro Act we're only supposed to include in rates  
9 necessary costs. So I don't know why we wouldn't see a  
10 relevant document on issues that the Board's brought up  
11 on a number of occasions.

12                   THE CHAIRPERSON: Is there a risk of  
13 their being a blizzard of memos. I mean, potentially, it  
14 could cover all areas of Manitoba Hydro's activities.

15                   Is there -- this is a very general message  
16 that's being provided last August. Has anything happened  
17 subsequent to this that bears on this memo that changes  
18 it materially?

19                   MR. VINCE WARDEN: No, nothing. There's  
20 been no similar memos issued since that date. There --  
21 there have, however, been all kinds of activities  
22 occurring at Manitoba Hydro. We review the costs on a  
23 regular basis at our executive committee meetings and  
24 discuss opportunities for further cost reductions and the  
25 impacts that that might have on the opera -- on the



1 safety and reliability of the system.

2 So it's an ongo -- ongoing process and,  
3 you know, I wouldn't want to imply that the memos are the  
4 only things we're doing. It's but a small part of what's  
5 involved in controlling costs.

6 THE CHAIRPERSON: We understand what Mr.  
7 Hacault's trying to get, judgment. We also understand  
8 that the risk of -- in a corporation that involves sixty-  
9 six hundred (6600) employees and innumerable divisions  
10 and management groups and areas of expense, I could just  
11 imagine the quantity of material that could be  
12 potentially delivered.

13 The -- for example, you've got one (1)  
14 here -- a potential freeze on executive and management  
15 salaries that could take place on December 31st, 2010.  
16 Did that occur?

17 MR. VINCE WARDEN: No. After much  
18 deliberation, it was concluded that those salaries would  
19 not be frozen. So the management received essentially  
20 the same increases as did staff through the bargaining  
21 process.

22 THE CHAIRPERSON: Mr. Hacault, if you  
23 could -- maybe when you take your break -- deliberate on  
24 your question a bit more, and if you want to summarize  
25 it, we -- we could consider our view at that point.

1 MR. ANTOINE HACAULT: Mr. Chairman, my  
2 question was pretty specific. I'm not looking for a  
3 hundred (100) pages. I -- I just wanted to see whether,  
4 at a very -- I'm going to use --

5 THE CHAIRPERSON: Overused term.

6 MR. ANTOINE HACAULT: -- overused term,  
7 but I'm not looking for a whole bunch of div -- division  
8 memos, but I'd like to see at least if there was a  
9 directive from the Board on a budgetary matter, or from  
10 its president.

11 And I don't suspect that these types of  
12 general directives are hundreds. There may not be  
13 another one, and -- and it may be a simple answer that:  
14 No, there was no other directive by Mr. Brennan and no  
15 other directive by the Board.

16 THE CHAIRPERSON: Mr. Hacault's request  
17 seems relatively reasonable. He's simply asking if there  
18 was any more general directives coming from the Board or  
19 the president.

20 MR. VINCE WARDEN: We can go back to  
21 2008. There were other directives issued from the  
22 president. The Board -- the Board doesn't get involved  
23 in the management of the Utility and, therefore, it would  
24 not be appropriate for the Board to be issuing directives  
25 on cost control, at least not to staff.

1                   So, but were there other memos from the  
2 president? Yes, there were, and --

3                   THE CHAIRPERSON: We were thinking, Mr.  
4 Warden, ourselves, post this date -- like, this seems to  
5 be an interruption in the normal process of Manitoba  
6 Hydro, this particular memo.

7                   Since that point in time, has there been  
8 any more general directives related to cost-cutting and  
9 restraint?

10                  MR. VINCE WARDEN: No, not since this  
11 date, but as I mentioned, certainly many meetings between  
12 the president and the vice-president as to progress  
13 towards achieving targets.

14                  THE CHAIRPERSON: So the issues such as  
15 out-of-province travel, the freezing, the reduction of  
16 overtime costs, the changes to banked vacation, et  
17 cetera, et cetera, the capital rationalization, all of  
18 them are basically proceeding as per the directive --

19                  MR. VINCE WARDEN: Yes.

20                  THE CHAIRPERSON: -- with the exception  
21 of the freeze on the salaries?

22                  MR. VINCE WARDEN: Yes, basically they're  
23 all proceeding with re -- and are monitored on a regular  
24 basis through executive committee meetings.

25                  THE CHAIRPERSON: Mr. Hacault...?

1                   MR. ANTOINE HACAULT:    I believe it would  
2 be useful for me to ask some more questions to put the  
3 reason why I'm asking for this because --

4                   THE CHAIRPERSON:    Okay, let's take a --  
5 let's take a break.  It gives us a chance to ponder on  
6 this topic too.

7

8   --- Upon recessing at 10:39 a.m.

9   --- Upon resuming at 11:05 a.m.

10

11                  THE CHAIRPERSON:    Okay.  Welcome back,  
12 everyone.  We were reminiscing over the start of the  
13 global meltdown, recession, and things of that particular  
14 nature, so at least we were on point.  In the interests  
15 of hopefully simplifying things, and it'd be up to Mr.  
16 Hacault to see what he wants to say, but we just have a  
17 question, if we could, of Mr. Warden, and it might  
18 simplify things a little bit.

19                  I think we all remember basically the fall  
20 of 2008 with the departure of Lehman Brothers and all the  
21 other problems that quickly followed.  From the late fall  
22 of 2008 through to August the 13th, 2010, had Hydro  
23 undertaken any actions to slow down the spending rate on  
24 OM&A prior to this directive?

25                  MR. VINCE WARDEN:    Yes.

1 THE CHAIRPERSON: Did it come in the form  
2 of a directive from the president?

3 MR. VINCE WARDEN: Yes.

4 THE CHAIRPERSON: Could we see that  
5 directive?

6 MR. VINCE WARDEN: Yes.

7

8 --- UNDERTAKING NO. 123: From the late fall of 2008  
9 through to August the 13th,  
10 2010, Hydro had undertaken  
11 actions to slow down the  
12 spending rate on OM&A in the  
13 form of a directive. Provide  
14 that directive.

15

16 THE CHAIRPERSON: Thank you, sir. One  
17 (1) other question. When you made the decision, and  
18 probably you had -- you had, obviously, reasons that you  
19 came to it, not to put the potential freeze on executive  
20 and management salaries, you were aware of the position  
21 the government was taking with respect to the civil  
22 service generally?

23 MR. VINCE WARDEN: Yes, we were.

24 THE CHAIRPERSON: Thank you. Mr.

25 Hacault...?

1 MS. PATTI RAMAGE: Before we turn the mic  
2 over to Mr. Hacault, I believe a number of undertakings  
3 have been circulated, and I -- I thought maybe we could  
4 get those on the record --

5 THE CHAIRPERSON: Please.

6 MS. PATTI RAMAGE: -- and then get us up  
7 to the number that I think Mr. Hacault wishes to deal  
8 with.

9 So a package has been distributed. The  
10 first page in that package we've -- we've called it  
11 Manitoba Hydro Exhibit 108 revised, and that was dealing  
12 with materials that Mr. Rose had reviewed. And we  
13 received an update to that, and so we've just revised to  
14 add additional notation of materials on that. So we've  
15 just put that as a revised undertaking, and that's at  
16 108.

17

18 --- EXHIBIT NO. MH-108: Additional materials Mr. Rose  
19 had reviewed

20

21 MS. PATTI RAMAGE: That brings us up to  
22 112, which was entered this morning, and that is the --  
23 the cost-constraint measures. Next, is Exhibit Manitoba  
24 Hydro 113. This isn't an undertaking per se, it is the  
25 responses of ICF to the questions that were posed by Mr.

1 Wood on behalf of Drs. Kubursi and Magee to ICF, and  
2 that's the response there.

3

4 -- EXHIBIT NO. MH-113: Responses of ICF to the  
5 questions that were posed to  
6 them by Mr. Wood on behalf of  
7 Doctors Kubursi and Magee

8

9 MS. PATTI RAMAGE: The next in the  
10 package is the minutes of settlement entered into between  
11 Manitoba Hydro and the city of Winnipeg regarding the  
12 electricity tax dispute. That was Manitoba Hydro  
13 Undertaking number 84, and we just received the city's  
14 consent or indication of no objection to filing those, so  
15 we're -- we're getting those in now. And that we've put  
16 in as Exhibit Manitoba Hydro 114.

17

18 --- EXHIBIT NO. MH-114: Response to Undertaking  
19 number 84

20

21 MS. PATTI RAMAGE: The -- the next  
22 exhibit is Manitoba Hydro 115, and that's Undertaking 93  
23 dealing with the Wuskwatim partnership agreement -- or  
24 the income statement for that.

25

1 --- EXHIBIT NO. MH-115: Response to Undertaking  
2 number 93  
3

4 MS. PATTI RAMAGE: And if -- when I come  
5 off the mic if Mr. Warden could have a moment to -- to  
6 deal with that undertaking it would be appreciated.

7 Next, is Manitoba Hydro Undertaking number  
8 100. We've assigned that Exhibit Manitoba Hydro 116, and  
9 that's dealing with the difference on export revenue on  
10 assumptions in the cost of service.  
11

12 --- EXHIBIT NO. MH-116: Response to Undertaking  
13 number 100  
14

15 MS. PATTI RAMAGE: Next, was Manitoba  
16 Hydro Undertaking number 101 refiling schedules B1 and B2  
17 from the -- the 2010 and 2011 cost of service study.  
18

19 --- EXHIBIT NO. MH-117: Response to Undertaking  
20 number 101  
21

22 MS. PATTI RAMAGE: Next, is Manitoba  
23 Hydro Undertaking number 109, which is the -- a detailed  
24 breakdown of CPJ estimate of \$2.248 billion. And that's  
25 Exhibit Manitoba Hydro 118.



1 --- EXHIBIT NO. MH-118: Response to Undertaking  
2 number 109  
3

4 MS. PATTI RAMAGE: Manitoba Hydro  
5 Undertaking number 110 deals with the management reserve,  
6 and that is Manitoba Hydro Exhibit 119.  
7

8 --- EXHIBIT NO. MH-119: Response to Undertaking  
9 number 110  
10

11 MS. PATTI RAMAGE: Then Undertaking 111  
12 is -- has been assigned Exhibit Manitoba Hydro 120, and  
13 that's again dealing with the mana -- management reserve  
14 as it relates to Keeyask, Conawapa and Wuskwatim.  
15

16 --- EXHIBIT NO. MH-120: Response to Undertaking  
17 number 111  
18

19 MS. PATTI RAMAGE: Manitoba Hydro  
20 Undertaking number 112 has been ex -- assigned Exhibit  
21 Manitoba Hydro 121, again dealing with the management  
22 reserve.  
23

24 --- EXHIBIT NO. MH-121: Response to Undertaking  
25 number 112

1 MS. PATTI RAMAGE: Manitoba Hydro  
2 Undertaking number 121 is in -- is dealing with OM&A.  
3 It's been assigned Exhibit Manitoba Hydro 122.

4

5 --- EXHIBIT NO. MH-122: Response to Undertaking  
6 number 121

7

8 MS. PATTI RAMAGE: And then the last  
9 material does not have an ex -- exhibit number assigned  
10 to it on the page, but it would be Manitoba Hydro 123.  
11 This is the graph that Mr. Hacault had asked Mr. Cormie  
12 to prepare for the purposes of cross-examination.

13

14 --- EXHIBIT NO. MH-123: Graph that Mr. Hacault asked  
15 Mr. Cormie to prepare for  
16 purposes of cross-examination

17

18 MS. PATTI RAMAGE: Now, as I said, before  
19 we turn the mic back, if Mr. -- if we could turn the mic  
20 over to Mr. Warden, he just wanted to deal with Exhibit  
21 115 instead of just leaving it as filed.

22 MR. VINCE WARDEN: Yes, thank you.  
23 Exhibit number 115, response to Manitoba Hydro's  
24 Undertaking number 93, and this was -- arose out of a  
25 question with respect to the \$4 million reference on

1 Manitoba Hydro's IFF for Wuskwatim labelled as non-  
2 controlling interest. And the question was: Well, how  
3 was that \$4 million derived?

4 I did want to take this opportunity to  
5 speak, though, because I do believe there is a  
6 misunderstanding with respect to the costs of Wuskwatim  
7 power. As a matter of fact, I -- I was -- was quite  
8 concerned when I saw this referenced in the Board Order  
9 40/'11 -- 40/'11, in which it -- it stated that:

10 "Manitoba Hydro's confirmed that  
11 Wuskwakim initial generation will come  
12 in at an all-in cost of ten (10) cents  
13 per kilowatt hour and is unlikely to  
14 recover, at least initially, more than  
15 three (3) cents per kilowatt hour."

16 And I was quoting from the order with that  
17 last statement.

18 And -- and you will recall I did have a  
19 discussion with Mr. Peters, and while I did agree with  
20 the arithmetic that Mr. Peters was using for purposes of  
21 deriving the ten (10) cents, I certainly didn't agree, or  
22 certainly didn't intend to imply that I was agreeing,  
23 with the methodology.

24 And I do want to make it clear that the --  
25 the correct methodology, as far as Manitoba Hydro is

1 concerned, in terms of determining what the costs of  
2 generation is is -- is the levelized-cost mes --  
3 methodology. And we have put on the record that the  
4 levelized costs of Wuskwatim, the unit costs of  
5 Wuskwatim, is seven point four (7.4) cents per kilowatt  
6 hour. And Keeyask and Conawapa were also put on the  
7 record. And that is what is typically used for purposes  
8 of comparing one generation source to the other, so when  
9 we look at the economics of new generation, we look at  
10 the levelized costs over the life of that -- of that  
11 generating facility.

12                   If we're only looking at the income  
13 statement impact, though, which I believe Mr. Peters was  
14 referring to in his cross-examination, I have put  
15 together some numbers that demonstrate what the income  
16 statement impact is with Wuskwatim in the first full year  
17 of operation. And the attached statements, the  
18 statements that are attached to this undertaking, do show  
19 the profit and loss from Wuskwatim, on a stand-alone  
20 basis, over the period starting in 2012 and going through  
21 to 2020.

22                   So, the first full year of operation is  
23 2012/'13 in which --

24                   MR. ROBERT MAYER:     Mr. Warden, what  
25 document are we referring to now?

1 MR. VINCE WARDEN: I'm sorry. I'm re --  
2 I'm referring to Exhibit number -- Manitoba Hydro Exhibit  
3 number 115.

4 So, the operating statement attached shows  
5 that there will be, in the first full year of operation -  
6 - that is the fiscal year '12/'13, there will be an \$18  
7 million loss that declines to \$11 million loss the  
8 following year, and then close to a break-even in the  
9 third full -- full year of operation. Thereafter,  
10 Wuskwatim becomes profitable.

11 So, in -- in der -- in deriving and  
12 reconciling the number in that first full year of  
13 operation, the -- the schedule on page 1 of Manitoba  
14 Hydro Exhibit 115 has been put together. And I'd just  
15 like to go through this with you. Briefly, it shows in  
16 the first line of that analysis that the projected  
17 capital costs of Wuskwatim is 1.5 billion -- \$1.566  
18 billion, which is the -- the current approved estimate  
19 for Wuskwatim, including -- including transmission. So  
20 that includes the transmission for Wuskwatim.

21 The -- key, though -- a key difference  
22 between this calculation and the calculation that Mr.  
23 Peters was performing takes into account the impact of  
24 internally-generated funds. So I believe we have an  
25 under -- another undertaking that refers to the

1 internally-generated funds that are used for Wuskwatim,  
2 and we've actually, in the undertaking -- the other  
3 undertaking we've provided a number of 40 percent. 40  
4 percent of the cash that's required to finance Wuskwatim  
5 comes from internal sources, so we don't have to borrow  
6 that -- that amount.

7                   In this -- in this illustration here we've  
8 been somewhat conservative and -- and used only 35  
9 percent of -- for internally-generated funds. So, over  
10 the period of Wuskwatim construction, 35 percent of all  
11 cash required to finance those or to -- to build  
12 Wuskwatim, came from internal sources. That mean --  
13 means we only had to borrow just a little over a billion  
14 dollars, as you can see. One-o -- one-o-one-eight (1018)  
15 is the amount that we had to go out and borrow on the  
16 market.

17                   So, looking at the first full year or the  
18 first year of financing for that \$1 billion at 6 percent  
19 interest and -- and actually our costs of financing  
20 Wuskwatim during that period were slightly under 6  
21 percent, but, nevertheless, we've used 6 percent again  
22 for purposes of this illustration.

23                   So, at 6 percent the -- the first full  
24 year of financing is \$61 million. The operating,  
25 maintenance, and administration costs in that first year

1 are \$7 million. Depreciation at 1 1/2 percent is \$23  
2 million. And, again, we are being somewhat conservative  
3 with respect to depreciation because recent studies have  
4 shown that -- that average service life for generation is  
5 longer than -- than the sixty-seven (67) years we've used  
6 for this illustration.

7                   But, nevertheless, we have used 1 1/2  
8 percent, that works out to \$23 million for depreciation.  
9 Capital tax and -- and water rental will be \$10 million  
10 per year. So the operating statement impact in the first  
11 full year is \$101 million. That is what's going to hit  
12 the operating statement and what we expect consumers to  
13 have to, at least, not -- if they don't pay directly,  
14 that's the amount that ultimately will end up in --  
15 affecting rates.

16                   So, using that \$101 million of cost --  
17 actual costs incurred in that first full year of  
18 operation, just taking that 101 million, dividing by the  
19 average generation for that first year, we come out with  
20 a cost per kilowatt hour of six point seven (6.7) cents.

21                   The assumed revenue per kilowatt hour, and  
22 Mr. Cormie may want to speak a little bit more to this --  
23 the fact that we can get much better -- better than the  
24 opportunity reven -- return for Cona -- for Wuskwatim,  
25 knowing that we have firm power that will not be required

1 for the Manitoba load until 2019. So, for purposes of  
2 this illustration, we've assumed five point five (5.5)  
3 cents per kilowatt hour average return, a difference of  
4 one point two (1.2) cents per kilowatt hour, taking that  
5 one point two (1.2) cents times the loss -- or times the  
6 average energy comes out to a loss in the first full year  
7 of operations. Again, this is the operating statement  
8 impact, is \$18 million, and that's supported in the  
9 statements that are attached.

10 So hopefully that is clear. But I did  
11 want to -- to, as best I could at least, correct the  
12 record that it's -- we're not talking ten (10) cents as  
13 spread between a cost of ten (10) cents and three (3)  
14 cents. Thank you.

15 THE CHAIRPERSON: Thank you, Mr. Warden.  
16 I'm -- I'm sure the parties and the Board will reflect on  
17 this, and we may have some questions down the pike. Mr.  
18 Hacaault...?

19

20 HAROLD SURMINSKI, Resumed

21

22 MR. ANTOINE HACAULT: Thank you, Mr.  
23 Chairman, Vice-Chair, and all.

24

25 CONTINUED BY MR. ANTOINE HACAULT:



1                   MR. ANTOINE HACAULT:   As I indicated this  
2 morning, I intended to broach some subjects with Mr.  
3 Corvie -- Cormie.  In particular, Manitoba Hydro's  
4 forecasting techniques, as all know, were the subject of  
5 concern by the New York consultant and had been reviewed  
6 by KPMG and by, I'll call, KM, and specifically  
7 identified was Manitoba Hydro's antecedent forecasting  
8 techniques.

9                   So I had asked Mr. Cormie, because I'm a  
10 pretty visual guy, to -- if he could do some kind of a  
11 table because I intended to go through the material that  
12 we had put in our binder.

13                   Mr. Cormie, I'm going to be pretty open in  
14 my questions here.  I will have some specific things that  
15 I'll want to do.  But perhaps could you, firstly, give a  
16 general description of what's been marked as Exhibit 23?  
17 One hundred and twenty-three (123), sorry.

18                   MR. DAVID CORMIE:   Yes, Mr. Hacault.  I  
19 wanted to use this exhibit to -- to indicate Manitoba  
20 Hydro's method with regard to short-term water supply  
21 forecasting, and -- and it's been a subject of  
22 controversy because this short-term forecasting is used  
23 in the production scheduling that Manitoba Hydro  
24 undertakes and updates weekly.

25                   And the fundamental premise that underlies

1 this method is that current conditions can be used as an  
2 indicator of -- of future conditions in the short-term.  
3 And a good example of that is what's happening in the Red  
4 River right now. We've got very high flows on the river.  
5 And if you were to go and measure those flows today and -  
6 - and then use that as an indicator of what the flows in  
7 the Red River are going to be in the next month and a  
8 half, you'd find a very strong relationship.

9 High flows today means that the volume of  
10 water that will come down the river in the next month or  
11 the next season are -- are correlated, in the same way  
12 that if the Red River was at historic low levels, ver --  
13 it was a very dry condition, you would expect that those  
14 dry conditions would persist until a returned average  
15 precipitation would cause river flows to return to  
16 normal.

17 So the antecedent forecasting method that  
18 Manitoba Hydro uses looks at the current state of the --  
19 all the watersheds that Manitoba Hydro is monitoring and,  
20 from that, projects out for the balance of the fiscal  
21 year. And -- and we're able then to statistically derive  
22 a forecast of -- of flow volumes. And those flow volumes  
23 then go into the forecasting programs and -- and -- and  
24 it results in a forecast of -- of hydro generation.

25 So the -- the -- the purpose of this chart

1 is to -- is to show that -- how we use the historic  
2 information to predict the -- the future, and -- and the  
3 -- and -- and the chart here is a scatter graph, and on  
4 the 'X' axis are the current flow conditions that are  
5 observed when you add up all the flows in all the rivers  
6 that -- that drain into Manitoba Hydro's reservoirs. And  
7 -- and we've converted those in -- from units of water  
8 into units of electricity, and -- and we've looked at the  
9 -- the entire history of river flows going back to 1912.

10           And so you'll see that there's almost a  
11 hundred (100) dots on that chart. Each one (1) of those  
12 dots represents a flow year, and of particular interest,  
13 given that we're in -- in a flood year, you can look to  
14 the upper right-hand corner and you see the number 1974.  
15 So that's the data that's associated with the flood of  
16 1974.

17           And this is a chart that says if you take  
18 the flows or the energy supply for the month of April in  
19 1974, and then you compare that to the amount of energy  
20 that was supplied to the system after April, from May the  
21 1st to the following spring, which would be the end of  
22 March 1975, you would plot that point on your chart.

23           So it's the current flows compared to the  
24 flows that occurred after that -- that date, and we do  
25 that a hundred (100) times and you get a hundred (100) --



1 precipitation, and -- and, as I indicated, we've got a  
2 1974 case showing a really wet condition, and we also  
3 show the historic low condition of 1940. That's the --  
4 the dot that's circled in -- in red.

5           Now, if we didn't know anything about the  
6 current condition, we could say next year the flows could  
7 be anywhere between the 1940 number and the 1974 number.  
8 But because we -- we can plot this up and we can measure  
9 the statistical strength of the relationship -- and  
10 you'll see there's an R-squared value indicated there in  
11 the -- in the little -- in the text. It says R-squared  
12 equals point three five (.35). So 35 percent of the  
13 variation that will occur in the forecasting period is as  
14 a result of the current condition.

15           The other 65 percent of the variation that  
16 will occur is a result of the variation in rainfall,  
17 evaporation, temperature, and groundwater flows and --  
18 and -- and other factors that result in -- so the -- the  
19 correlation is -- is -- is significant. It's -- and it  
20 can be used as a -- as a -- as a -- as a forecast.

21           So from Manitoba Hydro's --

22           MR. ANTOINE HACAULT:    Just on that point  
23 --

24           MR. DAVID CORMIE:     M-hm?

25           MR. ANTOINE HACAULT:    -- when you say the

1 correlation can be significant, help me understand if the  
2 RSQR is point one (.1), what does that mean to the  
3 significance?

4 MR. DAVID CORMIE: Well, an R-squared  
5 value a corr -- of zero means they're not correlated. An  
6 R-squared of one (1) would mean it would be perfectly  
7 correlated. So every one of those dots would line up  
8 along the regression line -- the expected line.

9 But you see that they don't line up.  
10 There's a general scatter that follows -- that there's a  
11 band and there's uncertainty. Because there's  
12 uncertainty with how much precipitation is actually going  
13 to fall after the forecast date. And the variation that  
14 you see is a function of how much precipitation there  
15 occurs subsequent to the forecast date.

16 So the purp -- for the purpose of -- of  
17 preparing the IFF, we would use the -- the expected line  
18 because we're trying to figure out -- forecast what the  
19 expected financial results for the Corporation would be.

20 And, so, you can see we have an example  
21 there where the observed flow is 3000 gigawatt hours.  
22 You go vertically up until you get to the regression  
23 line, and that indicates that the likely outcome for the  
24 balance of the year is that there will be 30,000 gigawatt  
25 hours of energy from inflow. To that inflow -- to that

1 energy from inflow we have the energy that's in reservoir  
2 storage. You add those two (2) together and that's how  
3 much hydraulic generation that Manitoba Hydro would  
4 expect under this example.

5           You also notice that there's a brown line  
6 on there indicating the low-flow condition, and that  
7 would be the condition where it doesn't rain after the  
8 forecast date and Manitoba Hydro wants to be ninety (90)  
9 -- 95 percent -- or 90 percent certain of that water  
10 supply, we would then put into our forecasting model the  
11 -- the 90 percentile condition, and it would indicate  
12 that it's likely that the lowest reasonable volume is  
13 something around 21,000 gigawatt hours.

14           So, for planning -- for planning -- for  
15 purposes of planning, to ensure that there's enough  
16 energy for Manitoba's needs under our worst-case  
17 scenario, we would rely on the twenty-one thousand  
18 (21,000). We would create a plan around that. But for  
19 the purposes of forecasting the expected outcome, we  
20 would use the green line which would be thirty thousand  
21 (30,000), recognizing that there's variation and that we  
22 have to manage for the worst case.

23           So that's the -- that's the -- the first  
24 page of the two (2). And there is a regression  
25 relationship like this for each month of the year. So





1 from April and May and June, we're constantly using these  
2 types of regression relationships to update the expected  
3 amount of hydro energy. And -- and we're constantly  
4 adjusting our operating plans recognizing how much  
5 precipitation has fallen and how much water has -- is  
6 flowing in the rivers.

7                   And -- and -- and there's no -- there is  
8 no way to know for certain what the hydro generation will  
9 be because we don't know for certain whether it's going  
10 to be wet or dry in the forecast period. We can forecast  
11 the average, and we can forecast the wet scenario and the  
12 dry scenario, and what we expect is that -- that most of  
13 the time, or over 90 percent of the time, the actual  
14 outcome will be within that band.

15                   It's not an error when actual results are  
16 different from the forecast result. That's just the  
17 natural variation that results in the forecast because  
18 precipitation was different than what was assumed. And -  
19 - and for the IFF purposes, we assume normal  
20 precipitation.

21                   MR. ANTOINE HACAULT: I'm just trying to  
22 understand the comparison between the two (2) tables.  
23 The second table, as you indicate, for September, there -  
24 - if -- as you indicated, there are dots under, I'm going  
25 to call, the dry line.

1 MR. DAVID CORMIE: M-hm.

2 MR. ANTOINE HACAULT: They're very, very  
3 close to the dry line. But when I flip to page 1 there's  
4 at least, it seems to be -- well, may be my glasses or a  
5 lack of ability to see, but two (2) dots that are very  
6 close to the dry line.

7 What does that mean? Does that mean that  
8 in two (2) of the ninety (90) odd years it wouldn't have  
9 been within the band of probability? Is that it?

10 MR. DAVID CORMIE: Yes, there -- there's  
11 much more uncertainty, and so you'll see the distribut --  
12 a much wider distribution. The standard error of the  
13 estimate is much higher, and -- and the spread between  
14 the confidence interval and the -- the outliers is -- is  
15 wider.

16 As you get -- as you go forward in the  
17 year there's less uncertainty; the standard error of the  
18 estimate reduces. And -- and as you get -- if you were  
19 to look at the November chart, for example, there's a  
20 very tight band; it's -- it's measured in maybe a  
21 thousand gigawatt hours rather than plus or minus 2,000  
22 gigawatt hours.

23 And -- and in a year in advance you have  
24 to remember that the variation between average and wet is  
25 fifteen (15) -- is 15,000 gigawatt hours -- plus or minus

1 15,000 gigawatt hours because you don't know anything.  
2 But once to get into the year, the uncertainty associated  
3 with the forecast reduces as you proceed through the year  
4 because there's less and less time left for there to be  
5 input from -- from precipitation.

6 MR. ANTOINE HACAULT: So am I right in  
7 understanding this graph that in April, for example, we  
8 have two (2) points on the graph which are below the dry  
9 line, that uncertainty as your year progresses, if those  
10 dots were fairly outside the line by the time the year  
11 progresses to September, you've got a lot more certainty  
12 with respect to those two (2) events? Is that a fair way  
13 to interpret the graph? I'm not too sure how to...

14 MR. DAVID CORMIE: Well, the dots by  
15 themselves just indicate that there's variation. They --  
16 the -- the location of the dots have an effect on where  
17 the confidence intervals are. Lots of variation results  
18 in very wide confidence intervals. And -- and it would  
19 be reasonable to have some of the dots outside the  
20 confidence intervals because you're looking for the --  
21 the information that occurred 90 percent of the time.

22 So if there's a hundred pieces of data,  
23 there should be ten (10) pieces of data outside the  
24 confidence intervals; maybe five (5) on the -- above it  
25 and five (5) below. In this case, there's -- I -- I see

1 three (3) -- four (4) of them are below, and there's  
2 about four (4) dots above on page 1. And so that -- that  
3 seems to jive with what you would intuitively think for a  
4 90 percent confidence interval.

5                   On the -- on the second page there's --  
6 the -- the scatter is much less, but there are still  
7 three (3) dots -- or four (4) dots below the dry line,  
8 and it looks like there's about six (6) dots above the  
9 wet line. So, again, 90 percent of the data will be  
10 within that range.

11                   And -- and what happens is in an -- in an  
12 extreme dry year when we're more concerned about the  
13 uncertainty, we will move to a 95 percent confidence  
14 analysis rather than a 90 percent confidence analysis,  
15 and -- in order to ensure that we're not caught with one  
16 (1) of those outliers.

17                   MR. ANTOINE HACAULT:    And I will have  
18 more detailed questions of how you manage your system.  
19 You've talked about that and -- and how it impacts, so.

20

21   (BRIEF PAUSE)

22

23                   MR. ANTOINE HACAULT:    With respect to the  
24 heading on the left-hand side of the graph where you say,  
25 "Cumulative potential energy supply in gigawatt hours," I

1 just want to understand when you say, "Cumulative  
2 potential energy," and I think you've answered my  
3 question but I'm not absolutely sure.

4 Does that include potential river flows  
5 from everywhere, just like -- because we saw some of it  
6 we control with -- this is Lake Winnipeg, but there's  
7 some river basins that we don't control?

8 MR. DAVID CORMIE: Well, it's -- it's a  
9 little bit simpler than that. Our generating stations  
10 don't have infinite generating capacity. The river flow  
11 gets to the point where the flows through the powerhouse  
12 are at the maximum, and then any additional water has to  
13 go over the spillway.

14 So it had the potential to generate  
15 electricity, but it ended up being spilled, and so this  
16 is -- this is -- this is an indication of -- of what's  
17 potential. And if you were to expand a generating  
18 station, double its size, you could capture more of that  
19 potential.

20 In a -- the most we've ever generated with  
21 the current system is around 37,000 gigawatt hours. This  
22 chart shows a -- a potential of -- in 1974 of something  
23 like -- what's that, forty-eight thousand (48,000)? So  
24 if we had a repeat of 1974, and assuming thirty-seven  
25 (37) is the maximum that can be generated, then this

1 would indicate that there's, you know, probably 10,000  
2 gigawatt hours of energy that gets spilled for the  
3 reasons, like you say, because Lake Winnipeg has a -- has  
4 a licence that says you can't store it, you have to spill  
5 it. If we had infinite storage and much larger  
6 generating stations, we could -- we could capture all  
7 that potential.

8                   But -- but the purpose of this is to  
9 indicate how much flow is available for the system; then  
10 the models convert that river flow into how much energy  
11 will be generated and how much will be -- will go over  
12 the spillway. And -- and -- and -- but this, again, is  
13 just what's coming -- this is what potentially can flow  
14 into the reservoirs. In addition to that, you already  
15 have what you already have in the bank or in the -- in  
16 the storage, and you may have 10,000 gigawatt hours in  
17 reservoir storage. You add that to the -- to add that to  
18 the forecast of inflows, and that tells you how much  
19 water in total that you have for the forecast period.

20                   MR. ANTOINE HACAULT:   Okay. I don't know  
21 if this allows -- or the -- one (1) of the reasons I  
22 asked for this graph is to better understand and explain  
23 what I've reproduced at Tab 69 of our binder, and that is  
24 an extract from the KPMG report. And at page 61 of that  
25 report, and in our document book the page number is 297-

1 E, so there's a table there.

2 MR. DAVID CORMIE: Yes, I have that.

3 MR. ANTOINE HACAULT: Tab 69, page number  
4 for the document book, 297-E, there's a table there.

5 Now, they report various correlations through the R-sq  
6 squared, and they range from 25 percent, as I see it -- I  
7 don't know if I'm reading that table right -- right up to  
8 81 percent in December.

9 Given some of those lower values, is it  
10 still a useful model and analysis for Manitoba Hydro to  
11 have that information and -- and look at what happens in  
12 the various months?

13 MR. DAVID CORMIE: Yes, it is, and -- and  
14 we were talking about what the 'R' squared value  
15 indicates. It explains how much of the future variation  
16 can be explained by current conditions. And if the 'R'  
17 squared value was zero, in -- in -- in -- in this -- in  
18 these examples, there would be -- you would be wasting  
19 your time. You might as well just, you know, pick the  
20 average.

21 But once the 'R' squared gets up to 25  
22 percent, 25 percent of the variation can be explained by  
23 the current situation; the other 75 percent is a function  
24 of how much rain is going to fall subsequent to the  
25 forecast date.

1                   And as you move through time, through the  
2 year, through July and August and September, you see the  
3 'R' squared values slowly increase, and by the time you  
4 get up to November, you can explain 65 percent of the  
5 variation, so only -- only 35 percent of the variation is  
6 left as a result of natural variability.

7                   And so it -- it is valuable, because it ex  
8 -- it does provide an improved estimate over just using  
9 the his -- the climatological normals or the historic  
10 normals for the months. You can -- you can be more  
11 accurate in your forecast, but you'll -- you note on the  
12 chart that there's lots of scatter. The scatter just  
13 means that there's the variation in -- in the rainfall,  
14 and it's not a -- you know, when a -- when a -- when a  
15 result falls off the regression line, that is not an  
16 error in the forecasting, that's -- you know that's going  
17 to -- that's going to be a result. You're never actually  
18 going to predict it, but what you want to do is you want  
19 to have a -- a method that -- that -- that is unbiased  
20 and it gives you the clo -- the best estimate, given that  
21 there is some uncertainty.

22                   And in the -- in some of the reports they  
23 would -- it -- they indicated that the -- Manitoba  
24 Hydro's models had errors associated with their  
25 forecasting technique.



1                   And -- and these aren't errors. This is -  
2 - this just the accuracy of the forecast because it's not  
3 possible to predict 100 percent. There is no  
4 relationship that has a -- that has an R-squared of 100  
5 percent where all the points fall on the line.

6                   MR. ANTOINE HACAULT: So -- and I'll go  
7 into a little bit more detail on some specific questions,  
8 but in a very general way. This is a tool which allows  
9 you to do what kind of planning? Like --

10                  MR. DAVID CORMIE: Each week Manitoba  
11 Hydro prepares a plan for the balance of the year, and  
12 that plan involves forecasting how much water is going to  
13 be available for generation. It -- it -- the plan  
14 involves updating the maintenance schedules for all the  
15 generating stations. It involves updating the export  
16 contracts, the storage levels; all the things that can  
17 change one (1) week -- from one week to the next.

18                  And based on that update, we produce a --  
19 a schedule that indicates what the reservoir releases  
20 will be for the power system for the balance of the year,  
21 and what changes are necessary from what the current  
22 releases are in order to get the -- the releases on to  
23 the -- onto the updated schedule.

24                  For example, if the outflow from Lake  
25 Winnipeg was at 50,000 cfs last week and there was some

1 rain in Alberta, that additional rain would end up  
2 showing that maybe a -- an -- a flow increase from Lake  
3 Winnipeg would be warranted.

4 Then the updated operating plan would  
5 indicate that Lake Winnipeg might go to 55,000 cfs. And  
6 -- and it may -- and then if everything were to be on --  
7 be as forecast for the balance of the year, this is the  
8 schedule that would optimally produce revenues and costs  
9 for Manitoba Hydro so that -- that net revenue for the  
10 power system is -- is -- is optimized.

11 MR. ANTOINE HACAULT: So this would avoid  
12 the situation we were talking about; if you didn't have  
13 this tool and weren't able to plan on a weekly basis, you  
14 may be forced to spill because you hadn't planned with  
15 some, at least, directional tools to help you do some  
16 planning.

17 MR. DAVID CORMIE: Right. Without  
18 optimization, without forecast, is a waste of time  
19 because you're -- you're -- and -- and -- and the -- and  
20 the -- the better your forecast, the better you can  
21 optimize the -- the production planning of any facility,  
22 whether it's a power system, a manufacturing plant -- you  
23 have to have a forecast of what your costs and your  
24 revenues and your -- your supplies are going to be.

25 And so, Manitoba Hydro needs to -- and we



1 water supply forecasts are one (1) of several forecasts  
2 used by Manitoba Hydro?

3 Is the short-term water supply forecast  
4 using the anteceded techniques that you've described, one  
5 of mo -- one of the most significant forecasts that --  
6 that Manitoba Hydro makes?

7 MR. DAVID CORMIE: Yes, it is, because  
8 the -- the water is the fundamental fuel for the -- for  
9 the Corporation. And in order to optimize, we -- we have  
10 to put a lot of effort into -- in -- into that -- into  
11 the water supply forecasting. It's the basis of how the  
12 power system operates. It -- it's fundamental to  
13 efficient operation. If we have -- aren't using the best  
14 available information we will make non-optimal release  
15 decisions; water will be spilled when it could have  
16 otherwise been stored and subsequently sold either to  
17 Manitobans or in the export market.

18 There would be a non-optimal dispatch of  
19 our thermal resources and purchases if we were to run  
20 short.

21 MR. ANTOINE HACAULT: Mr. Chairman, I'm  
22 about to go into a section of very more specific  
23 questions, and might I suggest that we could benefit from  
24 the lunchbreak. And I don't know when you want to  
25 reconvene, but it might be a logical time to stop, and

1 then start again.

2 MR. DAVID CORMIE: Mr. Chairman, I -- I  
3 wonder if I could just jump in for one (1) more minute.  
4 I was reading in the transcript, pages 5490 and 55 -- to  
5 5503 from the other day with regard to the Climate Change  
6 and Emission Reduction Act, and I wanted to clarify the  
7 record if we had five (5) minutes.

8 THE CHAIRPERSON: Let's take it.

9 MR. DAVID CORMIE: Under the -- in the --  
10 in the transcript there seemed to be some confusion over  
11 what was an interconnection agreement and whether an  
12 interconnection acre -- agreement that Manitoba Hydro had  
13 would require us to operate Brennan for emergency use.

14 These are pages 5490 to 5503 of the  
15 transcript. And I think there's confusion on -- between  
16 an interconnection agreement and a sales agreement. An  
17 interconnection agreement is an agreement Manitoba Hydro  
18 has with neighbouring utilities that allow them to  
19 interconnect.

20 And in that interconnection agreement  
21 there are conditions that require both utilities to  
22 operate the interconnections in a manner that avoids  
23 uncontrolled separation of the interconnection. It  
24 requires us to operate our -- our generating fleet so  
25 that voltage levels are main -- are accurate -- are

1 accurate, that system frequencies are maintained, and  
2 that we protect against contingencies so that the  
3 transmission line doesn't become an unreliable link to  
4 the neighbour.

5                   And -- and it's in that context that the  
6 Climate Change and Emission Reduction Act is referring to  
7 the operation of Brennan for emergency use. As we've  
8 talked about previously, our sales agreements with our  
9 counterparties are all curtailable (phonetic). So if  
10 Manitoba Hydro had to curtail those sales for  
11 emergencies, we would do that under our rights. There's  
12 no linkage between that clause where it talks about  
13 interconnection agreements and our sales agreement.

14                   And so the -- the words that are in the  
15 Act are -- are words that allow Manitoba Hydro to operate  
16 the generating station to maintain voltage levels in  
17 Brennan, to maintain system frequency, so that our system  
18 doesn't create a problem for Saskatchewan or for the  
19 United States or for -- for Ontario because it's only by  
20 following the regional reliability standards that are set  
21 that our -- the other utilities can rely on that  
22 connection from creating a problem.

23                   And -- and so the -- the Act recognizes  
24 that we have this external obligation to operate our  
25 system in a -- in a secure manner. And so I just wanted



1 yet.

2 THE CHAIRPERSON: Sir?

3

4 (BRIEF PAUSE)

5

6 MR. ANTOINE HACAULT: There may be one  
7 (1) question I can just ask, whether it can be done by  
8 way of undertaking. I had a brief conversation with Ms.  
9 Ramage with respect to Exhibit 38 of Manitoba Hydro, and  
10 it has a graph of general top service consumers and the  
11 various forecasts related to those consumers. And my  
12 question, I think, can be answered by a simple  
13 undertaking, yes or no, by one (1) of the members who's  
14 not here. So perhaps we can just get that out of the  
15 way.

16 We just want to confirm, because the  
17 transcript isn't clear, and the question is: Are all  
18 announced closures, including INCO's refinery announced  
19 to be closed in 2015, included in the 2010 forecast line?

20 MS. PATTI RAMAGE: We can accept that  
21 undertaking.

22 THE CHAIRPERSON: Thank you.

23

24 --- UNDERTAKING NO. 124: Manitoba Hydro to advise  
25 whether all announced



1 closures, including INCO's  
2 refinery announced to be  
3 closed in 2015, are included  
4 in the 2010 forecast line

5

6 (BRIEF PAUSE)

7

8 THE CHAIRPERSON: Okay. You can proceed  
9 at anytime now, Mr. Hacault.

10 MR. ANTOINE HACAULT: Thank you, Mr.  
11 Chairman. Good afternoon, all.

12

13 CONTINUED BY MR. ANTOINE HACAULT:

14 MR. ANTOINE HACAULT: Mr. Cormie, could  
15 you turn to Tab 66 of our binder of documents, and in  
16 particular page 294. I believe this is an extract from  
17 the rebuttal evidence of Manitoba Hydro, and I'd like to  
18 have a brief discussion with you as to optimal operating  
19 levels in the reservoirs, and when we get to higher  
20 levels, lower levels, what it means.

21 Firstly, am I right in understanding that  
22 operating reservoirs requires attention to the costs and  
23 risks of being too low or too high at any given point in  
24 time?

25 MR. DAVID CORMIE: Yes, I agree with that

1 statement.

2 MR. ANTOINE HACAULT: So perhaps by  
3 reference to this drawing, Figure 4 at page 294 of our  
4 book of documents, it doesn't appear that you -- or, when  
5 I say "you," Manitoba Hydro, with any amount of  
6 regularity, goes under about 3 terawatts in storage, and  
7 it doesn't appear it ever went below 2 terawatts in  
8 storage. Could you explain why, if I'm correct in those  
9 observations, why that is so?

10 MR. DAVID CORMIE: I -- I can. And --  
11 and the -- the draw from storage during the wintertime is  
12 a factor of -- of those two (2) items, that if you are  
13 too low you may have taken water out of storage that will  
14 result in more costs being accrued in the future, then  
15 there are benefits in -- in drawing the reservoir down.  
16 And not drawing the storage down could result in a lost  
17 opportunity cost in that water that was carried over  
18 ultimately proved to have no value because of subsequent  
19 high-flow periods caused the water that was carried over  
20 to be spilled.

21 In -- in Manitoba Hydro's situation the  
22 economic operation of the reservoirs is mostly about the  
23 economic operation of Lake Winnipeg as a reservoir. It  
24 contains 50 percent of the live storage in western  
25 Canada. And it is unique relative to almost all other

1 reservoirs in that during the winter season there's  
2 insufficient outflow capacity to pass -- to meet the  
3 power demands that are created by having large generating  
4 facilities downstream. And -- and that restricted  
5 outflow capacity is -- is caused by the ice that  
6 accumulates in the outlet channels over the winter.

7           So because the ice can restrict the  
8 outflow capacity by 50 percent there's a limited  
9 discharge capability. And so the -- and there are two  
10 (2) sources of -- of the water that is released under  
11 those restricted conditions. It's the water that's  
12 flowing into the lake from the rivers and streams that  
13 are -- like the li -- Winnipeg River and the Saskatchewan  
14 River and all the other tributaries, including the Red  
15 River. And then there's the water that can be  
16 supplemented to that by drawing water out of storage. So  
17 if the outflow capacity of the lake is exactly the same  
18 as what's flowing into the lake, so the inflows -- the  
19 outflow capacity is used just to pass the inflows, then  
20 there's no opportunity to draw water from storage because  
21 you -- there -- there's just no discharge capacity.

22           So the -- the optimization of reservoir  
23 releases out of Lake Winnipeg in the wintertime is a  
24 function of the forecast inflows that are going to be --  
25 going to occur and -- and the height of -- of the -- of

1 the reservoir at the -- at the point in time in which  
2 you're making the release decision.

3                   Generally, we -- we are at maximum  
4 discharge each and every winter out of Lake Winnipeg  
5 because that's the most economic way to operate the  
6 reservoir. But being at maximum discharge means  
7 different things if the reservoir's full versus whether  
8 it's -- it's half full or empty. And if the reservoir  
9 were empty and we're at maximum discharge, we couldn't  
10 let any more water out but we were drawing it down to  
11 that zero point that we -- that would be indicated on  
12 this chart, there wouldn't be enough water going down the  
13 Nelson River to meet the power without very, very  
14 expensive imports.

15                   So if you operate Lake Winnipeg too low,  
16 even with the maximum amount of water going out of the  
17 lake, you don't have enough energy in the system to serve  
18 the load demands. And so you've drained the reservoir,  
19 you've made some sales from that, but then ultimately you  
20 have to pay for those by ma -- purchasing a whole bunch  
21 of it back at a very expensive time of the year.

22                   Conversely, if you are at maximum  
23 discharge with the reservoir very high, even though  
24 you're at maximum discharge, you can't draw the reservoir  
25 down enough to avoid some carryover that would result in

1 subsequent spill if the spring were to be high.

2                   So there's an optimization that needs to  
3 look at, for a given end of winter level, what's the  
4 value of that incremental energy and storage compared to  
5 the alternative supply source during the -- during the  
6 current year. So you're trading off, is it better to  
7 carry water over in storage for use next year, or should  
8 I use it this year to -- either to make an incremental  
9 sale or to avoid a -- or to avoid a purchase.

10                   And the variation that you see over time  
11 there is just a variation associated with reservoir  
12 operation under various flow conditions. For example,  
13 we're in the -- some of the highest flows on record in  
14 the system right now. Lake Winnipeg is very high. In  
15 the year that we were at the -- at the bottom of that  
16 chart, that was in the -- the end of the winter of  
17 2003/'04, during that drought, we had record low inflows,  
18 so we were able to draw Lake Winnipeg down low to the  
19 minimum needed to -- the -- the minimum that was possible  
20 and still keep the lights on in the subsequent year.

21                   So it's really a -- and the elevation is  
22 really a function of -- of the hydrology. And in almost  
23 every one (1) of those years, we're at maximum discharge  
24 which optimizes that trade-off.

25                   MR. ANTOINE HACAULT:    And am I right then

1 in saying that HERMES -- and that's what we've been  
2 talking about this morning -- is what you view as a  
3 useful prediction tool that helps you in making those  
4 decisions, is one (1) tool amongst many?

5 MR. DAVID CORMIE: Yes, the -- the  
6 optimization module in the HERMES system makes --  
7 determines the optimum release schedule which includes  
8 the amount of water that should be carried over into the  
9 subsequent year. And -- and it also relies on that flow  
10 forecasting procedure that we talk -- that we discussed  
11 before lunch. The -- the flow forecasting procedure says  
12 inflows are going to be high, then the optimization will  
13 occur -- for Lake Winnipeg will occur around -- around  
14 that forecast. If the forecast inflows are going to be  
15 low, then more water can be taken out of storage to  
16 supplement the inflows. And -- and the -- the linear  
17 program algorithm that we have in -- in HERMES that  
18 determines the -- the -- the trade-off between storage  
19 and releases.

20 MR. ANTOINE HACAULT: When you're making  
21 those weekly decisions or weekly runs of the software, as  
22 I understand it, it assumes an output that would meet all  
23 of your licence conditions including the levels in the  
24 lake.

25 Is that correct?

1 MR. DAVID CORMIE: Yes.

2 MR. ANTOINE HACAULT: Now, this next line  
3 of questioning will help me perhaps understand better a  
4 table which is reproduced at Tab 64. It's PUB MH Risk  
5 Interrogatory 99. It's page 290 in the document book.

6 MR. DAVID CORMIE: Yes, I have that.

7 MR. ANTOINE HACAULT: Tab 64. I'm  
8 drawing your attention, specifically, with respect to  
9 your last statement of the drought. Help me better  
10 understand why, in a drought year, there might be such a  
11 large variance as 11 percent from the forecasted  
12 generation to the actual generation.

13 MR. DAVID CORMIE: When we reviewed that  
14 chart before lunch, that -- that -- it was the scatter  
15 graph of -- of water supply. You remember that there was  
16 a dry line and there was an expected line. And for the  
17 purposes of preparing the IFF, we say we are going to  
18 produce a forecast that's based on an expected outcome.  
19 Assumes on the forecast date that it starts raining  
20 normally, and for the current conditions with a normal  
21 forecast of rainfall there will be an expectation of  
22 average results.

23 MR. ANTOINE HACAULT: So that's the  
24 middle line with the word "expected" --

25 MR. DAVID CORMIE: Yes.

1 MR. ANTOINE HACAULT: -- put through it--

2 MR. DAVID CORMIE: Right.

3 MR. ANTOINE HACAULT: -- on both the  
4 scenarios shown on Exhibit 123?

5 MR. DAVID CORMIE: Right. So the -- the  
6 -- as everybody does in the IFF, they put their best  
7 estimate of -- of expected costs and revenues into the  
8 IFF. However, if conditions are -- remain -- are drier  
9 than expected, we are not a slave to the IFF. We -- we  
10 continue to protect the power system should the low-flow  
11 condition occur, and that was the case in 2003 and '04.  
12 So conditions were drier than we had put into the IFF,  
13 and as a result, there was less hydraulic energy  
14 available, and therefore the outcome was -- was -- was  
15 different than what was in the forecast.

16 And -- and that -- that's -- and, as you  
17 saw in those charts, 11 percent variation is quite  
18 reasonable, given the uncertainty under a -- under a dry  
19 condition, and that's what we ended up -- ended up  
20 havening -- happening in that year. Because we were  
21 concerned about drought, the continuation of drought, we  
22 were operating the power system conservatively. But for  
23 the purposes of the IFF, we put in the expected outcome  
24 rather than the worst-case outcome. Had we put in the  
25 worst-case -- case outcome, then we would have been much



1 closer to what actually happened in operations.

2 MR. ANTOINE HACAULT: So if we just  
3 blindly look at these numbers it seems like a huge  
4 number, but it's because you use this as a tool and you  
5 adjust accordingly, that your actual generation was less  
6 than the expected amount shown on the graphs, or shown by  
7 your outputs.

8 Is that another way to say it, or am I  
9 misunderstanding?

10 MR. DAVID CORMIE: Yes, and in -- in --  
11 in remembering that in a -- in an average year, you have  
12 the ability to draw reservoirs down to offset any decline  
13 in inflows. So, remember, you have the combination of  
14 water that's in reservoir storage and the combination of  
15 flows. And as that -- that previous chart that -- that  
16 showed all those lines indicated, generally we have more  
17 energy in storage than we absolutely need, if -- if you  
18 assume that the minimum was around three (3) or two (2).

19 So if inflows are lower than forecast, you  
20 can take more water from storage, and you can generally  
21 get close to what the -- the total hydraulic generation  
22 was forecast. The inflows may be lower, but the storage  
23 releases are higher.

24 When you're in a low-flow circumstances,  
25 you don't have the option of drawing additional water out

1 of storage because now you're bumping into the minimum  
2 needed for energy security. And so, to the extent that  
3 the inflows are -- are off forecast, you have no ability  
4 to offset that variation with -- with reser -- reservoir  
5 operations. And so it -- it ends up that, in those  
6 years, there's not a lot you can do about it.

7                   And you'll notice that, on that table as a  
8 whole, the -- the methodology is unbiased. The average  
9 of the variations over all of those years is zero. Some  
10 years are higher, some years are lower, but in that  
11 particular year, that was a year where we couldn't use  
12 the storage to offset the -- the shortfall that was  
13 created because of the lack of rain.

14                   MR. ANTOINE HACAULT: And am I correct in  
15 understanding a previous answer, that when you get, I'm  
16 going to say, into a drought mode, you actually apply a  
17 more conservative approach?

18                   MR. DAVID CORMIE: Yes, and I think Mr.  
19 Rose talked about that, is that once you're into a  
20 drought, you know, low flows generally continue. You --  
21 there's more likelihood that you'll stay low than high,  
22 and so you need to be a little bit more cautious because  
23 now you're in that event, and the question is just how  
24 long and what's the severity going to be.

25                   And so we tend -- well, we do become a lot

1 more careful in -- not more careful, but we choose a -- a  
2 lower or a higher level of -- of -- of supply security  
3 because generally supply security is -- is -- is -- is  
4 assured because we would not make an export sale to serve  
5 Manitoba load. Under those flow conditions, we've  
6 already financially settled all our -- all our  
7 obligations, and now it's -- it -- it -- it's just a  
8 matter of you have to serve the Manitoba load. There's  
9 no alternative. So you have to be more cautious in that  
10 cir -- circumstance.

11 MR. ANTOINE HACAULT: I'd ask you to turn  
12 to Tab 66, I believe, in part, and also we'll have Tab  
13 69. Tab 66 has some rebuttals, but first perhaps I could  
14 draw your attention to the actual Kubursi/Magee Report.  
15 It starts at page 297. And we've extracted pages 71, 72,  
16 and 73 of that report. Now, of interest to me would be  
17 any comments you may have.

18 MR. DAVID CORMIE: Which -- which tab are  
19 we at?

20 MR. ANTOINE HACAULT: Tab 69.

21 MR. DAVID CORMIE: Sixty-nine (69).

22 MR. ANTOINE HACAULT: And page 297(I).

23 MR. DAVID CORMIE: Yes.

24 MR. ANTOINE HACAULT: And I'd like to  
25 have your comments with respect to the last sentence just

1 before the table. The Table 3.1 is pretty similar to  
2 what we had just been discussing. It shows the  
3 variances, and the doctors write, and I quote:

4 "Where it failed, however, was in the  
5 crucial period of a critical year of  
6 low flow. The error in 2003/'04 is  
7 large, with over 11 percent."

8 Now, I don't need you to go through  
9 everything that you've just gone through, but am I right  
10 in believing that you disagree that this is an error or a  
11 failure?

12 MR. DAVID CORMIE: And I -- I have tho --  
13 those same concerns with that, where it implies that  
14 something went wrong as opposed to a variation from  
15 forecast that is completely predictable. There's nothing  
16 wrong with the regression models. It's just that -- that  
17 circumstances unfold quite differently than were  
18 expected, and all we're measuring here is the variance in  
19 -- in the forecast.

20 For example, if -- if you were to ask a  
21 weather forecaster to predict a temperature on July 10th  
22 he might say it's going to be -- he'll give you the  
23 average temperature for that day, it might be 25 degrees  
24 in the afternoon.

25 But if it turns out to be twenty-six (26)

1 or twenty-seven (27), that's not an error in the  
2 forecast. That's just the variation that you would  
3 expect around -- around that -- that forecast. So I  
4 don't -- I don't agree with the -- the use of the word  
5 "error." Implies that there's -- there was a mistake  
6 made, and -- and I don't believe that's the case here.

7 MR. ROBERT MAYER: Mr. Cormie, that's an  
8 interesting concept. Maybe that's how Environment Canada  
9 claims its 95 percent accuracy rate. I -- I am, of  
10 course, of a different view. If you are forecasting that  
11 this is what our temperature is going to be ten (10) days  
12 from now, that's a forecast. If you are telling me what  
13 the average is, that's a different story.

14 I think those suckers are lying to us  
15 every day when they throw that -- that map on the weather  
16 channel. It looks like it got -- was a -- was a monkey  
17 with an Etch-A-Sketch. So much for my rant for the day.

18 MR. DAVID CORMIE: It's a very difficult  
19 problem to predict the future, and -- and I think we --  
20 we, as the public, expect a lot that's not really  
21 possible. And so I think it's a matter of understanding.

22 MR. ROBERT MAYER: You know, I -- I  
23 certainly can understand that. And when they draw the  
24 line through the graph, it says, "Average daily high for  
25 this period." That I understand. But when it goes up

1 and down like they're actually telling you that it's  
2 going to be a different temperature than the average, I  
3 think there's something wrong with that. And if you  
4 can't do it, then don't do it because that screws up more  
5 events than -- than one can think of, especially people  
6 who are relying on those kind of predictions to do things  
7 that are weather-related.

8                   And we had a particularly nasty problem  
9 with that last fall when we were trying to attempt when  
10 we were going to bring out people to do snow-making at  
11 Mystery Mountain.

12                   MR. DAVID CORMIE: And -- and, Mr. Mayer,  
13 that -- that's a very important concept, is that when you  
14 can't afford to be wrong you shouldn't rely on a number  
15 that only has a 50 percent chance of being accurate. And  
16 that's why Manitoba Hydro in its water management wants  
17 to be 95 percent of the time right. That's when we --  
18 when we determine whether we have -- actually have a  
19 surplus available in the winter to sell to a customer in  
20 the export market. We go to the 95 percent load because  
21 we want to make sure that almost all the time that there  
22 is surplus capacity, not just half the time, almost all  
23 the time.

24                   And so we choose a level around which we  
25 operate the system that ensures that there's adequate

1 supplies of Manitoba most of the time. We can't  
2 guarantee it 100 percent of the time, but we -- we -- we  
3 do hedge on the side of -- of caution. And -- and so the  
4 choice of the -- the -- the choice of the -- the -- the  
5 level of certainty is at the discretion of the person  
6 who's making the decision.

7                   And -- and -- if it -- if it was important  
8 that you wanted to make snow, then maybe don't ask them  
9 for the average, ask them for I want a guarantee. And  
10 then he'll tell you that -- well, he'll -- he'll give you  
11 a different number.

12                   MR. ROBERT MAYER:   That's true, and that  
13 costs two hundred and fifty dollars (\$250) at -- at  
14 Environment Canada.

15  
16 CONTINUED BY MR. ANTOINE HACAULT:

17                   MR. ANTOINE HACAULT:   Maybe to just to go  
18 to that again and try to avoid this.

19                   Going back to Exhibit 123, did I  
20 understand you -- that's the draft that you produced this  
21 morning. Did I understand that, for planning purposes,  
22 you actually use, what I'm going to say is, the brown  
23 line, which is the low-flow condition, and that is the  
24 increased certainty that you talk about?

25                   MR. DAVID CORMIE:   Yes, the -- the

1 decision-making process involves determining a schedule  
2 based on the expected condition. Then, as a check, we --  
3 we -- we test that decision against the brown line -- the  
4 low-flow case -- and if our decision is still the right  
5 decision, even if we have the -- the low-flow  
6 circumstance from a -- the perspective of ensuring that  
7 there's an adequate supply of Manitobans, we say, We can  
8 -- we can go with the expected outcome 'cause we know if  
9 it turns out to be -- if we're optimistic, we still  
10 haven't put the Manitoba load at risk.

11 But if the -- if we check the expected  
12 release decision against the low-flow case and it says,  
13 No, you don't have a surplus even under that situation,  
14 then we will modify the release so that we -- that we are  
15 not putting the Manitoba load at risk.

16 So it's -- it's a process of doing the --  
17 what's -- what's the economic and the optimum thing,  
18 subject to guarding against a bad outcome under a worst-  
19 case scenario.

20 MR. ROBERT MAYER: One -- once you  
21 release the water from Lake Winnipeg, do you have any  
22 opportunity or any significant opportunity, if you  
23 realize that something's gone wrong, can you hold it at  
24 Kelsey or Kettle to any amount?

25 MR. DAVID CORMIE: No. It's -- once it's



1 out of -- of Southern Indian Lake or Lake Winnipeg, the  
2 water is in the system and it will result in -- in  
3 generation. There is -- there is storage along the  
4 river, but it's minor relative to the storage capacity of  
5 Lake Winnipeg and Southern Indian Lake. So once it's  
6 gone you can't call it back.

7

8 CONTINUED BY MR. ANTOINE HACAULT:

9 MR. ANTOINE HACAULT: Thank you for that  
10 last clarification.

11 So, just moving one (1) notch further, if  
12 you see that you're in a dry condition, as I understand  
13 it, you're even more conservative and you don't -- you'd  
14 go to higher levels of certainty than that brown line.  
15 You'd actually go to a 95 percent certainty. Is that  
16 right?

17 MR. DAVID CORMIE: In a drought  
18 circumstance, we want to ensure that the combination of  
19 unfavourable weather and un -- with regard to temperature  
20 in Manitoba load, and unfavourable water supply has --  
21 that -- that we can say that our customers' needs for  
22 power in Manitoba will be met at the 99 percent  
23 confidence level. We're 99 percent sure that we won't  
24 have to enter into an emergency situation.

25 So we -- we operate to a higher tolerance

1 when we're in a drought. When we're not in a drought, we  
2 can accommodate variations through the use of the  
3 interconnections by either buying or sell -- selling less  
4 or buying more, and we can manage the variations around  
5 the forecast just on the inter -- on the  
6 interconnections. But when you're in a drought, the  
7 power is already flowing north under the max -- at the  
8 maximum possible rate. And so there's no -- you -- you -  
9 - there's no ability to purchase more or to dispatch more  
10 combustion turbines or coal-generation. You're already  
11 flat out.

12                   So you have to -- you have to then operate  
13 to a -- to a higher level of certainty under drought  
14 conditions than you do in an average -- in an average  
15 condition.

16                   MR. ANTOINE HACAULT: The next matter I'd  
17 like you to address your mind, that is found at Tab 66,  
18 which is Hydro's rebuttal evidence. It takes a quote  
19 from the report of Drs. Kubursi and Magee, and the last  
20 part of that quote reads as follows:

21                   "There's a minimum level that should  
22 remain in storage consistent with  
23 dependable energy targets. The level  
24 above that minimum should be part of  
25 the mitigation strategy and should be

1 adjusted in proportion to deviation of  
2 retained earnings from their targeted  
3 minimum. The closer the retained  
4 earnings are to their minimum desirable  
5 level, the higher the water that should  
6 be left in storage for drought-  
7 mitigation purposes."

8 I'd like to explore with you, sir, the  
9 practical implications of following that recommendation.  
10 I don't know whether there's a particular example that  
11 might be used to try and illustrate what issues arise  
12 from this statement, but let's -- would using the  
13 2003/2004 drought, which caused a reduction in the  
14 retained earnings followed by a good year of flows, help  
15 us understand what this would be? So let me go through  
16 the example.

17 If you were at \$2 billion of retained  
18 earnings and you have the 2003/2004 drought -- say, for  
19 illustration purposes, that's half a billion dollars hit  
20 on the retained earnings -- retained earnings are now  
21 lower. It appears that what the doctors are saying is  
22 because we have one (1) year of bad drought, you have to  
23 keep the levels in the lake and your reservoirs really  
24 high because now you have less retained earnings.

25 I don't know if I'm understanding their

1 statement correctly. But if that's so, I'm trying to  
2 lead to the logic, and you've just explained that  
3 retaining high water levels in your lake increases the  
4 risk of spill. I don't know if you're following me so  
5 far. Does following their recommendations increase the  
6 potential risk of lost revenue to Manitoba ratepayers?

7 MR. DAVID CORMIE: I -- I believe it -- I  
8 believe it does. And you -- you have to think of -- of  
9 their being two (2) bank accounts. One is the one in  
10 which the retained earnings are notionally kept. The  
11 other one is the bank account in which the water storages  
12 are kept, and you can put a value on those.

13 The difference between the two (2) is the  
14 money that you have in the bank or of the notional  
15 retained earnings that you have can't be spilled, so you  
16 have what you have. The -- the -- the assets that you  
17 have in reservoir storage are subject to being washed  
18 away if you end up having -- if you have -- if you put  
19 the water into storage, and then a subsequent year high-  
20 flow conditions occur and you've spilled the water, the  
21 incremental water, that you could have otherwise  
22 generated and sold at an earlier date.

23 And so, from a perspective of -- of -- of  
24 protecting the company financially, it's better to  
25 protect it through retained earnings than to hold water

1 in reservoir storage, because that -- that asset may end  
2 up being worthless because it -- it -- it -- it ends up  
3 being spilled.

4 In Manitoba Hydro's situation, we have a  
5 very large volatility in our water supply relative to our  
6 reservoir size, and so there's -- there's great frequency  
7 in which carryover water is subsequently spilled. And I  
8 believe in -- probably in the last ten (10) years, almost  
9 every megawatt hour that we purposely held back into  
10 storage would be -- was subsequently spilled because of a  
11 high-flow year.

12 And so it's with great caution that you  
13 would make the decision to hold back a reservoir storage  
14 because you -- be -- because we just don't have big  
15 enough reservoirs to absorb, most of the time, the high-  
16 flow conditions that can occur. Our -- our reservoirs  
17 are too small relative to the volatility we face in our  
18 water supply. So it's actually a relatively inefficient  
19 way of ensuring the financial future of -- of the Company  
20 as compared to retained earnings.

21 MR. ANTOINE HACAULT: Is it your opinion  
22 based on your experience then, Mr. Cormie, that if the  
23 recommendations of Drs. Kubursi and Magee were followed  
24 as a long-term planning objective and way of operating  
25 the reservoirs, that their recommendations would cost the

1 Manitoba ratepayers millions of dollars over the long-  
2 run?

3 MR. DAVID CORMIE: I -- I haven't done  
4 the -- the calculation, but I'm not sure that it will  
5 make a significant difference to the size of -- of the --  
6 the desired amount of retained earnings. For example, a  
7 foot on Lake Winnipeg is 2,000 gigawatt hours, 2 million  
8 megawatt hours. If you valued that at fifty dollars  
9 (\$50) a megawatt hour, there might be \$100 million in  
10 reservoir storage relative to our desired level of  
11 retained earnings, which is in the billions of dollars.

12 So it could -- it could be part of a --  
13 minor part of a strategy, but I think it's a more  
14 expensive strategy than -- than targeting a fixed amount  
15 of equity relative to debt. And I haven't figured -- I  
16 haven't determined what the long-term cost of that would  
17 be, but we know that, at times, individuals have  
18 approached Manitoba Hydro saying that we should change  
19 the res -- the level -- the -- the limits at which our  
20 reservoirs are allowed to operate. And we've done those  
21 calculations, and those are very significant costs to the  
22 Corporation if we were to lose -- lose storage.

23 And so storage has a significant value.  
24 And if we were to hold back storage, in effect, deny us  
25 the use of the bottom part of the reservoir, it would be

1 expensive, whether it's for managing financial risk or  
2 for managing stakeholder concerns with water levels.

3 MR. ANTOINE HACAULT: Now, I just want to  
4 make sure I follow and try to tie some of this in. If  
5 your holding reservoir level is high, does that limit  
6 your ability to secure export sales on average? Would it  
7 cause more spillover, and as a result of spilling it,  
8 you're not selling it?

9 MR. DAVID CORMIE: Yes, that's -- that's  
10 fair.

11 MR. ANTOINE HACAULT: Okay. Do you think  
12 it would affect -- I think we've seen that there's some  
13 shorter-term -- I don't know if I'm calling it correctly,  
14 firm export sales there, like a couple weeks, or perhaps  
15 going into a month or two (2). Do you think it would  
16 affect your ability to secure prices for those types of  
17 contracts?

18 MR. DAVID CORMIE: No, I don't think that  
19 would affect. I think it -- and it just ends up in that  
20 less energy goes to the spot market than would otherwise  
21 because you've held water back in storage to achieve some  
22 predetermined target level. And that would result, in --  
23 in many years, to be a bad decision because water flows  
24 turned out to be high and spillage of that storage  
25 decision was required.

1 MR. ANTOINE HACAULT: Thank you. I'd  
2 like to draw your attention back to that quote that I  
3 referred to earlier on the transcript at Tab 66. It's  
4 page 293. It's the quote from Kubursi/Magee. And  
5 there's some discussion and, I gather, difference of  
6 opinion on whether or not Hydro's correct in trying to  
7 optimize its export revenues through the HERMES model and  
8 through its business decisions and policies.

9 I'm not too sure whether -- at line 23 of  
10 page 293 of the book of documents, whether that speaks --  
11 that first sentence speaks to that or speaks to another  
12 issue.

13 Would you be able to help me? 'Cause it  
14 says:

15 "Figure 4 demonstrates that Manitoba  
16 Hydro is already doing what KM is  
17 recommending."

18 I'm not too sure what that sentence was  
19 referring to. I've got no idea actually.

20 MR. DAVID CORMIE: If you look at the  
21 Figure 4 on the -- on the next page, each one of those  
22 lines represents a -- a flow year. And -- and if you  
23 were to look at the low point in the red line as being  
24 the low point in -- in annual storage draw, what we're  
25 trying to do is -- is optimize the lo -- the -- that --



1 that trajectory over the winter season.

2                   And each one of those individual  
3 strategies or trajectories is optimum for the current  
4 water conditions that -- that -- that the Corporation  
5 faced in those years. It was the result of an  
6 optimization. Some years it made sense to have 8  
7 terawatt hours in storage and some years it made sense to  
8 have two (2). And that was all a function of what the --  
9 what the -- the inflows were in the -- in the previous  
10 year.

11                   And, on average, you can see that we had  
12 about 6.5 terawatt hours, whereas what we needed for  
13 energy security to serve Manitoba load, was -- was  
14 something in the order of 2 to 3 terawatt hours. So, on  
15 average, Manitoba Hydro was already carrying over the  
16 difference between the -- let's say it was two (2) to the  
17 -- to the six point five (6.5). We were carrying four  
18 and a half (4 1/2) over in -- to -- for use in subsequent  
19 years because that was the right economic thing to do.

20                   We didn't really have to intervene -- so,  
21 on average, we were already long storage because that's  
22 the way that overall power system operations was  
23 optimized. So we don't need to -- on -- when -- were we  
24 to face a drought, on average, we would have 4 1/2  
25 terawatt hours in storage more than we actually needed.

1 So, in effect, we already had a 4 1/2 hour terawatt hour  
2 hedge in place. And that's just -- that's just the --  
3 the -- the normal part of -- of our -- of our -- our --  
4 our practice for the last thirty-five (35) years.

5 So what they're -- what they're suggesting  
6 is what we're doing already, and we don't really -- I  
7 don't believe we need to do that because the Corporation  
8 is already -- already hedged. And that hedge is --  
9 occurs as a result of the influence of ice at the outlet  
10 of Lake Winnipeg which makes that the right way to  
11 operate that reservoir. Had that -- if the ice wasn't  
12 there, then what they were saying could -- could make  
13 sense because we would then be able, every winter, to  
14 draw it down to the minimum, and every year we -- if --  
15 if -- we would face the risk that we didn't -- that --  
16 that we didn't have water in storage that could be useful  
17 if that year was a drought year.

18 MR. ANTOINE HACAULT: Thank you. I'd  
19 like to move on to another subject matter, and I'd ask  
20 you to flip back to Tab 65. And I'd like you to draw  
21 your attention to the line 12 where there's a statement:

22 "Hydro believes that its practices of  
23 opti -- optimizing net export revenues  
24 in its water management and marketing  
25 activities benefits its ratepayers."

1                   I guess further down you had talked about  
2 -- or somebody at Hydro had said, would cost customers  
3 millions in lost profits, but we don't know that for sure  
4 right now. Is that it?

5                   Oh, sorry, I was at page 292. I -- I've  
6 screwed everybody up. I apologize. I --

7                   MR. DAVID CORMIE: Could you re-ask your  
8 question?

9                   MR. ANTOINE HACAULT: Yeah. Line 12, the  
10 quote says:

11                   "Manitoba Hydro believes that its  
12 practices of optimizing net export  
13 revenues in its water management and  
14 market activities benefits its  
15 ratepayers."

16                   But later on in that paragraph, there's  
17 the statement that it would cost Manitoba Hydro customers  
18 millions in lost profits from foregone hourly, daily,  
19 weekly and seasonal arbitrage activities. I'm not too  
20 sure what that means. Could you explain?

21                   MR. DAVID CORMIE: A -- a hydro-electric  
22 system like Manitoba Hydro has the advantage that we can  
23 operate the generating system, in effect, on full-out in  
24 the daytime and shut it down at night. When you shut it  
25 down at night, you still have a load to serve, and so we

1 can go to the market and purchase power at night to serve  
2 that load. So -- so we can -- we can buy power at night  
3 at a low cost to serve our requirements, and then, using  
4 the storage in our reservoirs, we can concentrate the  
5 available water supply and maximize our generation in the  
6 daytime. So this is the arbitrage that can occur through  
7 the use of storage.

8           Now, what -- what you're doing there is  
9 you're buying power at night. You're spending money to  
10 buy the power, but what it results in is higher revenues  
11 in the daytime having -- once you -- because you now have  
12 more energy to sell in the daytime when the power prices  
13 are high. So you can capture the on-peak/off-peak spread  
14 through the use of -- of storage.

15           If your objective was to minimize costs,  
16 you would run the hydro system flat. You wouldn't  
17 purchase anything because you're trying to minimize  
18 costs. Don't buy anything that you don't have to. But  
19 that would result in for -- lost opportunities in the  
20 export market. So if -- if -- if you say our objective  
21 is to minimize cost, then you don't worry about the lost  
22 opportunity for the profits. You -- you -- you just say,  
23 I'm -- I'm trying to just -- I'm just going to cut costs,  
24 and I don't care what the benefits are.

25           What Manitoba Hydro does is we say, Let's

1 -- let's optimize the use of purchase power in its  
2 portfolio with the sales opportunities to come up with an  
3 overall benefit. Now, those kind of arb -- arbitrage  
4 opportunities can occur day/night, they can occur during  
5 the -- from weekdays to weekends, they can occur from one  
6 month to another to capture the price variations that  
7 occur over seasons, and so -- and that's what -- that's  
8 what the water management essentially is about. It's --  
9 it's optimizing the use of the hydraulic generation so  
10 that the profits from -- the net profits are maximized.  
11 And that does involve -- it does involve spending more  
12 money than you actually have to, but the -- the objective  
13 is that you -- and -- and the goal is to make more  
14 revenues as a result. And the net effect is Manitoba  
15 Hydro's more profitable than it would otherwise be.

16           Once we actually get into the real-time  
17 dispatch of generation, what should the loading on a  
18 particular generator be at that moment in time? Clearly  
19 our objective is to serve the given load, that export  
20 load that we've committed for that hour, and the Manitoba  
21 load at -- at -- at minimum cost. We want to do that and  
22 -- and maximize the efficiency. But once you get out  
23 beyond one (1) hour and you start talking about planning  
24 the operations and how water should be managed, you need  
25 to think about optimizing net revenues, not just

1 minimizing costs.

2 MR. ANTOINE HACAULT: And now that I had  
3 confused everybody, this actually deals with some of the  
4 recommendations that had been made by Drs. Kubursi and  
5 Magee to -- and which are stated in the immediately  
6 preceding page, so page 291 in our book of documents.

7 You've just explained then Manitoba  
8 Hydro's perspective of a formula that would have, as an  
9 objective function, to minimize cost of generation. So  
10 what you've just talked about is an illustration of why  
11 that objective would cause problems, is that correct?

12 MR. DAVID CORMIE: Yes. We think our  
13 objective should be maximizing profitability, not  
14 minimizing cost.

15

16 (BRIEF PAUSE)

17

18 MR. ANTOINE HACAULT: Next, could you  
19 turn to Tab 68, please. I guess it's, in -- in part, the  
20 same topic. At Tab 68, page 297, of our book of  
21 documents, the very last sentence reads as follows:

22 "No output constraint in the profit  
23 maximization (or sale maximization),  
24 may tempt overselling and, therefore,  
25 greater risk exposure."

1                   What's your view on that particular  
2 statement, Mr. Cormie?

3                   MR. DAVID CORMIE:    There's two (2) types  
4 of risk exposure.  One (1) is the risk that entering into  
5 a transaction in the export market might put the domestic  
6 customer at risk because there not -- may not be  
7 sufficient supplies to serve Manitoba loads.

8                   Manitoba Hydro manages that risk becau --  
9 with curtailment provisions in every one (1) of its  
10 contracts, and so that -- that is not a risk.  So the  
11 only risk is the -- is the financial risk.  And -- and  
12 that risk is that we might enter into a transaction that  
13 -- with the expectation that it will be profitable but  
14 that circumstances vary from what was expected and -- and  
15 the outcome is then a transaction that -- that showed a  
16 loss rather than a profit.

17                   There -- the -- to manage the overselling  
18 risk in the export market we use -- we -- we determine  
19 the surplus capacity on the system assuming a very high  
20 Manitoba load.  So let's say that we have 5,000 megawatts  
21 of generating capacity.  We look at what the Manitoba  
22 load is going to peak at during that month, not at the 50  
23 percent probability of exceedance, but at the 95 percent  
24 probability of exceedance, so we go to a high level of  
25 certainty on what the Manitoba load means.

1                   And -- and let's say that was 4,400  
2 megawatts. So that means we're 95 percent sure that the  
3 surplus that Manitoba Hydro would have in the month of  
4 January might be 600 megawatts. On average, it might be  
5 900 megawatts, but on a conservative basis we use the --  
6 the 95 percent level. So we're very conservative in  
7 determining.

8                   And then we'll -- to the extent that we  
9 can sell that surplus, we will until it's all gone. And  
10 then we stop because we're now -- that transaction is no  
11 longer asset-backed. There's -- there's no -- that would  
12 be now assuming that we would be serving that sale from  
13 the market rather than from generation assets that  
14 Manitoba Hydro controlled. And that would be a pure  
15 speculative transaction rather than one that we can point  
16 to surplus generation on our system.

17                   So we manage the risk of overselling by --  
18 by using a very high Manitoba load. And -- and I don't  
19 believe it is -- it is an issue. It doesn't guarantee  
20 that every transaction turns out profitable, but at the  
21 end of the -- our record has shown that on average they -  
22 - they are -- they are profitable transactions when  
23 considered as a whole.

24                   MR. ANTOINE HACAULT:     Thank you.

25



1 (BRIEF PAUSE)

2

3 MR. ANTOINE HACAULT: Now I'd like to  
4 address the panel's attention, and it may be you, Mr.  
5 Cormie, I don't know, it may be Mr. Surminski, page 299,  
6 Tab 70. Tab 70, page 299. This is an extract from the  
7 ICF presentation.

8 As I understand it it's -- from previous  
9 questions, this is a graph that was prepared by Manitoba  
10 Hydro. Is that correct?

11 MR. HAROLD SURMINSKI: Yes, it was.

12 MR. ANTOINE HACAULT: Okay. Now, I'd  
13 like to better understand this graph. In -- if the IFF  
14 is predicting, this for illustration purposes, \$200  
15 million of net revenue, this graph -- is it to be read  
16 that if there's a negative variation of minus 200  
17 million, shown on this graph, that would be a situation  
18 then where Manitoba Hydro's revenue for that particular  
19 year, instead of being 200 million, is now zero?

20 MR. HAROLD SURMINSKI: Yes, you're  
21 correct in that interpretation.

22 MR. ANTOINE HACAULT: So if I did  
23 something really absurd, like putting my line of paper at  
24 the minus 200 million on this graph, using my example,  
25 all the lines above that 200 million would be a situation

1 where Manitoba Hydro is actually earning net revenues.

2                   It's only if the negative variation goes  
3 below the 200 million, because we've got the assumption  
4 we've been making \$200 million net profit, that we  
5 actually get into losses.

6                   MR. HAROLD SURMINSKI: Yes, for the  
7 absolute end result, that -- that would be the case if  
8 you were expecting 200 million initially on the average.

9                   MR. ANTOINE HACAULT: I see some kind of  
10 querying minds. I was trying to understand this graph  
11 and I don't know how I can ask questions of this panel to  
12 better understand it, but I'll try again.

13                   So, this line at zero -- if we go below  
14 that line, it doesn't necessarily mean that Manitoba  
15 Hydro isn't generating net revenues.

16                   That's not what this graph is saying.

17                   MR. HAROLD SURMINSKI: No, this graph is  
18 a deviation from the best estimate. So whatever the best  
19 estimate for the year is; if it was two hundred (200)  
20 plus, it's a deviation up and down from that two hundred  
21 (200). If it was -- if it started at zero, it's -- it's  
22 also the deviation from that.

23                   So it's -- it's -- whatever your starting  
24 point is, the deviation -- the positives for -- for  
25 higher than expected and the negatives for the lower.

1 MR. DAVID CORMIE: And -- and -- and a  
2 good example was what happened in '03/'04. The -- the  
3 Corp -- Corporation lost some \$460 million, so it showed  
4 a loss. But the variation from what was forecast under  
5 the average was much greater than that.

6 And now -- and this is -- all this is  
7 showing is the deviation from what's in the IFF. The --  
8 the deviations that are possible under the variations in  
9 flow conditions from what's in the IFF.

10 MR. ANTOINE HACAULT: And that's what I  
11 was trying to understand, because if we just visually  
12 look at this graph, it appears that we have to find --  
13 there's more green on top than there is on the bottom.

14 But if we actually correct it, and put the  
15 line at a lower level to reflect when Manitoba Hydro will  
16 actually be going into a deficit, we'd have very little  
17 of these green bars left over at all.

18 MR. HAROLD SURMINSKI: I don't agree with  
19 that. The volume of all the greens above is equal to --  
20 to the volumes of all the -- the negatives below.

21 Like, if you -- if you added up all those  
22 increments above and below, they're -- they're equal on  
23 either side.

24 MR. ANTOINE HACAULT: Yeah, I understand  
25 that, but that's based on the fact that your IFF also

1 projects that in each year -- or whatever the particular  
2 items are, you're not projecting a deficit in each and  
3 every year in your IFF, are you?

4 MR. HAROLD SURMINSKI: I'm not sure where  
5 your argument's going on that. Because it -- it does not  
6 matter what the absolute number is. These deviations are  
7 -- are relative to -- to whatever the IFF estimate is.

8 MR. ANTOINE HACAULT: I'm not too sure  
9 from the --

10 THE CHAIRPERSON: Well, I was just going  
11 to ask one (1) question.

12 I believe I understand what you're saying,  
13 but we've always understood that the -- when -- when the  
14 situation turns negative, the negative is worse than when  
15 the situation turns to the -- the upside. In other  
16 words, the cost of a drought is -- generally speaking,  
17 more than offsets the equivalent positive flow on the  
18 other side.

19 Does that take into account price  
20 differences for such situations as developed in the last  
21 drought, where the cost of -- of dealing with that  
22 exceeded, in a sense, the -- the benefits if the flow had  
23 been on -- on the surplus side?

24 MR. HAROLD SURMINSKI: Well, for one (1)  
25 thing, the losses are not -- I'd like to, first of all,

1 say that losses are not -- or the magnitudes are not  
2 symmetric. So on the drought side, you can see you can  
3 be losing \$600 million in your worst years, whereas on  
4 the -- even the highest flow years, you gain just over  
5 \$200 million. So -- so things are not symmetrical.

6 THE CHAIRPERSON: Yeah. I was -- I  
7 understood that, and that reflects that on this graph.

8 MR. HAROLD SURMINSKI: Yes.

9 THE CHAIRPERSON: But you said, if you  
10 added them all up, you came to basically zero.

11 MR. HAROLD SURMINSKI: Yes. If you added  
12 up that --

13 THE CHAIRPERSON: So how does that fit if  
14 -- if they're not -- if they are asymmetric, if they're  
15 not exactly the same on both sides?

16 MR. HAROLD SURMINSKI: But there's --

17 THE CHAIRPERSON: It should end up being  
18 negative if totalled, shouldn't it?

19 MR. HAROLD SURMINSKI: But they're more  
20 frequent. You'll see there are many more highs than  
21 there are lows --

22 THE CHAIRPERSON: Yeah. Well --

23 MR. HAROLD SURMINSKI: -- so just by  
24 adding up --

25 THE CHAIRPERSON: So just two (2) times

1 the highs are offsetting the --

2 MR. HAROLD SURMINSKI: Yes.

3 THE CHAIRPERSON: -- the other side.

4 Okay.

5 MR. HAROLD SURMINSKI: Yes.

6 MR. DAVID CORMIE: Yeah. The -- the  
7 numbers that go into the IFF are the average of the  
8 ninety-four (94) possible cases. So, we figure out what  
9 the average costs are with running the Corporation under  
10 all these flow conditions and the average revenues, and  
11 the average net revenue is what -- is -- is what -- is  
12 what's portrayed here.

13 THE CHAIRPERSON: Yeah, I -- I'm  
14 following you.

15 MR. DAVID CORMIE: So the positives and  
16 the negatives cancel.

17 THE CHAIRPERSON: So you're saying,  
18 basically, because you pursue a basically conservative  
19 approach, that plays into this, too, in that you will  
20 have more on the upside than the downside.

21 MR. DAVID CORMIE: I think when we -- we  
22 look at the average compared to the percentile, I think  
23 the average -- the -- the average net revenue is  
24 something like the 40 percentile event because of the  
25 skewed distribution. The -- it's -- the -- the median of

1 the distribution is not the average of the distribution  
2 because of -- of -- on -- on net revenues, because of the  
3 skewing of -- associated with costs under drought  
4 conditions.

5 THE CHAIRPERSON: Thank you.

6

7 CONTINUED BY MR. ANTOINE HACAULT:

8 MR. ANTOINE HACAULT: Now, with respect  
9 to this graph, is there modelled in that graph the terms  
10 and conditions of the new term sheets and the new terms  
11 and conditions of the NSP sale?

12 In other words, when Mr. Williams was  
13 going through a lot of the, I'm going to say, differences  
14 or benefits, when we compared, I'm going to say, the old  
15 droughts compared to the situation which Hydro believes  
16 it will be in the future, does this graph reflect what  
17 I'd refer to as the old situation because -- when we had  
18 done -- Mr. Williams had done the comparison between the  
19 old and the new?

20

21 (BRIEF PAUSE)

22

23 MR. DAVID CORMIE: To the extent that any  
24 export contract creates costs, and those costs will vary  
25 depending upon water conditions, those costs are built

1 into this forecast.

2                   The -- what's not built into this forecast  
3 are the two (2) revenue items: one is the domestic  
4 revenues, and one is the firm revenues associated with  
5 the sale, because they're not flow related; they're  
6 fixed. But all the power system costs -- water rentals,  
7 power purchases, gas, turbine operation to the extent  
8 Brandon is -- is -- is -- has run in the past -- those  
9 costs would be in there.

10                   To the extent that Selkirk might have to  
11 be dispatched, all the -- all the -- all the costs that -  
12 - that vary as a function of river flows would be built  
13 in there, and those are the costs to serve the Manitoba  
14 firm load, which includes the firm export obligations.

15                   MR. ANTOINE HACAULT: I'll try to ask the  
16 question a bit differently. I don't think the answer  
17 delved with what I was looking for.

18                   I had understood, perhaps wrongfully so,  
19 when Mr. Williams went through the -- I'm going to call  
20 it old scenario and where we are today, that Manitoba  
21 Hydro believed it was in a better position today to deal  
22 with the risks. And I maybe incorrectly kind of jumped  
23 to the next level, saying, Well, if they're got better  
24 instruments through contracts and other measures to deal  
25 with risks, perhaps the extremes would not be as big.



1                   Now, was that an incorrect jump in logic?

2

3                                   (BRIEF PAUSE)

4

5                   MR. ANTOINE HACAULT:    Let me try and  
6 maybe give one (1) illustration of what I understood to  
7 be a contrast.

8                   You explained, I believe, that one (1) of  
9 the contrasts was the -- the market has changed. Before,  
10 you had, between the two (2) parties because it was  
11 bilateral, that could affect the price that you would  
12 have to pay for the extra energy that you might have to  
13 import, whereas now you can go into the market and  
14 hopefully get a better price than the forced price that  
15 you had under the old contracts.

16                   Does that help you understand my question?

17                   MR. DAVID CORMIE:    Yes, I -- I think I  
18 know where you're going. And -- and to the extent that  
19 we assumed in the past that market prices would reflect  
20 our cost under drought, there were additional costs  
21 because of -- the market was in a liquid market under the  
22 bi -- in the bilateral -- in -- in a bilateral world.

23                   Today we're much closer to being in a  
24 world that is assumed in this modelling. So to be --  
25 should -- to the extent that the long-term price forecast

1 is still accurate, in both scenarios being in a -- in a  
2 market as opposed to being in a constrained bilateral  
3 market, these costs are probably more realistic -- realistic  
4 than our previous forecast because it was an -- it was an  
5 inefficient market in a bilateral market.

6 We -- we were -- we couldn't actually  
7 trade with the market. There was somebody -- there was a  
8 middleman in there who was extra -- extracting additional  
9 rent. And so I -- I think we're capturing -- we're  
10 probably -- to the extent that the -- the forecast is  
11 accurate, we're -- we're more accurate today with our --  
12 our forecast than we were in the past.

13 MR. ANTOINE HACAULT: So that, for  
14 example, the curtailment or interruptability in -- in the  
15 term sheets, is it -- am I understanding you correctly  
16 then saying that what we see as far as a graph here is a  
17 reflection of those new term sheets and the new market  
18 that you are now dealing with?

19

20 (BRIEF PAUSE)

21

22 MR. DAVID CORMIE: Just talking to Mr.  
23 Surminski, and -- and this chart was prepared in, I think  
24 it was 2006, Harold, and so I think that was done at a  
25 time before we had assigned the term sheets.

1                   If we were to do this chart today, issues  
2 like being able to financially settle, having control of  
3 the transmission all the way to Minneapolis versus just  
4 being able to trade at the border, those factors would --  
5 are beneficial and -- and should result in less financial  
6 exposure for Manitoba Hydro.

7                   But we don't -- in -- in terms of the --  
8 of -- of the overall amounts, those are probably  
9 relatively small dollars. You know, they -- they -- they  
10 may still be twenty (20) -- like, maybe \$20 million or  
11 \$30 million, but in terms of -- of the -- of the -- of  
12 the drought risk of 2 billion, it's -- you know, it's a -  
13 - it's a small -- we think it's a small amount.

14                   And if we plotted them now, you probably  
15 wouldn't see the difference because of the line  
16 thicknesses or, you know, it's -- it's small.

17                   MR. HAROLD SURMINSKI: Yes, I can confirm  
18 that. I was going to go there, too, saying that the  
19 influences is likely small because another factor --  
20 about half the -- the costs are -- are lost-opportunity  
21 revenues, which have nothing to do with the -- the long-  
22 term contracts.

23                   And -- and the other part of the cost is  
24 the thermal and imports, so -- so the obligations of the  
25 firm contracts are a relatively small component in this

1 total.

2 MR. ANTOINE HACAULT: And that may be for  
3 another day, but would we have to re-run these graphs if  
4 we have Conawapa and Keeyask, or does the addition of the  
5 new generations, such as those two (2) facilities, not  
6 really have any influence.

7 Or is that just something we have to run  
8 later when we actually build them?

9 MR. DAVID CORMIE: As we develop more  
10 hydro sites, more head is developed and it increases the  
11 volatility in flow-related revenues because that  
12 deviation is now occurring over an -- another hundred  
13 feet of head. Another generating station is affected by  
14 that, so the volatility in this chart goes up as we built  
15 more hydro.

16 MR. ANTOINE HACAULT: So, does that mean  
17 we have to re-run this graph with Wuskwatim in place?

18 MR. HAROLD SURMINSKI: When we did the  
19 sensitivity for the -- for the IFF, we do include --  
20 include a drought starting in 2012, I believe it is, so  
21 it does include the -- the impact of Wuskwatim.

22 This was meant to be illustrative at the  
23 time. This was a document that was prepared to indicate  
24 the financial consequences of drought. And -- and  
25 further, for the KPMG work, we -- we were asked to

1 analyze droughts in 2020 and 2025 and so all those cases  
2 did actually consider the impact of the new hydro plants  
3 and the new sales at the time.

4 MR. ANTOINE HACAULT: A different subject  
5 matter and then I think it will lead us to the break.  
6 It's a short -- on wind and thermal. That's Tab 71.

7 The issue here, in part, is whether it's  
8 appropriate to include wind and thermal in the capacity  
9 and dependable aspects.

10 So, firstly, at Tab 71, I believe it's  
11 been confirmed and the heading indicates that the wind on  
12 this table is included as dependable.

13 Is that correct?

14 MR. HAROLD SURMINSKI: Yes, that's  
15 correct.

16 MR. ANTOINE HACAULT: Is it included as a  
17 capacity resource, however?

18 MR. HAROLD SURMINSKI: No, we include  
19 zero megawatts on the capacity side. There's a parallel  
20 table to the energy one like this, and it would show that  
21 there's zero capacity.

22 MR. ANTOINE HACAULT: Okay. Doctors  
23 Kubursi and Magee, as I understand or recollect, had  
24 suggested that relying on wind as dependable energy was a  
25 stretch. That's actually at Tab 72, I believe.

1 I may be paraphrasing it, but the answer  
2 is:

3 "KM's view is that when an energy  
4 resource cannot be displaced, such as  
5 wind, it would be difficult to rely  
6 upon it to meet dependable demand."

7 Do you disagree with that conclusion?

8 MR. HAROLD SURMINSKI: Yes. Yes, I do.

9 MR. ANTOINE HACAULT: Why?

10 MR. HAROLD SURMINSKI: Because dependable  
11 -- because there is a quantity of energy over the entire  
12 year that Manitoba Hydro can count on, and Manitoba Hydro  
13 has reservoir flexibility to -- to absorb the wind energy  
14 whenever it is available.

15 MR. ANTOINE HACAULT: Thank you.

16 MR. HAROLD SURMINSKI: Furthermore, Mr.  
17 Judah Rose provided an argument. I think that was  
18 submitted today in -- in his responses in the  
19 undertakings, and I think he's got a -- a significant  
20 argument on this topic.

21 MR. ANTOINE HACAULT: Okay. So I guess  
22 we'll all have the benefit of looking at it. We -- would  
23 it be an appropriate time to take a break?

24 THE CHAIRPERSON: Okay. And just before  
25 we do, I'm going to have a try at something here and

1 we'll see how we go. Just one (1) fairly large question.

2 Is it fair to say that the biggest risk  
3 for the long term, accepting where Manitoba Hydro is  
4 today and accepting the historical range of water flows,  
5 and also accepting the other factors that one could say  
6 is expected, is adding new material capital assets at a  
7 given firm cost too early relative to domestic need, and  
8 also relative to firm available export volumes and  
9 prices? Is that a fair statement?

10

11 (BRIEF PAUSE)

12

13 MR. DAVID CORMIE: Can -- can I -- can I  
14 --

15 THE CHAIRPERSON: The --

16 MR. DAVID CORMIE: -- para -- paraphrase  
17 your question?

18 THE CHAIRPERSON: You can. The gist of  
19 it basically is -- is once you're in, you're in.

20 MR. DAVID CORMIE: Yes, and I -- you  
21 know, I think -- I don't know if Hydro would admit that -  
22 - that -- that the decision to build new generation is  
23 one of its biggest -- the biggest decisions that the  
24 company faces is building new generation.

25 And -- and that, among -- among -- like,

1 the risk of water flows is -- is -- is a huge -- is a  
2 huge risk, and -- and -- and, clearly, we want to  
3 minimize the risk of -- of building those assets, and we  
4 think our strategy of developing new transmission and  
5 having customers taking off the firm portion of the un --  
6 unneeded firm portion in Manitoba and contracting that is  
7 a way of managing some of that risk.

8 THE CHAIRPERSON: Just -- just following  
9 up on that, and -- and that once the new material assets  
10 are constructed, in a sense the die is cast and Manitoba  
11 Hydro's best approach, given that, is to maximize the  
12 value of its export sales as best as it can, regardless  
13 of the accounting result.

14 MR. DAVID CORMIE: Yes, and -- and as --  
15 as we do on a daily basis, our objective is to take those  
16 assets that were invested in and -- and -- and generate  
17 the best possible return so that the Manitoba customer  
18 will benefit from those assets. And to the extent that  
19 they're not needed for Manitobans, let's take them to  
20 market and -- and -- and -- and optimize their -- their  
21 use.

22 THE CHAIRPERSON: Thank you.

23 MR. VINCE WARDEN: Mr. -- Mr. Chairman,  
24 if I could just comment on that, though, I wouldn't want  
25 to leave the impression that we build on spec, and so --



1 THE CHAIRPERSON: I wasn't -- that --

2 MR. VINCE WARDEN: Okay.

3 THE CHAIRPERSON: I wasn't going there.

4 It was just basically --

5 MR. VINCE WARDEN: Well, when --

6 THE CHAIRPERSON: -- as Mr. Cormie has  
7 responded, the significance of the capital build, and  
8 that once a build has occurred of a material nature, that  
9 after that, the accounting is secondary. I mean,  
10 accounting may be important in determining the -- the  
11 wisdom or the lack of wisdom to -- to do a build, but  
12 once the build is constructed, then you're basically left  
13 with maximizing what's available to you. That's all I  
14 was saying, seeking to confirm.

15 MR. VINCE WARDEN: Okay, as long as it's  
16 clear that we -- when we do build new generation, we have  
17 firm contracts -- contracts in place in most cases.  
18 Wuskwatim was a bit of an exception to that, because we  
19 were building Wuskwatim to serve the Manitoba load, which  
20 didn't materialize as fore -- as forecast.

21 MR. ROBERT MAYER: Oh -- oh, Mr. Warden,  
22 that's revisionist history. We were told -- we were told  
23 from day one that it was being built for -- for export.  
24 It was not part of the Manitoba load. That -- that issue  
25 never came up until a couple of years ago.

1                   MR. VINCE WARDEN:    Yes, but to be clear,  
2 if we were building Wuskwatim for export solely, then we  
3 would go out and sell that on a firm basis.  When we --  
4 when -- when Wuskwatim was committed it was committed  
5 with the understanding -- or with the expectation that it  
6 would be serving the Manitoba load.

7                   MR. ROBERT MAYER:    But that's what you're  
8 saying with respect to all -- tha -- that's with respect  
9 to every piece of generation we've ever built.  Sooner or  
10 later you're going to need it.  Let's build it early so  
11 we can export it.

12                   MR. VINCE WARDEN:    But not without -- not  
13 without firm contracts.

14                   MR. ROBERT MAYER:    You don't have an co -  
15 - you've mentioned Wuskwatim.  We don't yet have any firm  
16 contracts for Keeyask and we don't have any -- yet have  
17 any firm contracts for Conawapa despite the fact that we  
18 have spent -- or you have spent millions and millions of  
19 dollars on them.  So --

20                   MR. VINCE WARDEN:    Yes, abs --

21                   MR. ROBERT MAYER:    -- there's some amount  
22 of speculation there, Mr. Warden, and I'm not criticizing  
23 that.  I'm just wondering why you're jumping and saying  
24 there isn't because clearly some of this -- you're  
25 gambling -- we're gambling as a -- as a province, you're

1 gambling as a company, because of the lead time you need.

2                   And remember, this is going to be Cowa --  
3 Conawapa 2 we have here. My preference would have been  
4 to have built it when you started it, but that's neither  
5 here nor there. I never had any choice, nor did I have  
6 any say. But there's clearly some pieces of speculation  
7 involved in those -- in something that you're -- you're  
8 running so far ahead.

9                   I mean, it's not a criticism. I just  
10 think it's got to be admitted that it's there.

11                   MR. VINCE WARDEN: Well, we have to do  
12 planning so far ahead, and we have to line up  
13 partnerships so far ahead, which is what we've been  
14 doing. We haven't committed to Conawapa or Keeyask yet  
15 though, and Conawapa 2 is a good example. When that sale  
16 fell through, then we pulled back on Conawapa, Conawapa 1  
17 that is.

18                   THE CHAIRPERSON: Well, I think part of  
19 this discussion, which is actually, I think, quite  
20 relevant -- to be fair, you've already testified, Mr.  
21 Warden, I think it was with respect to Keeyask, but --  
22 but it could be beyond that. But if the preferred  
23 development program, for one reason or other, did not  
24 proceed, I th -- I think you testified that the worst-  
25 case potential outcome would basically be a charge

1 against retained earnings. I think that's what you said.

2 MR. VINCE WARDEN: Yes, if we determined  
3 that we would not be proceeding with Keeyask there would  
4 be -- we'd be faced with -- one (1) of the options would  
5 be a charge against retained earnings, yes.

6 THE CHAIRPERSON: Thank you. Okay, I  
7 think it's probably a good time to have a break. And by  
8 the way, particularly for Mr. Hacault's assistance,  
9 because of another commitment we have to shut down today  
10 about ten (10) to 4:00. And tomorrow, as I understand  
11 it, unless you have more questions, we wouldn't be  
12 starting until 10:00 because I believe Mr. Gange is -- is  
13 held up. Is that right, Mr. Peters?

14 MR. BOB PETERS: Only if Mr. Hacault has  
15 completed his questions today before ten (10) to 4:00  
16 would -- would we be requesting a start time at ten  
17 o'clock tomorrow morning. If --

18 THE CHAIRPERSON: But if he still had  
19 something left we've got the room to start at 9:30.

20 MR. BOB PETERS: Absolutely.

21 THE CHAIRPERSON: Very good. Okay, we'll  
22 see you back after the break.

23

24 --- Upon recessing at 2:47 p.m.

25 --- Upon resuming at 3:00 p.m.

1 THE CHAIRPERSON: Okay. Ms. Ramage, more  
2 exhibits?

3 MS. PATTI RAMAGE: Yes, I think Ms.  
4 Fernandes is distributing these. Two (2) more  
5 undertakings. First, Undertaking 123, file any  
6 directives issues by the president with respect to cost-  
7 constraint measures from 2009, and that would be Exhibit  
8 Manitoba Hydro 124.

9

10 --- EXHIBIT NO. MH-124: Response to Undertaking  
11 number 123

12

13 MS. PATTI RAMAGE: The next is Manitoba  
14 Hydro Undertaking number 60 dealing with droughts worse  
15 than the worst drought on record, providing the  
16 quantification of risks, and that is Manitoba Hydro  
17 Exhibit 125.

18

19 --- EXHIBIT NO. MH-125: Response to Undertaking  
20 number 60

21

22 THE CHAIRPERSON: Thank you very much.  
23 Mr. Hacault...?

24 MR. ANTOINE HACAULT: Yes, thank you very  
25 much. It's been a long day, but thank you very much for

1 the panel, and then to the Board for their attention.

2 The next tab I'd draw everybody's  
3 attention to is Tab 72, please. It's Manitoba Hydro-KM-  
4 26, a question with respect to now the inclusion of  
5 thermal energy and dependable energy is indicated to be a  
6 stretch. Now, do you agree that this is a -- a  
7 reasonable conclusion or do you disagree with it?

8 MR. DAVID CORMIE: I think Manitoba Hydro  
9 disagrees with the conclusion just because generation  
10 resource may be expensive to operate. When you consider  
11 the all-in cost of a firming resource like a simple-cycle  
12 combustion turbine, it provides the lowest-cost  
13 incremental resource needed to firm up the system.

14 And although it may cost a lot when you  
15 actually run it, it's better than paying interest and  
16 interest costs on -- on a -- on a much more expensive  
17 capital investment in order to reduce the -- the --  
18 increase the efficiency of that resource. For example,  
19 the difference between the lowest flow on record and the  
20 second lowest flow on record is about 4 terawatt hours or  
21 4000 gigawatt hours. So we use these combustion turbines  
22 to firm up --

23 MR. ANTOINE HACAULT: Sorry to interrupt,  
24 but would the reference to the last graph and table in  
25 the binder assist in explaining that?

1                   MR. DAVID CORMIE:    Yes, under the --  
2 under those ex -- extremely low flow conditions, that --  
3 that chart indicates the likelihood of actually using  
4 those types of resources.  So, they're -- in our -- in  
5 our planning scenarios, we see that the need for those  
6 types of resources occur in -- in -- in the lowest of  
7 flow conditions.

8                   So, less than 5 percent of time will they  
9 actually run.  So, if you're not going to run them very  
10 often, although they may cost more, you're spending a lot  
11 less money on a capital investment and that interest then  
12 is not the -- the lower -- the -- the less expensive  
13 capital investment results in less interest and carrying  
14 charges and it becomes a -- the -- the least expensive  
15 way of firming up the system.

16                   And that's -- that's what we do.

17                   MR. ROBERT MAYER:    Mr. Cormie, what does  
18 the term "out of money therma -- thermal energy" mean?

19                   MR. DAVID CORMIE:    It's jargon, Mr.  
20 Mayer.

21                   MR. ROBERT MAYER:    Well, inform me what  
22 it's supposed to mean then.

23                   MR. DAVID CORMIE:    Well, let's say that  
24 you had a house that you bought for a hundred thousand  
25 dollars (\$100,000) and the market for that house was now

1 a hundred and fifty thousand (150,000). You would be in  
2 the money by fifty thousand dollars (\$50,000). If you  
3 have a -- a generator that costs a hundred dollars (\$100)  
4 a megawatt hour to run, but the value of the electricity  
5 is only worth fifty dollars (\$50), you'd be out of the  
6 money by fifty dollars (\$50). So "in or out of the  
7 money" means whether you're making money or not, and it's  
8 power trader talk.

9 MR. ROBERT MAYER: All right.

10

11 CONTINUED BY MR. ANTOINE HACAULT:

12 MR. ANTOINE HACAULT: Could everybody  
13 please turn to Tab 74 in that particular graph. My  
14 question is, firstly, to understand the graph, is  
15 somebody able -- on the panel able to explain, for  
16 example, does "thermal" include the gas and coal?

17 MR. HAROLD SURMINSKI: Yes, I believe it  
18 does.

19 MR. ANTOINE HACAULT: Now, am I  
20 understanding the criticism by Doctors Kubursi and Magee  
21 that you shouldn't include the -- what I see in this  
22 graph as the grey area? Is that how we -- we're  
23 interpreting his criticism, that it shouldn't be in  
24 dependable -- the dependable portion?

25 MR. HAROLD SURMINSKI: Yes, I think you



1 could -- that would be the interpretation. All -- all  
2 thermal and wind energy was their claim.

3 MR. ANTOINE HACAULT: Okay, and what  
4 impact would it have, then, if we took the red out of  
5 that graph was -- which is the wind component, and the  
6 grey out of that graph as regards the ability of Manitoba  
7 Hydro to engage in firm commitment sales over and above  
8 the Manitoba load?

9 MR. HAROLD SURMINSKI: It would reduce  
10 the quantity of firm sales and -- sorry, as I said a  
11 statement ago about all thermal, it's out of the money  
12 thermal, so it would be -- probably the combustion  
13 turbine thermal would be the out of the money.

14 MR. ANTOINE HACAULT: What about Selkirk?

15 MR. HAROLD SURMINSKI: Yes, and the gas,  
16 so I should gas-fired thermal.

17 MR. ANTOINE HACAULT: So what's revenue  
18 impact then by -- if you take those items out of the  
19 picture, and does it affect Manitoba Hydro's ability to  
20 generate firm export sales?

21 MR. HAROLD SURMINSKI: Yes. It would  
22 reduce our surplus quantity that would be available for  
23 surplus sales, for negotiating new sales, for example,  
24 also.

25 MR. ROBERT MAYER: Mr. Surminski, I

1 thought some time ago -- and I recognize what Mr. Cormie  
2 said about those single-cycle gas turbines -- but,  
3 realistically speaking, isn't one (1) of their greatest  
4 values the fact that we've got a 20 percent re --  
5 reliability limit that we need, and this makes up a part  
6 of it? Despite the fact that it's expensive as hell,  
7 it's still there and it's still dependable, and therefore  
8 it can be used to back up the rest of our power and give  
9 us that margin that we require or that MISO -- I think  
10 MISO requires for us to export?

11 MR. DAVID CORMIE: I think you're right,  
12 Mr. Mayer. If we removed the expensive thermal resources  
13 from our capacity, we may end up being in a situation  
14 where we're building for capacity rather than for energy.  
15 And -- and clearly the combustion turbines are the least  
16 expensive way of having incremental capacity on the  
17 system and meeting our capacity reserve obligation,  
18 whether it's Manitoba Hydro's own internal capacity  
19 requirement of 12 percent or the -- the requirement that  
20 the market, the MISO market, might have, which might --  
21 may or may not be the same.

22

23 CONTINUED BY MR. ANTOINE HACAULT:

24 MR. ANTOINE HACAULT: And is -- Mr.  
25 Cormie, is that because, for example, in parts of the NSP

1 sale and other, I'm going to say, firm export sales, the  
2 clients expect a reliable source or supply of power? Is  
3 that fair?

4

5

(BRIEF PAUSE)

6

7

MR. DAVID CORMIE: In regard to Manitoba  
8 Hydro meeting its capacity -- reserve capacity obligation  
9 or...?

10

MR. ANTOINE HACAULT: Well, I think  
11 there's two (2) portions to some of these contracts, as I  
12 understand it. I confess I'm -- don't understand them  
13 that well, but as I understand it, there's an  
14 expectation, and that's part of why you get a premium, is  
15 that these buyers of power from the US expect a certain  
16 reliability. I -- I appreciate there's diversity  
17 agreements and -- and other types of agreements, but  
18 there is a -- a chunk of those agreements, is there not,  
19 where the clients expect a reliable supply of power?

20

MR. DAVID CORMIE: Yes. The -- the  
21 contracts have a capacity obligation as well as an energy  
22 obligation. Because they're system participation  
23 contracts, though, we don't have to add cap -- we don't  
24 have to carry capacity reserves on the capacity  
25 obligation. A 500-megawatt sale requires Manitoba Hydro

1 to have 500 megawatts of capacity to back it.

2 If it was a 500-megawatt firm sale, you  
3 would have a -- you would have to carry the reserve, so  
4 you'd have to -- you'd have to have 550 megawatts of  
5 generation to serve a firm sale, so you have to have a --  
6 you'd have to have reserves for that.

7 Our sales don't have a reserve obligation  
8 to the extent that that reserve obligation needs to be  
9 met. It's met by the purchaser rather than by Manitoba  
10 Hydro, being the seller.

11 MR. ANTOINE HACAULT: Okay.

12 MR. DAVID CORMIE: Mr. Mayer, the -- I  
13 can see that you're frowning. A system participation  
14 sale transfers the resource to the customer. So, in  
15 effect, if you have a 500-megawatt resource, the customer  
16 then puts that resource on his books as 500 megawatts.  
17 And then to the extent that he needs reserves, he will  
18 provide reserves above and beyond that.

19 With a firm power sale the customer puts  
20 his load on the seller, so Manitoba Hydro would then say,  
21 We have a 500-megawatt load obligation and we have to  
22 carry reserves on that load.

23 And so, in one (1) case the seller carries  
24 the reserves, and in one (1) case the buyer carries the  
25 reserve. In Manitoba Hydro's situation it's the buyer

1 that's providing the reserves, not the seller, the seller  
2 being Manitoba Hydro.

3 But for our domestic load Manitoba Hydro  
4 carries the reserve for its customers, and that's the  
5 difference between an export obligation and a domestic  
6 obligation. We carry firm transmission and firm  
7 generation reserves for Manitoba load. For export  
8 customers we carry no reserves.

9 MR. ROBERT MAYER: That first example you  
10 mentioned, where we transfer our capacity, our 500-  
11 megawatt capacity, to the purchaser, and then we don't  
12 have to car -- then he has to -- the purchaser has to  
13 carry the reserve. But if we transfer 500 megawatts of  
14 our capacity, what does that do to -- now what are our  
15 reserve obligations? If we've now basically sold off 500  
16 megawatts of our capacity, what -- what do we ha -- what  
17 do we have to provide reserves for now?

18 MR. DAVID CORMIE: The -- the capacity  
19 that we sell is capacity that's surplus after having met  
20 our own reserve requirement obligations. So if we had a  
21 Manitoba load of 4,000 megawatts and we had a 12 percent  
22 reserve, we would have to show in our books 400 -- 4,480  
23 megawatts of capacity. To the extent that we have  
24 surplus above that, that capacity can be sold, but we  
25 can't sell the Manitoba system short.

1

2 CONTINUED BY MR. ANTOINE HACAULT:

3 MR. ANTOINE HACAULT: Thank you. Just a  
4 couple follow-up questions then. With both -- with the  
5 description you've given for export sales where the --  
6 the US customer sets aside its own reserve with respect  
7 to what's being bought from Manitoba Hydro, is it still a  
8 situation where that client is expecting a reliable  
9 supply of power from Manitoba Hydro?

10 MR. DAVID CORMIE: Yes. And I -- and I  
11 believe that this is an acceptable situation for the  
12 customer because Manitoba Hydro reliability's extremely  
13 high. Being a hydraulic utility, when you compare the  
14 performance of our turbines and generators to other  
15 Canadian's, many of our units are in the top ten (10).  
16 We are -- we have what I believe is an outstanding  
17 reliability record and our customers benefit from that.

18 So I think they're -- they accept that  
19 they do carry some risk, but the risk is low because of  
20 the nature of our hydraulic system.

21 MR. ANTOINE HACAULT: So implicit in that  
22 for the blocks of load that you're selling, the client  
23 expects and would receive during -- you know, we've  
24 looked at the different blocks. Mr. Peters had asked you  
25 about different blocks in there. They would expect

1 during those blocks a continuous supply either directly  
2 from Manitoba Hydro or through some kind of, what did you  
3 call it, financial settlement?

4 MR. DAVID CORMIE: The -- the customers  
5 buying -- and they're buying a capacity resource that --  
6 that is based on the hydraulic -- hydro-electric system,  
7 which is inherently very reliable. On an hour-by-hour  
8 basis, they don't really care where the energy comes  
9 from. That ends up being Manitoba Hydro's problem.

10 And -- but to the extent that we suffer  
11 from a drought and we don't have the hydraulic energy,  
12 our contracts allow us to go to the market to buy  
13 replacement energy. But we wouldn't be in the market  
14 buying replacement energy if our -- if -- if water  
15 conditions were favourable. So the vast majority of the  
16 time it's -- it's the hydro units that are supplying the  
17 energy that serves the sales at a very high level of --  
18 of re -- of reliability.

19

20 (BRIEF PAUSE)

21

22 MR. ANTOINE HACAULT: One (1) thing that  
23 I'd like to perhaps just get a little bit more clarity  
24 on. When we look at the graph that's at page 310 of our  
25 book of documents, Tab 74. If we had taken the wind





1 we -- we were going to build Conawapa -- or Keeyask and  
2 Conawapa as the next sequence, we would be advancing  
3 those. So the -- but with the sales we would be  
4 advancing them less because they would be required  
5 earlier to serve Manitoba load. So, you take away the  
6 thermal, you have to build new generation earlier, and so  
7 the -- the extent that the export sales would cause those  
8 plans to be advanced would be reduced.

9 MR. ANTOINE HACAULT: So, for somebody  
10 like me, am I kind of right in trying to summarize that  
11 as that it's really advantageous in the long run and for  
12 the Manitobans to have these components available to then  
13 be able to do those contracts and ultimate -- I guess, in  
14 part, term sheets because it -- we don't have to build as  
15 quick, so we don't -- otherwise, we'd have to have all  
16 these big capital expenses quicker. We wouldn't be able  
17 to secure good contracts to kind of smooth that effect.

18 MR. DAVID CORMIE: There -- there's the  
19 issue, though, that our customers only want new hydro.  
20 They don't want Manitoba Hydro to be serving their load -  
21 - their -- their -- our sale obligations with our thermal  
22 or our gas -- our gas resources or purchases. They --  
23 they want it out of dependable energy, so I think it just  
24 affects the -- the in-serv -- the date at which we need  
25 to serve Manitoba load. I believe with -- without it,

1 the new contracts, we need new generation in 2020/'21 --  
2 2020/2021.

3 If we didn't have the thermal resources,  
4 like Harold indicated -- Mr. Surminski indicated -- we --  
5 we would need new generation resources now. So we'd have  
6 to advance Keeyask to today.

7 These -- these thermal resources allow us  
8 to defer that. But then having the sales means you need  
9 to advance them a little bit -- a few years -- in order  
10 to make the sales because they want the sales to be  
11 supported with hydraulic energy, not with thermal energy.

12 MR. ANTOINE HACAULT: Thank you. I'll  
13 move on to another small subject, and it's what I  
14 understand to be a criticism by Drs. Kubursi and Magee,  
15 which is dealt with. And, unfortunately, I haven't  
16 extracted that in my book of documents, but at page 78  
17 they talk about the HERMES and SPLASH models, and at page  
18 78 of Manitoba Hydro's rebuttal evidence at line 24, I'm  
19 quoting:

20 "As opposed to KM's opinion that the  
21 real danger lies in the fact that they  
22 can and have produced different  
23 results, Manitoba Hydro is confident  
24 that HERMES and SPLASH produce very  
25 similar results as the different groups

1 use the same fundamental input data,  
2 compare model outcomes, and annually  
3 explain the variances as part of the  
4 IFF process."

5 I don't want to rehash a lot of the stuff  
6 that Mr. Peters has done, but how does Manitoba reconcile  
7 the overlap and discrepancies, and how does it deal with  
8 this criticism? Could you further explain it?

9 MR. DAVID CORMIE: And I'd like to just  
10 go back to what Mr. Rose said several weeks ago about the  
11 granularity of the modelling, and HERMES is very  
12 detailed, it models every generating station, it models  
13 the load at a much finer level of detail than in SPLASH.  
14 SPLASH uses monthly time steps, one (1) on-peak period  
15 and an off-peak period. SPLASH groups generating  
16 stations together. All the generating stations on the  
17 Winnipeg Ribber -- River are -- have one (1)  
18 representation, where in HERMES there'll be six (6)  
19 different stations. So the models are -- are -- are  
20 different, but they're calibrated to the -- to  
21 essentially the same system data. Every -- every day we  
22 collect the information on an hour-by-hour, we -- and we  
23 take that information, and you can either aggregate it  
24 monthly or you can average it out over a week, but you're  
25 -- in effect, you're -- you're using the same information

1 to develop the models.

2                   And so there's no different database for  
3 HERMES than there is for SPLASH. It's just the level of  
4 detail in which the averaging occurs. And then -- and  
5 that's necessary because SPLASH has to run ten thousand  
6 (10,000) times, HERMES only has to run once. And Mr.  
7 Surminski can't wait. If we -- if we were to model the  
8 system at the level of HERMES and run it ten thousand  
9 (10,000), he'd -- you know, he'd -- he'd -- he would have  
10 to come back in a couple of weeks to get his answer, and  
11 that's not very -- not a very practical thing. And Mr.  
12 Rose referred to that as an implementation failure:  
13 great model, but results that, you know, are useless,  
14 because you wait forever.

15                   But -- but we -- but because we are  
16 solving essentially the same problem, there is an  
17 opportunity during the integrated financial forecasting  
18 process for each of us to model the same year. And so  
19 HERMES produces a forecast for the second year, and  
20 SPLASH produces a forecast for the second year, and then  
21 we're able to compare those results, and we can compare  
22 the hydraulic generation. We're all using the same flow  
23 data, we're using the same curves, they've been  
24 aggregated differently, and we can start looking at why  
25 are the answers different and we can explain the

1 differences. And some of them have to do with  
2 techniques, but there are no surprises there. Every --  
3 every difference is explainable, and we accept that those  
4 differences are a result of modelling, but they're not  
5 significant.

6                   And so, by having two (2) independent  
7 models and two (2) different groups, it gives us  
8 confidence that -- that the outcome that we're getting is  
9 -- is robust. And rather than having a single model  
10 where you're not really able to check against something  
11 else to -- to get a comparison, we have two (2)  
12 independent groups, two (2) independent models driven off  
13 the same data that gives us confidence that our models  
14 have some -- you know, there's a cross-checking and they  
15 have some reliability.

16                   So that's why we disagree that -- that --  
17 they don't produce identical results, but the results are  
18 so close that we have high confidence in the model  
19 results.

20                   MR. ANTOINE HACAULT: Thank you. For the  
21 ten (10) minutes or so that I have left, I have a -- I  
22 think I could make use of that to ask a couple of  
23 questions with respect to the OM&A. So if I could have  
24 people go to the exhibit that was produced this morning,  
25 which I believe is 112, the first memo -- memo by Mr.

1 Brennan in August of 2010. I've put it in my binder  
2 without an exhibit number. I apologize if I've given the  
3 wrong number.

4

5

(BRIEF PAUSE)

6

7 MR. ANTOINE HACAULT: First I'd like to  
8 thank the Manitoba Hydro panel for being so prompt in  
9 providing the two (2) further interoffice memos which Mr.  
10 Brennan had issued in March and May of 2009. I'd like to  
11 give you a little bit of context just of what I want to  
12 explore without getting into argument, but just to  
13 provide some context for my -- my question.

14 I've seen two (2) different approaches  
15 generally in the business world, and even in government;  
16 one (1) that would be similar to what we see here, being  
17 one (1) person selecting and identifying and giving a  
18 directive on specific items, and others, where, in fact,  
19 boards, without getting involved into the detail, say,  
20 I'd like to see what would happen to my business if you  
21 gave me a zero budget and send it down to management and  
22 all levels below management to come up with ideas,  
23 solutions, or issues with respect to that simple  
24 directive.

25

And, Mr. Warden, could you explain to me

1 whether Hydro at any point in time, either at the -- I  
2 don't think you -- I think you've been pretty clear at  
3 the board level that hasn't happened, but at -- I'm going  
4 to say the next level either the president or the  
5 executive level issued a directive across the board,  
6 Please let me know what a zero budget looks like and why  
7 you can or can't achieve it.

8 Has that ever been done in Manitoba Hydro?

9 MR. VINCE WARDEN: Well, Mr. Hacault, not  
10 in so many words, but the effect is similar to the -- to  
11 what we see before us in terms of the memos that were  
12 issued by the president and CEO. The -- in -- in our  
13 business, in the energy business, we don't have the --  
14 the luxury, so to speak, of issuing such a directive that  
15 there would be zero increase. We have safety reliability  
16 concerns that have to be met each and every day.

17 And I think the memos in -- in almost  
18 every case that Mr. Brennan has issued speak to that, so  
19 we cannot -- cannot compromise the safety and reliability  
20 of the system. So it would be somewhat irresponsible in  
21 our business to say come back with a zero budget because  
22 it's a very crude way of approaching the budgeting  
23 process.

24 It's -- it's more logical to look at the  
25 cost structure knowing what's in that cost structure and

1 looking for any discretion that there might be in -- in  
2 terms of such items as nonessential travel, for example;  
3 some of the -- some of the items that are referenced in  
4 the memos that you can take specific action on without  
5 affecting the safety and reliability of the system.

6 MR. ANTOINE HACAULT: Thank you. I  
7 wasn't suggesting -- and I don't think even businesses  
8 outside utilities or universities or hospitals have to  
9 provide essential services, say, Give me a zero budget,  
10 and that's what I'm going to adopt. But what they do do,  
11 and I want to explore that a bit further with you, they  
12 ask, What would it look like. And if it can't be  
13 achieved, at least at a low level, and then progressively  
14 going up, people address their mind specifically to it.  
15 And let me explain why I ask that question, because in  
16 the very first Directive that's been marked as Exhibit  
17 124, people are asked to hold their expenses within the  
18 budget, as I read this memo.

19 But they aren't asked to look at,  
20 specifically, would you be able to achieve a better  
21 result than sticking to the operating budget that's  
22 already been approved?

23 MR. VINCE WARDEN: Well, Mr. Hacault,  
24 it's just a -- it's just a matter of style, really, that  
25 I think we're speaking of here. The end result is -- is



1 going to be the same.

2                   If -- if you do look at Exhibit 112,  
3 rather than there be a zero increase, there -- there has,  
4 in fact, been a \$16.7 million reduction, year-over-year  
5 reduction. So, better-than-zero was achieved through the  
6 approach taken here.

7                   MR. ANTOINE HACAULT:   How can you be so  
8 sure if you -- if the Corporation hasn't gone through the  
9 exercise, that there hasn't been some ideas that haven't  
10 been explored fully. If the question isn't asked, how do  
11 you know that the answer -- there is no positive answer?

12                   MR. VINCE WARDEN:   Because -- because,  
13 Mr. Hacault, we -- we know our business. And it's not  
14 like we're starting off in a green field business and  
15 saying: Oh, well, let's see what we can find. We -- we  
16 -- we go through a very extensive budgeting process and  
17 we know exactly what are in those budgets and they're  
18 drilled down to the -- to the very lowest levels in terms  
19 of structure -- organization structures.

20                   So every business unit has a budget, every  
21 division has a budget, every department has a budget,  
22 every cost centre has a budget, so -- and each of those  
23 are managed at that level. And our -- our business is  
24 well known through the process that we follow.

25                   MR. ANTOINE HACAULT:   Now, I'm sure if I

1 looked at transcripts with respect to MTS before it  
2 privatized, that we had similar answers on cost control  
3 items. And it may be just the friends I was hanging  
4 around with, but a lot of people who were deemed to be  
5 essential and that MTS said we couldn't do without, all  
6 of a sudden were on the street looking for new jobs.

7                   So, is it something you're adverse to  
8 doing -- asking for -- would it be, in your view, be a  
9 totally useless exercise to ask employees to see whether  
10 or not they have input into cost-saving measures, as  
11 opposed to the President identifying them for the  
12 employees?

13                   MR. VINCE WARDEN: No. The -- the  
14 employees definitely have input. There's all kinds of  
15 good ideas that come up from the business units and from  
16 the divisions, from the departments. So that's the --  
17 the risk, I -- I think of probably giving one (1) side of  
18 -- of a -- of the budgeting or very, very small component  
19 of the budgeting exercise by providing a memo such as  
20 this.

21                   The -- the budgeting exercise at Manitoba  
22 Hydro is extensive; all kinds of people have input. By  
23 the way, I don't think MTS is necessarily the model.

24                   MR. ANTOINE HACAULT: That may be  
25 inappropriate. But let me just test your statement a

1 little bit, okay, and just bear with me. Let's go to Tab  
2 22. I've got one (1) example here.

3 If we go to Tab 22 at page --

4 MR. DARREN RAINKIE: Mr. Hacault, maybe I  
5 can just add a perspective here, because there's  
6 something in your book of document that I think goes to  
7 the line that you're pursuing here.

8 If you -- if you go to Tab 21 of your book  
9 of documents, page 154, if I'm correct; it -- it's a  
10 excerpt out of our rebuttal evidence.

11 And much like a process that myself and  
12 Mr. Williams went through a week or so ago on take --  
13 backing out accounting changes from our forecasts for  
14 2010/'11, '11/'12. And this is information based on IFF-  
15 10.

16 If you look to the line there that says  
17 Net Electric OM&A After Accounting Changes and -- and you  
18 compare the -- the '10/'11 number and the '11/'12 number  
19 to the 2009/'10 number, well, those numbers are not  
20 exactly zero. You see it going up from two sixty-seven  
21 (267) to two sixty-nine (269) -- sorry, from three sixty-  
22 seven (367) to three sixty-nine (369) between 2009/'10  
23 and 2010/'11. You can see cost constraint in that. Once  
24 you're pulling out the accounting changes that are  
25 polluting, I guess, the more -- the -- the real operating

1 costs, you can see an effort to cost constrain.

2                   You can also see that, as Mr. Warden  
3 indicated, those targets are given to business units.  
4 The business units then put together divisional targets.  
5 The divisions put together departmental targets to try to  
6 meet that.

7                   So while we have some overall direction on  
8 some areas in terms of cost constraint, when the  
9 executive actually set the bus -- the business unit  
10 targets for the company for these years, the -- it's  
11 pushed out to the -- to the actual management to come  
12 back and say, How can we meet these budgets?

13                   So -- so cost control is a whole cy --  
14 cyclical process of setting targets, putting those  
15 targets down to the various lowest levels as -- like  
16 departments, to making day-to-day decisions: Do I hire  
17 somebody? Do I hire a consultant? Do I do the travel?  
18 Do I do the operating costs? Sorry, do I do the  
19 overtime? Then, of course, measuring actual to budget  
20 and seeing how well we've -- we're doing and taking --  
21 taking corrective action.

22                   Then, of course, that cycle repeats itself  
23 every year. So, I don't think we want to leave the  
24 impression that -- that cost control is just a memo  
25 issued by the -- by the president or by the board. Cost

1 control is something that happens every day in the  
2 Corporation and is the responsibility of every manager in  
3 the Corporation. So I just wanted to clarify that.

4 MR. ANTOINE HACAULT: I haven't -- just  
5 thirty (30) seconds. I just wanted to point out Tab 22,  
6 leave everybody with this thought, and then we can go  
7 home.

8 Tab 22, page 156. You were so right in  
9 indicating it depends where you start when you play with  
10 all these numbers. I'd just like to look at 2007 actuals  
11 for employees and 2009 forecasts for employees. All of a  
12 sudden, we've jumped up 10 percent: six hundred (600)  
13 employees. That's a nice place to start at to start  
14 levelizing costs. Okay. See you tomorrow.

15 THE CHAIRPERSON: Mr. Hacault, if you --  
16 we certainly don't want to rush your cross-examination.  
17 Do you -- do you have any more that you want to carry on  
18 at 9:30? We don't have a problem with it?

19 MR. ANTOINE HACAULT: Yes, I do.

20 THE CHAIRPERSON: Okay. We'll see you  
21 tomorrow at 9:30.

22

23 --- Upon adjourning at 3:50 p.m.

24

25

1 Certified Correct,

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7 Cheryl Lavigne, Ms.

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