MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA HYDRO

NEEDS FOR AND ALTERNATIVES TO

REVIEW OF MANITOBA HYDRO'S

PREFERRED DEVELOPMENT PLAN

Regis Gosselin   - Chairperson

Marilyn Kapitany   - Board Member

Larry Soldier   - Board Member

Richard Bel   - Board Member

Hugh Grant   - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

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 4

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7 RUSS HOULDIN, Sworn (Qual.)

8 JOHN TODD, Affirmed (Qual.)

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16   presentation slides.   5203

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1 --- Upon commencing at 9:01 a.m.

2

3   THE CHAIRPERSON: If people could

4 position themselves to start this morning it would be

5 much appreciated. We have a tight schedule today, so.

6

7   (BRIEF PAUSE)

8

9   THE CHAIRPERSON: Good morning. I

10 believe that everybody is in position to start the

11 proceeding, so I'll turn the microphone over to you,

12 Mr. Hombach.

13   MR. SVEN HOMBACH: Yes, good morning,

14 Mr. Chairman. Good morning, members of the panel.

15 Today we're here for the continued cross-examination of

16 Elenchus. And Mr. Gange still has some remaining

17 questions.

18   Before we get there though, I do have an

19 administrative matter to speak to. I would like to

20 introduce two (2) PUB exhibits that have been

21 previously circulated but not yet referred to on the

22 record. I'll anticipate that I will do so. The first

23 is PUB Exhibit 62. These are excerpts from the Climate

24 Change and Emissions Reduction Act, as well as the

25 regulation dealing with the shutdown of coal plants and

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1 the continued operation of coal plants.

2

3 --- EXHIBIT NO. PUB-62:   Excerpts from the Climate

4   Change and Emissions

5   Reduction Act and the

6   regulation dealing with the

7   shutdown and continued

8   operation of coal plants

9

10   MR. SVEN HOMBACH: The second exhibit

11 is PUB Exhibit 64 labelled, "Consensus population

12 forecast 2014 versus 2013." Both of them have been

13 circulated by email. And I'll be happy to circulate

14 paper versions during the break if necessary, including

15 the ones needed for the PUB file.

16

17 --- EXHIBIT NO. PUB-64:   Consensus population

18   forecast 2014 versus 2013

19

20   MR. SVEN HOMBACH: I'm advised that

21 Manitoba Hydro does not have any undertakings to speak

22 to at this point, although Mr. Williams has an issue to

23 address.

24   MR. BYRON WILLIAMS: My Friend sounds

25 very depressed when I raise my arm. But I just -- a

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 1 very -- I just wanted to note that our client, Ms.

 2 Desorcy, is here today, along with Mr. Dave Mouland,

 3 who will -- you'll be hearing a bit later in the

 4 hearing. So I just welcome them.

 5   MR. SVEN HOMBACH: Thank you. In that

 6 case, Mr. Chairman, I suggest we turn it over to Mr.

 7 Gange.

 8   THE CHAIRPERSON: Mr. Gange, good

 9 morning.

10

11 IEC ELENCHUS PANEL RESUMED:

12

13   RUSS HOULDIN, Previously Sworn

14   JOHN TODD, Previously Affirmed

15

16 CONTINUED CROSS-EXAMINATION BY MR. WILLIAM GANGE:

17   MR. WILLIAM GANGE: Thank you, Mr.

18 Chair. Good morning, panel. Good morning, Mr. Todd

19 and Mr. Houldin. Mr. Houldin, when -- the mercy rule

20 was invoked last night and we ended. I -- I want you

21 to turn to page 12 of your report, which is Exhibit

22 2.2. And -- and, Diane, if you could go down a bit,

23 and then a bit more. Yes, right there. Thank you.

24   This Section 3.3 is dealing with the

25 potential of Manitoba Hydro's DSA -- DSM programs to

1 defer future capacity. You're aware, sir, that Mr.

2 Dunsky's review of this is that -- his conclusion is

3 that in fact if -- if DSM were to be introduced at a

4 higher level than the original plan of Manitoba Hydro,

5 that in fact Keeyask could be delayed -- could be

6 deferred for a considerable period of time.

7   You're aware of that, sir?

8   MR. RUSS HOULDIN: Yes.

9   MR. WILLIAM GANGE: And although you

10 hadn't considered this in -- in this report, you're

11 aware, sir, that -- that Manitoba Hydro has -- has

12 revised its DSM forecast and -- and those forecasts

13 would acknowledge that -- that the Keeyask dam could be

14 deferred for up to six (6) or seven (7) years.

15   Is that correct, sir?

16   MR. RUSS HOULDIN: I was given that

17 information yesterday, and I have an undertaking to --

18 to review that.

19   MR. WILLIAM GANGE: Yes. And -- and in

20 fairness, I'm -- I'm not going to go much further than

21 -- than that. But the -- your point in here was that -

22 - at lines 20 through 24, that -- the comment that you

23 make is that:

24   "The main economic benefit from

25   increasing DSM arises not from

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1   increased DSM deferring generation,

2   but from increased DSM increasing the

3   level of exports."

4   What did you mean by that?

5   MR. RUSS HOULDIN: Well, I could be

6 wrong, but my understanding was exac -- is exactly

7 that, that the -- if it turns out that DSM programs

8 exceed their targets and load is lower, then that will

9 create a greater surplus for Manitoba Hydro to export.

10 I -- I may -- I may have stretched the point by saying

11 the 'main economic benefit'. I'm sort of straying out

12 of my remit a bit there.

13   MR. JOHN TODD: Perhaps if I add

14 something, it will help with, I think, what has been a

15 misunderstanding around the evidence. The -- the

16 multiples referred to in the -- line 16 to 19, in the

17 original plan there's a sensitivity analysis saying,

18 What if DSM is at one point five (1.5) or at four (4)?

19   With DSM, we cannot just say we're going

20 to do four (4) times as much DSM and it immediately

21 becomes a dependable resource. You have to have a

22 credible way to get that DSM. And until you have a

23 credible DSM plan to do it, it's not the least bit a

24 dependable resource.

25   So as a scenario, all we're saying is

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 1 you can't defer Keeyask as a result of setting an

 2 arbitrary target for DSM. If you say you're going to

 3 build a dam, you can build a dam. If you say you're

 4 going to build a gas fired generating station, you know

 5 you can build it. You don't know that you can do four

 6 (4) times DSM without developing a plan for it.

 7   So all we're trying to say is you cannot

 8 just say -- like a decision from the Board couldn't

 9 just say, Make your target four (4) times higher and we

10 can defer to Keeyask. You can say, Go back and try to

11 find a plan to do four (4) times the DSM. If you can

12 come back with a plan that's credible, then maybe you

13 can defer Keeyask, but it'll probably take a couple

14 years to come up with that plan. And by then, you're

15 probably past the point of being able to defer Keeyask.

16   If -- if you're bringing forward a plan

17 that was credible for giving you four (4) times DSM, so

18 you could consider it dependable, then you could do a

19 deferral. So the consequence is that if you set a

20 target of four (4) times DSM, you cannot consider it

21 dependable at the time. If in fact you achieve it, you

22 will have less domestic demand. Therefore, you have

23 more exports, because your generation capacity is

24 given. And therefore, you'll have increased export

25 revenue.

5066

1   Okay?

2   MR. WILLIAM GANGE: And -- and, Mr.

3 Todd, thank you for that. I -- I think I understand

4 the point that you're making. And -- and, sir, I'm not

5 sure -- Mr. Simonsen, the Power Smart Plan, what

6 exhibit was that? I'm sorry, I didn't mark it.

7

8   (BRIEF PAUSE)

9

10   MR. KURT SIMONSEN: One fifty-three.

11

12 CONTINUED BY MR. WILLIAM GANGE:

13   MR. WILLIAM GANGE: Thank you. And,

14 Mr. Todd, this -- this -- the Power Smart Plan, Exhibit

15 153 of Manitoba Hydro, was -- was just provided to us,

16 I believe, on -- perhaps yesterday. So obviously you -

17 - you didn't have a chance to take that into account at

18 the time that this report was being made.

19   But have you had a chance to look at

20 that at all?

21   MR. JOHN TODD: It is dated March 28th.

22 We received it on Tuesday, I think, so very -- yes,

23 we've looked at it. We've looked at it. We are not in

24 a position to say this is -- creates dependable DSM.

25 Put it that way.

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 1   MR. WILLIAM GANGE: Okay. Thank you.

 2 And if you look on the screen, we have page 4 of that

 3 document. And Manitoba Hydro has indicated that

 4 electric DSM represents 4 percent of the estimated load

 5 forecast by 2016/2017.

 6   Is that the type of plan that you would

 7 expect in order to -- for it to fall into dependable?

 8   MR. JOHN TODD: There are -- there are

 9 two (2) aspects to dependability Mr. Houldin was

10 speaking to yesterday. One (1) aspect is: Can you

11 actually get programs to a scale that meets your

12 target? Which I've just referred to.

13   MR. WILLIAM GANGE: Yes.

14   MR. JOHN TODD: The other aspect that

15 Mr. Houldin was raising around the -- the Cheshire Cat

16 concept was that all measures of DSM results are

17 estimates. And we have to be confident that those

18 estimates are accurate.

19   Because they're estimates, they could be

20 high, they could be low. And we have to gain

21 experience with programs and with measurement of those

22 programs before we can be confident that the EM&V

23 examinations of it are producing numbers that are real,

24 we can actually count on as equivalent to generation.

25   So this kind of approach -- this kind of

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1 approach, it's -- it's -- looks like it's consistent

2 with standard practice. It looks like it's programs

3 that are -- should deliver the results. But it would

4 be -- in our view, it's prudent that if you really need

5 that capacity in order to have dependable energy, that

6 you want to approach it a bit cautiously to make sure

7 that your net demand is growing as expected, given the

8 DSM plan.

9 And the Cheshire Cat analogy is saying

10 that you can never be sure what you're getting in DSM

11 from direct observation -- because all you can observe

12 is the net demand, which is the gross load minus the

13 DSM. And my part of the work is the load forecast.

14 There's uncertainty around what your

15 load forecast is, and you don't even know if your pre-

16 DSM load forecast is accurate, has been accurate, when

17 you've got DSM, because you've got something which is

18 net -- is -- is the gross minus -- minus DSM as a net,

19 you know what the net number is. But you don't know

20 whether your load forecast was high and your DSM was

21 high, or your load forecast was low and your DSM was

22 low. Both of those would give you the same net.

23 So all we're saying is that there's some

24 uncertainty around this which -- which requires some

25 caution. We will get improved understanding of what

1 you're achieving with DSM as time goes by. When

2 programs are in place, we've got to be sure that you're

3 getting the participation levels you need and that your

4 measurement is accurate.

5   So we're just saying that initially you

6 want to approach your DSM results with a bit of

7 caution, particularly when you're ratcheting up a lot.

8 And that's fine as long as you've got adequate

9 reserves.

10   And with the Company going toward 20

11 percent reserves, the historical average, and 12

12 percent's the target, in that scenario it's probably

13 okay to say, We're going to count the DSM savings as --

14 as dependable because if you're off, you've got a good

15 cushion of protection.

16   So, you know, given all that context in

17 this scenario, probably you can put all the pieces

18 together and say there's a target, it's a plan that

19 Manitoba Hydro is putting forward, they believe in,

20 they say they can do it. A review -- a quick review

21 says it's standard practice. It's probably credible,

22 so we'll probably get those results. And if we're a

23 little bit off, we have enough reserve to protect us.

24 So let's take it and run with it.

25   MR. WILLIAM GANGE: But, Mr. Todd,

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1 Manitoba Hydro has been doing demand-side management

2 programs for an awfully long time. And my client's

3 analysis of it, and -- and the experts employed have

4 come to the conclusion that, in fact, the history that

5 -- that you just talked about is already present so

6 that it's not a question for them of waiting to

7 determine whether DSM programs can be initiated and

8 carried through by Manitoba Hydro.

9   The history says that they have been and

10 they will continue to be. But the -- the disconnect

11 that I've got with your answer is, sir, that -- that

12 you're talking about looking into the future, and my --

13 my -- our experts are saying, No, you've already got

14 that track record.

15   Did -- did Elenchus undertake a review

16 to determine whether the -- the estimates being made by

17 Manitoba Hydro could be relied upon?

18   MR. JOHN TODD: That'S -- that's where

19 the Cheshire Cat comment comes in that says, We are

20 cautious about saying that the numbers are as precise

21 of what you're being delivered as corresponding

22 gigawatt hour numbers for a gas fired plant or a

23 hydroelectric dam.

24   That being said, we are at the same time

25 saying, Do as much DSM as is economic. Take these

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1 plans. Run with it. Produce the results. Even though

2 it's imprecise, that doesn't mean you don't do it.

3 It's just like you -- you can build -- you can put in

4 solar and wind. You don't know exactly what you're

5 going to get out of them, but you've got a pretty good

6 idea and you can say it's economic, so you build those

7 generating facilities.

8   The same thing here. We're not saying,

9 Defer doing DSM. In fact we're saying, if anything,

10 Push for more. There's probably more that's economic.

11   MR. WILLIAM GANGE: Yes. Okay.

12   MR. JOHN TODD: And try to get as much

13 as you can. And the worst thing that can happen with -

14 - with great success is you have more exports to

15 generate revenue. That's not a bad thing. So the --

16 the -- all we're doing is saying, Until you're

17 confident that you're not going to have capacity

18 problems or energy problems in the future, you don't

19 defer plants based on a plan which is -- is not 100

20 percent dependable. That's sort of the engineering

21 concept, okay.

22   So if you're referring to, Do the DSM,

23 we're not talking about delay. The issue of

24 uncertainty plays into how much do you use the DSM

25 anticipated results to defer a Keeyask. And I think

 1 the economics of deferral essentially says, If you

 2 defer, you get less export revenue, and it may actually

 3 not be economic to defer, particularly given the amount

 4 that is -- is sunk cost, to make Keeyask economic in

 5 the first case. I mean, what they've invested in

 6 Keeyask plus the -- the transmission lines.

 7   Deferral isn't necessarily economic. I

 8 think the evidence, though it's outside of our turf, is

 9 suggesting that as long as the export price is up

10 there, is adequate, deferral would cost the Company

11 money in net present value terms.

12   MR. WILLIAM GANGE: Sir, one of the

13 recommendations that Elenchus has made is for Manitoba

14 Hydro to revert to its previous practice of integrated

15 resource planning.

16   That's -- that's a fundamental part of

17 your report, would it not be, Mr. Houldin...?

18   MR. RUSS HOULDIN: I wouldn't call it

19 fundamental. I -- I would say it's a suggestion. I --

20 I think I understand why Manitoba Hydro has moved away

21 from IRP, but I -- I put it forward as a suggestion

22 that they -- that they might consider going back to it

23 in -- in the future.

24   MR. WILLIAM GANGE: I see. Okay. I --

25 I did take it as fundamental because it -- the point is

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1 made in several parts of your report and -- and seems

2 to be one of the main recommendations that you make in

3 your report.

4   Did I -- did I overstate -- or did I

5 take it as -- as being more than what you meant it to

6 be?

7   MR. RUSS HOULDIN: Well, we tried to be

8 a little careful with the language. This may be just

9 pure semantics, but these are what we think of as

10 suggestions, not recommendations. In my mind, a

11 recommendation is -- is a sort of stronger term.

12   MR. WILLIAM GANGE: Okay. I've got

13 your point. But, sir, in doing integrated resource

14 planning one would expect that there would be -- that -

15 - that DSM would be taken into account as part of the

16 analysis?

17   MR. RUSS HOULDIN: Yes, that's right.

18 I -- I don't know if we need to go to the -- the slide,

19 but if you -- you remember I -- I showed a slide

20 yesterday that contrasted my version, at least, of

21 Manitoba Hydro's overall scheme for developing the

22 resource plan versus my depiction of IRP.

23   And the fundamental difference was that

24 in IRP you consider all of the options, supply and

25 demand, and subject them to the same criteria. And in

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1 particular, you apply non-economic -- all -- you apply

2 all the factors. You apply the even -- environmental

3 factors as well as the economic ones.

4   MR. WILLIAM GANGE: If -- if you -- we

5 can go to Elenchus 2-2 and page 15.

6   MR. RUSS HOULDIN: Sorry, what page was

7 that?

8   MR. WILLIAM GANGE: It's on the screen

9 now, sir, page 15.

10   MR. RUSS HOULDIN: Fifteen. Okay.

11   MR. WILLIAM GANGE: And -- and this is

12 one of the points where you do make the suggestion of a

13 return to the integrated resource planning, correct,

14 sir?

15   MR. RUSS HOULDIN: Well, the thrust of

16 this is not that. The thrust of this is the -- is a

17 different suggestion.

18   MR. WILLIAM GANGE: Okay, if we look at

19 line 7 to 12.

20   MR. RUSS HOULDIN: Oh, I'm sorry, I

21 flipped down to the bottom of the page, sorry.

22   MR. WILLIAM GANGE: I'm looking at

23 lines 7 to 12 --

24   MR. RUSS HOULDIN: Okay.

25   MR. WILLIAM GANGE: -- where it says:

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 1   "However, in Elenchus's view, the

 2   overall coherence and robustness of

 3   Manitoba Hydro's resource plan may be

 4   improved by a return to IRP.

 5   Elenchus further suggests that an IRP

 6   approach to which is added an

 7   explicit recognition of the

 8   statistical nature of expected DSM

 9   contributions would be an optimal way

10   of addressing the uncertainties of

11   DSM.

12   The main way in which this

13   recognition may be incorporated into

14   planning is by the treatment of DSM

15   as akin to dispatchable intermittent

16   generation."

17   Now -- and again -- okay, so this one is

18 bolded. What does it mean to say an explicit

19 recognition of the statistical nature of expected DSM

20 contributions?

21   What -- what are you -- what -- what

22 point are you trying to make there, Mr. Houldin?

23   MR. RUSS HOULDIN: The point I'm -- I'm

24 trying to make, and I -- I apologize, I could have been

25 clearer in my presentation yesterday, that the -- the

1 real essence of the suggestion here to Manitoba Hydro

2 is -- is not to consider, as I believe they do today,

3 DSM to be 100 percent dependable.

4   So that's really -- the nub of this is

5 really saying don't consider it to be a hundred -- a

6 hundred percent dependable. Think of it more like wind

7 power, where you have a nameplate capacity of the

8 output but you know that you're not going to get that

9 at all times, to make that your approach to -- to DSM.

10   MR. WILLIAM GANGE: And again, maybe

11 I'm going to go back over something that I didn't

12 understand yesterday, and I -- I don't understand it

13 again. I understand how wind power can be considered

14 to be intermittent because sometimes the wind blows

15 here and sometimes the wind doesn't.

16   But with respect to DSM, once -- once

17 it's introduced, it's there. Once you've got a better

18 functioning refrigerator, that load is reduced.

19   MR. RUSS HOULDIN: No, but --

20   MR. WILLIAM GANGE: How -- how is it

21 comparable to intermittent generation?

22   MR. RUSS HOULDIN: Well, no, I think

23 this is a good -- a good point you raised. It -- it

24 would appear to be that on the surface but it's not.

25 Because what you've got is tens of thousands of

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1 refrigerators, which are assumed to have an average

2 value of kilowatt hours per refrigerator reduction in

3 the previous sets of refrigerators. But if you look at

4 any individual refrigerator, they won't perform to that

5 average demand. So you have a statistical variation

6 across the refrigerators.

7   So that -- so in effect you do have the

8 equivalent of intermittency from -- so literally from,

9 you know, dispatch period to dispatch period, which at

10 the end of the day is what the Manitob -- Manitoba

11 Hydro system operator has to face, you can't rely on

12 the amount that was targeted in the DSM plan. It will

13 be some other number just as it would be for wind.

14   I think Mr. Todd has a -- a point to

15 make too.

16   MR. JOHN TODD: I want to jump in with

17 a slightly different analogy, because clearly we're

18 having difficulty conveying this point. With

19 dispatchable intermittent generation, you have a meter

20 on the wind farm or on the solar farm. So while on a

21 forecasting basis you don't know what you're going to

22 get out of them, you do know precisely how many

23 kilowatt hours they generate and in which hours and so

24 on.

25   DSM, I'll take a different analogy. If

 1 you -- if you say it's similar to an unmetered load,

 2 with an unmetered load you have streetlights where you

 3 can do a calculation of how much power they're going to

 4 use, what the load is going to be, but they're not

 5 individually metered. In fact, the mass of them aren't

 6 metered. And you take other loads, like equipment on -

 7 - that -- used by cable TV in their distribution, their

 8 distribution of the cable TV -- of the cable network,

 9 you don't actually know how much power they're using.

10 You have an estimate of it.

11   And when we're doing load forecasting,

12 you do it by -- by class. You know how much the total

13 load is of the system. You know how much -- because

14 it's metered; you know how much it is that the

15 industrial customers use, and the residential customers

16 use, and so on. There's some imprecision in that

17 because meters can be imperfect.

18   You estimate losses, and then you have

19 residual. And you try to reconcile sort of what's

20 unaccounted for and you attribute to unmetered load and

21 other losses. And you rationalize that against the

22 engineering estimates for how much that unmetered load

23 should be using.

24   And the same thing here. We in effect

25 have engineering estimates of DSM, but we don't have

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1 the DSM metered so that you can say the fridges across

2 the whole system have actually used 'X' number of

3 kilowatt hours less. You're estimating that.

4   So what we're trying to say here is that

5 there's a statistical nature because you're doing some

6 engineering analysis, you're doing an EMV approach,

7 which looks at participation rates, and if it's light

8 bulbs, how many people take out their efficient light

9 bulbs and put incandescent lights back in because they

10 actually like the light better, like my wife. Certain

11 places we cannot use compact fluorescents.

12   And so there's all sorts of things that

13 make our engineering estimates imprecise. With

14 experience you try to get a better handle on it, but

15 you will never know exactly what it is, and you'll

16 never achieve the actual engineering estimates -- or --

17 or the engineering calculations of what you should be

18 saving, because there's human behaviour differences.

19   Sometimes the lighting is different, so

20 people leave the lights on longer when they're using

21 efficient light bulbs. You're not picking that up.

22 You're estimating that behaviour. And as a result,

23 there's a statistical nature and you have an expected

24 value, and one of the concerns is do you end up with

25 processes of estimating that are biassed? That either,

1 you know, look at it and say, We really like DSM and

2 we're going to be really go -- go -- really favourable

3 for it and -- and push to over estimate or are we

4 actually being -- taking the sort of the 50/50 approach

5 and being as accurate as possible.

6   And, so -- so that's all we're saying,

7 is that you go in. You've got to be very, very careful

8 when you're looking at your estimates of DSM to make

9 sure that you're delivering the results that you've

10 anticipated. We think that Manitoba Hydro is doing a

11 good job of that.

12   You can't simply discount the

13 anticipated savings for no good reason. We accept the

14 numbers. You treat it as dependable, but you all --

15 you have to monitor and watch carefully and make sure

16 you're getting the results you want. And, in part,

17 it's like the unmetered load, Does it all reconcile at

18 the end?

19   When you look at your estimated load

20 growth and you look at your usage over a period of,

21 say, four (4) or five (5) years, and you've got an

22 estimated DSM, do the numbers add up correctly? Or do

23 they give you a hint that, wait a second now, if load

24 is growing the way we thought and we're getting as much

25 DSM as we thought, our net value, the actually observed

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1 consumption should be lower or higher.

2   And that will feed back to improving

3 your -- your estimates as statistical nature. And

4 that's the analogy to dispatchable if you -- you learn

5 from experience, and you learn what to count on. You

6 know, is it 100 percent dependable relative to the

7 estimates? Or in fact, are we doing better than the

8 estimates? Are we doing worse than the estimates.

9   MR. WILLIAM GANGE: Mr. Todd, isn't --

10 isn't that uncertainty at the heart of everything in a

11 hydroelectric system? And what I mean by that is that

12 if you have a gas system, and you know that you can run

13 that -- that turbine for this many hours, and you can

14 produce exactly this many gigawatts of power but in a

15 hydroelectric system everything is uncertain.

16   You -- you can know what the capacity

17 is, that you've got this many dams, but we will never

18 know in April how much water there is in September.

19 Isn't that true, sir?

20   MR. JOHN TODD: Absolutely, and we've

21 got it now. Thank you. That's a good analogy, too,

22 because for a hydro resource we have forecasts of what

23 will be generated but it fluctuates with -- with

24 different water conditions --

25   MR. WILLIAM GANGE: Can I interrupt you

 1 there, sir, 'cause I want to take you -- take you to

 2 Manitoba Hydro 95, page 18. I think that'll come up on

 3 the screen.

 4   MR. JOHN TODD: While that's com --

 5 coming up, I'm just saying that's why there's reserve

 6 margin in there, in part. You want to have -- you

 7 accommodate that uncertainty. And you do that with

 8 everything where there's uncertainty.

 9   MR. WILLIAM GANGE: So this map or,

10 pardon me, this graph that's presented by Manitoba

11 Hydro isn't -- isn't exactly on point but -- but I

12 think it's illustrative in that here's the export

13 revenues. So -- and -- and there can only be export if

14 there's enough power to -- to ship out elsewhere.

15   But in -- in every year one never knows

16 how much power is going to be generated. Correct, sir?

17   MR. JOHN TODD: Correct.

18   MR. WILLIAM GANGE: And, so -- so I --

19 I guess then it comes back for me, as I listen to you,

20 there's -- there's such emphasis in this report Exhibit

21 2.2 on the uncertainty of DSM but the uncertainty of

22 DSM is just part of the uncertainty of the whole

23 hydroelectric system, isn't it?

24   It -- it's no greater than -- than the

25 uncertainty of how much power is going to be generated

5083

1 in a year.

2   MR. JOHN TODD: Absolutely. We're --

3 we're agreeing.

4   MR. WILLIAM GANGE: Okay.

5   MR. JOHN TODD: We're on the same

6 track.

7   MR. WILLIAM GANGE: Good, thank you.

8

9   (BRIEF PAUSE)

10

11   MR. WILLIAM GANGE: Thank you, Mr.

12 Todd, Mr. Houldin. With -- with that last answer, the

13 fact that we're in agreement on something, it's -- it's

14 always delightful. So thank you very much for your

15 patience with me. I appreciate it.

16   And that, Mr. Chair, concludes my

17 questions for this panel.

18   THE CHAIRPERSON: I, on the other hand,

19 still have questions on this issue. I just want to

20 make sure that I'm understanding adequately what you

21 have been expressing, and specifically I think you are

22 -- you are cautioning us about expecting that a plan to

23 generate four (4) times DSM may actually be realized.

24   MR. JOHN TODD: Yes. Without looking

25 at the plan, you don't just say, We're going to do four

1 (4) times the DSM. We need to plan to do it.

2   THE CHAIRPERSON: And you're also

3 saying I think that, with experience, having

4 implemented a plan, you are in a position to -- to put

5 more reliance on its ability to generate savings.

6   MR. JOHN TODD: Yes. To some extent,

7 you can base it on experience in other jurisdictions,

8 but to some extent, you want your own experience as

9 well 'cause each jurisdiction is a bit different. Each

10 company delivering the programs is different.

11   To some extent, DSM is a marketing

12 program, and as every company knows, you never know how

13 good your marketing program's going to be until after

14 the fact.

15   THE CHAIRPERSON: But you are saying --

16 suggesting that DSM can be incorporated in an IRP that

17 involves generation -- that includes generation. So in

18 other words, it -- it's given equal weighting to a

19 generation option in an IRP program.

20   MR. JOHN TODD: Yes. What -- the

21 practical application is you treat it the same as long

22 as you are confident that you can depend on that DSM.

23 I -- you know, I think what we're saying is that you

24 may have -- when you go -- when Manitoba Hydro goes

25 through the study, there is an engineering concept of

5085

1 how much DSM you can have, and there's achievable and

2 market potential and so on.

3   So there's an attempt to deal with this

4 uncertainty to say, Here's what we think is realizable

5 in the marketplace. And what is realizable, what is

6 credibly and carefully calculated as being realizable

7 in the mark -- mark -- in the marketplace is something

8 that you can treat as dependable.

9   Now, as with water flows, when you say

10 it's dependable, the caution is that doesn't make it

11 100 percent dependable just because you've done some

12 analysis and forecasts of how your DSM programs will

13 deliver, which is why you have a reserve margin.

14   So you wouldn't want to run -- you

15 wouldn't want to run your system really tight five (5)

16 years from now based on a DSM plan that says -- based

17 on an aggressive DSM plan that says, you'll have

18 sufficient power to keep the lights on.

19   But as long as you've got your total

20 planning in place with an adequate reserve margin and

21 sufficient DSM, sufficient new generation that the --

22 the package gives you dependable flows and sufficient

23 reserves for the uncertainty, then you've got a plan

24 you can go forward with.

25   Is that --

5086

 1   THE CHAIRPERSON: It does, but -- but

 2 it does suggest in a system with lots of DSM that you'd

 3 have to have a higher reserve capacity.

 4   MR. JOHN TODD: Yes. I think what

 5 we're saying -- well, there's a combination of things.

 6 If -- if you are conservative in estimating the

 7 benefits of DSM, so if you were to look at your DSM

 8 savings that you're building into your forecast in

 9 Manitoba and compared to other jurisdictions and

10 compared to experience, you -- you're confident that

11 the estimates you're making will at least be achieved,

12 then you may not require as much reserve margin if you

13 are being more aggressive.

14   So, for example, if you were to wrench -

15 - increase your DSM target by a multiple of four (4),

16 I'd consider that aggressive. And that would be less

17 dependable than if you increase your target by -- from

18 one (1) -- you know, initial target to one point five

19 (1.5).

20   So the -- I -- I think what you're

21 saying is the more aggressive you're being on DSM,

22 perhaps the more reserve you -- you'd have to have.

23 And part of reserve is, Do you have the ability to

24 respond to under performance in DSM by bringing in

25 alternative sources or doing something else.

5087

1   THE CHAIRPERSON: Now, we've been

2   talking about generation and DSM, but the -- it seems

3   to me that it also -- if you follow that one through,

4   you know, assuming that you are expecting a certain

5   level of DSM and as a consequence you provide long-term

6   contracts for selling power to the US, I mean, that to

7   me is a clear example where, even though you may have

8   decided to build generation, you should be cautious

9   about relying on DSM as a basis for signing additional

10   export contracts to the US market?

11   MR. JOHN TODD: Domestic load plus firm

12   exports determines the amount of dependable energy you

13   need, absolutely. And so you -- you could not -- you -

14   - you wouldn't write contracts based on anything that

15   is -- that you're not a hundred percent confident in.

16   That's what the dependable power concept is, right.

17   We're -- we're certain we'll get this.

18   Now, there's always risks. A plant

19   could fail and all those plans about dependable energy

20   goes out the window, so nothing is guaranteed in the

21   world, but, yes. And I think the point is being pushed

22   too far in terms of what we're saying. We're try --

23   we're trying to give some insight into the

24   uncertainties around DSM.

25   This is not an attack on DSM. This is

5088

1 not saying you shouldn't consider it dependable. This

2 is not saying that you shouldn't be doing it. It's an

3 important and economic resource to be relied on, and we

4 build it into the forecast.

5   When the caution comes from part of the

6 evidence talks about alternative scenarios for DSM, and

7 certainly in the original evidence which we'll be

8 writing about, without any plan -- without seeing plan

9 to achieve higher DSM, there are scenarios being run at

10 one and a half (1 1/2), two (2), three (3), four (4)

11 times DSM.

12   What we're trying to say is you can't

13 just take those numbers and say, Oh, we will do four

14 (4) times the amount of DSM. That's -- that's --

15 that's the limit to what we're trying to say, okay.

16 There's -- it's not an attack on DSM. It's an attack

17 on saying, I like four (4) times DSM, so we'll use that

18 in our plan. And Manitoba Hydro wasn't trying to do

19 that.

20   But the way the numbers were coming out,

21 it was a temptation, I think to -- it could be a

22 temptation to simply say, Four (4) times DSM looks

23 good, so why don't we do that and delay Keeyask. And

24 we're saying that's just a hypothetical scenario.

25

5089

1   (BRIEF PAUSE)

2

3   THE CHAIRPERSON: Thank you. Me.

4 Hacault, s'il vous plait.

5   MR. ANTOINE HACAULT: Merci, Me.

6 President.

7

8 CROSS-EXAMINATION BY MR. ANTOINE HACAULT:

9   MR. ANTOINE HACAULT: The first area

10 I'll deal with very briefly, and it's just getting a

11 clarification of the nature of information that was

12 provided, it's a very short subject. It's for Mr.

13 Houldin. It's with respect to the Curtailable Rate

14 Program.

15   My understanding, sir, is that in

16 writing your report you weren't provided with the full

17 contractual details of the Curtailable Program signed

18 on by customers.

19   Is that correct?

20   MR. RUSS HOULDIN: That's correct. I -

21 - I wasn't given that kind of information, yeah.

22   MR. ANTOINE HACAULT: So just to break

23 that -- that down a little bit, for example, you might

24 -- you wouldn't know for each of the different programs

25 minimum notice to curtail, correct?

5090

1   MR. RUSS HOULDIN: That's correct, yes.

2   MR. ANTOINE HACAULT: And you wouldn't

3 know the maximum duration per curtailment under the

4 different options, correct?

5   MR. RUSS HOULDIN: Correct.

6   MR. ANTOINE HACAULT: And you also

7 wouldn't have known, in writing the report, the maximum

8 daily hours of curtailment under each program?

9   MR. RUSS HOULDIN: Correct.

10   MR. ANTOINE HACAULT: You wouldn't know

11 the maximum number of curtailments per year under each

12 option?

13   MR. RUSS HOULDIN: Correct.

14   MR. ANTOINE HACAULT: And finally, you

15 wouldn't know the maximum amou -- amount of hours per

16 curt -- curtailment, correct?

17   MR. RUSS HOULDIN: Correct, yes.

18   MR. ANTOINE HACAULT: Thank you very

19 much. The next subject I'll be moving into relates to

20 Elenchus Exhibit number 3. It probably is Mr. Todd

21 that will answer most of the questions, but both of you

22 feel free.

23   The first subject matter, and it's dealt

24 with at various places in the report, that I want to

25 deal with is forecast accuracy and the probabilities

 1 that Hydro uses that flow through the models.

 2   Now, are we both on the same page that

 3 Manitoba Hydro tries to seek an accuracy on a ten (10)

 4 year metric of about 10 percent in variance from the

 5 forec -- the base forecast?

 6   MR. JOHN TODD: Yes.

 7   MR. ANTOINE HACAULT: Do you believe

 8 that that's a reasonable target, sir?

 9   MR. JOHN TODD: Yes.

10   MR. ANTOINE HACAULT: And you base that

11 on comparing what other utilities are able to achieve,

12 and I would say as much as possible, to similar

13 utilities with -- with some hydraulic base?

14   MR. JOHN TODD: I don't think the

15 hydraulic base is relevant in the load forecast side,

16 forecast to forecast, but -- given our forecasting for

17 other distributors. But more, jurisdiction load is a

18 bit different. Looking at their methodology and as you

19 say, critiquing the methodology, I wouldn't -- I

20 wouldn't come in with promises of doing much better.

21 Therefore, I consider what they're doing is reasonable.

22   MR. ANTOINE HACAULT: So does it follow

23 logically if we're testing stress tests, that it makes

24 sense to use what can be achieved practically?

25   MR. JOHN TODD: Yes, we always know

1 forecasts will be wrong. And what you're actually

2 measuring with accuracy, to me, is not how good is the

3 load forecast given what we know today. What you're

4 measuring is how much does the world change in unexp --

5 unexpected ways. And that -- the 1 percent per year is

6 a rough and ready measure of how much things may be

7 different than we expect as the world unfolds.

8   MR. ANTOINE HACAULT: Yes, and you

9 weren't part of that -- or part of this section of the

10 hearing, but in MIPUG-20-2 -- could you pull that up,

11 please, Diana, at page 19?

12   This is part of an analysis of some of

13 the forecasting confidence points that varied over the

14 years. I -- I suggest that you might have an

15 opportunity to look at the graphs and this last night.

16   Did you have an opportunity, sir?

17   MR. JOHN TODD: Yes, I did.

18   MR. ANTOINE HACAULT: Okay. And in

19 your report, you talk about Manitoba Hydro in previous

20 methodology using various confidence levels categorized

21 as indicated at the top of this table, correct?

22   MR. JOHN TODD: Yes.

23   MR. ANTOINE HACAULT: And with respect

24 to the certainty metrics, if we go to the bottom of the

25 table and look at -- at -- the middle has a heading on

5093

1 the left-hand side, "2013/2014 Forecast."

2   Do you see that, sir?

3   MR. JOHN TODD: Yes, that's the bottom

4 half of the table we're referring to.

5   MR. ANTOINE HACAULT: Yes. And if we

6 look at the ten (10) year metric that we see going

7 across the table, if we forecast -- and we look at the

8 stress testing, what's being put in the model is not a

9 10 percent parameter but around a 5.4 percent

10 parameter.

11   Is that consistent with your own

12 analysis, sir?

13   MR. JOHN TODD: Yes, I did not verify

14 numbers, but I did note a consistency -- a smaller

15 variance. Yes, so I accept that.

16   MR. ANTOINE HACAULT: And even with

17 respect to the -- if we go out another twenty (20)

18 years, taking into account your, let's say, caveat that

19 we really don't know how the world is going to change

20 in the next twenty (20) years, we see that the model is

21 not being stress tested according to Manitoba Hydro's

22 actual experience.

23   It's still below the ten (10) year

24 metric of 10 percent, correct?

25   MR. JOHN TODD: Yes.

5094

 1   MR. ANTOINE HACAULT: So, sir, we had

 2 asked with respect to the 2013/2014 forecast to also

 3 provide further detail to see when we might reach that

 4 10 percent metric looking at the probabilities and

 5 what's being put into the model for economic and

 6 financial forecasting. And that's Manitoba Hydro

 7 Exhibit 103. If that can be brought up please, Diana.

 8   And the first page of that table, if we

 9 do a ten (10) year metric, unfortunately it's not

10 highlighted on this table, that will be the year 20 --

11 we can pick 2023/2024. If we have the base estimate of

12 29,000 gigawatts, there should be, if we have a 10

13 percent metric, roughly about 3,000 gigawatts

14 difference at the 5 percent probability point, and 95

15 percent probability point if we were, in fact, trying

16 to mimic what Hydro's metric is. But there isn't,

17 correct?

18   If we subtract in the 5 percent

19 probability point, the number twenty-nine thousand

20 (29,000), and subtract from that the twenty-six

21 thousand nine hundred (26,900), which is very close to

22 twenty-seven (27), there's only about a 2,000 gigawatt

23 change, or twenty-one hundred (2,100), correct?

24   MR. JOHN TODD: Yes. I think what

25 you're saying is for the ten (10) years if we take a 10

5095

1 percent above or below, what probability measures does

2 -- does that correspond to?

3   MR. ANTOINE HACAULT: Yes.

4   MR. JOHN TODD: And based on the

5 standard deviations calculations of Manitoba Hydro,

6 that 10 percent would be achieved through a five (5)

7 and ninety-five (95) as opposed to a ten (10) and

8 ninety (90) as the -- as the test.

9   MR. ANTOINE HACAULT: Yeah. So what

10 I'm trying to understand is what kind of probability

11 metric would we need to match approximately Hydro's

12 real experience? We know Hydro is trying to achieve a

13 10 percent accuracy, but they've inputted 90 percent

14 and 10 percent into their models. That, we saw, was

15 about five point four (5.4).

16   It doesn't come close to -- it's quite

17 optimistic compared to their metric, correct?

18

19   (BRIEF PAUSE)

20

21   MR. JOHN TODD: To answer this

22 question, it might be helpful to turn to our evidence.

23   MR. ANTOINE HACAULT: Around page

24 30/31?

25   MR. JOHN TODD: And at -- which show

 1 some tables at page 35.

 2   MR. ANTOINE HACAULT: Thirty-five (35),

 3 okay.

 4

 5   (BRIEF PAUSE)

 6

 7   MR. JOHN TODD: And just to explain my

 8 understanding of what Hydro is doing, it's important to

 9 draw a distinction between the target they refer to,

10 which is the outer bound versus the average

11 performance. When they talk about using a

12 probabilistic approach, the probabilistic approach is

13 saying, What was the average performance in the past,

14 not, What's sort of the maximum range that we used as a

15 target in the past? They're different, okay?

16   So when they're saying that we want to

17 be within 5 percent on five (5) year ahead forecast,

18 and this top graph is the five (5) year ahead forecast,

19 what they're saying is, We want to be within 5 percent

20 or less, right? We could be right on, we could be 1

21 percent off. But they want to stay within the 5

22 percent range, above or below.

23   Experience, as you can see, fluctuates

24 up and down. Some years we're hitting that 5 percent

25 range, and some years -- or in the five (5) year ahead

 1 forecast we're essentially right on. Therefore, when

 2 you do a probabilistic analysis, you're saying, What

 3 was our average performance in the past, in essence.

 4   And the average performance is always

 5 going to be -- you'd expect to be -- would be less than

 6 the target. So what Manitoba Hydro has done is

 7 consistent with -- to me, is consistent with their --

 8 their practices, the difference between a target and

 9 past experience, which does not answer the question of

10 what's the appropriate probability range to use.

11   So when they define a probability range

12 based on past experience, they're not basing it on

13 their target, which is the extreme, right? What

14 they're saying is, We want to be 80 percent confidence

15 that we've got the range of outcomes covered, and we're

16 ignoring the 10 percent tails at either end.

17   A different approach would be say, We

18 want to be 90 percent confident, and we're going to

19 leave out a 5 percent tail on each end. That would be

20 a more -- you could have more confidence that your

21 forecast will lie within that range. You can now be 90

22 percent sure rather than 80 percent sure. So that's a

23 fair point.

24   What's the right number? Hard to tell.

25 What -- what they've done in the past is they did

 1 multiple scenarios. So it would be reasonable and be

 2 interesting information, perhaps useful information, to

 3 have the 50 percent, 10 percent, 5 percent, or perhaps

 4 5 percent and 2 1/2 percent -- sorry, 10 percent and 2

 5 1/2 percent, and then 90 and 97 1/2 percent, for

 6 example.

 7   That would give you a better sense of

 8 the range and how extreme things can go to run through

 9 the rest of your financial models.

10   MR. ANTOINE HACAULT: And is that why

11 you were suggesting that the -- the old methodology was

12 useful information which would allow better stress

13 testing, sir?

14   MR. JOHN TODD: Yes, and that's why we

15 suggested in effect each -- that -- that the 10

16 percent, the 90 percent to us is a scenario. And we've

17 suggested five (5) scenarios because what you want is -

18 - medium-high means, okay, you're probably going to be

19 there, but it's a bit of a stress test to go on to a

20 more extreme circumstance.

21   So perhaps you could turn those five (5)

22 scenarios into the mid-range, the 50 percent, the ten

23 (10) and the ninety (90), and the two and a half (2

24 1/2) and the ninety-seven and a half (97 1/2).

25   MR. ANTOINE HACAULT: And that's

5099

1 certainly -- if we go back to Exhibit 103 from the

2 second page of that exhibit, when you've mentioned the

3 2 1/2 and 97 1/2 percentage point -- and I'm -- I'm not

4 going to go through the actual experience.

5   But looking at the line 2023, if we have

6 the base forecast of 29,000 gigawatts again, if we look

7 at the 2 1/2 percent probability, we're about twenty-

8 five hundred (2,500) off from the base, which is still

9 not quite 10 percent. It still doesn't match the

10 target. And in fact, in real life, they hadn't

11 achieved the target for ,I think it was, four (4) or

12 five (5) years during the twenty (20) year time period,

13 that 10 percent target.

14   Do you recall reading some of that?

15   MR. JOHN TODD: Yes. I mean, they

16 don't always achieve the target. And there's some

17 cyclicality in this so that when you look at a period

18 when you've got an extreme circumstance like the 2008

19 financial crisis, it throws things off. And the way

20 your modelling works, that -- that throwing it off is

21 going to affect your forecasts for a number of years,

22 the accuracy of your past forecasts, that is.

23   So in effect, the ten (10) years prior

24 to 2008 and less all would have their accuracy affected

25 on the -- on the ten (10) year accuracy perspective by

 1 that severe and unexpected event.

 2   MR. ANTOINE HACAULT: So the cyclical

 3 nature of the forecasting, we get a better idea that

 4 matches closer to what happened in reality for the last

 5 twenty (20) years if we used a metric that's closer to

 6 the 2 1/2 percent and 97.5 percent.

 7   Is that -- am I understanding you

 8 correctly?

 9   MR. JOHN TODD: Well, it's the

10 cyclicality of the error, not the cyclicalitiness

11 (phonetic) of the forecast because your forecast --

12 your forecast going forward can adapt. So you have a

13 2008. Your base point goes down for all your future

14 forecasts, but all your past ten (10) year forecasts

15 are all going to be off for 2008 and 2009 and --

16   MR. ANTOINE HACAULT: Understood. Now,

17 with respect to the -- those forecasts, my

18 understanding is that Elenchus basically tracked them

19 from 1987 and -- correct? That was at page 37 of your

20 report?

21   MR. JOHN TODD: Yes.

22   MR. ANTOINE HACAULT: And it noted

23 that, at times, those ten (10) year forecasts were

24 actually underestimates?

25   MR. JOHN TODD: Yes.

5101

 1   MR. ANTOINE HACAULT: And for the last

 2 bit, they -- Manitoba Hydro had overestimated and, in

 3 part, in fairness, probably was related to the change

 4 in economy that we saw in 2008 and 2009, correct?

 5   MR. JOHN TODD: Yes.

 6   MR. ANTOINE HACAULT: Now, the one (1)

 7 thing that I'd like -- I also asked you to perhaps look

 8 last night, sir, was Exhibit 9 -- MIPUG Exhibit 9 at

 9 page 'D', as in Donald, 10. And this is a really,

10 really busy graph. It kind of built on in previous

11 pages. but there's a couple points that I want to draw

12 your attention to, sir.

13   The black line going through all these

14 coloured lines was the actual weather adjusted net firm

15 energy in gigawatts.

16   Do you understand the graph that way,

17 sir?

18   MR. JOHN TODD: Yes.

19   MR. ANTOINE HACAULT: And if we see how

20 it tracks, we can see that there was a green line at

21 one point in time, and that was the 2005/2006 load

22 forecast, which is actually below -- and there's a

23 couple more of them that were actually below what

24 Manitoba Hydro experienced as load growth, correct?

25   MR. JOHN TODD: Yes.

5102

 1   MR. ANTOINE HACAULT: And next we can

 2 see after the actuals a bunch of coloured lines, but

 3 some of them are black dotted lines. The one with the

 4 longer dashes, which is darker, my understanding is

 5 that that's the reference. Below that, Diana. That

 6 one, yeah.

 7   That would be the first NFAT load

 8 forecast which was a bit higher than the dotted line

 9 immediately under it, which is the revision to the load

10 forecast.

11   Is that also consistent with your

12 understanding, sir, that the new load forecast was

13 lower?

14   MR. JOHN TODD: Yes.

15   MR. ANTOINE HACAULT: And that's what

16 we're using kind of as a reference best estimate guess

17 going forward. Is that consistent with your

18 understanding?

19   MR. JOHN TODD: Yes.

20   MR. ANTOINE HACAULT: Now, my question

21 is -- we see on both sides of that some smaller dotted

22 lines. And we've just gone through the 10 percent/90

23 percent probability bandwidth. So those lines would

24 represent those probabilities that's referenced in the

25 graph.

5103

1   Sir, do you see that at the bottom, the

2 very bottom of the graph, 10 percent probability point

3 and 90 percent probability point?

4   MR. JOHN TODD: Yes, and I'm -- I think

5 those are on the original forecast?

6   MR. ANTOINE HACAULT: Yes.

7   MR. JOHN TODD: Yeah.

8   MR. ANTOINE HACAULT: So am I correct

9 to understand that this cone would actually be wider if

10 it wished to express the 2.5 percent and 97.5 percent

11 uncertainty, which matches more with Hydro's actual

12 experience?

13   MR. JOHN TODD: The -- the cone would

14 be wider if you wanted to have a larger confidence

15 interval, the range between the bottom and the top.

16   MR. ANTOINE HACAULT: And my suggestion

17 to you, building up on the numbers that I showed you,

18 sir, is if we wanted to achieve the same confidence

19 level that Manitoba Hydro hopes to achieve in its ten

20 (10) year metric, which is a 10 percent confidence, in

21 the range, we'd have a wider cone, correct?

22

23   (BRIEF PAUSE)

24

25   MR. JOHN TODD: If you're taking a -- a

5104

1 range which is equivalent to the target as -- as

2 opposed to the rese -- as -- as opposed to the past

3 experience on average, yes, you would have a wider

4 cone.

5   MR. ANTOINE HACAULT: Okay. I guess I

6 may have to actually go back to -- to the --

7   MR. JOHN TODD: To that --

8   MR. ANTOINE HACAULT: -- graphs,

9 because the -- I appreciate you, sir, if you wanted the

10 target, but the -- the graphs, and we went through this

11 with the Board, we actually saw four (4) or five (5)

12 years out of the twenty (20) years where the 10 percent

13 target was not met. It -- the range was actually wider

14 than 10 percent.

15   MR. JOHN TODD: Yes, and I'm not -- I'm

16 being a little bit semantic with you. I'm not

17 disagreeing with the wider range. In fact, that's our

18 recommendation that we should be using more extreme

19 tests and that would be consistent with the

20 recommendation and the evidence.

21   MR. ANTOINE HACAULT: Okay. Now,

22 there's one (1) final line which goes down and this

23 fits in fairly nicely with -- with your testimony. We

24 don't know how wide the cone would be with a 2 1/2

25 percent and 97 1/2 percent. I guess we can plot it now

5105

1 that we've got this new information in Exhibit 103.

2   We see that the final line with the

3 dashes and the dots, which are the lowest load, on the

4 bottom left-hand side of the graph it indicates that

5 that's four (4) time DSM.

6   Do you see that, sir?

7   MR. JOHN TODD: Yes.

8   MR. ANTOINE HACAULT: So keeping in

9 mind your caveat that four (4) times DSM might not be

10 achievable, because we don't actually have a plan in

11 front of us to show well how are we doing to get there,

12 would it be appropriate to use that as a stress test?

13   And if the plans did well with that kind

14 of low load for growth -- growth it would give us a

15 pretty good idea of how the plans are fairing, even

16 with that kind of DSM -- and that theoretical DSM and

17 that theoretical reduction in load?

18   MR. JOHN TODD: Certainly to the extent

19 that four (4) times DSM is not out of the question.

20 It's -- it's useful information to see what the

21 implication of that would be.

22   MR. ANTOINE HACAULT: So I understand

23 your que -- your answer to be, Yes. It provides us a

24 useful metric because we don't know exactly where that

25 reference line is going to go. You explained that.

5106

1 There's a whole bunch of un -- sudden and unpredicted

2 events that may happen.

3   But the thing we do want to make sure we

4 have in this hearing, I would suggest, sir, is that

5 we've got our cone wide enough so that we can look at,

6 for example, Plan 14 and say, If the world changes, and

7 this is our world, we're not expecting it, is it going

8 to be really bad news for Manitobans or is it still

9 pretty much okay.

10   Is that a fair way to proceed, sir?

11   MR. JOHN TODD: Yes. Anything that is

12 being considered that may be part of the plan. And as

13 I understand it, the 4 percent -- or sorry, four (4)

14 times DSM is on the table as something being

15 considered, you should understand the implications of

16 that.

17   Is it something that's significant? Is

18 it -- would that, if achieved, change the required

19 timing of the -- the Development Plan, the -- the

20 elements of it, or would it actually move you to a

21 different Development Plan. That's obviously important

22 information to the extent the four (4) times DSM is on

23 the table.

24   MR. ANTOINE HACAULT: Thank you. The -

25 -there's a couple short other areas that I'd like to

5107

1 deal with, sir, and the first one that you identified

2 is, "System flexibility."

3   MR. JOHN TODD: Yes.

4   MR. ANTOINE HACAULT: And that's

5 discussed in various parts of your report. My

6 understanding of your message is that it's important to

7 have enough flexibility in the system to accommodate

8 load growth, and that might include major new

9 industrials, correct?

10   MR. JOHN TODD: Correct. The

11 flexibility includes things you can do in the future,

12 as well as what you have in place.

13   MR. ANTOINE HACAULT: So you'd

14 mentioned in your testimony, sir, that one (1) of the

15 potential new entrants, or some of the potential new

16 entrants would be the pipelines, correct?

17   MR. JOHN TODD: Yes. The TCL pipeline.

18   MR. ANTOINE HACAULT: Did you

19 investigate, or have you seen on the record Manitoba

20 Hydro's estimate of the new load that this would add to

21 the system?

22   MR. JOHN TODD: The information is the

23 record. I don't recall the number but, yes, it's --

24 it's there. I assumed that that number is correct. I

25 have not investigated it in the sense of verifying it,

5108

1 but I have -- I am aware of some of the plans around

2 the -- the pipeline, and it's an oil pipeline partly

3 conversioned from natural gas. It makes sense to me,

4 put it that way.

5   MR. ANTOINE HACAULT: And based on your

6 knowledge of the system as presently designed, it would

7 be able to accommodate that new load.

8   And may I suggest to you, even choosing

9 any of the plans in front of this Board, that load

10 could be accommodated?

11   MR. JOHN TODD: Yes. We've been

12 looking at reserve capacity, and we see the reserves

13 there versus the 12 percent target, which I think was

14 approved by the Board a number of years ago. Without

15 going below the 12 percent, the new loads could be

16 accommodated. If it going by -- below the 12 percent

17 reserve, you'd be able to accommodate the new loads.

18   MR. ANTOINE HACAULT: Now, there was

19 also some discussion when talking about major customers

20 that there was a perception, and I think it was Dr. --

21 or I'm going to say Mr. Houldin who had talked about

22 this, that industrials may be inclined not to advise

23 Manitoba Hydro of potential load reduction or

24 shutdowns.

25   MR. JOHN TODD: I think it was my

5109

 1 comment actually but --

 2   MR. ANTOINE HACAULT: Okay.

 3   MR. JOHN TODD: -- yes.

 4   MR. ANTOINE HACAULT: And, sir, my

 5 understanding is that Mr. Friesen of Hydro is

 6 responsible for those top consumers.

 7   Did you ask Mr. Friesen whether or not

 8 over the last twenty (20) years he's had any instances

 9 where the top consumers weren't forthright with

10 Manitoba Hydro under their confidentiality agreements?

11   MR. JOHN TODD: No, I didn't, and I

12 would also emphasize that those comments were based on

13 my experience with what other clients have said.

14 Manitoba Hydro is not my client. We haven't had those

15 discussions. I haven't done their load forecasting.

16 So that was not a comment on the MIPUG members, per se.

17 Frankly, it was a comment on what the experience has

18 been in other jurisdictions.

19   MR. ANTOINE HACAULT: Okay. And I

20 would suggest to you, given the very confidential

21 nature which has been discussed in prior testimony

22 here, Mr. Friesen actually explaining that some of the

23 representatives of Hydro had to be different for the

24 consumers -- or the big customers.

25   That those customers have a very good

5110

1 relationship with Manitoba Hydro, and have been

2 providing it with the best information they have about

3 their business plans.

4   You don't have anything to suggest

5 otherwise, sir?

6   MR. JOHN TODD: No. On that basis, I

7 would laud both Manitoba Hydro and the MIPUG members

8 for being more forthright than is common across Canada.

9

10   (BRIEF PAUSE)

11

12   MR. ANTOINE HACAULT: Now, the last

13 point that I just want to have a brief discussion with

14 you on is your advice in your presentation and in your

15 report with respect to how to deal with risk and

16 building major new infrastructure.

17   The presentation, as you started, sir,

18 recorded I think quite accurately that Manitoba Hydro

19 is planning on new generation not solely on the basis

20 of need of Manitobans, but based on opportunities that

21 they see arising in the export market.

22   Is that fair, sir?

23   MR. JOHN TODD: Yes. I would

24 characterize the plan as being building what will

25 become, after the existing contracts, merchant

5111

1 generation, which is building for export revenues.

2   MR. ANTOINE HACAULT: And am I correct

3 in your -- in my understanding, sir, that given a host

4 of reasons explained in your report including

5 uncertainty about technology, grid parity, things of

6 that nature, that your view is that it's prudent to be

7 a bit more careful about how we look at advancing

8 Conawapa and making a decision on Conawapa at this

9 point?

10   MR. JOHN TODD: Perhaps I've been

11 around too long, but I'm a great believer in mitigating

12 risk. And there's significant risk and uncertainty

13 there.

14   The quantification of is important to

15 determine how much mitigation is necessary, and that's

16 in coming parts of IEC evidence. It's not within our

17 mandate to follow that through to quantify the risk in

18 dollar terms.

19   MR. ANTOINE HACAULT: And if we look at

20 Manitoba Hydro Exhibit 104-8, we don't -- this is a

21 revised table, economic table, that Manitoba Hydro

22 provided. And you had a fairly lengthy discussion with

23 Mr. Williams as to grid parity, and that grid parity

24 and other items might result, based on your binder of

25 documents, in lower energy prices.

5112

1   Do you recall that discussion?

2   MR. JOHN TODD: Yes.

3   MR. ANTOINE HACAULT: So that -- am I

4   correct in understanding that one (1) of the things

5   that you're suggesting this Board pay attention to, and

6   we don't have all the financial information yet, but

7   with respect to the economic information, they should

8   pay attention to the risk of low energy prices and how

9   the plans are faring under low energy prices.

10   Is that fair, sir?

11   MR. JOHN TODD: Yes. In looking at the

12 quilt, just to confirm, I think what you're saying is

13 that it's actually laid out quite nicely if you're

14 thinking about energy prices because energy prices are

15 the first item there.

16   So the top third of the quilt is low

17 prices, the middle third is the reference price, the

18 bottom third is high prices. As you would expect, all

19 plans go from lighter red to green as you go from lower

20 prices to higher prices. This is -- a big part of this

21 plan is exporting power, so higher prices make

22 everything better.

23   When you look at 14, K19/C25 at 750

24 megawatts, low prices you see dominantly red unless you

25 get into a low-discount rate and low capital cost. And

 1 it's predominantly red in that low energy price part of

 2 the quilt, moving to -- everything's profitable when

 3 you have high export prices. And I must -- just to

 4 make sure the panel's completely clear on where --

 5 where I've come from on this, on one level, the load

 6 forecast doesn't matter. It doesn't matter because the

 7 only difference in load forecast is how much you

 8 export.

 9   If the load forecast is domestic load,

10 the load is lower than expected, you increase exports.

11 If your exports are profitable, that's probably a good

12 thing. If your domestic load is high, you're going to

13 lose money because you have less exports at a high

14 price.

15   At a low price your plans depend upon

16 exports. And if you have low demand, then it matters.

17 If your alternative -- if low demand, such as grid

18 parity, flat growth, were to come to pass, yes, you'll

19 be exporting your power, but you'll be exporting it at

20 a low price. And that's exactly what we see here. The

21 quilt underlines that comment. A low price makes the

22 plans -- and all the way across makes the plans less

23 economic.

24   And the larger the capital investment,

25 the bigger the problem you have with low prices.

5114

1 That's a risk that you may want to mitigate.

2   MR. ANTOINE HACAULT: And so am I

3 correct in suggesting to you, sir -- or is it fair to

4 suggest to you, rather, that if we're building for

5 opportunity as opposed to strictly for Manitoba need,

6 that there might be a different perspective that needs

7 to be taken with respect to risk and risk mitigation?

8   MR. JOHN TODD: And that's outside the

9 scope of load forecasting evidence. But from a broader

10 perspective, what I do, I'd say, yes, the greater the

11 risk, the more you need to consider mitigation.

12   MR. ANTOINE HACAULT: Thank you, sir.

13 Members of the panel, those were my questions. And I'm

14 proud to tell Mr. Hombach that I was under my hour

15 estimate. And thank you very much, Mr. Houldin and Mr.

16 Todd.

17   MR. SVEN HOMBACH: And I will concede

18 that point on the record, Mr. Hacault.

19   THE CHAIRPERSON: Just to make sure

20 that we complete the discussion we've just heard,

21 Conawapa, you indicated the importance of mitigation.

22   But that could include signing firm

23 export contracts with counterparties in the US,

24 couldn't it?

25   MR. JOHN TODD: The firm export

 1 contracts give you a firm price for the duration of a

 2 contract. One of the -- now, again, we're going a

 3 little bit beyond my mandate, but it's logical

 4 questions to follow.

 5   Looking in the longer term, if you

 6 assume that at the termination of existing contracts

 7 that there will be new firm contracts at a similar

 8 price -- that's an assumption; it's not a fact -- and

 9 low price -- a period of low price would affect firm

10 contracts as well as spot prices.

11   So to me, in looking at a low price

12 scenario you're saying that once the existing contracts

13 expire, there will be a new firm price. I'm sure

14 you've got evidence on the record around that. That

15 new firm price may be lower than the existing firm

16 price. In the scenarios, when I talk about low price

17 scenarios, that would affect both firm and -- and non-

18 firm prices.

19   So signing contracts or planning to sign

20 firm contracts does not mitigate the risk. Having a

21 firm contract that goes out forty (40) or fifty (50)

22 years would mitigate that risk.

23   MR. SVEN HOMBACH: Mr. Chairman, I was

24 advised earlier that neither of the MMF nor MKO have

25 any questions for this panel. I'd just like them to

5116

1 confirm this, not having had the opportunity to listen

2 to the testimony this morning.

3   MR. GEORGE ORLE: On behalf of MKO,

4 yes, that is correct, no questions.

5   MR. COREY SHEFMAN: On behalf of the

6 MMF, any questions that we did have were already asked.

7 Thank you.

8   MR. SVEN HOMBACH: That only leaves two

9 (2) remaining parties to cross-examine: Manitoba Hydro

10 and myself. I note that it is almost 10:30, Mr.

11 Chairman, so this might be an opportune time to take a

12 break.

13   THE CHAIRPERSON: I agree with you, Mr.

14 Hombach. Thank you.

15

16   (BRIEF PAUSE)

17

18   THE CHAIRPERSON: Ten (10) minutes.

19

20 --- Upon recessing at 10:24 a.m.

21 --- Upon resuming at 10:41 a.m.

22

23   THE CHAIRPERSON: I believe that

24 everyone's in position. So we would prepare to resume

25 proceedings. So, Ms. Boyd, please.

5117

 1   MS. MARLA BOYD: Thank you. Can you

 2 hear me okay? We have a very small book of documents

 3 that's been circulated, and I hope its size will

 4 indicate that I'm hoping to make this short and

 5 painless for everyone. I believe the next Manitoba

 6 Hydro exhibit is 158.

 7   Is that right?

 8   MR. KURT SIMONSEN: That's correct.

 9   MS. MARLA BOYD: Thank you.

10

11 --- EXHIBIT NO. MH-158:   Book of documents

12

13 CROSS-EXAMINATION BY MS. MARLA BOYD:

14   MS. MARLA BOYD: Good morning,

15 gentlemen. My questions are for both or either of you.

16 So feel free to chime in as you -- as you see fit. I

17 want to start just with a couple of clarification

18 items.

19   In the response to PUB/ERA-9, which,

20 Diana, maybe if you could bring that up for me? It's

21 PUB Exhibit 41, page 34. PUB Exhibit 41, page 34.

22 It's PUB/ER -- Elenchus number 9. I was calling it

23 ERA.

24

25   (BRIEF PAUSE)

5118

1   MS. MARLA BOYD: There we go. This is

2 the IR that we looked for yesterday, you'll recall. In

3 the -- the beginning of this response, you say:

4   "Manitoba Hydro suggests that it

5   expects 10 percent of residential

6   customers will switch to space --

7   electric space heat."

8   Are you aware that that's in reference

9 to a scenario analysis that was referenced on page 54

10 of the 2013 load forecast?

11

12   (BRIEF PAUSE)

13

14   MR. JOHN TODD: I recall that

15 discussion. I think that perhaps initially we thought

16 that was your expectation.

17   MS. MARLA BOYD: And you understand now

18 that that's a reference to a scenario rather than the

19 projections in the 2013 load forecast?

20   MR. JOHN TODD: Perhaps the wording, I

21 think, was -- I think we had read some wording which

22 said, This trend is driving growth. So maybe it wasn't

23 that exact number, but my understanding was that the

24 evidence stated that switching is a driver of growth.

25   MS. MARLA BOYD: And you understand

5119

1 that now to be a sensitivity, that the forecast does

2 not expect 10 percent of residential customers to

3 switch to space -- electric space heat?

4   MR. JOHN TODD: I went through this a

5 couple months ago in doing the IR response, but let me

6 put it this way: subject to check, yes.

7   MS. MARLA BOYD: Thank you.

8   MR. JOHN TODD: I'll go back and review

9 my thoughts on that.

10   MS. MARLA BOYD: All right. Thanks.

11   MR. JOHN TODD: Okay.

12   MS. MARLA BOYD: The other item not...

13

14   (BRIEF PAUSE)

15

16   MS. MARLA BOYD: I picked the wrong

17 chair in the middle of two (2) mics, I guess. Is that

18 better?

19   As a minor clarification, yesterday you

20 mentioned that customers had a choice between forced

21 air gas furnaces and electric baseboard heaters.

22   Do you recall that?

23   MR. JOHN TODD: Yes, I recall saying

24 that.

25   MS. MARLA BOYD: And are you aware that

5120

 1 in Manitoba the most -- more common installation for

 2 electric heat involves central forced air furnaces?

 3   MR. JOHN TODD: Yes, I was too quick in

 4 responding just off general experience.

 5   MS. MARLA BOYD: Thank you. So some of

 6 the benefits you described of central heating are

 7 available regardless of fuel choice?

 8   MR. JOHN TODD: Yes.

 9   MS. MARLA BOYD: I want to just look

10 for a minute at your response to PUB/Elenchus number 6,

11 which is page 1 of the book of documents if you want to

12 refer to it. You note in that response that there's a

13 downward trend in immigration numbers in 2012 and 2013?

14   MR. JOHN TODD: Yes.

15   MS. MARLA BOYD: And you indicate that

16 -- it's on line 21 and 22, that it's not an empirical

17 study but it shows that a slowing down of migration is

18 expected by Citizenship and Immigration Canada. Do you

19 see that?

20   MR. JOHN TODD: In the short term at

21 least, yes.

22   MS. MARLA BOYD: Do you have any

23 document in which they make such a statement, or are

24 you just concluding that based on the short-run

25 information there?

5121

 1   MR. JOHN TODD: Just based on the

 2 information provided.

 3   MS. MARLA BOYD: Would that kind of

 4 trend also be consistent with a cap being placed on

 5 Manitoba's Provincial Nominee Program?

 6   MR. JOHN TODD: Yes. I mean, clearly

 7 these trends are driven largely by policy -- or not

 8 largely. Certain policy has an input to these -- to

 9 these factors, and certainly we cannot predict policy

10 in the future.

11   MS. MARLA BOYD: And are you able to

12 comment on what impact the July to September 2013 job

13 action by Canadian Professional Association of Foreign

14 Service Officers tend to have on immigration numbers

15 during 2013?

16   MR. JOHN TODD: No.

17   MS. MARLA BOYD: Is it possible that

18 that could account for part of the 2013 decline?

19   MR. JOHN TODD: Certainly possible.

20   MS. MARLA BOYD: Are you aware that

21 Manitoba Hydro -- sorry, that Manitoba's immigration

22 numbers for the post strike third quarter of 2013 were

23 actually higher than the same period in 2012?

24   MR. JOHN TODD: Sorry, you were

25 speaking quickly. I caught -- I missed part of that.

5122

1   MS. MARLA BOYD: Yes, I was asking if

2 you're aware that the Manitoba immigration numbers for

3 the post strike third quarter of 2013 were actually

4 higher than the same period in 2012.

5   MR. JOHN TODD: Not specifically, no.

6   MS. MARLA BOYD: So your evidence

7 references the first two (2) quarters in 2013, and you

8 haven't reviewed it since then?

9   MR. JOHN TODD: That's correct.

10   MS. MARLA BOYD: On page 10 of your

11 report, I think it begins at the bottom of page 9, you

12 disagree with Manitoba Hydro for forecasting the number

13 of people per residential customers that will remain

14 constant.

15   MR. JOHN TODD: Yes.

16   MS. MARLA BOYD: Your evidence is that

17 the number has actually been declining and has now

18 began to trend upwards?

19   MR. JOHN TODD: Yes. And it almost --

20 I'd almost say you should retract the word 'criticism'.

21 We comment on. You know, is -- is it flat? That's a

22 very simple assumption. Those kinds of comments feed

23 into the sensitivity analysis more than saying it's the

24 wrong assumption. One could argue for

25 increasing/decreasing flat, so I'm not saying it's a

 1 bad assumption but it probably isn't going to be flat.

 2   MS. MARLA BOYD: Well, yesterday when

 3 you looked at Manitoba Hydro's rebuttal evidence you

 4 referred to page 9, and the charts that were on -- on

 5 that page. I think it's coming up.

 6   MR. JOHN TODD: Yes.

 7   MS. MARLA BOYD: And you commented on

 8 what I think you described as an error in our -- our

 9 evidence, where the scale of the graph was such that it

10 showed a linear regression in one (1) case and not in

11 another.

12   MR. JOHN TODD: I did not refer to it

13 as an error. I referred to it as putting these graphs

14 together, if you didn't look carefully at the scales

15 one could misinterpret the message. I was just making

16 sure that people looked at the scale and so it wasn't

17 misinterpreted.

18   MS. MARLA BOYD: And your evidence was

19 if the graphs was replotted using the same scale as the

20 graph on the lower part of the page, that the trend

21 line would be essentially flat. Is that right?

22   MR. JOHN TODD: Yes. If you look at

23 the lower graph, yeah, there's a -- you can see a

24 slight decline. There might be a similar slight

25 increase using the other graph. The assumption of flat

5124

1 would be roughly perhaps the average of the two (2).

2   MS. MARLA BOYD: So you'd essentially

3 be dis -- be agreeing with Manitoba Hydro that the

4 relationship between population of residential

5 customers shows no strong upward or downward bias?

6   MR. JOHN TODD: We can agree, yes.

7   MS. MARLA BOYD: Thank you. I'm a bit

8 like some of the other lawyers in the room, fast and

9 perhaps mumbling.

10   MR. JOHN TODD: We now have adequate

11 time, so there's no --

12   MS. MARLA BOYD: Yes, I'm not in a

13 rush. The other issue that you raised yesterday at

14 page 4813 of the transcript was the issue of a 2008

15 recession and the subsequent changes in the North

16 American economy.

17   Are you able to comment on how

18 Manitoba's experience compared with that of Canada and

19 the US?

20   MR. JOHN TODD: It would be -- to

21 start, Canada and the US were quite different in terms

22 of the impact. Canada had a much lesser impact. I

23 have not looked specifically at the impact on the

24 Manitoba economy in any sort of detail, but between

25 looking at Canada and a little bit of regional

5125

1 consequences and, should we say, the consequences for

2 Manitoba Hydro, it looks reasonably consistent with the

3 rest of Canada, which is must less of an impact than in

4 the United States, for example. But other than that,

5 that's as far as I could go.

6   MS. MARLA BOYD: So you aren't -- you

7 haven't looked at and aren't able to identify any key

8 factors that would indicate that the recession caused

9 any permanent structural changes in Manitoba?

10   MR. JOHN TODD: We don't know that yet.

11   MS. MARLA BOYD: I want to turn to the

12 forecasts and your -- your comments on the forecast.

13   MR. JOHN TODD: I just add -- just add,

14 a closer analysis would also not tell you that. I

15 mean, we -- it would be harder to predict what the

16 long-term structural impact will be in Manitoba than it

17 would be for Canada as a whole. And economists --

18 analysts are still trying to figure that out and are

19 guessing in both directions in -- for Canada as a

20 whole. So I have no doubt that there would be dispute

21 and unclear conclusions for Manitoba.

22   MS. MARLA BOYD: Thanks for that.

23 Turning to forecast by sector, page 16 of your

24 evidence, you note that the residential load forecast

25 results have not been the cause of significant error.

5126

1   Is that right?

2   MR. JOHN TODD: Correct.

3   MS. MARLA BOYD: And you also conclude

4 that the general service mass market forecast has, in

5 recent experience, not been subject to significant

6 error?

7   MR. JOHN TODD: Correct.

8   MS. MARLA BOYD: And the area of

9 concern that's focussed on in your report is the top

10 consumers. Is that fair?

11   MR. JOHN TODD: That's the greatest

12 source of historic uncertainty.

13   MS. MARLA BOYD: And you describe that

14 as a consistent over-forecasting of load.

15   Do you recall that?

16   MR. JOHN TODD: I think I specified a

17 time period in there. No, it wasn't consistently over-

18 forecasting, but within the recent years it was

19 consistent over-forecasting. But that, of course,

20 relates to the lagged effect that I was referring to

21 earlier today.

22   MS. MARLA BOYD: I'm sorry, the what

23 effect?

24   MR. JOHN TODD: The lagged effect of

25 the years.

5127

 1   MS. MARLA BOYD: You actually referred

 2 to the past five (5) years in your evidence, do you

 3 recall?

 4   MR. JOHN TODD: Yes.

 5   MS. MARLA BOYD: So that's the period

 6 from 2008/'09 to 2012/'13?

 7   MR. JOHN TODD: Precisely.

 8   MS. MARLA BOYD: And that would also be

 9 the time that we're talking about where the country

10 experienced a major recession?

11   MR. JOHN TODD: Yes.

12   MS. MARLA BOYD: And are you aware of

13 the evidence of Manitoba Hydro, that periods of

14 recession tend to result in over-forecasts and periods

15 of growth tend to result in under-forecasts?

16   MR. JOHN TODD: Yes, and I agree. And

17 that's why my comments were around the possibility, not

18 a guarantee, a possibility that there has been a

19 structural change in the way our economy's growing.

20 And that's the debate going on right now, is have we

21 gone into a new era of lower growth. And, essentially,

22 Manitoba Hydro is accepting the view that this is a

23 temporary -- just part of the usual cycles and

24 everything will be going back to normal in the long

25 run.

5128

1   I'm cautious about that because that's

2 what Ontario and Ontario Hydro and people were saying

3 in 1990 in Ontario. Ontario has gone through

4 structural change, and we saw a permanent change in --

5 particularly around industrial activity, that our

6 industrial loads shifted permanently in Ontario.

7   I'm not predicting the same for

8 Manitoba. I'm not -- that's not my mandate, to project

9 your future economy, but I'm saying that those kinds of

10 shifts are possible. That's the thrust of the

11 evidence.

12   MS. MARLA BOYD: Understood. Thanks.

13 You also say in your response to MIPUG/Elenchus number

14 1 that Manitoba Hydro has as good a handle on short-

15 term forecast of these -- being top consumers -- as can

16 be expected.

17   Is that correct?

18   MR. JOHN TODD: Based on discussions

19 with Manitoba Hydro in the constrained pseudo

20 Information Request process, I'm convinced that, yes,

21 you do know your top consumers and you probably have as

22 good a handle as I could get if I was doing the job.

23   MS. MARLA BOYD: I think I'll take that

24 as high praise, thanks.

25   So with respect to the top consumers,

5129

1 would you agree it's appropriate to have some component

2 in the load forecast to capture some -- an anticipated

3 future growth?

4   MR. JOHN TODD: In a scenario analysis,

5 one of those scenarios, you certainly capture load

6 growth.

7   MS. MARLA BOYD: What about in the

8 forecast itself?

9   MR. JOHN TODD: As a short-term

10 forecast, there is more information that would point in

11 the direction of increases -- for example, the pipeline

12 -- than there is of any closures. I don't know your

13 industrial -- your top consumers in detail. But in the

14 absence of any additional information, certainly

15 there's more information pointing up than down in the -

16 - say, the next five (5) years.

17   I do -- at the same time, I -- as I've

18 expressed, I do have concerns that the sensitivity

19 analysis which says one (1) more top consumer or one

20 (1) less top consumer may not capture the range of

21 possibilities over the next ten (10) to twenty (20)

22 years, which comes back to -- the key thrust is: What

23 are the risks that we need to consider and mitigate?

24   MS. MARLA BOYD: And are you aware that

25 the actual average growth for this sector over the past

 1 twenty (20) years is 92 gigawatt hours per year?

 2   MR. JOHN TODD: Yes. I think I went

 3 through those numbers yesterday. I rounded down to

 4 ninety (90).

 5   MS. MARLA BOYD: Will you accept my 92

 6 gigawatt hours per year?

 7   MR. JOHN TODD: Yeah. That's more --

 8 more precise. Precise is good. And I believe in your

 9 forecast it's -- a hundred --

10   MS. MARLA BOYD: Yes.

11   MR. JOHN TODD: -- is the assumption

12 going forward, which is a little higher than your past

13 history.

14   MS. MARLA BOYD: That's right. And for

15 the purposes of a base forecast, would you accept that

16 that's reasonable?

17   MR. JOHN TODD: I always like round

18 numbers, so yes.

19   MS. MARLA BOYD: With respect to the

20 issue of grid parity, is it fair to define that at the

21 point -- as the point at which the alternative

22 generation sources have become economic?

23   MR. JOHN TODD: Yes. And to define

24 that, that's economic -- when you're talking about

25 versus the utility. It's economic in comparison to the

 1 full cost recovery of grid power.

 2   MS. MARLA BOYD: I was going to word it

 3 that capital and operating costs of the alternative

 4 would be equal to the cost of the hydroelectric supply.

 5   Would you agree with that?

 6

 7   (BRIEF PAUSE)

 8

 9   MR. JOHN TODD: Price is not

10 necessarily the same as capital and operating costs

11 except in a cost-of-service environment. And the rest

12 of the world is not in a cost-of-service environment,

13 so it's -- you know, there's pricing strategies,

14 there's subsidy programs, you know, government programs

15 for a variety of reasons if what a customer is going to

16 have to pay for the alternatives to grid power is

17 equivalent to what they have to pay for grid power.

18   All those factors taken into account,

19 then you've got good parity.

20   MS. MARLA BOYD: I should have been

21 more specific. I did intend it to mean the customer's

22 capital and operating costs compared to the cost of a

23 hydroelectric supply.

24   MR. JOHN TODD: Right, which may be --

25 and the customer's capital and operating costs could

5132

1 actually be charged on a monthly basis or something

2 else if a service provider is doing it with financing.

3   And there are co-ops that have been

4 around for many years, for example, that -- that do the

5 financing to bring in renewable energy on a small scale

6 and so that the actual customer pays a fixed price over

7 ten (10) years, rather than the capital costs and

8 operating costs.

9   MS. MARLA BOYD: Your experience with

10 markets would suggest that there won't be a sudden

11 wholesale change whereby all customers leave the grid,

12 correct?

13   MR. JOHN TODD: 'Sudden' being within a

14 couple of years. The change we're talking about is

15 over five (5) years, maybe decades, rather than year to

16 year.

17   MS. MARLA BOYD: And that -- that's

18 because the -- for the customer, the benefits of

19 leaving need to outweigh the cost of acquiring and

20 operating the new generation source?

21   MR. JOHN TODD: No, that's because

22 every customer's different and people react

23 differently. If, universally, alternatives were

24 cheaper than grid power, it would still take time for

25 people to switch. People have busy lives. They don't

5133

1 all switch as something is economic.

2   MS. MARLA BOYD: So they -- they have

3 to weigh the opportunities competing for their dollars?

4   MR. JOHN TODD: Yeah. For example, the

5 -- the common expectation would be if somebody is

6 building a -- a new development, a new industrial

7 complex, he's going to look at alternatives and they're

8 going to adopt the least-cost alternative. Somebody

9 who's renovating is going to be looking at least-cost

10 alternatives. If you're not in that mode, very few

11 people will actually implement a lower-cost alternative

12 on a retrofit basis unless the saving is very

13 significant.

14   Often, with -- with renewables, for

15 example, you talk about a -- a two (2) year payback.

16 It's a very high threshold for making a capital

17 investment to retrofit.

18   MS. MARLA BOYD: You've mentioned a

19 couple of times in your evidence and in your testimony

20 the move to the competitive industry by the telecom

21 industry. And you discussed the fact that that move

22 away from a -- a monopoly commenced in the 1980s or

23 1990s.

24   Is that right?

25   MR. JOHN TODD: In the 1990s, yes.

5134

1   MS. MARLA BOYD: So that was about

2   twenty-five (25) years ago?

3   MR. JOHN TODD: Yes.

4   MS. MARLA BOYD: And today we have a

5   competitive market for telephones and we still have a

6   significant number of customers that have landlines in

7   their homes and their businesses, correct?

8   MR. JOHN TODD: Yes, us -- us old folks

9   have landlines and our children have cell phones.

10   MS. MARLA BOYD: I guess I'm old. Have

11   you reviewed the details of the Level 2 DSM that's

12   included in the analysis provided by Manitoba Hydro in

13   Exhibit 104?

14   MR. RUSS HOULDIN: Not -- not in any

15   great detail, no.

16   MS. MARLA BOYD: Are you aware that

17   Level 2 DSM includes consideration of low displacement?

18   MR. RUSS HOULDIN: No, I don't -- I

19   think you've just made me aware of that.

20   MS. MARLA BOYD: Okay. Fair enough.

21   That would be one (1) means by which Manitoba Hydro

22   could account for some customer self-generation.

23   Is that fair?

24   MR. RUSS HOULDIN: Yes. Yeah, that

25   would certainly be one -- one (1) means of the load

5135

1 displacement.

2   MS. MARLA BOYD: Mr. Todd, you

3 commented yesterday on the sensitivity stress test that

4 Manitoba Hydro performed in Chapter 10 of its

5 submission, regarding the impact of low load growth on

6 economics, the Preferred Plan, and related plans.

7   Do you recall that?

8   MR. JOHN TODD: Yes.

9   MS. MARLA BOYD: Your evidence

10 suggested that Manitoba Hydro needs to consider more

11 extreme possibilities in the load growth scenarios?

12   MR. JOHN TODD: More extreme

13 possibilities, in my view, are possible and should be

14 considered.

15   MS. MARLA BOYD: Could I ask you to

16 turn to page 3 of the book of documents, which is

17 Exhibit 14, Chapter 10, of Manitoba Hydro's submission.

18

19   (BRIEF PAUSE)

20

21   MS. MARLA BOYD: And I just want to

22 walk through a few of the numbers with you if you'll

23 bear with me. Looking at the 2028/'29 year, can you

24 confirm that the load growth has been reduced between

25 the 2012 base forecast and the 2012 low load forecast

5136

1 by 2,118 gigawatt hours? I'm sorry, '27/'28.

2

3   (BRIEF PAUSE)

4

5   MS. MARLA BOYD: We've gone from a

6 deficit of seventeen twelve (1,712) to a -- in the low

7 load a surplus of two seventy-two (272)?

8   MR. JOHN TODD: Where are we?

9   MS. MARLA BOYD: You know what, I think

10 --

11   MR. JOHN TODD: I'm missing --

12   MS. MARLA BOYD: -- Mr. Wojczynski is

13 misleading me. I'm looking at the surplus deficit in

14 2028/'29.

15   MR. JOHN TODD: '28/'29, yeah.

16   MS. MARLA BOYD: Which is a deficit of

17 2,197 gigawatt hours?

18   MR. JOHN TODD: Yes, that's in the 12 -

19 - 2012 load forecast, right. Okay. I'm with you.

20   MS. MARLA BOYD: That's right. And

21 when we look at the '27 -- sorry, 2012 low load

22 forecast the deficit is 79 gigawatt hours?

23   MR. JOHN TODD: You know, the 10th

24 percentile you're referring to there, yes. Okay. Yes.

25 Yes. Yes. Okay.

5137

 1   MS. MARLA BOYD: So the difference

 2 there is 2,118 gigawatt hours?

 3   MR. JOHN TODD: Yes, good arithmetic.

 4   MS. MARLA BOYD: Lawyers doing math

 5 again. And then if we turn to the next page which is

 6 from -- again, from Exhibit Manitoba Hydro 14.

 7   This is from the 2013 load forecast?

 8   MR. JOHN TODD: Yes.

 9   MS. MARLA BOYD: And I'll just take you

10 down to '28/'29 again.

11   MR. JOHN TODD: Yes.

12   MS. MARLA BOYD: That indicates a

13 difference of 1,012 gigawatt hours of reduction between

14 the 2012 and 2013 load forecast?

15   MR. JOHN TODD: It's a change in the

16 forecast, yes.

17   MS. MARLA BOYD: Yes. And if you look

18 at the '27/'28 year it's a reduction of 968 gigawatt

19 hours?

20   MR. JOHN TODD: Yes.

21   MS. MARLA BOYD: And the next page in

22 our book of documents is from Manitoba Hydro Exhibit 85

23 -- sorry, 89.

24

25   (BRIEF PAUSE)

5138

 1   MS. MARLA BOYD: Would you agree with

 2 me, subject to check, that the -- the new DSM Level 3

 3 is equal to approximately four-and-a-half (4 1/2) or

 4 five (5) times the previous level of DSM? That's

 5 comparing the seven seventy-three (773) to the thirty-

 6 five forty-six (3,546)?

 7   MR. JOHN TODD: Yes.

 8   MS. MARLA BOYD: And would you agree,

 9 again subject to check if you prefer, that the total

10 reduction in comparing the 2012 evaluations and the

11 2013 evaluations is 3,741 gigawatt hours for the year

12 '27/'28?

13   MR. JOHN TODD: I'll accept that,

14 subject to check.

15   MS. MARLA BOYD: And if we roll that

16 all together, can you confirm that the DSM Level 3

17 evaluation is approaching double the energy reduction

18 associated with a low load growth scenario? In other

19 words, the thirty-seven forty-one (3,741) is 177

20 percent of the twenty-one eighteen (2,118).

21   MR. JOHN TODD: Yes, relative to the

22 10th percentile low load growth scenario.

23

24   (BRIEF PAUSE)

25

5139

 1   MS. MARLA BOYD: Thank you, gentlemen.

 2 Thank you, Mr. Chair. That concludes our questions.

 3   THE CHAIRPERSON: Thank you, Ms. Boyd.

 4 Before we -- before we -- before I turn the microphone

 5 over to Mr. -- to Mr. Hombach, I just wanted to have a

 6 discussion around grid parity with you again because

 7 you raised the issue now, and I want to put a little

 8 more meat on that bone.

 9   Beyond what was contained in the -- in

10 the speech from the -- from the Ontario official, have

11 you got anything else that you can point to in terms of

12 documents that the panel might be able to read that

13 explore that subject more deeply?

14   MR. JOHN TODD: As an undertaking, I

15 can provide you with either a thick binder or a list of

16 website -- web links to a number of reports, some of

17 which are academic, some of which are agencies that say

18 -- have had staff collecting this information and the

19 direction is from credible sources, like not every

20 newspaper clipping. So it's all studies and so on.

21   In addition there's a few links which --

22 which talk about the technologies which may lead to --

23 to grid parity; that's more speculative. I referred to

24 one (1) yesterday in the direct evidence. So, yes, I

25 can do that and as -- as much as you want.

5140

1   Which way would you like it?

2   THE CHAIRPERSON: I think a link would

3 be fine. If you could send us some links, and what you

4 perceive to be the more credible ones and the ones that

5 are based on some research, that would be quite useful.

6   But can you tell us, Does those include

7 some idea of what -- at what price level that that

8 might occur?

9   MR. JOHN TODD: Yes. Most of the work

10 that's been done is in the US, and there is some

11 articles that talk about where grid parity will come

12 first because it talks about the -- the grid price in

13 different jurisdictions. And it talks about -- and the

14 grid parity tends to be a relatively consistent price

15 across the country. So parity is reached at different

16 times, usually based on the utility price not on the --

17 the cost alternatives.

18   There are articles that cover that. And

19 what I'm going to suggest is I will provide you our

20 summary of the evidence, it's about five (5) or six (6)

21 pages, summary -- a summary of what's out there as

22 studies, and it would -- and a set of links so you can

23 read -- which you can read at your leisure.

24   THE CHAIRPERSON: But following that

25 through, the extent to which Manitoba Hydro's price is

5141

1 lower than the grid parity price, that would mean

2 Manitoba Hydro will -- will be less impacted than would

3 be the case for a region where the prevailing price is

4 higher than the grid parity price. Would -- would

5 that...

6   MR. JOHN TODD: What the -- what the

7 literature is saying is that essentially the grid price

8 is tending, if anywhere, slightly up. There are some

9 counteracting forces, like Smart Grid, that may be

10 getting greater efficiency out of the grid but that may

11 have some downward pressure on the price of -- of grid

12 power.

13   But in general it's sort of seen --

14 being seen as being flatter up whereas the cost of the

15 alternatives is coming down. So you can think of it as

16 -- as a graph where -- simplistically think of it as

17 different jurisdictions have a price of grid power at

18 different levels.

19   As the price of alternatives come down

20 over time, they will hit the grid parity level in

21 different jurisdictions at different points in time.

22 As you are well aware, there's many jurisdictions where

23 there are incentives related to renewable generation

24 and so on. In -- in some cases those incentives relate

25 to going off grid.

5142

1   So that reduces the price in those

2 jurisdictions of the alternatives to grid power. And

3 therefore, the crossing point is hit even earlier. So,

4 for example, there's a -- a recent study out of

5 California which is talking about, for certain

6 technologies that are subsidized, that there was a

7 decline in grid parity with a subsidy. But the amount

8 of subsidy required is -- is disappearing.

9   And in fact...

10

11   (BRIEF PAUSE)

12

13   MR. JOHN TODD: The California study

14 that I think CAC circulated, is that on the record?

15 Sorry?

16   MR. BYRON WILLIAMS: I believe it may

17 be CAC Exhibit 45-10. We only put in an excerpt, so

18 I'm not sure which pages.

19   MR. JOHN TODD: Ah, okay.

20

21   (BRIEF PAUSE)

22

23   MR. JOHN TODD: Interestingly, when

24 that was circulated, I reviewed it in advance and I

25 anticipated different pages as being used. There is a

5143

1 section in there on -- on self-generation. So this is

2 California. And I'm just recalling...

3

4   (BRIEF PAUSE)

5

6   MR. JOHN TODD: Perhaps you can throw

7 this on the screen. I think you see, you've got sort

8 of a scan process.

9

10   (BRIEF PAUSE)

11

12   MR. JOHN TODD: So this is an

13 illustration looking at PV solar insulation costs and

14 subsidies. And you'll see the top part of the graph is

15 looking at residential, the bottom part non-

16 residential. It's got a median project cost and a

17 median project subsidy. And you can see there -- and

18 this is history, of course.

19   You can see there that there's a trend

20 of declining median project costs in both residential

21 and non-residential. And as a result, the median

22 project subsidy is declining. It is still above zero.

23 But if you extrapolate those lines that you -- you

24 would say were not too many years away from the median

25 project subsidy hitting zero.

5144

1   And one of the points they make in the

2 discussion is that there are already places where,

3 aside from the median, the actual project subsidy for

4 some projects has reached the point where it's economic

5 without a subsidy, which is grid parity and that as the

6 years go by, the -- the median will hit that point

7 where no subsidy is required very soon, is the way it

8 appears. And as we go out more and more years, go out

9 a decade, that median project subsidy line will become

10 below the zero point, which means it's economically

11 beneficial.

12   So just through a -- a simple

13 extrapolation we can say you will reach grid parity,

14 and it's becoming increasingly economic every year to

15 install PV. Similar lines can be drawn for -- for

16 other alternative technologies. And this is part of a

17 discussion of what they refer to as self-generation

18 forecasts, which is self-generation being going off

19 grid.

20   Now, it -- there are -- there are some

21 solar installations which are simply an alternative to

22 generation and are actually feeding into the grid.

23   Similarly, in terms of micro-grids, like

24 small-scale localized grids, there are two (2) types.

25 One type is going off grid. The other type is actually

5145

1 a micro-grid that -- that is interconnected and feeds

2 into the grid. Sometimes what you've got is -- is --

3 they're being paid for the power they put in the grid

4 and paying for power coming off.

5   A key -- in -- in my reading, a key

6 aspect of the going off grid is that you need storage

7 as well as generation so that you can match your

8 consumption to -- you've got power when you need it.

9   And so a big part of going off grid is

10 actually the future of storage costs, which is where I

11 referred to the fuel cell option as a -- as an off-grid

12 technology because a fuel cell does not require

13 storage. It has its storage 'cause it responds to

14 demand by producing more power when it's needed, and

15 it's using in a sense -- well, basically natural gas

16 would -- could be a fuel for a fuel cell operation.

17   MR. SVEN HOMBACH: Mr. Todd, if I can

18 interject. Would it be possible to make the document

19 that you're showing to the panel an exhibit so that the

20 parties can follow it if they're reading the

21 transcript?

22   MR. JOHN TODD: Absolutely. And should

23 the full document be made an exhibit so people can read

24 the text around the diagram, as well?

25   MR. SVEN HOMBACH: I will leave that up

5146

 1 to you and your counsel, but I would ask that if you're

 2 specifically referring to excerpts on the record, that

 3 at minimum those would be made an exhibit.

 4   MR. JOHN TODD: And I think -- well,

 5 obviously we have a full copy. Yes, we'll make that

 6 available, and --

 7   MR. CHRISTIAN MONNIN: I -- I wouldn't

 8 mind earning my keep a little bit here. It is 175

 9 pages. We have no problems producing it as the next

10 exhibit. I think for the benefit of the transcript,

11 however, we'll mark this document as Elenchus number 7.

12   MR. KURT SIMONSEN: Correct.

13

14 --- EXHIBIT NO. ERA-7:   Excerpts from report

15

16   MR. CHRISTIAN MONNIN: And we can then

17 mark the whole document as Elenchus number 8, and we'll

18 provide that tomorrow morning.

19

20 --- EXHIBIT NO. ERA-8:   Complete report

21

22   MR. SVEN HOMBACH: Thank you, and good

23 morning. Mr. Todd, before I get started there is one

24 (1) other administrative matter. The court reporter

25 has asked that we clarify the undertaking that you gave

 1 to the Chairman earlier.

 2   And if I have it correctly it was an

 3 undertaking to provide the Board with a summary of grid

 4 parity literature as well as links to those

 5 literatures.

 6   MR. JOHN TODD: Correct.

 7

 8 --- UNDERTAKING NO. 94:   Elenchus to provide a

 9   summary of grid parity

10   literature and links to

11   those literatures. And

12   consult with other IECs

13   responsible for the future

14   price at MISO and try to

15   get some input from them as

16   to what would be an

17   appropriate assumption

18   around the longer-term

19   pricing under a sort of

20   zero growth continentally

21   scenario

22

23 CROSS-EXAMINATION BY MR. SVEN HOMBACH:

24   MR. SVEN HOMBACH: Now --

25   MR. JOHN TODD: It is -- it is a

5148

1 summary of selected items from the literature. The

2 literature is vast.

3   MR. SVEN HOMBACH: You noticed that I

4 avoid the -- using the word 'exhaustive', but I'll

5 accept that clarification.

6   MR. JOHN TODD: Exhausting.

7   MR. SVEN HOMBACH: Mr. Todd, you're

8 aware that the time frame for analytical purposes on

9 the NFAT is seventy-eight (78) years, correct?

10   MR. JOHN TODD: Yes.

11   MR. SVEN HOMBACH: And as a more well-

12 read man that I, actually Mr. Ryall sitting next to me

13 recently told me, just to put this in perspective, the

14 time between man's first flight and the time when man

15 landed on the man was only sixty-six (66) years, so

16 twelve (12) years less than that point.

17   You're prepared to agree with my very

18 basic lawyer math?

19   MR. JOHN TODD: Yes, I have great faith

20 in your support there.

21   MR. SVEN HOMBACH: So conceptually

22 then, the -- the short- to medium-term risk that this

23 panel has to consider can be very different in nature

24 than the long-term risk, looking out over the seventy-

25 eight (78) year time frame, correct?

5149

1   MR. JOHN TODD: Yes.

2   MR. SVEN HOMBACH: And having had the

3 benefit of your evidence now, is it fair to

4 characterize your view as the biggest short-term risk

5 being the unpredictability of top consumer growth?

6   MR. JOHN TODD: Yes.

7   MR. SVEN HOMBACH: And the biggest

8 long-term risk would be the risk of structural changes,

9 the known unknown, that cannot currently be predicted?

10   MR. JOHN TODD: Yes.

11   MR. SVEN HOMBACH: So to put that risk

12 into perspective and to establish some sort of a

13 material threshold, are you prepared to accept, subject

14 to check, that one (1) year of load growth equals about

15 413 gigawatt hours in Manitoba?

16   MR. JOHN TODD: At the present time,

17 yes.

18   MR. SVEN HOMBACH: And in contrast, the

19 annual dependable energy from Keeyask would be about

20 3,000 gigawatt hours per year?

21   MR. JOHN TODD: Yes.

22   MR. SVEN HOMBACH: And Mr. Hacault

23 previously put a document up on the record. It's

24 Manitoba Hydro Exhibit 106. And Ms. Villegas had asked

25 that we put it up on the record again.

5150

1   (BRIEF PAUSE)

2

3   MR. SVEN HOMBACH: Sorry, Exhibit 103.

4 Exhibit 103 was the table that shows the 5 percent

5 probability and the 95 percent probability with respect

6 to load forecasts. And let's just look at the bottom

7 of that chart for a moment, 2032/2033.

8   MR. JOHN TODD: Yes.

9   MR. SVEN HOMBACH: Again, by my very

10 simple math, the difference between the 5 percent

11 probability and the 95 percent probability is about

12 6,000 gigawatt hours, correct?

13   MR. JOHN TODD: Yes. A little lower,

14 yeah.

15   MR. SVEN HOMBACH: And just looking at

16 ten (10) years out, and since this chart only goes to

17 2032/'33, let's just pick 2022/'23, and there the

18 difference is about 4,000 gigawatt hours per year?

19   MR. JOHN TODD: Yes.

20   MR. SVEN HOMBACH: But if I heard you

21 correctly, your concern is that these probability

22 distributions might have a much longer tail if you

23 cannot currently fully understand or predict.

24   Is that fair?

25   MR. JOHN TODD: The probability

1 perspective is using past history to say, Here's the

2 probability of a certain cone of error and our

3 confidence interval. That approach inherently assumes

4 that the future will be the -- essentially the same or

5 similar to the past, and that rules out the impact of

6 structural changes.

7   MR. SVEN HOMBACH: And yesterday you

8 had suggested an alternative scenario that Manitoba

9 Hydro should analyze. But I'm -- I'm just wondering if

10 you can narrow yourself down on -- on where you see a

11 threshold of materiality for actually being concerned

12 in the long run.

13   Is a 6,000 gigawatt hour per year a

14 variation of concern to you in the long term?

15   MR. JOHN TODD: It is not the variation

16 in the load forecast that concerns me, and I don't

17 think that should concern the panel. It's the

18 financial consequences of that. And so the level of

19 deviation or error in the load forecast that is of

20 concern is the load forecast that creates financial

21 difficulties.

22   As I've said, as -- and -- and that's a

23 combination of the load and the export price. So you

24 have to look at those two (2) together to identify

25 those risks. So, no, I cannot give you a -- a load

5152

1 variation that triggers in itself a concern.

2   MR. SVEN HOMBACH: Because that's just

3 one isolated variable among export prices --

4   MR. JOHN TODD: It's --

5   MR. SVEN HOMBACH: -- and financial

6 concerns.

7   MR. JOHN TODD: What this analysis

8 cares about is the financial consequences, and it's a

9 driver of the financial consequences.

10   MR. SVEN HOMBACH: Let's go to Manitoba

11 Hydro Exhibit 156 for a moment.

12

13   (BRIEF PAUSE)

14

15   MR. SVEN HOMBACH: You recall the

16 discussion surrounding this scenario yesterday, Mr.

17 Todd? And Manitoba Hydro gave some evidence on a

18 scenario that assumed flat load growth in Manitoba, a

19 750 megawatt line being constructed, Keeyask, and

20 existing and new contracts being extended into the

21 future.

22   And then Manitoba Hydro was discussing

23 the NPV that would result?

24   MR. JOHN TODD: Yes.

25   MR. SVEN HOMBACH: But if I heard you

5153

1 correctly yesterday, sir, your concern was that if you

2 had flat load growth in Manitoba due to grid parity,

3 for example, there likely would be a similar effect in

4 the United States. Do I have that right?

5   MR. JOHN TODD: Yes, as I was

6 discussing with the panel a few minutes ago, grid

7 parity -- if the cause of no load grow -- no load

8 growth is grid parity, that is a continental, if not

9 worldwide, phenomenon.

10   MR. SVEN HOMBACH: So just to think

11 about this at a high conceptual level right now and in

12 terms of Manitoba Hydro's exports, there's two (2)

13 types of exports.

14   There's the firm contracts and there's

15 exports at opportunity prices?

16   MR. JOHN TODD: Correct.

17   MR. SVEN HOMBACH: If you're assuming

18 flat load in the United States, opportunity prices

19 presumably would be impacted by the lack of load growth

20 in the States?

21   MR. JOHN TODD: Yes. The -- many US

22 jurisdictions will hit grid parity before Manitoba

23 Hydro would because their prices are higher. Their

24 grid power prices are higher. So it would be a

25 phenomenon which would be larger in the US. And the

5154

1 effect of a system with built supply and declining

2 demand is prices go down.

3   MR. SVEN HOMBACH: Okay. And to extend

4 that line of thinking to the firm price contracts,

5 these are not contracts that are in perpetuity?

6   MR. JOHN TODD: Correct.

7   MR. SVEN HOMBACH: Would you expect

8 that there also would be a trickle-down effect to the

9 ability to either obtain new firm price contracts or to

10 obtain favourable pricing under those firm contracts if

11 opportunity prices were affected?

12   MR. JOHN TODD: Exactly. The -- when

13 lower prices mean lower firm prices at the time of

14 renewing contracts or, in fact, if there is a firm -- a

15 firm contract with Manitoba Hydro for other utilities

16 in the States is a last resort. They're going to use

17 their own resources first.

18   So if in a world of flat or declining

19 demand they have adequate resources, they will not be

20 looking to Manitoba Hydro for new firm contracts. So,

21 yes, there's a possibility of challenges in -- in

22 obtaining new firm contracts except at a very low price

23 that is low enough for the counterparty to actually

24 stop operating their own capacity. But certainly you

25 would have a lower -- you would expect to have a lower

5155

 1 contract price for firm power as well as opportunity

 2 sales.

 3   MR. SVEN HOMBACH: Okay. Ms. Villegas,

 4 does the Board have an electronic version of

 5 yesterday's transcript that we could put up on the

 6 screen? Could we go to page 5,006 of the transcript,

 7 please?

 8

 9   (BRIEF PAUSE)

10

11   MR. SVEN HOMBACH: Let's scroll down to

12 page -- sorry, to line 12 through 18. Just to recap,

13 Mr. Todd, that was the evidence by Manitoba Hydro

14 yesterday. It's Mr. Wojczynski speaking, and he's

15 providing a description of that scenario that we walked

16 through. And that scenario assumes that uncommitted

17 dependable contracts, meaning future firm price

18 contracts, are sold at forecast prices rather than

19 recently negotiated prices.

20   So -- so that particular scenario

21 discussed yesterday assumes that you can renew firm

22 contracts at future opportunity prices projected by

23 Manitoba Hydro's six (6) forecasters.

24   Is that the way you interpret it, as

25 well?

5156

 1   MR. JOHN TODD: I -- it's unclear

 2 whether the forecast price being referred to is the

 3 future price of opportunity sales of the future

 4 forecast for firm contracts.

 5   MR. SVEN HOMBACH: So assuming it is

 6 opportunity sales, would that meet your qualifications

 7 for a scenario that Hydro should analyze, assuming that

 8 you can get firm contracts renewed at future

 9 opportunity prices? Or let me -- perhaps let me

10 explain where I'm going.

11   If you're assuming flat load growth in

12 the States, presumably you're assuming that the six (6)

13 forecasters might be wrong because they also have not

14 taken structural effects into account?

15   MR. JOHN TODD: Correct.

16   MR. SVEN HOMBACH: Where would that

17 leave your recommendation for running a new scenario

18 that assumes flat load growth in the States?

19   MR. JOHN TODD: That concern is why as

20 part of the undertaking I indicated that I would

21 consult with the other IECs as appropriate, in

22 particular those responsible for the price -- future

23 price at MISO who I think were on the stand earlier

24 this week, and try to get some input from them as to

25 what would be an appropriate assumption around the

1 longer-term pricing under a sort of zero growth

2 continentally scenario. That was my intention.

3   MR. SVEN HOMBACH: So as part of your

4 undertaking then you will give some thought to both the

5 firm export component and the opportunity export

6 component?

7   MR. JOHN TODD: I will as of now. But

8 when I say, "I will give some thought," I do not have

9 the expertise to talk about what the price --

10   MR. SVEN HOMBACH: Right.

11   MR. JOHN TODD: -- would be under that

12 scenario. So I will give some thought in the sense of

13 speaking to the other -- the relevant IECs --

14   MR. SVEN HOMBACH: You'll consider the

15 issue, and then just take it into account in your

16 discussion.

17   MR. JOHN TODD: Provide that as IEC

18 evidence, or an IEC suggestion. So it will be an IEC

19 undertaking response, not a John Todd or Elenchus

20 response.

21   MR. CHRISTIAN MONNIN: Mr. Hombach,

22 this -- that isn't a new undertaking? It's just

23 building upon the original undertaking?

24   MR. SVEN HOMBACH: That's the way I

25 would interpret it as well, Mr. Monnin.

5158

1

2 CONTINUED BY MR. SVEN HOMBACH:

3   MR. SVEN HOMBACH: Now, Mr. Todd, in

4 terms of the load forecast you raised some very high

5 level issues yesterday like, for example, the

6 known/unknown. And you also raised some specific

7 concerns that you referred to as details yesterday.

8 You recall that phraseology?

9   MR. JOHN TODD: Yes.

10   MR. SVEN HOMBACH: And I very briefly

11 want to take you through some of those details just to

12 see where they fall in terms of the threshold of

13 materiality for NFAT purposes as opposed to, let's say,

14 a General Rate Application.

15   And a good starting point for that would

16 be the population forecasts. Now, earlier this morning

17 I referred to a new PUB exhibit, PUB Number 64, and I'd

18 ask that be put up on screen.

19   Mr. Todd, I'm -- I'm not sure if you're

20 aware of that but Board counsel actually requested by

21 way of undertaking that Manitoba Hydro file the most

22 recent population forecasts available.

23   MR. JOHN TODD: I was not aware of that

24 but I am now.

25   MR. SVEN HOMBACH: And I can indicate

5159

1 to you those were filed as Manitoba Hydro Exhibit 93.

2 And what you're looking at in front of you is a Board

3 advisor prepared chart that juxtaposes the population

4 growth assumed in the NFAT with the population growth

5 based on the newest forecast filed by Manitoba Hydro as

6 Exhibit MH-93.

7   And you can see that, going out to 2034,

8 there's a bout a thirty-four thousand three hundred

9 (34,300) person difference.

10   You're prepared to accept that, subject

11 to check?

12   MR. JOHN TODD: Yes. And if I'm

13 understanding it correctly, what was built into the

14 NFAT Application was the red line, the 2013 line, and

15 the update is the 2014 line which is not built into the

16 analysis.

17   MR. SVEN HOMBACH: Correct. And

18 looking at the grey chart on the bottom right, that

19 attempts to carry it through and translate that into a

20 change in the annual load. And what you can see is the

21 population number has been reduced.

22   Manitoba Hydro's average household size

23 and average customer demand has been taken into

24 account, and based on that we've established a total

25 reduction of about 197 gigawatt hours?

5160

 1   MR. JOHN TODD: I'll accept that,

 2 subject to check.

 3   MR. SVEN HOMBACH: Okay. And I

 4 appreciate Manitoba Hydro has not seen this chart, so

 5 Manitoba Hydro may disagree with those numbers. But --

 6   MR. JOHN TODD: Then I'll accept

 7 subject to Manitoba Hydro's check.

 8   MR. SVEN HOMBACH: But -- but assuming

 9 that we're looking at about 200 gigawatt hours per

10 year, would you consider that to be a material issue of

11 concern for the NFAT?

12   MR. JOHN TODD: Yes. And the important

13 element here is that is a change in what should be used

14 as the base case forecast, and it's a significant

15 change over the timeframe of the -- of the Development

16 Plan. And, of course, the load forecast only goes out

17 twenty (20) years. The analysis is going out much

18 further.

19   So if you continue to extrapolate that

20 differential it would be of -- even more significant as

21 you go out through the rest of the term of the

22 analysis.

23   MR. SVEN HOMBACH: And it's your

24 concern that if you get a different 2034 starting

25 point, that might just change it even further over the

5161

1 seven (7), eight (8) year timeframe?

2   MR. JOHN TODD: Yes. It means in 2044

3 and '54 and '64 this projection would suggest, as a

4 base case, you're going to have much lower population,

5 therefore, much lower residential demand. And, of

6 course, a lower residential demand flows through to a

7 lower commercial demand because they are related,

8 right. The -- the mass market builds on the

9 residential. The only one that's really dealing from

10 that is the industrial.

11   MR. SVEN HOMBACH: Now, you also raised

12 issues of household size. And My Friend, Ms. Boyd,

13 took you through the regressions in Manitoba Hydro's

14 rebuttal earlier this morning.

15   You recall that?

16   MR. JOHN TODD: Yes.

17   MR. SVEN HOMBACH: Let's go to PUB

18 Exhibit 58-2, page 13. Have you had an opportunity to

19 see this chart at all?

20   MR. JOHN TODD: I -- this precise one?

21 I don't think so.

22   MR. SVEN HOMBACH: Okay.

23   MR. JOHN TODD: I've seen similar ones,

24 but it's --

25   MR. SVEN HOMBACH: This is a Board

 1 advisor prepared chart that I took Manitoba Hydro

 2 through. And that just assumes a recalculation of

 3 demand based on an increased household size of two

 4 point nine three (2.93) compared to the two point seven

 5 seven (2.77) that we just discussed.

 6   And Manitoba Hydro did not fully accept

 7 those numbers. I'm -- I'm just putting it to you to

 8 determine the sensitivity and the impact of changes in

 9 household size. And let's scroll down to the bottom of

10 that document.

11   You see that, by our math, the change in

12 annual consumption going from two point seven seven

13 (2.77) to two point nine three (2.93) would be about

14 126 gigawatt hours per year.

15   Are you prepared to accept that math,

16 subject to check?

17   MR. JOHN TODD: Yes.

18   MR. SVEN HOMBACH: Again, would you

19 consider that to be a material issue for NFAT purposes

20 or is that below the threshold of materiality?

21   MR. JOHN TODD: It's material but let

22 me add -- add a context. What we have in this process

23 is many, many variables that go into the analysis and,

24 if not, most of those variables have been changing

25 through this process. If it were not for the time

5163

1 constraint and this were a conventional proceeding --

2 more conventional proceeding, we'd probably be saying

3 re-file everything that's the base case with the -- the

4 latest numbers that we see as the base case.

5   So when you talk about something

6 material, in itself, even if it's not material, when

7 you put all the changes together, much -- a bunch of

8 small changes can add up to one (1) big change.

9   So I'm a little uncomfortable saying

10 it's material or not material because something that

11 seems immaterial in isolation may actually be material

12 when you add it to all the other changes because many

13 of these changes may be pushing in the same direction.

14   MR. SVEN HOMBACH: The German saying

15 for that, Mr. Todd, is Kleinvieh macht auch MistApril

16 3, 2014, which means small animals produce manure, as

17 well. And see I did get my farm -- I did get my farm -

18 - I did get my farm reference in.

19   MR. JOHN TODD: And I've spent some

20 time on --

21   THE CHAIRPERSON: I think you should

22 spell that --

23   MR. JOHN TODD: -- on chicken prices

24 and have gone to chicken farm, and, yeah, the -- the

25 small animals do produce as much manure as a cow.

5164

1 CONTINUED BY MR. SVEN HOMBACH:

2   MR. SVEN HOMBACH: I will not take you

3 through those subjects today, rest assured. So let's

4 spend a moment on the -- the heating and cooling

5 adjustment, Mr. Todd, and let's go to PUB Exhibit 41.

6 And go to page 37 of that document.

7   That's the response that you provided by

8 way of an Information Request from the PUB. And in

9 your report you discuss some of the issues you took

10 with Hydro's sensitivity coefficients for heating

11 adjustment and cooling adjustment.

12   And just to explain the chart that we're

13 looking at, the blue line is the fairly steady heating

14 adjustment. The red line is the cooling adjustment

15 where there's a lot of variation over the past twenty

16 (20) years.

17   Do you see that?

18   MR. JOHN TODD: Yes.

19   MR. SVEN HOMBACH: And you'd expressed

20 some concern with the -- the methodology. And you, in

21 fact, suggested we should perhaps look over a longer

22 time frame than two (2) years?

23   MR. JOHN TODD: Yes.

24   MR. SVEN HOMBACH: Let's go to Manitoba

25 Hydro Exhibit 106.

5165

1   (BRIEF PAUSE)

2

3   MR. SVEN HOMBACH: I appreciate you may

4 not have seen this before either, but I put the

5 question to Manitoba Hydro on -- on what the average

6 range of the adjustment for cooling would be and

7 Manitoba Hydro indicated it was about 99 gigawatt hours

8 a year. So 100 gigawatt hours give or take.

9   Again, in terms of a threshold of

10 materiality, where do you see that fit?

11

12   (BRIEF PAUSE)

13

14   MR. JOHN TODD: Because we're looking

15 over longer term the bouncing around, if you want, of

16 the degree-day adjustment should kind of average out

17 and shouldn't in itself be a concern. But I would flip

18 back to the cumulative effect of small impacts. It --

19 it may be that -- well, con -- conceptually, any errors

20 in your adjustment to degree-day cooling or heating

21 should have no impact.

22   My one (1) concern is if you take the

23 last two (2) years of experience and use a -- a

24 volatile number to plug it into the base case going

25 forward and it -- it could tilt the line in terms of

5166

1 your base case, volume and growth, which flips back to

2 the earlier chart you -- you showed us.

3   MR. SVEN HOMBACH: But overall, this is

4 more of a procedural concern than an outcome based

5 concern?

6   MR. JOHN TODD: Yeah. You'd want to

7 check the sensitivity and make sure that the changes

8 from year to year are not skewing the base case load

9 line twenty (20) years down the line. And I still have

10 that concern that it may actually be doing that if

11 you're using a -- a weather adjustment for the last --

12 the -- just based on the last couple of years of data,

13 because that could lead to a -- an unstable weather

14 correction.

15   And a different -- a different weather

16 adjustment is going to give you a different starting

17 point. And if you're looking over a small number of

18 years it could give you a -- give you a different slop

19 of the line. And therefore, when you -- you go out

20 it's -- it's different.

21   The fact that it's volatile, if you

22 weather adjust using different weather adjustments over

23 the past several years, if you're talking about a -- a

24 ten (10) year time line, it -- it should sort of cancel

25 out and you end up with the regression line being not

5167

1 significantly affected. But I can't guarantee that.

2   MR. SVEN HOMBACH: So all -- overall,

3 the issues we just discussed range between about 100

4 and 200 gigawatt hours per year. And let's contrast

5 that with the concern you raised about price elasticity

6 in -- in the long-term. And again, let's go to PUB

7 Exhibit 58-2.

8

9   (BRIEF PAUSE)

10

11   MR. SVEN HOMBACH: And I apologize to

12 Ms. Villegas for making her work very hard this

13 morning. And let's go to page 92 of that document.

14   Have you seen that chart before, Mr.

15 Todd? And again, I appreciate you may not have. This

16 was just put into evidence during the examination of

17 the Manitoba Hydro panel on load forecast.

18   MR. JOHN TODD: The -- the content

19 rings a bell. This diagram does not.

20   MR. SVEN HOMBACH: Right. What this is

21 is a chart that shows the projected escalation and the

22 average annual cost to heat a home that's heated with

23 electricity over time, based on Manitoba Hydro's 3.95

24 percent rate increase projections compared to the cost

25 of heating a home with gas based on AECO futures and an

5168

1 escalation rate determined by ACF, who used to be a

2 consultant to Manitoba Hydro over time.

3   And Manitoba Hydro agreed that,

4 generally, this is in the ballpark and there is going

5 to be a further growth in the relative costs between

6 electric heat and gas heat over time.

7   MR. JOHN TODD: That's the forecast,

8 yes.

9   MR. SVEN HOMBACH: And you don't have

10 any reasons to disagree with the trend that shown on

11 this document?

12   MR. JOHN TODD: Again, I'm a strong

13 believer in how much confidence do you have in numbers.

14 I would just want to point out in that vein that the --

15 because Manitoba Hydro's rates are based on cost-of-

16 service calculation, not supply and demand. You're

17 probably going to come in close to that and it's going

18 to be driven by things like variations in the cost of

19 new plants.

20   And of course that will be driven in

21 part by what you actually do in terms of export

22 revenue, if you do better or worse, which is a market-

23 driven differential, and as well as water flow

24 differential.

25   For gas, I look back -- I do a lot of

5169
1 work in that area. I look back over the projections on

2 gas prices going back from 2000, looking forward to

3 what we were expecting in 2005 and what the forecast

4 was in 2010 and 2014. There's much greater volatility

5 in the forward-looking forecast of gas prices.

6   So, yes, this is the consensus, sort of

7 in line with the consensus right now. It could look

8 very different a couple of years from now. Shale gas,

9 we know in the past -- I mean, shale gas has totally

10 transformed our expectation around gas prices.

11   An environmental problem with shale gas

12 that causes political intervention that cuts shale gas,

13 for example, would have a huge impact on the gas price.

14   MR. SVEN HOMBACH: So again, that's a

15 risk that you would call the known unknown. You can't

16 have full faith in the projections.

17   Let's go to the next page for a moment.

18 That's a very similar chart dealing with the cost of

19 water heating. And I assume your comments equally

20 apply to -- to the trend for water heat as they apply

21 to the trend for space heat costs.

22   MR. JOHN TODD: Yes.

23   MR. SVEN HOMBACH: Now, you tried to

24 draw the distinction yesterday between own-price

25 electricity and cross-price electricity, and --

5170

1 elasticity. And I believe you said own-price

2 elasticity -- elasticity, that would be the price

3 elasticity related to the cost of electricity?

4   MR. JOHN TODD: Yes. It is the impact

5 on the quantity demand or consumption in response to

6 the electricity price, as opposed to the price of an

7 alternative energy source.

8   MR. SVEN HOMBACH: And cross-

9 elasticity, that would be the price, let's say, of gas

10 compared to the price of electricity?

11   MR. JOHN TODD: Well, the elasticity is

12 the impact of dema -- on demand of a price. So it

13 would be the impact of -- the price of natural gas on

14 electricity demand --

15   MR. SVEN HOMBACH: Right.

16   MR. JOHN TODD: -- would be cross-

17 elasticity.

18   MR. SVEN HOMBACH: So what we're

19 looking here with these two (2) charts that I just put

20 to you is a combination of both, correct?

21   You're looking at increasing electricity

22 prices, and you're looking at a diverging trend between

23 the electricity price and the gas price.

24   MR. JOHN TODD: Yes.

25   MR. SVEN HOMBACH: In your view, is

5171

1 there any way to come up with a reasonable estimate on

2 the impact on future Manitoba load growth off these

3 trends?

4   MR. JOHN TODD: It would be appropriate

5 to use an own-price elasticity from observation in

6 other jurisdictions, presumably as similar as you can.

7 Since we do not have a history in Manitoba to go on to

8 come up with elasticity, to use elas -- an elasticity

9 estimate that is more realistic than zero and build

10 that into -- to the modelling and elasticities being --

11 being brought into play now. So you definitely want to

12 make sure that's included.

13   And, secondly, with the expected

14 differential between electricity and gas, yes, you

15 could look at that on the basis of driving on

16 conversion or adoption of gas for new construction.

17   The caution that I -- I advanced

18 yesterday was that the experience in other

19 jurisdictions are typically based on an electric

20 utility and a competitive gas alternative, which I know

21 from companies I work with, when you see a differential

22 such as we have here in 2014 versus 2008, the amount

23 that -- that a gas utility would spend on marketing

24 where the price differential is very small, such as

25 2008, would be peanuts 'cause they're not going to be

5172

 1 successful when there's not a price differential, with

 2 the kind of differential you see in 2014 the would out

 3 -- be out there with some very big savings estimates

 4 based on current prices, and be very aggressively going

 5 after customers.

 6   We see that in particular with -- with

 7 retailers, for example. I can just tell by what's

 8 coming through my door and over the phone. When the

 9 price differential is -- is large, you get retailers

10 coming and saying, You know, switch and buy my product.

11   MR. SVEN HOMBACH: So cross-elasticity

12 then isn't just the price of an alternative; it's also

13 how that alternative is marketed?

14   MR. JOHN TODD: Yes. The cross -- the

15 -- what you observe is driven by not just the price

16 differential but what's done with that price

17 differential. Now, in -- in most jurisdictions where

18 you have -- have competitive entities, you assume the

19 market works and that the competitors exploit price

20 differentials and therefore in markets that are

21 similar, in terms of -- of true competitors, you'd

22 expect to see a fairly consistent response.

23   The caution here is that you need to

24 make sure that there are -- that the same level of

25 aggression is being adopted in Manitoba if you're

5173

1 trying to -- if you expect to get the same kind of

2 price response.

3   MR. SVEN HOMBACH: So in terms of

4 determining a worst-scenario based on elasticity, how

5 would you go about finding a comparable jurisdiction?

6   And specifically, would you just be

7 looking at a jurisdiction that has a private gas

8 utility and prices about twice as high as Manitoba

9 Hydro's?

10   MR. JOHN TODD: Yes. And this kind of

11 differential is -- is fairly common. So, I -- I mean,

12 I'm not sure what the numbers are in Ontario but, you

13 know, Ontario prices have been going up. Gas prices

14 are low. The -- in Ontario the -- the supply of gas is

15 -- is quite good, so we have a very liquid market. The

16 -- the Don Hub (phonetic) is extremely good pricing, so

17 we're seeing excellent gas prices relative to the

18 prices.

19   MR. SVEN HOMBACH: Are you aware of any

20 formulas for elasticity used by other jurisdictions,

21 including Ontario?

22   MR. JOHN TODD: It's not so much the

23 formula as what is, you know, the elasticity number.

24 But I don't have them in my head but, you know, they're

25 -- they're out there being -- being used. So with a

5174

1 bit of research, we could come up with them.

2   MR. SVEN HOMBACH: If you have access

3 to them, perhaps I can ask for an undertaking to just

4 provide a summary of the numbers that are used.

5   MR. JOHN TODD: Okay. So that would be

6 an undertaking to identify cross-elasticities between

7 the differential between electricity and gas prices --

8   MR. SVEN HOMBACH: Correct

9   MR. JOHN TODD: -- or -- or cost. In

10 this case is water heating. Space heating, of course,

11 is a bigger use. So --

12   MR. SVEN HOMBACH: But I -- I'd like to

13 keep it a bit broader than that, Mr. Todd, just because

14 --

15   MR. JOHN TODD: Electricity --

16   MR. SVEN HOMBACH: -- sitting here you

17 presumably don't know how the number is being phrased,

18 whether it's simply based on the price differential or

19 on the heating cost differential.

20   MR. JOHN TODD: Okay. So electricity

21 consumption verus gas price.

22   MR. SVEN HOMBACH: Yes.

23   MR. JOHN TODD: Okay.

24   MR. CHRISTIAN MONNIN: So we've --

25 we've come to a line on that undertaking?

5175

1 --- UNDERTAKING NO. 95:   Elenchus to identify cross-

2   elasticities between the

3   differential between

4   electricity and gas prices

5

6   THE CHAIRPERSON: Mr. Todd, just a

7 question in relation to your earlier testimony about,

8 you know, Manitoba Hydro should be out there knocking

9 on doors and marketing gas heating.

10   Are there any clients of yours, or

11 anybody in Ontario that you know of, that is both an

12 electricity producer and a gas distributor?

13

14   (BRIEF PAUSE)

15

16   MR. JOHN TODD: There are -- in Ontario

17 we have many electricity distributors, about seventy-

18 five (75), that are municipal electric distributors.

19 And there are a couple of those municipalities have

20 their own gas utilities. Kitchener has a gas utility

21 as well as electric utility, and Kingston, for example.

22 And I believe Kingston Utility -- or Utilities Kingston

23 operates both the gas and electricity.

24   So they would be kind of a co-owner, but

25 other than that -- and that's very small scale. That's

 1 serving one (1) community. But other than that -- and

 2 you look across the country, there is no where else

 3 where it's jointly owned. It used to be in -- in

 4 British Columbia, but that's going back before it was -

 5 - NBC Gas was split off from BC Hydro, but that's even

 6 before my time regulations, twenty-five (25), thirty

 7 (30) years ago.

 8   So -- so basically we have lim -- very

 9 limited experience with that.

10   THE CHAIRPERSON: I'm asking the

11 question because, you know, Manitoba Hydro has told us

12 in testimony before this panel that -- or maybe --

13 maybe it's in an earlier application, frankly.

14   But the point is that they -- they --

15 their stance is to be indifferent relative to the

16 customer's choice between electricity and gas.

17   MR. JOHN TODD: Right.

18   THE CHAIRPERSON: And I don't

19 understand why. I mean, it -- it would be like going -

20 - going to a bank and the bank would be encouraging you

21 to lock in your mortgage rate. They don't do that.

22 They simply say: These are the true product offerings.

23 You decide. You're a big boy, you decide.

24   So why would you advocate now that

25 Manitoba Hydro should be out there knocking on doors to

5177

1 -- to make a choice between gas and electricity when if

2 -- if something goes wrong here, the client will say,

3 Well, Manitoba Hydro, you told me that I was going to

4 be getting a cheaper price here and look what happened

5 to me. I made the wrong decision. You're responsible

6 for the decision I made.

7   So why -- why would you then go say

8 Manitoba Hydro should be out there touting the

9 difference between the two (2) and saying, you know...

10   MR. JOHN TODD: First of all, it was

11 not my intent to advocate that they should. I was

12 pointing out -- the discussion came -- arose from the

13 comments around growing penetration in the electricity

14 side, or the way the load forecast was -- was done and

15 referring to Manitoba as 'unique'. I was pointing out

16 that the unique characteristic that affects the choice

17 between gas and electricity is that it's owned by one

18 (1) utility.

19   Because they are agnostic, that means

20 that, say, there's more power to the incumbent. You

21 know, few -- fewer people are going to -- going to

22 switch. And in addition, the -- it appears that --

23 that developers are not incented.

24   For developers, there's -- there's -- as

25 I mentioned yesterday, there's new development and

5178

1 there's conversions. For new development, the capital

2 cost of building a gas heated house is higher than the

3 capital cost of building an electrically heated house,

4 in general. I mean, I looked at the details here and

5 it's a bit different. That's the general rule of

6 thumb.

7   Therefore, developers on a pure cost

8 basis prefer to hil -- build an electric heated house.

9 Part of this con -- the concept -- part of this concept

10 is split incentives. From a builder's perspective,

11 they want electricity, even when over life cycle gas is

12 going to be less expensive for the customer.

13   So from an eco -- from an economic

14 perspective you can argue they should be building gas

15 heated houses because it's going to be less expensive

16 for the homeowner, even taking into the -- the account

17 that they actually have to pay higher capital costs --

18 high -- a higher initial cost for the house because it

19 includes a more expensive heating system.

20   And that's why in other jurisdictions

21 there's not -- they're not agnostic between the two

22 (2). There's actually gas utilities going out and

23 providing incentives. Now -- so what's that mean for

24 Manitoba? It would be -- we're not going to reverse

25 the decision of years ago, that proceeding of the --

5179

1 the acquisition of -- of Centra by Manitoba Hydro.

2   But it would be -- it would be a

3 reasonable policy for -- to remove that -- it's a

4 conflict. I mean, I -- you're -- what you're saying is

5 there's a conflict. And it would almost be

6 inappropriate for Manitoba Hydro, as the owner of both,

7 to come in and advocate one over the other without very

8 good policy grounds because, yes, the price of natural

9 gas could change and you could steer people to natural

10 gas and in ten (10) years from now they're paying more.

11   But if there were a separation of

12 responsibility, this is where you get into -- sometimes

13 you have models of ring fencing around different parts

14 of an operation of a company so that they will behave

15 as being competitive with each other in order to get

16 around the inherent, in a sense, market interference,

17 which what we've got is a structure that impedes the

18 normal competitive behaviour between gas and electric

19 companies.

20   Alternatively, you -- you take a model

21 and say, We need to be more proactive about the

22 information. So this kind of diagram, what's going

23 forward in the future is a view of the future. And the

24 -- Manitoba Hydro, without specifically recommending

25 something, could be more in the face of customers with

5180

1 the information.

2

3 CONTINUED BY MR. SVEN HOMBACH:

4   MR. SVEN HOMBACH: Mr. Chairman, I will

5 only be twenty (20) more minutes. It's currently

6 twelve o'clock. But since there is a chance that we

7 may not need the afternoon session, may I just

8 continue?

9   Mr. Todd, let's try to -- to put some

10 numbers to the -- the comments that you just made to

11 the Chairman about the impact of switching. And a good

12 opportunity to do that is by looking at Manitoba

13 Hydro's fuel switching initiative.

14   Are you familiar with that program?

15   MR. JOHN TODD: Familiar may be

16 overstating it, but I'm aware of it, yes.

17   MR. SVEN HOMBACH: And it's my

18 understanding, and I'm hoping that Manitoba Hydro will

19 correct me if I'm wrong, that that is a program

20 directed to what Manitoba Hydro calls the southern gas

21 area to dissuade electric heating in new construction

22 or in retrofits.

23   And if we can go to Manitoba Hydro

24 Exhibit 122 for a moment.

25

5181

1   (BRIEF PAUSE)

2

3   MR. SVEN HOMBACH: Sorry, Exhibit 122,

4 not 121.

5

6   (BRIEF PAUSE)

7

8   MR. SVEN HOMBACH: What I'm showing you

9 here, Mr. Todd, is an undertaking response from

10 Manitoba Hydro to a question I asked of the Hydro panel

11 that said, if you assumed that that initiative was a

12 hundred percent successful, just -- really just an

13 intellectual exercise --

14   MR. JOHN TODD: Yes.

15   MR. SVEN HOMBACH: -- it would have an

16 impact of about 903 gigawatt hours, according to

17 Hydro's response.

18   So compared to the other issues that you

19 took with Manitoba Hydro's methodology that we

20 discussed, is it fair to say that this would be about

21 an order of magnitude higher?

22   MR. JOHN TODD: Yes. And my

23 understanding is we're talking about one region of the

24 -- of the province.

25   MR. SVEN HOMBACH: The -- the southern

5182

1 gas region only.

2   MR. JOHN TODD: So that also -- of

3 course, if you extended it to everywhere where there's

4 gas and if you looked at the potential for system

5 expansion, it could be much greater.

6   MR. SVEN HOMBACH: Right. And even if

7 you took people switching for price reasons, that's not

8 part of this consideration either?

9   MR. JOHN TODD: That's correct. This

10 is new build. This is not switching for existing

11 homes, as I understand it.

12   MR. SVEN HOMBACH: So -- so in your

13 view then with respect to residential demand, is the

14 choice between electricity and gas the single biggest

15 impact factor, or is there something else I'm missing?

16   MR. JOHN TODD: It is probably the

17 biggest known known, because basically we know what the

18 impact potentially could be. And we're not guessing at

19 what may happen through technological development in

20 the future, so this is, in a sense, an opportunity that

21 is sitting on the table to be exploited aggressively.

22   And the main constraint is, as the --

23 the Chair raised: What is it appropriate for Manitoba

24 Hydro to do in terms of steering customers one (1) way

25 versus the other? But, barring that consideration,

5183

1 it's the biggest opportunity.

2   So, for example, to me, a utility such

3 as Manitoba Hydro that has both electricity and gas,

4 the focus of Manitoba Hydro, as a Crown corporation in

5 particular, is on serving the customer as cost

6 effectively as possible. Part of that would be making

7 sure the customer is choosing -- making the right fuel

8 choice.

9   And following through that logic, the

10 way to be the best -- provide the best service to

11 customers would be to say, We want to do everything we

12 can to keep people's energy bills down. The way to

13 keep their energy bills down, which is the sum of

14 electricity and gas, is to make sure that -- that we

15 help them adopt the -- the least expensive fuel.

16   And I think that in discussion with

17 people at Manitoba Hydro, they understand that and they

18 appreciate that and -- and believe in that.

19   But at the same time, looking at

20 marketing materials and so on, because of this need to

21 be agnostic, they are not achieving the kind of results

22 with economic fuel switching and economic penetration

23 rates that I believe would be achieved in a competitive

24 marketplace.

25   MR. SVEN HOMBACH: So then let's turn

5184

1 to what you identified as the biggest impact short-term

2 factor, the top consumer load. And I'd like to turn

3 your attention back to PUB Exhibit 58-2. And let's go

4 to page 52 of the document.

5   Mr. Todd, that's an excerpt from the

6 2013 load forecast. And just to recap your earlier

7 evidence, I believe My Friend Ms. Boyd indicated that

8 top consumer growth over the past twenty (20) years has

9 been an average of 92 gigawatt hours.

10   You'd recall that comment?

11   MR. JOHN TODD: yes.

12   MR. SVEN HOMBACH: And for the future,

13 Manitoba Hydro is assuming a potential large industrial

14 load, or PLIL, or 100 gigawatt hours --

15   MR. JOHN TODD: Yes.

16   MR. SVEN HOMBACH: -- which is an

17 approximation of the growth over the past twenty (20)

18 years. If we look at this chart in front of you,

19 approximately one-third down the page you see something

20 called a ten (10) year weather-adjusted average growth.

21   Do you see that, left column?

22   MR. JOHN TODD: I see weather adjusted

23 below the 2012/2013, and then --

24   MR. SVEN HOMBACH: Right underneath

25 that, ten (10) year weather-adjusted average growth.

5185

1   MR. JOHN TODD: Yes. Yes, yes. Got

2 it.

3   MR. SVEN HOMBACH: And if you go to the

4 right, to the top consumers, you'll see that over the

5 past ten (10) years that growth has actually only been

6 about 28 gigawatt hours per year.

7   MR. JOHN TODD: Yes, and Manitoba

8 Hydro's response is, if you look at the ten (10) years,

9 you're in effect giving greater weight to the 2008

10 events.

11   MR. SVEN HOMBACH: Well -- and your

12 comment yesterday was the distinction between assuming

13 that everything is back to normal or assuming that

14 there's been a fundamental shift.

15   So if there was a fundamental shift,

16 would the concern be that perhaps the twenty-eight (28)

17 would be a more reasonable approximation? Or where do

18 you see the potential worst-case scenario for top

19 consumers?

20   MR. JOHN TODD: Yes, and that's why in

21 the Elenchus evidence we emphasi -- we -- well, we note

22 the ten (10) year experience, which is much less

23 optimistic than the twenty (20) year average

24 experience.

25   MR. SVEN HOMBACH: But is that

5186

1 something else you would characterize as a

2 known/unknown? You can't know whether there's been a

3 reset or whether things will return back to normal?

4   MR. JOHN TODD: On -- on issues like

5 this, it's -- it's a struggle in judgment to say,

6 Should we adjust our base case, or should we deal with

7 that through the sensitivity analysis?

8   Given my view of the world, which is I -

9 - I'm -- I buy into the concept that the future is

10 different. I mean, tho -- those -- I find that story

11 more credible than the rosy-eyed view I think is there

12 that says, It's going to be back to our wonderful

13 growth rates of post second World War.

14   So I would say as a base case that

15 something more like thirty (30) would -- would be a

16 more likely base case scenario, and that the higher,

17 the hundred (100), should be done through some of your

18 sensitivity analysis, or alternative growth.

19   Another view, which is a legitimate

20 argument, would be use hundred (100) as the base case

21 and the lower growth, thirty (30), should be an

22 alternative scenario. You can't ignore the possibility

23 that things haven't changed in the -- that much -- much

24 slower top consumer load growth is more likely.

25   The problem is in top consumer you don't

5187

 1 get a hundred (100), or twenty (20), or thirty (30) per

 2 year. What you get is occasionally you have a large

 3 industrial top consumer comes into the marketplace, and

 4 sometimes they leave. We're dealing with a very small

 5 number of -- of consumers. And, so inherently it will

 6 be very volatile. It -- so the number will not be a

 7 hundred (100). It will not be twenty-eight (28).

 8   What is the best -- best view for a base

 9 case? Twenty-eight (28) would be more conservative in

10 the sense of being -- expecting low growth, and the

11 whole concept of that estimate of an annual change in

12 consumer growth is to say, In the long run we believe

13 it's going to average out to something like that to get

14 to the right point twenty (20) years down the road.

15   Twenty (20) years down the road times a

16 hundred (100) is -- you take the hundred (100) times

17 twenty (20) is -- is two thousand (2,000). You take

18 that twenty-eight (28) -- say thirty (30) times twenty

19 (20) years which means it's six hundred (600). You

20 know, a significant difference.

21   MR. SVEN HOMBACH: So keeping in mind

22 the 5th and 95th percentiles that I already took you

23 to, and the 6,000 gigawatt hour variation assuming no

24 fundamental structural changes, you mentioned earlier

25 today that you were -- and I think I'm quoting you,

5188

1   "A great believer in mitigation."

2   Do you recall that?

3   MR. JOHN TODD: Yes.

4   MR. SVEN HOMBACH: In practice then,

5   how would you mitigate against these known/unknown

6   risk? Is it just a matter of building shorter term

7   projects so that your capital is bound, let's say, only

8   for twenty-five (25) years rather than seventy-eight

9   (78) to a hundred and twenty-five (125)?

10   MR. JOHN TODD: There are a number of

11   things you can do to mitigate against the risk. As a

12   generalization, a shareholder-owned company recognizing

13   the uncertainty in risk around top consumers would have

14   a policy that we assume no addition of top consumers in

15   terms of our building of supply.

16   And when a top -- new top consumer comes

17   in and wants some -- wants to be served they have to

18   sign a contract, and we will provide the facilities to

19   meet their needs then. And there's no commitment, no

20   obligation to serve a top consumer until they sign a

21   contract. And if that means they have to wait 'cause

22   they haven't given enough warning that would be fine.

23   And that's the way a private sector companies that I

24   see across the country deal with that high risk top

25   consumer end of the spectrum.

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1   The other way they mitigate risk around

2 long-term issues of -- like structural change is

3 through the discount rate. Essentially you're saying,

4 I'm not going to give much weight to the distant

5 future, and a higher discount rate does that. Again, a

6 private -- clearly a private sector company would be

7 using a much higher discount rate than is being used

8 here, but again I'm going outside my mandate and you'll

9 be hearing from others -- other IECs on that point.

10   MR. SVEN HOMBACH: How many private

11 sector companies have you seen building hydro dams

12 recently?

13   MR. JOHN TODD: I've dealt with a

14 couple of very small private sector companies that have

15 built run-of-the-river dams. Usually with a contract

16 with somebody like the OPA or -- or a utility that will

17 pay a guaranteed price for the power. So they can do a

18 financial analysis that they can go to the bank with

19 and get the money. But it's --

20   MR. SVEN HOMBACH: So in terms of

21 waiting for a committed load, one (1) of the risks

22 would be that there's just a long lead time to bring

23 any Hydro developments online, especially the larger

24 projects?

25   MR. JOHN TODD: Given -- given my long

5190

1 history here, which goes back to 1990 in the first

2 Conawapa hearing, what I find particularly interesting

3 is in 1990 what was being -- being brought forward to

4 the Board was a contract that over the life of the

5 contract would fully pay for Conawapa.

6   And if my memory is correct going back

7 that many years, the characterization was we -- we

8 build the dam, we build the interconnection, we have

9 the contract. At the end of the contract in twenty

10 (20) years we have a free dam. There's no risk except

11 a failure of Ontario to -- to fulfill the contract.

12   Ontario pulled out of it and paid all

13 the costs that had been incurred by Ontar -- by

14 Manitoba Hydro. Again, no risk around -- around that.

15   We're talking about a very different

16 concept of Conawapa now -- now where the initial term

17 is similar. We have -- we have some firm contracts

18 that will pay for a portion of the cost. But after

19 those firm contracts run out what we have is,

20 essentially, a merchant generation plant that may be

21 contracting for firm power sales, may not be. But it's

22 a merchant plant, which we expect to be able to operate

23 for the remainder of the seventy-eight (78) year period

24 at whatever price the market will bear.

25   MR. SVEN HOMBACH: Okay. Mr. Houldin,

5191

1 let's turn to you for a moment. You've had the

2 opportunity now to hear about some of the -- the recent

3 evidence that Manitoba Hydro has filed that's going to

4 form the subject of your undertaking. So I -- I won't

5 spend a lot of time to go into details with you.

6   But I would like to refer you for a

7 moment to Manitoba Hydro's rebuttal evidence; that's

8 Manitoba Hydro Exhibit 85, page 28. And let's go to

9 the bottom of that page.

10   Do you see there, Mr. Houldin, that

11 there's a description of the three (3) DSM levels that

12 were discussed yesterday?

13   MR. RUSS HOULDIN: Yes.

14   MR. SVEN HOMBACH: And you see at line

15 27 the description for Level 2 DSM?

16   MR. RUSS HOULDIN: Yes.

17   MR. SVEN HOMBACH: And halfway through

18 line 29 there's a description that states that:

19   "Level 2 DSM initiatives include

20   conservation rates, load

21   displacement, and fuel switching."

22   Do you see that?

23   MR. RUSS HOULDIN: Yes.

24   MR. SVEN HOMBACH: Now, conversation

25 rates, that's what's also known as an inverted tail

5192

1 block rate, is it not?

2   MR. RUSS HOULDIN: Oh, I -- I don't

3 know.

4   MR. SVEN HOMBACH: Generally?

5   MR. RUSS HOULDIN: It's not -- I'm not

6 -- I'm not familiar with Manitoba Hydro's rate

7 structure.

8   MR. SVEN HOMBACH: But you were -- what

9 would you consider to be a conservation rate?

10   MR. RUSS HOULDIN: I'm familiar with

11 the general -- the general concept. I just -- I'm just

12 alerting you to the fact -- I -- I don't -- I haven't

13 familiarized myself with Manitoba Hydro's rate

14 structure. So I'm not... I mean, I accept the idea of

15 a -- of a conservation rate being you pay more as -- as

16 your consumption rises. Ontario has -- has had that

17 for -- for years.

18   MR. SVEN HOMBACH: So these three (3)

19 items taken together: conservation rates, load

20 displacement, and -- and fuel switching, none of those

21 are what you'd classically consider energy efficiency

22 measures, are they?

23   MR. RUSS HOULDIN: That's -- that's

24 correct, yes.

25   MR. SVEN HOMBACH: So in terms of your

5193

 1 comments on the deferral potential for Keeyask, the

 2 fact that there's some non-traditional measures lumped

 3 in here, that would presumably affect your comments?

 4   MR. RUSS HOULDIN: Yes.

 5   MR. SVEN HOMBACH: Okay.

 6

 7   (BRIEF PAUSE)

 8

 9   MR. SVEN HOMBACH: And let's just go to

10 Manitoba Hydro Exhibit 95 for a moment, slide 4. Mr.

11 Houldin, that is the slide that Manitoba Hydro put on

12 the record that shows the need for new dependable

13 energy and the need for winter peak capacity with the

14 DSM Levels 1, 2, and 3, plus a further assumption as to

15 whether or not there will be new top consumer pipeline

16 load.

17   Do you see that?

18   MR. RUSS HOULDIN: Yes.

19   MR. SVEN HOMBACH: So as part of your

20 undertaking and re-advising the Board, you'll take

21 these scenarios into consideration?

22   MR. RUSS HOULDIN: Yes, that's --

23 that's my understanding of the undertaking, yes.

24   MR. SVEN HOMBACH: Thank you then.

25 Just the last topic that --

5194

1   THE COURT REPORTER: Excuse me, is this

2 a new undertaking?

3   MR. SVEN HOMBACH: It's not a new

4 undertaking. It's just an extension of an existing one

5 on the record. Thank you.

6

7 CONTINUED BY MR. SVEN HOMBACH:

8   MR. SVEN HOMBACH: The last topic I

9 briefly want to explore with you, Mr. Houldin, is this

10 recommendation that Manitoba Hydro consider DSM as part

11 of an integrated resource plan, or IRP. And perhaps we

12 can go to your PowerPoint presentation for a moment and

13 bring that up on screen, slide 8.

14   MR. RUSS HOULDIN: Yes.

15   MR. SVEN HOMBACH: That's the chart you

16 referred us yesterday that just shows procedurally how

17 a DSM evaluation works in the IRP context and

18 procedurally how Manitoba Hydro does it right now?

19   MR. RUSS HOULDIN: Yes.

20   MR. SVEN HOMBACH: And if I understand

21 the IRP correctly, it basically means you give equal

22 weight to DSM as a resource. You -- you evaluate it

23 against new generation on an equal footing?

24   MR. RUSS HOULDIN: Correct.

25   MR. SVEN HOMBACH: And what I'm

5195

 1 interested in, Mr. Houldin, is how that actually

 2 changes the analytics that you're conducting. And to

 3 illustrate this, let's go to Manitoba Hydro Exhibit 87

 4 for a moment, page 69.

 5

 6   (BRIEF PAUSE)

 7

 8   MR. SVEN HOMBACH: I assume you haven't

 9 had an opportunity to -- to review this slide before,

10 Mr. Houldin?

11   MR. RUSS HOULDIN: It -- it's -- I'm

12 not sure of this particular presentation, but this --

13 this diagram I've -- is -- is in the -- is in the --

14 the original NFAT business case.

15   MR. SVEN HOMBACH: Yeah.

16   MR. RUSS HOULDIN: So I'm quite

17 familiar with this -- with this chart, yes.

18   MR. SVEN HOMBACH: What this shows is

19 the current levelized utility cost, or LUC, of a bunch

20 of Manitoba Hydro DSM programs. And if we can go to, I

21 believe, the previous page for a moment.

22   Manitoba Hydro was on record indicating

23 that the average levelized utility cost for DSM

24 currently is about two point four (2.4) cents per

25 kilowatt hour?

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1   MR. RUSS HOULDIN: Yeah.

2   MR. SVEN HOMBACH: Do you agree with

3 that number?

4   MR. RUSS HOULDIN: Yes. Well, no, I'm

5 not -- I -- I agree, yes.

6   MR. SVEN HOMBACH: And -- and that

7 compares to a levelized utility cost for Keeyask of

8 more -- I believe, more than six (6) cents per kilowatt

9 hour?

10   MR. RUSS HOULDIN: Yes.

11   MR. SVEN HOMBACH: Now, let's go to

12 page 60 of this presentation. I -- I take it you're

13 familiar with the various tests that are applied to

14 DSM, like the total resource cost test, for example, or

15 SCT, the societal cost test?

16   MR. RUSS HOULDIN: Yes, I am.

17   MR. SVEN HOMBACH: Right. And Manitoba

18 Hydro in this presentation identified both the total

19 resource cost test, or TRC, or if we can go to page 61,

20 the next page, for a moment, a modified total resource

21 cost test that includes measurable non-energy benefits?

22   MR. RUSS HOULDIN: Yes.

23   MR. SVEN HOMBACH: Have you -- have you

24 seen this slide before?

25   MR. RUSS HOULDIN: Yes.

5197

```
 1                MR. SVEN HOMBACH:   You're aware of this
 2  --
 3                MR. RUSS HOULDIN:   Yes.
 4                MR. SVEN HOMBACH:   -- test that
 5  Manitoba Hydro's using?
 6                MR. RUSS HOULDIN:   Yes.
 7                MR. SVEN HOMBACH:   So leaving aside the
 8  procedural conceptual concerns, how would an IRP
 9  process actually change the test that you're applying
10  and evaluating DSM, and then choosing which projects to
11  proceed with?
12                MR. RUSS HOULDIN:   It would -- well, it
13  really does turn on the measurable non-energy benefits.
14  The -- indicated elsewhere that the -- Manitoba Hydro
15  uses this multiple accounts' approach.  And to use a
16  fully integrated approach in -- in the IRP, you would
17  build that in some way into your -- into your -- your
18  criterion.
19                And so it would -- it would actually --
20  you need to drill down and -- and unpack what those --
21  how Manitoba Hydro intends to do the measurable non-
22  energy benefits.
23                MR. SVEN HOMBACH:   So let's say
24  Manitoba Hydro wanted to use -- to evaluate a new DSM
25  measure --
```

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1   MR. RUSS HOULDIN: Yeah.

2   MR. SVEN HOMBACH: -- and it had these

3 two (2) approaches available to it, its existing

4 approach where you've got the initial screening and

5 it's added in the Power Smart Plan and you assume that

6 it's going to reduce total load.

7   And -- and you accept the evidence

8 yesterday that Manitoba Hydro is primarily energy

9 constrained, not capacity constrained?

10   MR. RUSS HOULDIN: Well, let's -- I

11 mean, again my -- my interpretation of the energy

12 constrained is -- I regard that as an operational

13 issue, that in the long term if you don't have -- and

14 this may -- may be too simplistic thinking, if you

15 don't have capacity you can't have energy. And -- and,

16 I mean, the -- that's in -- in many ways the nub of

17 what is at the centre of this case: Should new

18 capacity be built?

19   MR. SVEN HOMBACH: So in terms of then

20 get -- getting back to these two (2) contrasting

21 approaches and taking a new measure and evaluating it,

22 how would the actual analysis of that specific measure

23 be different under Manitoba Hydro's approach and under

24 the IRP approach? If you're still using a modified

25 total research cost test.

5199

 1   MR. RUSS HOULDIN: Okay. I guess --

 2 this is, you know, like new evidence from -- from

 3 Manitoba Hydro. I was basing my comments on the NFAT

 4 Business Plan. So --

 5   MR. SVEN HOMBACH: Perhaps -- if it

 6 makes sense, Mr. --

 7   MR. RUSS HOULDIN: So I -- I guess if -

 8 - where you're going is it might well be the -- using

 9 this -- the modified test, they might -- they might

10 indeed amount to the same thing. I'm...

11   MR. SVEN HOMBACH: If it's something

12 you have to give some further thought to, perhaps I

13 could ask for an undertaking. Just to provide a brief

14 written, high level description on how the actual

15 analysis between those two (2) approaches would be

16 different in practice?

17   MR. RUSS HOULDIN: Yeah. I think that

18 would be quite appropriate, yes.

19   MR. JOHN TODD: Before doing the

20 undertaking, let me add. You're looking for a

21 difference between the two (2). Is it not -- your

22 question is: Is it not just the same thing? And

23 here's -- you know, a -- okay, sorry?

24   MR. SVEN HOMBACH: I'm looking for a

25 description of the actual difference in the analytic

1 approach as a practical matter between using Manitoba

2 Hydro's approach to evaluate DSM and using the

3 Integrated Research Plan approach to evaluate DSM.

4   MR. JOHN TODD: Okay. And what I'd

5 say, you know, the -- the key part to the response, and

6 Russ may say there's more to it than -- than I'm

7 getting, but what we're doing in this process is

8 looking at alternative development plans.

9   If you do IRP, under each scenario you

10 would be looking at what is the economic amount of DSM

11 in various resource planning with those alternative

12 development plans. So to take a simple example, the

13 value of DSM or the -- the benefit of doing some DSM

14 which accumulates over time is going to be greater if

15 your first generating station is fifteen (15) years out

16 than if it's five (5) years out.

17   What the -- this approach does is it

18 takes an analysis using an assumed cost threshold and

19 says, Here's the amount of DSM we're going to do. And

20 that becomes a fixed amount. That DSM plan, if you

21 want, is a fixed amount that you use in all cases. And

22 it's not sensitive to be in interplay with the

23 generation assets that you're looking at.

24   So if you have Keeyask and Conawapa,

25 you'd have a very different DSM plan than if you have

5201

1 all gas.

2   MR. SVEN HOMBACH: So you're saying

3 with IRP you wouldn't assume that you want a fixed

4 level of DSM? You'd analyze how much DSM would be

5 economic to do compared to generation?

6   MR. JOHN TODD: It -- it is you're

7 looking at the DSM as a package, as an alternative

8 generation, and you're adjusting the DSM in response to

9 what generation mix, and therefore the DSM is not a

10 fixed amount.

11   MR. SVEN HOMBACH: Mr. Todd, if

12 acceptable to you and Mr. Houldin, I'd still like the

13 undertaking. I believe it would be helpful to the

14 panel to have a written description of the conceptual

15 difference.

16   MR. RUSS HOULDIN: Yes. Adding -- just

17 -- just to add one more comment. Again, if you go to -

18 - I don't know if you want to flip back to my slide

19 from yesterday -- yeah, there. Thank you. I've got a

20 note over asterisk, "As modified by judgment."

21   So one of the things I'll look at in the

22 undertaking is I don't know if Manitoba Hydro, in its -

23 - let's call it, its new approach, will still be

24 following that approach because it's very clear from

25 Power Smart that they regard all of the metrics as a

5202

1 guideline, and they also look at other benefits, and

2 they also look at qualitative factors.

3   So I'll -- I'll have to see. And so

4 that's -- to me, that's a significant difference

5 between the diagram on the left and the diagram on the

6 right. The diagram on the right, you'd include all of

7 that as -- as part of the criteria for assessing all of

8 the alternatives, whether supply or demand.

9   And it's not clear to me at this -- this

10 moment that -- that that's how Manitoba Hydro intends

11 to proceed. But I -- I see where you're going, and --

12 and it could well be that, analytically, they do amount

13 to the same thing. I -- I --

14   MR. SVEN HOMBACH: So we'll leave it --

15   MR. RUSS HOULDIN: Yeah.

16   MR. SVEN HOMBACH: -- with the

17 undertaking and you'll get to the panel.

18   MR. RUSS HOULDIN: Yes.

19   MR. SVEN HOMBACH: Mr. Chairman, that

20 con --

21   COURT REPORTER: Mr. Hombach, please

22 can we have the undertaking clarified?

23   MR. SVEN HOMBACH: Yes. It is an

24 undertaking to provide a high-level written description

25 as to the practical analytical difference between

5203

1 evaluating a DSM measure based on Manitoba Hydro's

2 approach and based on the Integrated Resource Plan

3 approach.

4   MR. RUSS HOULDIN: Again, this is on

5 the basis of the new information that's in the -- the

6 presentation slides.

7   MR. SVEN HOMBACH: Correct.

8   MR. RUSS HOULDIN: Yeah.

9

10 --- UNDERTAKING NO. 96:   Elenchus to provide high-

11   level written description

12   as to practical analytical

13   difference between

14   evaluating a DSM measure

15   based on Manitoba Hydro's

16   approach versus the

17   Integrated Resource Plan

18   approach based on the new

19   information in the

20   presentation slides.

21

22   MR. SVEN HOMBACH: Okay. Thank you,

23 Mr. Chairman. That concludes my questions. Now, I'm

24 not sure if Manitoba Hydro is requesting to ask any

25 further questions of these witnesses.

5204

1   MS. MARLA BOYD: I -- I believe I'm

2 going to need a minute or two (2) with my clients.

3 They've been looking at PUB Exhibit Number 64, and I

4 may have some questions that come out of it. So

5 perhaps we could stand down for a few minutes so I can

6 have an opportunity to consult with them.

7   Before I do that, Mr. Hacault has asked

8 me to put on the record that MIPUG has requested and

9 Manitoba Hydro has agreed to provide its backup

10 material for Manitoba Hydro Exhibit Number 156. So

11 just so that that's noted on the record. I can do that

12 at this point.

13   THE CHAIRPERSON: Okay. Let's do that,

14 please. Two (2) minutes.

15

16 --- Upon recessing at 12:31 p.m.

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

18

19   THE CHAIRPERSON: I believe that

20 everyone's in position, so I'll turn the microphone

21 over to you, Ms. Boyd.

22   MS. MARLA BOYD: Thank you, Mr. Chair.

23 I'll confess we spent more time waiting for the

24 elevator than we did actually talking about this,

25 but...

5205

1 CONTINUED CROSS-EXAMINATION BY MS. MARLA BOYD:

2   MS. MARLA BOYD: I just have a couple

3 of questions. First off, and so I don't forget, Mr.

4 Todd, in one (1) of your answers to Mr. Hombach you

5 made mention of the fact that you had reviewed Manitoba

6 Hydro's marketing materials.

7   Do you recall that?

8   MR. JOHN TODD: Not exhaustively, to

9 use his term, but yes, I've seen a -- a number of

10 pieces of marketing material including chart price

11 comparison charts.

12   MS. MARLA BOYD: Well, that was

13 precisely my -- my concern, was to want to know what it

14 was that you had reviewed in order to form the

15 conclusion that you didn't think we were doing the kind

16 of marketing you thought was appropriate?

17   MR. JOHN TODD: I don't think I said

18 you weren't doing the kind of marketing that was

19 appropriate. What I was saying was that it is -- what

20 you're doing is different than a gas -- a natural gas

21 utility in another jurisdiction; that is, number one,

22 separate from an electric utility, number two,

23 shareholder owned.

24   MS. MARLA BOYD: And did you review

25 anything other than what marketing material has been

5206

1 filed on the record by Manitoba Hydro?

2   MR. JOHN TODD: Through this process,

3 as you know, there's been extensive debate about the

4 access to materials of the IEC. So yes, we did

5 receive, through private discussion and through -- and

6 as related to those private discussions certain other

7 materials which ultimately have not been on the record,

8 because it was not formal IR responses.

9   MS. MARLA BOYD: Do you mean private

10 discussions with Manitoba Hydro or someone else?

11   MR. JOHN TODD: With Manitoba Hydro.

12 So what -- what else we saw, I -- I have not done a

13 correlation between the materials that we were given

14 access to by Manitoba Hydro and what is officially on

15 the record. But unfortunately, it was not an IR

16 process. So everything received was not part of an IR

17 response, therefore, automatically on the record.

18   MS. MARLA BOYD: Thank you. If I could

19 ask you to turn to Exhibit PUB-64. Maybe we could have

20 that up on the screen, please? You're aware that this

21 is not created by Manitoba Hydro and that Manitoba

22 Hydro has not endorsed the information that's on here?

23   MR. JOHN TODD: Yes, I think that was

24 made clear the -- as we discussed it.

25   MS. MARLA BOYD: And are you also aware

5207

1 that the update in the forecast inputs relates to a

2 revision made by Statistics Canada, which is the

3 subject of some considerable debate in Manitoba?

4   MR. JOHN TODD: I'm not aware of the

5 debate in Manitoba.

6   MS. MARLA BOYD: You're not familiar

7 with the suggestion by Manitoba Bureau of Statistics

8 that the numbers are -- are not correct?

9   MR. JOHN TODD: Oh, act -- yes, I

10 actually have read some stuff around -- around that if

11 that's what you mean by the cons -- considerable

12 discussion.

13   I would -- I would say from -- from my

14 experience, there are issues around population

15 statistics. In my very -- very early days I was doing

16 some econometrics with population statistics and

17 getting some very weird results and it was population

18 in -- I think it was the provinces or in mun --

19 municipalities.

20   Anyway, I -- I discovered that the

21 population estimates between census periods was driven

22 by who was -- who the politicians wanted to steer

23 payments toward, because population drove payments and

24 there was some -- you know, my econometric analysis was

25 completely thrown out the window because in certain

5208

1 areas that were, shall we say favoured, population

2 increased until the next census and then dropped down.

3 In other areas population went up very slowly and then

4 jumped up at the next census.

5   So there is reason to have, I had hope

6 not through Stats Canada, there's always reason to look

7 at population statistics carefully, because it's not

8 based on a direct measure of population. It's based on

9 an estimate and estimates can be wrong. Personally, I

10 have a lot of confidence in Stats Canada, their

11 reliability, but Manitoba obviously has an interest in

12 making sure it's right. Making sure it's favourable.

13 So we do have some conflicting interest there.

14   MS. MARLA BOYD: Thank you. Now, in

15 order to determine its residential customer forecast,

16 Manitoba Hydro looks at two (2) variables. You

17 understand that?

18   MR. JOHN TODD: Yes.

19   MS. MARLA BOYD: And if I take you to

20 page 5 of your evidence, you've actually laid out the

21 formula for us.

22   MR. JOHN TODD: Yes.

23   MS. MARLA BOYD: So we take the

24 Manitoba Hydro population forecast and divide by the

25 number of people per household, correct?

5209

 1   MR. JOHN TODD: Yes.

 2   MS. MARLA BOYD: And if you wanted to

 3 make a calculation of the type that's in PUB Exhibit

 4 64, you'd begin by looking at the change in population

 5 in 2013? Is that fair?

 6   MR. JOHN TODD: Yes. The change in

 7 population is a start, yes.

 8   MS. MARLA BOYD: And as you look at the

 9 numbers, the difference between the red line and the

10 blue line above 2013 -- sorry...

11

12   (BRIEF PAUSE)

13

14   MS. MARLA BOYD: If you look at the

15 difference between the red line and the blue line,

16 there's a reduction of about seventeen thousand

17 (17,000) in population in the 2013 area, would you

18 agree with me?

19   MR. JOHN TODD: Yes.

20   MS. MARLA BOYD: And that drop is going

21 to cause us to recalculate the number of people per

22 household, isn't it?

23   MR. JOHN TODD: I would say may, not

24 will.

25   MS. MARLA BOYD: So if you look at page

5210

1 6 of your evidence, sorry to bounce around, that's

2 where you've laid out the calculation that's been done

3 to-date? A little further down the page, please.

4   And that's where we get the 2012 people

5 per household of two point seven nine (2.79)? Do you

6 see that?

7   MR. JOHN TODD: Yes.

8   MS. MARLA BOYD: Not two point seven

9 seven (2.77) as is on the PUB Exhibit 64 but two point

10 seven nine (2.79)?

11   MR. JOHN TODD: Yes.

12   MS. MARLA BOYD: And would you accept

13 that if you recalculate those numbers based on the

14 updated blue line that that number now becomes

15 something in the order of two point seven three (2.73)

16 people per household?

17

18   (BRIEF PAUSE)

19

20   MR. JOHN TODD: You're -- okay, so

21 you're changing the 2012 Manitoba population per

22 residential customer. Can we flip back to -- okay, so

23 that -- yes, so that -- the update is the update in the

24 2012 population number, right?

25   MS. MARLA BOYD: Sorry, can we go back

5211

1 to the other PUB Exhibit 64? Yeah, so we know the

2 number of households because that comes from our

3 billing system. So you take the population and divide

4 by number of customers, I believe it's called, or

5 households to arrive at the new number. Rather than

6 two point seven nine (2.79) people per household it

7 will be approximately two point seven three (2.73)

8 people per household based on the --

9   MR. JOHN TODD: So --

10   MS. MARLA BOYD: -- population.

11   MR. JOHN TODD: -- okay. What you're

12 saying is that -- this chart as -- as I read it starts

13 in 2013. You're saying the 2012 population number is

14 changed, as well?

15   MS. MARLA BOYD: No, I'm saying if you

16 take the 2013 blue line --

17   MR. JOHN TODD: Yes.

18   MS. MARLA BOYD: -- and divide by the

19 number of customers in the billing system you will

20 establish two point seven three (2.73) customers --

21 people per household. Customers.

22   MR. JOHN TODD: For 2013 it will be

23 different. The other chart, I think, was 2012.

24   MS. MARLA BOYD: Was 2012, yes.

25   MR. JOHN TODD: And which was the two

5212

1 point seven nine (2.79). We didn't have 2013, the

2 chart, but --

3   MS. MARLA BOYD: Right.

4   MR. JOHN TODD: -- the concept --

5   MS. MARLA BOYD: Yeah.

6   MR. JOHN TODD: -- if you change the

7 population and keep the number of households the same,

8 yes, you'll get a different ratio.

9   MS. MARLA BOYD: So then when you move

10 to the other end of this graph, to the right-hand side

11 of the page, and you look at the change in the forecast

12 and divide by your new population per customer, the two

13 point seven three (2.73), you'll get a number other

14 than the eleven seven forty-six (11,746) that's there,

15 correct?

16   MR. JOHN TODD: If you assume the two

17 point seven three (2.73) throughout. I mean, here

18 we're having fun with figures --

19   MS. MARLA BOYD: Some of us are having

20 more fun than others.

21   MR. JOHN TODD: We're all trying to

22 make a point, right.

23   MS. MARLA BOYD: Right.

24   MR. JOHN TODD: So, yes. If -- if the

25 population numbers change and the number of households

5213

1 doesn't, you're going to -- and the demand per

2 household is the same, you're going to have the same

3 number in the end.

4   MS. MARLA BOYD: And to --

5   MR. JOHN TODD: There's a lot of 'ifs'

6 there.

7   MS. MARLA BOYD: -- to do the

8 residential customer forecast that's exactly what we

9 need to do. We need to take the population forecast,

10 divide by the number of people per household in order

11 to establish the number of customers we expect we'll

12 have in the future.

13   MR. JOHN TODD: You change one (1)

14 variable and potentially the other variables change as

15 well. Like the number of people per household. So I -

16 - and when -- when you put that into projection, I

17 haven't looked at all the different moving parts, so I

18 think it's -- it's overly simplistic. You just say,

19 It's a wash.

20   MS. MARLA BOYD: Oh, I'm not suggesting

21 it's a wash.

22   MR. JOHN TODD: Okay. Well, that's --

23 that's what the initial statement was. If you take the

24 -- reduce the population and have the same number of

25 households and you -- and you -- you still -- and you

5214

1 know how many customers there are, you're going to --

2 it's going to be a wash because you've got the same

3 number of customers. And if you got the same demand

4 for customer, it'll be the same demand.

5   So the implication of that is there's no

6 change when you change the population because it

7 cancels out. And I'm saying there are other moving

8 parts, so you can't conclude that. But I do agree it's

9 a complexity as a result of the change in population.

10

11   (BRIEF PAUSE)

12

13   MS. MARLA BOYD: If we determine from

14 our data that the number of people per household in

15 2013 is lower, it's two point seven three (2.73), that

16 will have an impact on the far end of the forecast,

17 correct?

18

19   (BRIEF PAUSE)

20

21   MR. JOHN TODD: It may if the forecast

22 is dependent upon that one (1) data point, but it's not

23 driven by one (1) data point. I mean, you go -- if you

24 go back to the charts on people per household you're

25 looking at a broader trend line. It's not -- you know,

5215

 1 it's not determined by one (1) data point. If you

 2 change one (1) data point it doesn't change the

 3 forecast, cancel things out.

 4   Yes, it will change things. I agree.

 5 I'm saying that it means you change the population, you

 6 change the people per household, you want to look at it

 7 again. All I'm saying is, number 1, it's a stretch to

 8 say it cancels out, and you're saying you're not

 9 suggesting that. It will change. How much it will

10 change and how much it changes the forecast twenty (20)

11 years hence I can't say at this point.

12   MS. MARLA BOYD: If you accept that

13 Stats Canada's numbers are correct and they -- they

14 have reduced our population in 2013 by seventeen

15 thousand (17,000), then you need to recalculate in

16 accordance with the formula that you've set out in your

17 evidence on page 5 to take the population forecast,

18 divide by the number of people per household, to arrive

19 at the residential customer forecast, correct?

20   MR. JOHN TODD: Yes.

21   MS. MARLA BOYD: And if the updated

22 data shows that the -- shows us that the people per

23 household is two point seven three (2.73) and you move

24 that to the far end of the forecast, that will mean

25 that you have a different number of customers?

5216

1   MR. JOHN TODD: Let's go to where we

2 can agree to try to resolve this. The calculation

3 contained in the item we're looking at on the screen is

4 as simplistic as saying it's a wash. You have to

5 update your projection of the population per cust -- or

6 the population per household, or people per household,

7 as well, and, in effect, redo your projection on that

8 basis.

9   This assumes the two point seven seven

10 (2.77) doesn't change, and it may.

11   MS. MARLA BOYD: And, in fact, the --

12   MR. JOHN TODD: So you're suggesting

13 that it prob -- it probably would. If you -- your

14 starting point changes you'd probably end up with a

15 change, and I'll agree with that.

16   MS. MARLA BOYD: And if you assume with

17 me that the two point seven nine (2.79) becomes two

18 point seven three (2.73), that will have very little

19 affect on the number of customers at the end of the day

20 of you look at 2034, correct?

21   MR. JOHN TODD: And I cannot agree that

22 that change that you're putting -- that you're posing

23 to me in terms of the number of people per household

24 for the next twenty (20) years is correct. I can agree

25 that that would be correct for 2012. That does not

5217

1 speak to what the projection is.

2   And if we go back to the people per

3 household trends we'd have to re-look at that given the

4 historic trend and where it's going to go and -- and

5 what do we -- do we think that based on that one (1)

6 change in data point do we actually believe that the

7 project of people per household is going to change.

8   It also says is Stats Canada wrong and

9 is your government right, in which case, the population

10 should be changed, or at least by not so much.

11   MS. MARLA BOYD: And I think what you

12 were agreeing with me on was that this depiction in

13 PUB-64 is as simplistic as the suggestion that I'm

14 making to you, that the number will be insignificant?

15   MR. JOHN TODD: Yes.

16   MS. MARLA BOYD: So when you suggested

17 to Mr. Hombach that in fact this would change the NFAT

18 analysis, you don't know that for sure? That's only

19 based on this simplistic assumption of one (1)

20 variable, correct?

21   MR. JOHN TODD: Yes.

22   MS. MARLA BOYD: Thank you. And thank

23 you. I have nothing further.

24   THE CHAIRPERSON: Thank you. I don't

25 know if there's any other business to attend to.

5218

1   MS. MARLA BOYD: I have one (1)

2 question I could pose to the panel if I can be so bold.

3 There has been some discussion of a change in the

4 hearing times on Monday. And that will have impacts

5 for some of the Manitoba Hydro staff. So if the Board

6 would care to put its -- its thoughts in respect of the

7 hearing day on Monday on the record, that would be

8 helpful to us.

9   MR. SVEN HOMBACH: And, Ms. Boyd, the -

10 - the Board is still deliberating on that issue. We're

11 trying to see what accommodations, if any, can be made.

12 So we'll advise shortly and hopefully tomorrow we can

13 go on the record.

14   Mr. Chairman, just for the benefits of

15 the members of the public, there isn't a CSI session

16 for this particular witness panel. So that concludes

17 the testimony of Elenchus for today.

18   THE CHAIRPERSON: So with that, I think

19 that we've finish the business for today. So I would

20 like to thank the two (2) witnesses, Mr. Todd, Mr. --

21 I'm drawing a blank all of a sudden.

22   MR. RUSS HOULDIN: Houldin, yes.

23   THE CHAIRPERSON: Houldin, yes. Thank

24 you. I'd like to thank you for the -- the work you've

25 done so far and the work you are -- you are likely to

5219

1 do after you leave here today. So -- and I want to

2 wish you a safe trip back to wherever destination you

3 are going -- are going to.

4   And so with that, thank you very much.

5

6   (PANEL STANDS DOWN)

7

8 --- Upon adjourning at 1:02 p.m.

9

10

11

12

13 Certified Correct,

14

15

16 _____

17 Cheryl Lavigne, Ms.

18

19

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