



“When You Talk - We Listen!”



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
March 13, 2014
Pages 2164 to 2439

	APPEARANCES	
1		
2	Bob Peters) Board Counsel
3	Sven Hombach	
4		
5	Patti Ramage) Manitoba Hydro
6	Marla Boyd	
7		
8	Byron Williams) CAC
9		
10	William Gange) GAC
11	Peter Miller)
12		
13	Antoine Hacault) MIPUG
14		
15	George Orle) MKO
16	Michael Anderson (np))
17		
18	Jessica Saunders) MMF
19	Corey Shefman)
20		
21	Christian Monnin) IEC
22	Michael Weinstein)
23		
24		
25		

1	TABLE OF CONTENTS	
2		Page No.
3	List Exhibits	2167
4	List of Undertakings	2168
5		
6	MANITOBA HYDRO PANEL 4 CONTINUED:	
7	ADAM BORISON, Previously Sworn	
8	DAVE BOWEN, Previously Sworn	
9	DAVID CORMIE, Previously Sworn	
10	JOANNE FLYNN, Previously Sworn	
11	BILL HAMLIN, Previously Sworn	
12	TERRY MILES, Previously Sworn	
13	DAVID JACOBSON, Previously Sworn	
14	DEAN MURPHY, Previously Sworn	
15	IAN PAGE, Previously Sworn	
16	ED WOJCZYNSKI, Previously Sworn	
17		
18	Continued Cross-examination	
19	by Mr. Byron Williams	2179
20	Continued Cross-examination	
21	by Mr. Antoine Hacault	2387
22		
23	Certificate of Transcript	2439
24		
25		

1	LIST OF EXHIBITS		
2	EXHIBIT NO.	DESCRIPTION	PAGE NO.
3	MH-104-2	Update of economic uncertainty	
4		analysis	2170
5	CAC-45-3	CAC book of documents	2204
6	MIPUG-20-4	MIPUG book of documents	2387
7	MH-108	Response to Undertaking 12	2436
8	MH-109	Response to Undertaking 34	2437
9	MH-92-3	CVs for Manitoba Hydro Panel 5	2439
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

1	LIST OF UNDERTAKINGS		
2	NO.	DESCRIPTION	PAGE NO.
3	42	Manitoba Hydro to provide, with	
4		regard to the slide 88 of Hydro	
5		Exhibit 99 and the Great Northern	
6		Transmission line portion, the	
7		derivation of the capital cost	
8		estimates in 2014 dollars set out	
9		for the second-last column, as	
10		well the ongoing O&M calculation	
11		set out in 2014 dollars of the	
12		last column	2289

13
14
15
16
17
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19
20
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1 --- Upon commencing at 9:00 a.m.

2

3 THE CHAIRPERSON: Good morning. I
4 think we're ready to -- to resume the proceedings.
5 Good morning, everyone. I hope that you had a good
6 evening last night. I will turn the microphone over to
7 Messr. Hombach.

8 MR. SVEN HOMBACH: Thank you and good
9 morning, Mr. Chair, members of the panel. I would have
10 said bonjour, but I made a promise not to speak any
11 further French for the court reporter.

12 I'm advised by Ms. Ramage that Manitoba
13 Hydro needs to speak to an exhibit first, so I suggest
14 we turn the microphone over to Ms. Ramage. After that,
15 it will be Mr. Williams's turn to cross-examine the
16 panel.

17 THE CHAIRPERSON: Good morning, Ms.
18 Ramage.

19 MS. PATTI RAMAGE: Good morning and
20 bonjour. I have now exhausted my vocabulary. We have
21 one (1) exhibit to file this morning. This is part of
22 the continuing package of the update of the economic
23 uncertainty analysis. So this exhibit is number 104-2
24 as part of that package.

25 And that's all we have to file this

1 morning. I believe our panel will be able to speak to
2 it throughout the morning. There isn't anything
3 required off the -- at the top of the day.

4

5 --- EXHIBIT NO. MH-104-2: Update of economic
6 uncertainty analysis

7

8 MS. PATTI RAMAGE: Ms. Flynn actually
9 is indicating that it might be useful to explain it.

10

11 MANITOBA HYDRO PANEL 4 CONTINUED:

12 ADAM BORISON, Previously Sworn

13 DAVE BOWEN, Previously Sworn

14 DAVID CORMIE, Previously Sworn

15 JOANNE FLYNN, Previously Sworn

16 BILL HAMLIN, Previously Sworn

17 TERRY MILES, Previously Sworn

18 DAVID JACOBSON, Previously Sworn

19 DEAN MURPHY, Previously Sworn

20 IAN PAGE, Previously Sworn

21 ED WOJCZYNSKI, Previously Sworn

22

23 MS. JOANNE FLYNN: This exhibit
24 focusses on the economic uncertainty analysis results
25 that were provided in the direct evidence, so with the

1 updated capital costs. And the -- and the -- it's the
2 probabilistic part of it.

3 So the first page of the exhibit
4 explains the change in the probability associated with
5 capital cost or provides that, and the second page is
6 the same quilt that you saw in the direct evidence,
7 followed by the table with the expected value. And it
8 also includes a set of S-curves that I did not explain
9 in the direct evidence but was included in the direct
10 evidence.

11 Following that is an explanation,
12 because what we did is we did also update the treatment
13 of one of the costs in the analysis. So -- and it's
14 the treatment of what we've called the 'common costs'.
15 And this is where, under economic analysis, we are --
16 we are trying to do an incremental analysis to compare
17 the -- the two (2) plans, and therefore the common
18 costs are intended to be eliminated.

19 And what we've done is we've refined our
20 -- our treatment of those common costs to extract more
21 of them out of the analysis to make it a refined
22 version of the analysis. So what the following pages
23 do is they show you what was in the original analysis
24 in Chapter 10.

25 So there's the quilt and the expected

1 value and the S-curve from the original Chapter 10 work
2 with no changes to capital costs because what we're
3 going to do is just do a straight comparison so you can
4 see the effect of that revision in the treatment of the
5 common costs.

6 So then the next pages then show you
7 what just the effect of that change in treatment is by
8 using the same chap -- Chapter 10 assumptions on
9 capital costs and everything else, and only changing
10 the treatment in costs. And that's what the following
11 -- the following pages show.

12 And what I will say about that, it
13 really is a refinement. The expected values don't
14 change with the -- the relative expected values do not
15 change with this change in the treatment. The
16 ref/ref/ref does not change with this treatment. It is
17 the -- it is the shape of the S-curves that will change
18 slightly.

19 So the reason we thought it would be
20 worthwhile to do this is because doing this does reduce
21 the risk in all the development plans except the
22 Preferred Development Plan; the downside risk is --
23 appears lesser in the -- in the S-curves but does not
24 change the overall expected value.

25 And the other thing I can state is that

1 the conclusions from Chapter 10, the overall
2 conclusions in terms of the preferences associated with
3 the development plans, none of those change either. So
4 it's -- it's an improvement. It's a refinement to the
5 -- to the treatment of it, but the effect is -- is
6 relatively minor overall.

7

8 (BRIEF PAUSE)

9

10 DR. HUGH GRANT: I'm just curious, it's
11 a small point on page 2, line 5, is -- is that stated
12 correctly?

13 "The fundamental choice on an
14 economic basis is between Plans 5 and
15 14, assuming Plan 4 is a feasible
16 option."

17 Or not a feasible? Okay.

18 MS. JOANNE FLYNN: That should say, "Is
19 not a feasible plan." It happens when you rush.

20

21 (BRIEF PAUSE)

22

23 MR. ED WOJCZYNSKI: Someone has sharp
24 eyes.

25 DR. HUGH GRANT: That'll be my

1 contribution to the panel, one (1) word.

2

3 (BRIEF PAUSE)

4

5 DR. HUGH GRANT: While we're on the
6 topic, I did -- I did let slide a typo in the exhibit
7 circulated yesterday, and it's actually survived two
8 (2) drafts of this. It's the water rental and cap --
9 well, cap -- capital tax, which -- I'm not going to go
10 there.

11 MS. PATTI RAMAGE: It is comforting to
12 know someone's reading this.

13 MR. DAVID CORMIE: Mr. Chairman, I -- I
14 wanted to correct the -- the record of late last
15 afternoon as Mr. Gange and I were having a discussion.
16 And -- and if you read the record, on page 2,011 --
17 2,111, on line 3 it says:

18 "Without having Conawapa
19 me speaking] there's -- there's --
20 it's difficult to justify the large
21 interconnection."

22 And I just wanted to add the things that
23 I should have added at that time.

24 If we can proceed with the committed
25 export sales to Wisconsin with just Keeyask in

1 combination with other resources, like a commitment to
2 enhance DSM, the large interconnection still remains
3 justified in that -- in that situation.

4 And then if we are successful with
5 Northern States Power in -- in rolling over the
6 existing fi -- or the -- the new 500 megawatt sale
7 agreement to them in 2025, and we enter into a -- a new
8 large sale to Great River and to Saskatchewan that are
9 dependent on Conawapa having the interconnection
10 already committed to will make those deliveries of that
11 -- of that power possible.

12 So I -- you know, as -- as the record
13 stands it says, Well, you don't -- you don't really
14 have a choice with regard to the interconnection unless
15 you build Conawapa. But our Pathway approach allows
16 us, having committed to making the commitment to the
17 big line and assuming that we can serve the committed
18 sales with Keeyask, allows that upside to occur,
19 because you've already made the commitment to -- to the
20 line.

21 So I just wanted to add to the record
22 there. And if you were confused, I apologize for that.

23 THE CHAIRPERSON: We were taken aback,
24 not confused.

25 MR. DAVID CORMIE: My planning

1 colleagues were taken aback as well, so. I -- I was
2 jumped on this morning when I got to the office.

3

4 (BRIEF PAUSE)

5

6 MR. DAVID CORMIE: And I think my
7 president was taken aback as well.

8

THE CHAIRPERSON: Well, thank you for
9 that clarification. I don't believe the panel has any
10 more questions of Ms. Flynn, so I will now turn the
11 microphone over to Mr. Williams, assuming that...

12

13 (BRIEF PAUSE)

14

15 MR. BYRON WILLIAMS: Good morning,
16 members of the panel. And bonjour to you, Ms. Ramage.
17 I'm going to expend my vocabulary right here, comment
18 ca va.

19

MS. PATTI RAMAGE: Hyvaa paivaa, M.
20 Williams. That was Finnish. Just showing my cultural
21 side.

22

MR. BYRON WILLIAMS: Before embarking
23 upon our -- our cross-examination, I have a few
24 comments on -- on behalf of our client that relate to
25 some of the events of the last couple of weeks. So I

1 just want to share those, and My Friend Mr. Hacault may
2 have some this afternoon. We -- we shall see.

3 First of all, just on behalf of CAC
4 (Manitoba) the -- we wanted to thank the PUB advisors
5 and Mr. Peters. Despite his shots at me for being a
6 farm boy, he did a really phenomenal job of -- of
7 dealing with some new information at the start of this
8 week, which I think has materially reduced our -- our
9 cross-examination time. So we thank him for that.

10 As we embark on this panel, we note that
11 there's still a lot of material relevant to this panel
12 that is -- is, to our knowledge, has not yet been
13 filed, at least with the Intervenor. We -- we still
14 await material from the IEC La Capra.

15 I believe that there is some additional
16 information that Ms. Flynn may be providing later today
17 in terms of Plan 2, and the -- and the expected -- some
18 -- some of the additional analysis that would be ready
19 -- ready this week. So we -- we think that is waiting
20 as well.

21 And, certainly, we have what was just
22 filed today, which I'll -- I'll ask a few questions on,
23 but we may need at least the lunch hour to review more
24 carefully. I would note as well that there have been
25 some pre-asks submitted on behalf of CAC (Manitoba) and

1 -- and our -- our friends at MIPUG, which ho -- we
2 expect Manitoba Hydro to -- we hope that they'll be
3 able to assist us with. But those are -- are still
4 pending.

5 And so there's a fair bit of material
6 that's still in play that we -- we have not yet
7 received. And I certainly don't condemn Manitoba Hydro
8 for the pre-asks, because we just asked them, I think,
9 yesterday. So -- but I'm just saying that relevant to
10 this new information.

11 And -- and just by way of summary, Mr.
12 Chair and -- and members of the panel, obviously we had
13 a lot of developments in Hydro's rebuttal evidence
14 related to the -- the DSM alternatives and the very
15 material eppt -- effect on load, as well as need dates,
16 as well as very substantial information provided on
17 Monday in terms of capital estimates and the impacts
18 upon -- upon the Preferred Plan and -- and the other
19 plans.

20 So I -- I just want to note that that
21 additional work and -- and brand new information will
22 necessitate a fair bit of work for our advisors. We're
23 hoping that we can do it within the time frames coming
24 up for the filing of their evidence. But it will also
25 necessitate additional costs. Right now, last I

1 checked, we're still on budget, but this is -- this is
2 material new information that we will try to respond
3 to, but -- but may have some budget implications.

4 And I guess as -- as our client has
5 reflected upon, the very material amount of new
6 evidence and significant evidence filed within the last
7 two (2) or three (3) weeks, it does reenforce for our
8 client some questions about the pace of this hearing
9 and -- and whether the public interest is being well
10 served by trying to cram this advisory process into
11 very challenging deadlines.

12 I have no further comments on that point
13 right now, but I may have some additional comments once
14 I can consult with our client. And I should note that
15 Ms. Desorcy is here today. I think she's in my third
16 back row. I hope she is. She is.

17 With that -- and I'm getting some
18 feedback and I'm not sure -- am I too close?

19

20 (BRIEF PAUSE)

21

22 CONTINUED CROSS-EXAMINATION BY MR. BYRON WILLIAMS:

23 MR. BYRON WILLIAMS: We'll try that and
24 maybe leaning a little bit less. Ms. Flynn, just -- I
25 may have some more questions for you after lunch in

1 terms of Exhibit 104-2, which was just filed this
2 morning.

3 But the -- the high spots in terms of my
4 quick review of this document, if we look at the bottom
5 of page 1, up just -- yeah, up just a little bit more.
6 I think what you're telling us is that in terms of
7 expected values, it is Plan 4 that has the highest
8 expected value, in -- in terms of your analysis.

9 Is that correct?

10 MS. JOANNE FLYNN: Yes, that's what the
11 analysis shows.

12 MR. BYRON WILLIAMS: And if we flip to
13 the next page, page 2 of 7, we'll see that at the
14 bottom?

15 MS. JOANNE FLYNN: Yes, you'll see it
16 in the table.

17 MR. BYRON WILLIAMS: Yeah. So that's
18 page 2. And the expected value is in -- in the third -
19 - I guess the fourth column over, the seahun -- 651
20 million.

21 Is that correct, Ms. Flynn?

22 MS. JOANNE FLYNN: That is correct for
23 Plan 4.

24 MR. BYRON WILLIAMS: And then number 2
25 is Plan 5 at 450 million, correct?

1 MS. JOANNE FLYNN: Yes, that is
2 correct.

3 MR. BYRON WILLIAMS: And one (1) of the
4 conclusions from your probabilistic analysis, which
5 you've updated, is that while all plans have some down
6 side risk, Plans 4 and 5 have the least downside
7 risk.

8 Would that be correct?

9

10 (BRIEF PAUSE)

11

12 MR. BYRON WILLIAMS: You actually make
13 that conclusion just up a little higher on this page,
14 Ms. Flynn.

15 MS. JOANNE FLYNN: Yeah. Yes, that
16 would be the case.

17 MR. BYRON WILLIAMS: And we may just
18 have lost the question, so just, Ms. Flynn, I'll repeat
19 it.

20 I'm suggesting to you that while all
21 plans have some downside risk, the plans with the least
22 downside risk in the conclusion of Manitoba Hydro are
23 Plans 4 and 5, agreed?

24 MS. JOANNE FLYNN: Yes.

25 MR. BYRON WILLIAMS: Now, if we flip to

1 tab -- or page 5 of this document...

2 MR. KURT SIMONSEN: Five (5)?

3 MR. BYRON WILLIAMS: Page 5 of 7, yes,
4 Mr. Simonsen. Ms. Flynn, just so I understand, one of
5 the activities you've undertaken in your analysis is to
6 amend the treatment of cost -- some common costs for
7 the S-curve analysis, would that be fair, the
8 inclusion?

9 MS. JOANNE FLYNN: It's -- it's to
10 amend the treatment of the common costs for the
11 probabilistic analysis.

12 MR. BYRON WILLIAMS: And what we see
13 here on page 5 of 7 is an excerpt from your original
14 filing, Chapter 10, agreed?

15 MS. JOANNE FLYNN: Yes, it is.

16 MR. BYRON WILLIAMS: And I'm going off
17 of memory, but that looks a lot like Table 10.6 at the
18 top of the page.

19 Would you accept that, subject to check?

20 MS. JOANNE FLYNN: It should be the
21 same table, if that's the correct table number.

22 MR. BYRON WILLIAMS: Okay. And if I
23 look at this document, I will see in -- All Gas is --
24 that's the blue line in terms of the -- the S-curves
25 that you pre -- presented here.

1 Is that correct?

2 MS. JOANNE FLYNN: Yes, it is.

3 MR. BYRON WILLIAMS: And on your
4 original analysis, we see the...

5

6 (BRIEF PAUSE)

7

8 MR. BYRON WILLIAMS: I'm going to try
9 that again. Are you still having a problem?

10

11 (BRIEF PAUSE)

12

13 THE CHAIRPERSON: Mr. Chair, does this
14 come out of my time?

15 THE CHAIRPERSON: It comes out of our
16 lunch time, Mr. Williams.

17

18 (BRIEF PAUSE)

19

20 CONTINUED BY MR. BYRON WILLIAMS:

21 MR. BYRON WILLIAMS: Sorry, Ms. Flynn.

22 And I think Mr. Hacault has solved my technical
23 challenges. The blue -- in -- in terms of the S-curve
24 -- the blue S-curve is the All Gas scenario.

25 Is that correct?

1 MS. JOANNE FLYNN: Yes, it is.

2 MR. BYRON WILLIAMS: And if we go to
3 the -- to the downside analysis, we'll see that at --
4 at about the 10 percent probability it's -- it's
5 somewhere above \$3 billion.

6 Would that be fair? At 10 percent.

7 MS. JOANNE FLYNN: Yes.

8 MR. BYRON WILLIAMS: Three point five
9 (3.5), in fact?

10 MS. JOANNE FLYNN: Yes.

11 MR. BYRON WILLIAMS: And as we go, we
12 see that it extends as far as \$6 billion in the
13 analysis pre -- presented in -- in Chapter 10, agreed?

14 MS. JOANNE FLYNN: That's correct,
15 yeah.

16 MR. BYRON WILLIAMS: And if we look to
17 the -- the Plan 5 analysis, which is -- that's the
18 brown -- brown line, agreed?

19 MS. JOANNE FLYNN: Yes.

20 MR. BYRON WILLIAMS: Now, just so I'm
21 clear, that would -- the analysis that's presented here
22 would -- would included -- in Chapter 10 would have
23 included an anticipated investment by WPS in
24 transmission?

25 MS. JOANNE FLYNN: That's correct.

1 MR. BYRON WILLIAMS: Okay. And that
2 is now off the table, is that right?

3 MS. JOANNE FLYNN: That's right, and
4 that was reflected in the revision, yes.

5 MR. BYRON WILLIAMS: Okay. So if we
6 look at Plan 5 in the brown, we see at the 10th
7 percentile it's at a bit over 800 million, correct?

8 MS. JOANNE FLYNN: That's right.

9 MR. BYRON WILLIAMS: And it extends
10 past \$2 billion towards the bottom.

11 Is that correct?

12 MS. JOANNE FLYNN: Yes, it does.

13 MR. BYRON WILLIAMS: And then what
14 you've done on page 7 is revised the analysis, the
15 probabilistic analysis, to exclude certain common
16 costs?

17 MS. JOANNE FLYNN: It's just -- it
18 doesn't ex -- it has the effect, I guess, of excluding
19 them, but it changes the treatment in order to allow
20 them to be treated equitably.

21 MR. BYRON WILLIAMS: Okay. And what
22 you've concluded when you did so is that, leaving aside
23 Plan 14, the Hydro plan, the downside risk for the
24 other plans was reduced, agreed?

25 MS. JOANNE FLYNN: Yes. Yes.

1 MR. BYRON WILLIAMS: And we can see an
2 illustrative example of that if we take, again, the
3 brown line -- excuse me, the blue line, which is the
4 All Gas line. In -- in this revised analysis, at the
5 10th percentile, it is at a bit over \$1 billion.

6 Is that correct?

7 MS. JOANNE FLYNN: Yes, it is.

8 MR. BYRON WILLIAMS: And in your
9 previous analysis, it would have been in excess of \$3.5
10 billion, agreed?

11 MS. JOANNE FLYNN: Yes.

12 MR. BYRON WILLIAMS: And we can see
13 that as well with the -- the Plan 5 analysis, where, at
14 the 10th percentile, it's at -- in your revised
15 analysis, it's -- it's at about 300 million, agreed?

16 MS. JOANNE FLYNN: Yes.

17 MR. BYRON WILLIAMS: And when you did
18 that analysis in your original business case, it was in
19 excess of 800 million, correct, at the 10th percentile,
20 Ms. Flynn?

21 MS. JOANNE FLYNN: Yes.

22 MR. BYRON WILLIAMS: And am I correct
23 in suggesting to you that the one (1) plan that has
24 suffered under this revised analysis is the Hydro Plan,
25 in terms of downside risk?

1 MS. JOANNE FLYNN: Only in terms of
2 downside risk because you'll see then in terms of the
3 upside risk -- or upside potential, the 90th
4 percentile, it --

5 MR. BYRON WILLIAMS: Fair enough.

6 MS. JOANNE FLYNN: -- it increases.
7 And in terms of downside risk, it -- in and of itself,
8 it has decreased between the two (2) plans. It's just
9 that the other plans have decreased more. And I -- I
10 would remind you that, overall, all of these points are
11 considered in the expected value, and the relative
12 expected value has not changed.

13 MR. BYRON WILLIAMS: And just -- and --
14 and I take your point about going up to the 90th
15 percentile. Just in terms of the 10th percentile, in
16 this plan, in -- in the revised analysis, Hydro's
17 Preferred Plan, of Plan 14, at the 10th percentile is
18 almost \$2 billion, right, agreed?

19 MS. JOANNE FLYNN: Which -- which
20 analysis are you talking about here?

21 MR. BYRON WILLIAMS: I'm talking about
22 page 7.

23 MS. JOANNE FLYNN: Page 7? Okay.

24 MR. BYRON WILLIAMS: So in your revised
25 analysis at the 10th percentile, it's at almost \$2

1 billion, agreed?

2 MS. JOANNE FLYNN: Yes.

3 MR. BYRON WILLIAMS: Whereas in the
4 original analysis at the 10th percentile, the Hydro
5 Plan, being Plan 14, was at about 1.5 billion at the
6 10th percentile?

7 MS. JOANNE FLYNN: Yes.

8 MR. BYRON WILLIAMS: So in terms of the
9 10th percentile, the downside risks for Manitoba
10 Hydro's Preferred Plan under -- under this revised
11 analysis has actually worsened somewhat, agreed?

12 MS. JOANNE FLYNN: Yes, it has. That's
13 correct.

14 MR. BYRON WILLIAMS: I've not had a
15 chance to really look at this, so I -- I may come back
16 to that later today. I'll ask Ms. Menzies to -- to
17 remind me.

18 MR. ED WOJCZYNSKI: A small comment on
19 page 6. We -- we appreciate, Mr. Williams, going
20 through this explanation because it -- this is
21 important information. And -- and I think the last
22 sentence on page 6 in the paragraph was trying to
23 communicate the same thing about the downside risk
24 going down for all of them except the Preferred Plan.
25 But Mr. Williams nicely walked us through that.

1 MR. BYRON WILLIAMS: Thanks, Mr.
2 Wojczynski -- Wojczynski. Compliments from you are
3 always appreciated.

4 Now, just be -- I'm not going to have
5 many questions for Mr. Hamlin, but I do have a -- a
6 few. And -- and none of them are about his university
7 days. I just want to assure him of that.

8 MR. BILL HAMLIN: I'm -- I'm glad for
9 that confirmation.

10 MR. BYRON WILLIAMS: Mr. Hamlin, am --
11 am I correct in suggesting to you that way back in
12 2007, there was a Midwest Regional Greenhouse Gas
13 Reduction Accord reached?

14 Does that ring a bell, sir?

15 MR. BILL HAMLIN: I -- I'm sorry, I'm
16 having problems with the audio feed. Could you repeat
17 the...

18 MR. BYRON WILLIAMS: Yes, and I
19 apologize, Mr. Hamlin. I'm suggesting to you that if
20 you reach into your memory banks and go way back to
21 2007, there was a midhouse -- Midwest Regional
22 Greenhouse Gas Accord reached.

23 Is that -- does that ring a bell, sir.

24 MR. BILL HAMLIN: Yes, it does.

25 MR. BYRON WILLIAMS: And in 2007, the

1 governors of six (6) states -- being Illinois, Iowa,
2 Kansas, Michigan, Minnesota, and Wisconsin -- plus the
3 Province of Manitoba signed on to the Midwest Regional
4 Greenhouse Reduction Accord, agreed?

5 MR. BILL HAMLIN: Correct.

6 MR. BYRON WILLIAMS: And I'm going to
7 use the acronym MGGRA.

8 Is that fine with you, Mr. Hamlin?

9 MR. BILL HAMLIN: Sure.

10 MR. BYRON WILLIAMS: And -- and the
11 MGGRA was a commitment to reduce greenhouse gases
12 through a regional cap and trade program and other
13 complementary policy measures.

14 Is that -- do you recall that, sir?

15 MR. BILL HAMLIN: That's sounds
16 correct.

17 MR. BYRON WILLIAMS: And as I
18 understand it, the accord committed participating
19 jurisdictions to establish a GHG reduction program.

20 Does that ring a bell, sir?

21 MR. BILL HAMLIN: I -- I am not sure it
22 committed them.

23 MR. BYRON WILLIAMS: Fair enough. And
24 that's fair, Mr. Hamlin. Let me try and rephrase --
25 rephrase the question.

1 As part of -- the intent of the accord
2 was for members to set regional GHG, greenhouse gas,
3 emission reductions target -- targets and develop a
4 multi-sector cap and trade system and complementary
5 policies to help achieve these targets, agreed?

6 MR. BILL HAMLIN: That was the
7 objective, to pur -- pursue and investigate that
8 opportunity.

9 MR. BYRON WILLIAMS: And would I be
10 correct in suggesting to you, Mr. Hamlin, that while
11 this accord has not been formally suspended,
12 participating states are no longer pursuing it?

13 Would that be fair?

14 MR. BILL HAMLIN: That's correct.

15

16 (BRIEF PAUSE)

17

18 MR. BYRON WILLIAMS: Mr. Hamlin, just a
19 couple more questions for you. I asked a similar
20 question to your CEO, Mr. Thomson.

21 But you're the -- I'm going to shorthand
22 it -- the GHG guy for Manitoba Hydro? You're the --
23 you're the expert?

24 MR. BILL HAMLIN: I suppose so.

25 MR. BYRON WILLIAMS: And -- and just to

1 clarify what you're -- you're not an expert in, you're
2 not able to comment on habitat fragmentation or
3 degradation related to the -- the riverine systems?

4 MR. BILL HAMLIN: That's correct.

5 MR. BYRON WILLIAMS: And you're not a
6 stu -- sturgeon or caribou expert?

7 MR. BILL HAMLIN: That is correct.

8 MR. BYRON WILLIAMS: Unfortunate, so
9 I'll have to wait for other panels to pose my
10 questions. But the -- at least I can't pose them to
11 you, right, Mr. Hamlin?

12 Mr. Wojczynski, I am -- I get tired in
13 hearings, so you'll -- you'll no doubt hear me
14 mispronounce your name. So you can -- you can feel
15 free to correct me, or show some tolerance for my -- my
16 inaccuracies. But I do --

17 MR. ED WOJCZYNSKI: At -- at work, many
18 people, you know, just call me 'Ed Alphabet', so you're
19 free to do that.

20 MR. BYRON WILLIAMS: Well, I was
21 thinking of calling you 'Mr. Ed', but I just didn't
22 think that that would work.

23 MR. ED WOJCZYNSKI: That was a common
24 name too, and there's some additions to it as well.

25 MR. BYRON WILLIAMS: I'm going to try

1 and remember Wojczynski with a swish.

2 But I just -- in terms of the regulatory
3 process, I -- I just want to ask a -- a couple follow-
4 up questions to some of my discussion with Mr. Thomson,
5 and also the discussion that you had earlier this week
6 with Mr. Peters.

7 Do you recall that -- a bit of that
8 conversation with Mr. Peters, sir?

9 MR. ED WOJCZYNSKI: Yes.

10 MR. BYRON WILLIAMS: And, Mr.
11 Wojczynski, if it's all right with you, when I refer to
12 the Canadian Environmental Assessment Agency, I may
13 refer to it either as the Agency, or as CEAA, C-E-A-A.

14 Is that all right with you, sir?

15 MR. ED WOJCZYNSKI: Yes.

16 MR. BYRON WILLIAMS: And would I be
17 correct in suggesting to you that Manitoba Hydro awaits
18 with baited breath the CEAA Comprehensive Study Report
19 for the Keeyask generation project?

20 MR. ED WOJCZYNSKI: The draft of that
21 report is out for consultation in the communities.
22 We're aware of its contents generally. It's -- but we
23 are -- we are waiting eagerly for the final version
24 post-consultation, yes.

25 MR. BYRON WILLIAMS: And am I correct

1 in suggesting to you that the -- once there is a final
2 comprehensive study report, it will be posted for
3 public comment?

4 MR. ED WOJCZYNSKI: That's correct.

5 MR. BYRON WILLIAMS: And, Mr.
6 Wojczynski, if -- if we were thinking about the
7 availability of the Comprehensive Study Report, the
8 final version for public comment back in the fall, the
9 expectation was that it would be -- that the final
10 report would be available for public comment -- posted
11 for public comment in early 2014, agreed?

12 MR. ED WOJCZYNSKI: It sounds correct.
13 I -- I don't remember the exact schedule from before,
14 but I'll -- I'll accept that.

15 MR. BYRON WILLIAMS: And it would be
16 fair to say that in terms of its work on the
17 Comprehensive Study Report, CEAA received additional
18 information from Manitoba Hydro in twenty -- in January
19 of 2014?

20 MR. ED WOJCZYNSKI: Yes, and that's
21 what delayed it.

22 MR. BYRON WILLIAMS: And so in terms of
23 the schedule, we are now expecting the final
24 Comprehensive Study Report sometime in May or June,
25 agreed?

1 MR. ED WOJCZYNSKI: Somewhere in there.

2 I -- I can get the exact schedule, but I -- I don't
3 have it at my fingertips. But I'll accept that.

4 MR. BYRON WILLIAMS: Mr. Wojczynski,
5 assuming, for example, a -- a June 1st, 2014, final
6 posting, I wonder if you can either orally or by way of
7 undertaking explain the next steps in the CEAA process,
8 including the timing associated with them?

9 MR. ED WOJCZYNSKI: I can give it
10 orally. And if we need to go into more detail later on
11 with the exact numbers, I can do that. But why don't
12 we -- for the sake of this process, I'll explain it as
13 best I -- I can without having the -- the -- all the
14 numbers at my fingertips.

15 That -- there -- once the Aboriginal
16 consultation process, Section 35 process, is complete,
17 then -- which is underway right now, then a more public
18 version would be posted. And then at the conclusion of
19 that, the Minister of Environment, who is responsible
20 for administering the CEAA Act, will make a -- a
21 decision and publicly make what is called a decision
22 statement.

23 That decision statement would give a --
24 a formal legal approval, an indication to the various
25 departments who -- federal departments who have to do

1 authorizations whether or not they should proceed with
2 authorizing the project. And the -- the most -- the
3 most critical one in there would be the Fisheries
4 authorizations.

5 So the Minis -- the decision statement
6 from the Minister would say -- we're -- we're expecting
7 and hoping that what it will say is that there are no
8 significant environmental impacts from Keeyask and --
9 and that the department should proceed with providing
10 the authorizations and licences subject to each piece
11 of legislation.

12 So that -- do you want me to go further
13 than that, or is that enough for now?

14 MR. BYRON WILLIAMS: It was very
15 helpful. Where I want to focus in on, in terms of the
16 public posting of the final report, and let's assume
17 for argument's sake it's June 1st, 2014, are you
18 familiar with the time period for public commentary
19 after that, Mr. Wojczynski?

20 MR. ED WOJCZYNSKI: No. Off the top of
21 my head, I -- my recollection is it's two (2) weeks,
22 but I'm -- but I -- you know, I'd have to go and -- and
23 look at the detailed schedule. But what I have been
24 advised by the people who are responsible for that -- I
25 used to be -- I should perhaps explain to the panel --

1 and I think Mr. Williams has some of that background,
2 because of the CEC process -- I used to be responsible
3 for the environmental licensing for all the projects,
4 and I used to be the project manager for all these
5 projects. But as we got closer to the NFAT process
6 about two (2) years ago we split the responsibilities,
7 so another division manager has now those
8 responsibilities. So that's why I'm not as intimately
9 familiar as I might have been.

10 But what I have been advised is that the
11 schedule we have is tight. I mentioned that, I believe
12 -- well, I know I mentioned it on the first day of this
13 hearing. It was a long time ago. And -- that in the
14 approval process this is the tightest part, the
15 federal.

16 And -- but that it is under the
17 timelines required for public consultation and public
18 statements, as long as there are no new developments in
19 terms -- from the consultation process that all of
20 sudden something new has to be dealt with, that there -
21 - the schedule for obtaining approvals can be met for
22 us to start construction in -- in early mid-July. But
23 the exact dates of each element, I would have to wait
24 on. One (1) moment, please.

25

1 (BRIEF PAUSE)

2

3 MR. ED WOJCZYNSKI: If you like, I
4 actually -- we do have the dates here. We have helpful
5 colleagues who look up things while I'm talking.

6 This is the regulatory schedule and as
7 it -- I could read it out just briefly. June 2nd,
8 we're targeting that this -- well, the federal
9 departments are targeting, and they have informed us
10 this. June 2nd, the CSR, Comprehensive Study Report,
11 would go to the Federal Minister of the environment.

12 June 9th, it would be issued for thirty
13 (30) days of public consultation, so -- and at the same
14 time the draft Fisheries Act authorizations would be
15 ready and -- for release for Section 35 consultation.

16 June 23rd, the Section 35 consultation
17 and the draft Fisheries Act authorization will be
18 issued. And what I should explain, is that the
19 Fisheries Act community consultation process can -- can
20 proceed while the Minister of Environment is
21 considering whether to authorize approval of the
22 project, 'cause the Fisheries Act authorizations can be
23 done contingent on the Federal Minister making a
24 positive decision.

25 Then June 23rd, the federal Fisheries

1 Act Section 35 consultation. That's the federal bodies
2 consulting with the Aboriginal communities who may be
3 affected by the project. That will be finished June
4 23rd.

5 And July 7th the CSR public consultation
6 period would conclude. And unless there are surprises,
7 the Minister could make a decision the next day. And
8 the federal departments are -- would be having
9 everything set up so that as long as there were no
10 surprises in the consultation process, they could issue
11 -- the Federal Minister could issue something the 8th.
12 And similarly, the Fisheries Act authorizations could
13 be already to go, they'd be contingent on a federal
14 ministerial statement, and that will be July 9th.

15 MR. BYRON WILLIAMS: And I won't dwell
16 on this much longer. I -- I thank you for that. The
17 two (2) potential, I'm going to use the words 'choke
18 points' -- not in a -- one (1) would be when the final
19 report comes out, if you get it June 2nd, or if it's
20 later.

21 That would be one (1) important key
22 date, agreed, sir?

23 MR. ED WOJCZYNSKI: Yes.

24 MR. BYRON WILLIAMS: And then another
25 potential critical time frame is the consultation, the

1 Section 35 consultation, relating to the fisheries
2 regulations, which -- which is in a pretty tight time
3 frame, I'll suggest to you, of two (2) weeks?

4

5 (BRIEF PAUSE)

6

7 MR. ED WOJCZYNSKI: The -- the two (2)
8 weeks is the -- is a tight time frame, but I think you
9 have to step back and look at the situation for those
10 Fisheries Act authorizations. The communities who are
11 being consulted with are communities that are -- let's
12 -- let's label it as two (2) sets of communities. They
13 are the partner communities who are the co-proponents
14 for the project, and have been involved in the
15 fisheries studies and the related studies for about
16 fifteen (15) years, and have contributed to those and -
17 - and have had formal approval of the EIS, and had
18 formal approval through the -- what's called the
19 Partners Regulatory Licensing Committee that I used to
20 co-chair. That is -- formally approves, not only EIS,
21 but the -- the similar submissions and are -- and are
22 part of the meetings with DFO and -- and whatever.

23 So those communities and their -- their
24 fishers, their hunters, their trappers, their domestic
25 harvesters, they have all had -- I -- I was going to

1 use the word 'focus group'. That's not right.
2 Consultation group -- I can't remember what it's called
3 -- where they were part of this process. And so when
4 the consultation is going to -- happening for the
5 Fisheries Act authorizations, for these communities
6 it's a rea -- it's -- it's a real consultation. But
7 it's not that they're not going to be prepared.

8 The second set of communities, who are
9 not the partner communities, but the communities in the
10 area of the project, or potentially affected, or were
11 very interested, they have also been part of
12 consultation for a number of years. This is not like
13 something starting from scratch. So whereas two (2)
14 weeks sounds like it's tight, and it is, it's feasible
15 because there's been so many years of consultation
16 leading up to this.

17 MR. BYRON WILLIAMS: I thank you for
18 that, and My Friend Ms. Saunders may have some
19 additional questions in that area.

20 Dr. Murphy -- and, if I might, Mr.
21 Chair, if I might have a moment with My Friend Ms.
22 Ramage?

23

24 (BRIEF PAUSE)

25

1 MR. ED WOJCZYNSKI: Might I be
2 permitted to add one (1) supplement to my answer? And
3 I think Mr. Williams would find this helpful.

4 The -- the schedule, as I just said,
5 that's the schedule we have and that we're working
6 with, I said it's tight. And I believe it was the
7 first day of the hearing process, but it might have
8 been later -- actually, I think it was -- it was that
9 week, but not that day -- I had communicated that --
10 that that is a tight schedule, and Manitoba Hydro will
11 -- is having and will be having meetings with the
12 various federal departments. And in those meetings we
13 will be regularly getting progress from the various
14 groups, both the Canadian Environmental Assessment
15 Agency, and DFO, and any others.

16 And -- and this is being coordinated at
17 a high level to make sure there are -- are no
18 unnecessary time delays. And as we go along with them
19 and have meetings with them -- including, I know,
20 there's going to be some next week -- then if -- if we
21 get an update to the schedule that says it's not
22 feasible, then that would cause two (2) things.

23 One (1) is, it would influence on April
24 4th what we tell the contractor: whether to go ahead or
25 not. It would also -- once we get something very -- if

1 -- if we get something definitive before April 4th, we
2 would communicate that to this process.

3 As I'd earlier -- I'm sure -- it's be
4 difficult to remember everything that's been said --
5 what -- what I had said about April 4th was that we
6 need, as -- Manitoba Hydro, and in consultation with
7 our partners, we -- they're certainly someone we talk
8 to -- we would have to make a decision as to whether or
9 not we would want to continue proceeding with the July
10 construction start if -- if we did not have confidence
11 that it was possible to have the licence in time. And
12 -- and I committed to informing this hearing process
13 when -- when that decision's made. But at this point,
14 we are not -- we -- our plan is to make that decision
15 by April 4th.

16 MR. BYRON WILLIAMS: Thank you very
17 much for that.

18 Mr. Chair, I -- I neglected at the start
19 -- there will be two (2) and perhaps three (3) CAC book
20 -- books of documents used today. One (1) that I think
21 has been distributed to the panel already is CAC
22 Exhibit 45-3.

23 I understand Manitoba Hydro has no
24 objections to that being marked as an exhibit, or to
25 the other two (2). But I'll -- I'll just start with

1 Exhibit 45-3 and as that it be marked as an exhibit.

2

3 --- EXHIBIT NO. CAC-45-3: CAC book of documents

4

5 CONTINUED BY MR. BYRON WILLIAMS:

6 MR. BYRON WILLIAMS: And, Dr. Murphy,
7 welcome to Manitoba.

8 DR. DEAN MURPHY: Thank you.

9 MR. BYRON WILLIAMS: And if -- if you
10 could turn to CAC Exhibit 45-3, and in particular to
11 page 40, marked in the bottom right-hand corner. And
12 if we could go down that page -- yeah, right there is
13 perfect. Thank you.

14 Dr. Murphy, this is a -- a thoughtful
15 paper you were a co-author on back in 2008, agreed?

16 DR. DEAN MURPHY: That's correct.

17 MR. BYRON WILLIAMS: And -- and if I
18 can direct your attention to the first paragraph on the
19 left-hand side, I'll suggest to you that you are
20 describing some of the difficult issues facing the
21 electricity world in 2008, including the issue of
22 climate change.

23 Agreed?

24 DR. DEAN MURPHY: That's correct.

25 MR. BYRON WILLIAMS: Two (2) other

1 issues of concern at the time you were focussing on
2 were nat -- national security and the impact of high
3 fuel costs.

4 Is that right, sir?

5 DR. DEAN MURPHY: That's correct.

6 MR. BYRON WILLIAMS: And just directing
7 your attention to the bottom right hand of that same
8 page, one (1) of the points you were making in this
9 article is that the tumultuous times around 2008 were -
10 - stood in contrast to the previous two (2) decades.

11 Would that be fair, sir?

12 DR. DEAN MURPHY: Certainly in some
13 respects it did.

14 MR. BYRON WILLIAMS: And in terms of
15 the res -- the respects where the tumultuous 2008s were
16 different from previous decades, one would relate to
17 the fuel market being historically more stable than it
18 was at the time you wrote this article.

19 Would that be fair?

20 DR. DEAN MURPHY: That's right. Fuel
21 markets, and particular the markets for natural gas and
22 petroleum, were quite volatile around that time period.

23 MR. BYRON WILLIAMS: And volatile.
24 And, in fact, a major concern was high natural gas
25 costs.

1 Fair enough, sir?

2 DR. DEAN MURPHY: In terms of natural
3 gas, the concern in the US, in North American more
4 generally I suppose, is that we were running out of
5 conventional gas. And expectations were that the US
6 would become an importer of natural gas in large
7 quantities because it was running out of the
8 conventional gas supplies.

9 MR. BYRON WILLIAMS: And another point,
10 again focussing on that paragraph on the bottom right-
11 hand side, another unusual element of volatility in
12 2008, as compared to previous decades, were high
13 construction costs, agreed?

14 DR. DEAN MURPHY: I hesitate to say
15 that construction costs had not been high at any
16 previous time, but certainly they were -- they were a
17 concern in 2008.

18 MR. BYRON WILLIAMS: And really, the
19 point you were making, though, is that they were less
20 stable than they had been in pre -- previously, agreed?

21 DR. DEAN MURPHY: Yes.

22 MR. BYRON WILLIAMS: Now, just in terms
23 of adjectives, I want to address your attention again
24 to the first paragraph on the left-hand side, about the
25 sixth line down.

1 You were describing the atmosphere in
2 2008 as a time of unprecedented uncertainty, agreed?

3 DR. DEAN MURPHY: Yes, I did use that
4 word.

5 MR. BYRON WILLIAMS: And if we were
6 just to flip to page 41 of CAC Exhibit 45-3, in the
7 middle column. The first full paragraph on -- on the
8 second line, you're moving up one (1) in adjectives,
9 perhaps, and going from unprecedented to enormous
10 uncertainty, agreed?

11 DR. DEAN MURPHY: Yes.

12

13 (BRIEF PAUSE)

14

15 MR. BYRON WILLIAMS: And would it be
16 fair to say, sir, that as enormous as the uncertainty
17 seemed in 2008, as unprecedented as it seemed in 2008,
18 the roller-coaster ride was just beginning?

19 DR. DEAN MURPHY: Yes, I'd say that's a
20 fair characterization in some ways. There -- some --
21 some things appear now to be less uncertain than they
22 were in 2008. And of course, the future continues to
23 evolve as we -- as we move forward. And we -- I fully
24 expect that we will reach points in time in the future
25 where we will also consider the world to be more

1 uncertain than it typically has been.

2 Some re -- some uncertainties appear to
3 have been resolved for some time into the future, but
4 not forever.

5 MR. BYRON WILLIAMS: Would it be fair
6 to say, sir, that this is a -- a time of high
7 uncertainty as well?

8 DR. DEAN MURPHY: I think that's a fair
9 characterization.

10 MR. BYRON WILLIAMS: And, Dr. Murphy, I
11 want to take you, and I'm going to ask Mr. Flynn -- Ms.
12 Flynn, excuse me, and Mr. Cormie to join me as we move
13 from 2008 to more current times. I'm not physically
14 taking you, but verbally I'm hoping to take you. We're
15 not going to come right there, but the -- the technical
16 support, if we could go to page 71, Tab 11.

17 And while we're going there, and it
18 always amazes me how fast we get there, Mr. Cormie, on
19 Monday, March 10th, at about 11:05, a wise man who
20 loves to run and has a curious affection for Tic Tacs
21 stated that the world has changed with shale gas.

22 Does that wise man sound like it might
23 have been you?

24 MR. DAVE CORMIE: Yes. Yes, that I
25 said that.

1 MR. BYRON WILLIAMS: And, Ms. Flynn,
2 you'll recall on Monday you spoke of the shale gas
3 revolution and its transformative effects?

4 MS. JOANNE FLYNN: Yes, I did.

5 MR. BYRON WILLIAMS: And, Dr. Murphy,
6 if we scroll down a little bit on page 71 of CAC
7 Exhibit 45-3, first of all, you'll agree with me that
8 this is an excerpt from the Connecticut Integrated
9 Resource Plan of twenty thousand -- 2010 in which you
10 played a -- a role in authoring this document, agreed?

11 DR. DEAN MURPHY: Yes, that's correct.

12 MR. BYRON WILLIAMS: And if we look to
13 this page, you're describing on about the fifth line
14 is:

15 "These unconventional sources of
16 natural gas as being a -- a game
17 changer that could transform the
18 debate over generating electricity."

19 Agreed?

20 DR. DEAN MURPHY: Yes, those are some
21 phrases that I'm quoting from others, but I -- I agree
22 that it has been a game changer.

23 MR. BYRON WILLIAMS: Now, if we could
24 just go to Tab 3, page 21, of the CAC book of documents
25 45-3.

1 (BRIEF PAUSE)

2

3 MR. BYRON WILLIAMS: Dr. Murphy, just
4 in terms of looking into the future, and without asking
5 you to elaborate just yet -- it's page 21, sir, if
6 you're looking for it.

7 DR. DEAN MURPHY: Yes.

8 MR. BYRON WILLIAMS: So, Dr. Murphy,
9 I'm -- I'm asking you to look into the future. I'm not
10 going to ask you to elaborate just yet. I'll give you
11 a chance in a second. But I'll ask you to confirm that
12 apart from unconventional gas, that there are other
13 factors in the marketplace which make it -- today's
14 marketplace particularly uncertain.

15 Would you agree with that, sir?

16 DR. DEAN MURPHY: Yes, absolutely.

17 MR. BYRON WILLIAMS: And we see here on
18 the third bullet on this page a comment from another
19 wise man, from -- from Brattle, that:

20 "The future seems even more uncertain
21 than usual."

22 Agreed?

23 DR. DEAN MURPHY: Yes.

24 MR. BYRON WILLIAMS: And you're
25 responsible for that statement, sir?

1 DR. DEAN MURPHY: Yes.

2 MR. BYRON WILLIAMS: And when you look
3 at the uncertainties looking forward, would it be fair
4 to say that you flagged at least four (4) major ones,
5 with the one being the uncertainty in terms of long-run
6 environmental policies, agreed?

7 DR. DEAN MURPHY: Yes, that's true.

8 MR. BYRON WILLIAMS: And a second major
9 uncertainty related to the evolution of low-carbon
10 generation technologies, agreed?

11 DR. DEAN MURPHY: Yes.

12 MR. BYRON WILLIAMS: And that
13 uncertainty relates to wind, to solar power, and -- is
14 that correct, sir?

15 DR. DEAN MURPHY: Yes, probably not
16 limited to those, but certainly including those.

17 MR. BYRON WILLIAMS: And we've already
18 talked about the uncertainty associated with the long-
19 run price effects of un -- unconventional gas, agreed?

20 DR. DEAN MURPHY: Yes.

21 MR. BYRON WILLIAMS: And again another
22 major uncertainty is the pace and the magnitude of coal
23 pla -- plant retirements due to new EPA require --
24 requirements, agreed?

25 DR. DEAN MURPHY: Yes. And -- and, of

1 course, coal plant retirements will also be affected by
2 some of these other uncertainties.

3 MR. BYRON WILLIAMS: Okay. Fair
4 enough. Ms. Flynn, you might need a magnifying glass
5 to look at these couple of pages, or your reading
6 glasses, but if we could turn to Tab 2 of the CAC book
7 of documents, page 17.

8

9 (BRIEF PAUSE)

10

11 MR. BYRON WILLIAMS: Tab 2, page 17,
12 Mr. Cormie. Ms. -- Ms. Flynn, if you're having trouble
13 with the -- the font, I apologize. You -- you may be
14 able to accept it subject to check, if you -- if you
15 trust me that much. If not, we'll -- we'll -- but what
16 we have here is an excerpt from Appendix 11.4 of the
17 Hydro filing.

18 You'll agree, subject to check?

19 MS. JOANNE FLYNN: It does say eleven
20 point four (11.4) on it.

21 MR. BYRON WILLIAMS: And what I'm
22 hoping to do is to get you to assist my client to
23 understand a little bit more about the implications on
24 Hydro revenues, ex -- export revenues in particular, of
25 the difference scenarios employed by Manitoba Hydro.

1 Would that be fine with you, Ms. Flynn? I'm just going
2 to ask you to report on the numbers. I'm not -- we
3 could -- we could go to Appendix 9.3 as well, but I
4 think this is just the easiest one to work off of.

5 Is that fine with you?

6 MS. JOANNE FLYNN: Let's see where it
7 goes.

8 MR. BYRON WILLIAMS: Okay. What we see
9 here is a projection of Manitoba Hydro's operating
10 statements. And if we look in the top left-hand
11 corner, we'll -- we'll see that it's assuming the
12 discount rate is reference, capital costs are at
13 reference, and that the prices are -- are high.

14 Would you agree with that, Ms. Flynn?

15 MS. JOANNE FLYNN: Yes.

16 MR. BYRON WILLIAMS: And I want to take
17 you, under 'Revenues', down three (3) lines to
18 extraprovincial, and then all the way across to the
19 year 2030, and would I be correct in suggesting to you
20 in that particular year -- thank you, reporter -- in
21 that particular year the projected -- that's about as
22 good as we're going to get, thank you.

23 The projected revenues --
24 extraprovincial revenues assuming the high price
25 scenario are almost \$1.5 billion. Would that be fair?

1 MS. JOANNE FLYNN: Yes.

2 MR. BYRON WILLIAMS: If we flip over
3 one (1) page to page 18, and -- and keep it right there
4 for a moment, you'll agree with me again that this is
5 an excerpt from Appendix 11.4.

6 And this -- this time, discount rates
7 are at -- at reference, prices are at reference, and
8 capital is at reference, agreed?

9 MS. JOANNE FLYNN: It's not -- it's not
10 the discount rate, it's the economic --

11 MR. BYRON WILLIAMS: Economics, excuse
12 me.

13 MS. JOANNE FLYNN: Yeah.

14 MR. BYRON WILLIAMS: We're agreed,
15 though, about --

16 MS. JOANNE FLYNN: Yes, the
17 ref/high/ref.

18 MR. BYRON WILLIAMS: Yeah, and I
19 apologize for misstating that, Ms. Flynn.

20 And if we go over to 2030, again on the
21 extraprovincial revenue line, you'll accept subject to
22 check that the revenues under that scenario are \$1.168
23 billion?

24 MS. JOANNE FLYNN: Yes.

25 MR. BYRON WILLIAMS: And if we flip to

1 page 19 of -- of this exhibit, we'll see that the
2 economics are at reference, the prices are at low, and
3 the capital is at reference.

4 Agreed, Ms. Flynn?

5 MS. JOANNE FLYNN: Yes, they are.

6 MR. BYRON WILLIAMS: So, in essence,
7 I've taken you from the high price down to the -- the
8 low, agreed?

9 MS. JOANNE FLYNN: Yes.

10 MR. BYRON WILLIAMS: And if we go out
11 to 2030, you'll agree with me that the extraprovincial
12 revenue line, if you squint really carefully, is at a
13 around 842 million, Ms. Flynn?

14 MS. JOANNE FLYNN: Yes, it is.

15 MR. BYRON WILLIAMS: Okay. And so if I
16 were to take the difference between the -- the high of
17 around 1.5 billion and the low of 840 billion, would
18 you agree that the range, subject to check, would be
19 about 650 million?

20 MS. JOANNE FLYNN: In that range, yes.

21 MR. BYRON WILLIAMS: Okay. Thank you
22 for that, and I apologize that I couldn't provide you
23 with a -- a better copy.

24 And I could do a -- a similar analysis
25 if I went to Appendix 9.3 and -- and went through the

1 low, medium, and high. And the difference between that
2 analysis and -- and this one, based upon the
3 financials, would relate to factors such as interest
4 rates or -- and factors like that, Ms. Flynn.

5 Would that be fair?

6

7 (BRIEF PAUSE)

8

9 MR. BYRON WILLIAMS: I'm -- okay.

10 MS. JOANNE FLYNN: One of the major
11 differences between the economic analysis and the
12 financial analysis is that the economic analysis is
13 done in real terms, and the financial is done in
14 nominal dollars.

15 MR. BYRON WILLIAMS: So I could
16 undertake a similar analysis in 9.3. The differences
17 would be of a -- a similar magnitude, but there would
18 be some difference in the number simply because of
19 one's done in -- in real terms, agreed?

20 MS. JOANNE FLYNN: You would certainly
21 get the same directional implications.

22 MR. BYRON WILLIAMS: Okay. Thank you.
23 We can probably turn to page 7 of CAC Exhibit 45-3.

24 And, Mr. Cormie, you were part of the
25 witness panel in Wusk -- Wuskwatim -- Wuskwatim? The

1 NFAT proceeding, sir?

2 MR. DAVID CORMIE: Yes.

3 MR. BYRON WILLIAMS: And, Ms. -- Ms.
4 Flynn, I can't remember, but I think you were part of
5 the witness panel in -- in Wuskwatim, were you?

6 MS. JOANNE FLYNN: No, I was not.

7 MR. BYRON WILLIAMS: You were in the
8 back row?

9 MS. JOANNE FLYNN: I was not there at
10 all.

11 MR. BYRON WILLIAMS: Oh.

12 MR. ED WOJCZYNSKI: That was my
13 pleasure.

14 MR. BYRON WILLIAMS: I remember you,
15 Mr. Wojczynski. So I guess my que --

16 MR. ED WOJCZYNSKI: And I remember you.

17 MR. BYRON WILLIAMS: So either you, Mr.
18 Wojczynski, or you, Mr. Cormie, can -- can help me with
19 this, but you'll agree that what I'm showing to you is
20 an excerpt from Chapter 5 of the Corporation's analysis
21 in support of the Wuskwatim business case, agreed?

22 MR. ED WOJCZYNSKI: That's correct.

23 MR. BYRON WILLIAMS: And, Mr.
24 Wojczynski, I'm going to come to you in just a second.
25 I do have a couple of questions for Mr. Cormie, and

1 then I will -- I'll be right back to you, and I'll give
2 you a couple of moments to study Figure 5.8.

3 But, Mr. Cormie, you recall a discussion
4 you had with Dr. Bel on Monday, May the 10th, on why
5 export contracts tend to be in the range of ten (10) --
6 ten (10) years or less?

7 Do you recall that conversation,
8 generally, sir?

9 MR. DAVID CORMIE: Yes. The -- the
10 term is, but, for example, the -- the WPS contract goes
11 to 2036, which is twenty-two (22) years from now. So
12 although the contract term may be shorter, the
13 contracting period can be quite long.

14 MR. BYRON WILLIAMS: Fair enough. Is
15 part of your -- I'm complimenting you a lot today --
16 but as part of your thoughtful answer to Dr. Bel, one
17 (1) of the points you made -- and I can share the
18 quote with you if you do wish to see it, but -- is
19 that:

20 "We don't know where prices are going
21 to go, we don't know where carbon
22 regulation is going to go."

23 Do you recall making a statement to that
24 effect, sir?

25 MR. DAVID CORMIE: Yes, and I -- I was

1 speaking not only on Manitoba -- from Manitoba Hydro's
2 perspective, but from our customers' perspective. And
3 in that regard, uncertainty is good for a seller of
4 hydro power. And as you looked at that chart, or the
5 chart that's on the display now, Figure 5.8, a buyer of
6 electricity in the long run would be terrified by
7 looking at that, and he would like to lock in today and
8 -- and avoid all that risk. And to the extent that
9 Manitoba Hydro can offer a product that hedges against
10 that, they will pay a premium for that. So now's the
11 time in the period of uncertainty for Manitoba Hydro to
12 capture the value of that hedge.

13 And as -- as you went through that
14 discussion with Ms. Flynn over those financial tables
15 and you showed that range of export revenues in 2030, I
16 was thinking, But that's not how it's going to work
17 out, because we will be a -- very effective in the next
18 few years, before we make the commitment to Conawapa,
19 to lock in high prices so that the customers aren't
20 exposed to that. And I don't expect to see that wide
21 range in revenues because that implies that we actually
22 wait for those prices to evolve before we commit to
23 Conawapa.

24 So I think -- I think the uncertainty
25 works in our favour in that regard.

1 MR. BYRON WILLIAMS: And just to finish
2 off the point, though, Mr. Cormie, it's -- it's one (1)
3 of the reasons why both Hydro and others would be
4 reluctant to engage in terms of a -- a longer period of
5 -- of time than that roughly ten (10) year period,
6 agreed?

7 MR. DAVID CORMIE: Yeah. The -- the
8 concern that -- that customers have is more of a price,
9 because I think Manitoba Hydro can set a price today
10 that -- would be completely happy with that would drive
11 the development of new hydro. Our -- our more -- our
12 concern is more is what the Manitoba load will be in
13 twenty (20) or twenty-five (25) years, and whether
14 we've sold forward a resource that we need to -- to
15 serve Manitoba.

16 So it's not that we can't make a -- make
17 a good business decision today on developing Keeyask or
18 Conawapa and putting in place the -- the economic case
19 or the business case associated with that. But when
20 you start committing out so many years, and as -- as
21 Ms. Morrison I'm sure talked about the uncertainty our
22 load fore -- forecast, ten (10) years out it's plus or
23 minus 10 percent. And so when you get that far out,
24 you may be committing to a resource that you may need
25 for Manitoba loads.

1 So I -- I think I -- I -- my concern
2 when -- when you get out that far is -- is not that
3 it's not economic; it's just that we may be selling
4 short.

5 MR. BYRON WILLIAMS: And just to focus
6 on your -- your customers as opposed to Hydro, their
7 concern might be, from their perspective, the price-
8 risk tradeoff going out farther in time.

9 Agreed, sir?

10 MR. DAVID CORMIE: Yes.

11 MR. BYRON WILLIAMS: Now, Mr.
12 Wojczynski, you've had a chance to memorize Figure 5.8.
13 And -- and just to start with, in the Manitoba Hydro
14 business case for Wuskwatim, if we direct our -- our
15 line -- our mind to the reference line which is at the
16 very bottom of -- at zero on this table, am I correct
17 in suggesting, or would you agree, that in the kind of
18 -- the reference case for Wuskwatim, there was no
19 environmental export premium built into it?

20 Is that fair, sir?

21 MR. ED WOJCZYNSKI: Yes.

22 MR. BYRON WILLIAMS: And so just so we
23 don't misinform the panel, your business case was
24 premised on -- on the idea that there would be no CO2
25 prices in -- in -- and that if they did occur they

1 would be a bonus.

2 Would that be fair, sir?

3 MR. ED WOJCZYNSKI: I wouldn't go that
4 -- as far as to say that. I would say that we expected
5 that there probably would be a CO2 price scenario, but
6 that -- but we evaluate it without so that we had the
7 full range.

8 MR. BYRON WILLIAMS: Okay. And in
9 terms of the -- at a high level, first of all, what we
10 see here is Hydro's projections of potential CO2
11 allowance price scenarios ranging from a -- the low
12 environmental export premium up to the high
13 environmental export premium, agreed?

14 MR. ED WOJCZYNSKI: Yes.

15 MR. BYRON WILLIAMS: And I want to get
16 to more current times, sir. So if -- if we started at
17 the low scenario and moved to around the 2013 year,
18 under that low scenario, would Hydro have been
19 projecting at about five dollars (\$5) US per tonne?

20 Would that be fair, sir.

21 MR. ED WOJCZYNSKI: That's what this
22 says, yes.

23 MR. BYRON WILLIAMS: And on the --
24 moving along the low scenario just a little bit farther
25 out for 2015, about seven dollars (\$7) per tonne,

1 agreed?

2 MR. ED WOJCZYNSKI: Yes.

3 MR. BYRON WILLIAMS: And for the medium
4 scenario, Hydro would have been looking to be at 2010 -
5 - 2010, above five dollars (\$5), agreed?

6 MR. ED WOJCZYNSKI: Yes.

7 MR. BYRON WILLIAMS: And moving along
8 to around 2013, around ten dollars (\$10) per tonne,
9 correct?

10 MR. ED WOJCZYNSKI: Yes.

11 MR. BYRON WILLIAMS: And by 2015,
12 somewhere between twelve (12) and thirteen dollars
13 (\$13) per tonne, agreed?

14 MR. ED WOJCZYNSKI: Yes.

15 MR. BYRON WILLIAMS: And on the high
16 scenario, Hydro would have been looking around 2013 at
17 -- excuse me, at 2010, at ten dollars (\$10) per tonne,
18 agreed?

19 MR. ED WOJCZYNSKI: Yes.

20 MR. BYRON WILLIAMS: By 2013, around
21 fifteen dollars (\$15) per tonne, sir?

22 MR. ED WOJCZYNSKI: Yes.

23 MR. BYRON WILLIAMS: And by 2015,
24 around twenty dollars (\$20) per tonne, correct?

25 MR. ED WOJCZYNSKI: About that.

1 MR. BYRON WILLIAMS: If we just flip
2 along in this document, we can turn to page 8 for a
3 moment and then -- we just see here that there's some
4 commentary by Manitoba Hydro relating to the
5 probability of ex-environmental price premiums for
6 export prices.

7 You'll agree with that, sir?

8 MR. ED WOJCZYNSKI: Yes.

9 MR. BYRON WILLIAMS: And if we flip to
10 page 9, if we could, and if we scroll down just a
11 little bit and focus on that 2020 time frame, and to
12 the third line, we see a suggestion --

13 MR. ED WOJCZYNSKI: I'm sorry, which
14 time frame? I missed that -- the number.

15 MR. BYRON WILLIAMS: I apologize, Mr. -
16 - Mr. Woz -- Wojczynski. 2020, line 3.

17 MR. ED WOJCZYNSKI: 2020. Okay.

18 MR. BYRON WILLIAMS: You see some
19 discussion by Manitoba Hydro back in 2003 that:

20 "Once a carbon policy is implemented
21 is deemed very likely by 2015."

22 And it goes on there. Do you see that,
23 sir?

24 MR. ED WOJCZYNSKI: Yes.

25 MR. BYRON WILLIAMS: And so just if we

1 -- if we go back to the hearing where I remember you so
2 well and you remember me so well, and we all remember
3 Mr. Cormie, at -- at that point in time Hydro's
4 expectation based upon the advice of its consultants
5 was that a carbon policy would be very likely by 2015,
6 agreed?

7 MR. ED WOJCZYNSKI: Yes.

8

9 (BRIEF PAUSE)

10

11 MR. BYRON WILLIAMS: I'd like to turn -
12 - and this is for you Mr. -- Dr. Murphy, excuse me, to
13 --

14 MR. ED WOJCZYNSKI: Could I perhaps add
15 to that? I was expecting there'd be more questions.

16 MR. BYRON WILLIAMS: You can always
17 add. Just remember it comes out of my time budget, so.

18 MR. ED WOJCZYNSKI: I will gladly
19 contribute some of my lunch time.

20 The -- this was explicitly talking about
21 having a carbon price explicit in terms of some form of
22 cap and trade, or a carbon tax, or something. What has
23 happened worldwide and in North America is greenhouse
24 gas restrictions haven't come in -- generally in as
25 fast as -- as a lot of people were thinking. It -- it

1 is in place in Europe. It is in place in other places
2 in the world, various countries. BC has a carbon --
3 effectively a carbon tax. And we just heard that
4 Hydro-Quebec -- not Hydro-Quebec -- Quebec-California
5 have entered into something.

6 But -- but there isn't a national US
7 carbon price scheme. But what's been happening is in -
8 - is that instead of using a explicit carbon trading to
9 get a carbon price, there have been command and control
10 regulations being put in place which have -- are not an
11 explicit CO2 price per se, but implicitly start putting
12 a price on carbon by restricting new generation, for
13 example, that isn't -- captured carbon or have a low
14 value.

15 Federally in Canada we have now
16 legislation that effectively says in 2015, if I have
17 the date right...

18

19 (BRIEF PAUSE)

20

21 MR. ED WOJCZYNSKI: Yes, I do, that new
22 coal plants need -- effectively they're banned because
23 you have to have very low emissions, and you can't
24 effectively in Canada build new coal unless you did a
25 carbon capture and sequestration.

1 We have the same thing already with the
2 EPA in the United States. So while we don't have a cap
3 and trade, we do have an implicit carbon price coming
4 in through the back door through these other means,
5 whether -- now, down the road we expect increasing
6 carbon constraints one way or another, whether it's an
7 implicit or explicit. And the -- the -- but the
8 discussion tends to be talking about explicit. But
9 there are restrictions happening today on carbon.

10 MR. BYRON WILLIAMS: And -- thank you,
11 sir. And -- and just to be clear, we -- we do not have
12 a cap and trade federally in the United States or
13 Canada?

14 MR. ED WOJCZYNSKI: That's correct.

15 MR. BYRON WILLIAMS: And certainly
16 we'll hear a bit later from Dr. Murphy.

17 But in terms of imposing the true
18 consequences and the true cost of carbon, the most
19 direct mechanism would be carbon pricing as he
20 describes it, or carbon taxing as the Tea Party
21 describes it.

22 MR. ED WOJCZYNSKI: Yes, and I -- I
23 didn't mention this on day 1, but I'm a self -- was
24 when Canada decided to ratify Kyoto, I was an
25 electricity industry rep to the National Climate Change

1 Plan work and on the -- what was called the integrative
2 group, where we brought together all the various
3 sectors.

4 And there is absolutely no question in
5 my mind, and in the question of many others, that a
6 carbon tax is probably the very best way to do it
7 internationally and nationally. Politically, as we saw
8 in a federal election in Canada, that doesn't go over
9 too well. But even a conservative government in Canada
10 has put in an indirect means to achieve that end.

11 MR. BYRON WILLIAMS: And just to follow
12 that through for a couple more minutes, Mr. Wojczynski,
13 recognizing that your lunch is now in jeopardy, sir,
14 we've talked about three (3) approaches to trying to
15 input some price to carbon: kind of a back door or
16 administrative approach, cap and trade, or carbon
17 pricing.

18 You'll agree with me that as compared to
19 our expectations of twelve (12) years ago, the pace and
20 the magnitude of our movement towards that policy
21 objective is -- is not as fast, sir.

22 Would that be fair?

23 MR. ED WOJCZYNSKI: I -- I would say
24 that's absolutely true. And as we've indicated in our
25 discussions here when we presented our forecast

1 information, those -- the expectations of -- of
2 explicit carbon pricing mechanisms has -- has been much
3 delayed, and there is uncertainty as to when it will
4 happen or how much it will happen.

5 But I think there is a strong view
6 amongst most forecasters and others, perhaps Dr. Murphy
7 can comment or -- or Dr. Borison, but maybe Dr. Murphy
8 is more suited to that one, but that there will be an
9 explicit carbon price at some point.

10 And I can't but help notice that in Tab
11 7 of your material -- of the CAC material, which is a
12 report by Ceres on practising risk-aware electricity
13 regulation, if you go page 31, the authors of that
14 report, which say on -- on the -- if you go to page 30
15 -- 31. I was reading this last night, so --

16 MR. BYRON WILLIAMS: Well done, Mr.
17 Wojczynski.

18 MR. ED WOJCZYNSKI: Yeah, so on page 30
19 -- sorry, page 31 of the report itself. Okay. There -
20 - oh, sorry. Well, that's -- okay, well, I'm -- I
21 don't know if it's --

22 MR. BYRON WILLIAMS: Here -- here's,
23 Mr. Wojczynski, I think, again, it's -- it's both our
24 lunches in jeopardy now, but that's okay. You mea --
25 not the whole rep -- the whole report is not in there.

1 MR. ED WOJCZYNSKI: Oh, okay. I was
2 under the impression it was. Well, my apologies then.
3 But the -- what it says is that:

4 "The -- the authors expect that the
5 scientific evidence of climate change
6 will eventually compel concerted
7 federal action and that greenhouse
8 gas emissions will be costly for
9 fossil fuel generation."

10 And they go on to speak how they see
11 this as one (1) of the big risks in the electric
12 industry in -- in the United States. So I -- I think
13 this is a fairly common view that will happen, but
14 there's uncertainty in timing and the amount.

15 MR. BYRON WILLIAMS: And we'll
16 certainly explore a bit more of that with Dr. Murphy.
17 Mr. Chair, I -- I can finish one (1) more section,
18 which I'm going to guess will take about eight (8)
19 minutes. And then -- you can hold me to that. I'm not
20 asking Mr. Wojczynski any questions, so. If we could
21 go to Hydro Exhibit 95, and page 73.

22

23 (BRIEF PAUSE)

24

25 MR. BYRON WILLIAMS: Dr. Mur -- we'll

1 just wait till the panel gets...

2

3 (BRIEF PAUSE)

4

5 MR. BYRON WILLIAMS: Dr. -- Dr. Murphy,
6 this is a chart that's familiar to you, sir?

7 DR. DEAN MURPHY: Yes, it is.

8 MR. BYRON WILLIAMS: You may have some
9 proprietary rights in it?

10 DR. DEAN MURPHY: I believe I have
11 given those rights over to Manitoba Hydro.

12 MR. BYRON WILLIAMS: And this table,
13 and -- and I'm going to take you through some specific
14 examples.

15 But at a high level, it depicts various
16 futures for energy pri -- prices in the MRO west, with
17 various coloured lines depicting potential outcomes,
18 agreed?

19 DR. DEAN MURPHY: Yes, that's right.

20 MR. BYRON WILLIAMS: And if we go to
21 the -- the Y-axis, we'll -- we'll see that costs are in
22 2013 dollars per megawatt hour.

23 Would that be fair?

24 DR. DEAN MURPHY: Correct.

25 MR. BYRON WILLIAMS: And so just to

1 make a bit more sense of this line for the benefit of
2 our client, let's start with the series, and Mr.
3 Wojczynski's world view perhaps, of the high CO2
4 scenario. And that's depicted in the -- the blue
5 lines.

6 Do you see that, Dr. Murphy?

7 DR. DEAN MURPHY: That is one (1)
8 particular specification of a world that would include
9 what I've characterized as -- as a high CO2 price.

10 MR. BYRON WILLIAMS: Okay. And fair --

11 DR. DEAN MURPHY: Just -- to -- to
12 clarify, the -- the high CO2 price that's in that
13 scenario is not what would have been considered a high
14 CO2 price back in 2009/2010, when fairly strict climate
15 legislation of cap and trade form was under
16 consideration in the US.

17 The CO2 prices that were anticipated at
18 that time, had cap and trade been passed in the US at
19 the levels of stringency that were then considered,
20 would have been fairly considerably higher than the CO2
21 price that's included in the -- the blue line in this
22 figure.

23 MR. BYRON WILLIAMS: And -- and that's
24 very helpful, and we'll actually come to that in -- in
25 -- after the coffee break. But in terms of -- just for

1 my clarification, is the high CO2 scenario depicted
2 here the same as depicted in -- in the response to
3 CAC/Manitoba Hydro Second Round 133, which you
4 discussed towards the end of the day with Dr. Miller.
5 Your -- the Brattle's report, CO2 emission -- CO --
6 just one (1) second I'll get the proper title:

7 "CO2 Emission Displacement Resulting
8 From Increased Manitoba Hydro Exports
9 to MISO."

10 Jus so I understand, are those the same
11 forecasts, sir?

12 DR. DEAN MURPHY: Yes, that's the --
13 that's the same high CO2 scenario.

14 MR. BYRON WILLIAMS: Okay. Then we can
15 go back to page 73 of Exhibit 95. And we'll come to
16 the reference case, or the base case, in a moment.

17 But you'll agree with me, Dr. Murphy,
18 the -- it's presented -- that potential future is
19 presented in red in -- in this table?

20 DR. DEAN MURPHY: The base case is in
21 red, yes.

22 MR. BYRON WILLIAMS: And if I were to
23 di -- differentiate your high CO2 scenario from the
24 base case, one (1) difference would be that it would be
25 that it would start two (2) years earlier, on or about

1 2018.

2 Would that be fair, sir?

3 DR. DEAN MURPHY: The -- the high CO2
4 case has a CO2 price beginning in 2018 at, if memory
5 serves, approximately twenty dollars (\$20) per tonne of
6 CO2. I can check that.

7 MR. BYRON WILLIAMS: I -- I was going
8 to suggest to you it started about twenty-five (25).
9 Would that --

10 DR. DEAN MURPHY: I -- I'd have to
11 check --

12 MR. BYRON WILLIAMS: Okay. Well --

13 DR. DEAN MURPHY: -- but in --

14 MR. BYRON WILLIAMS: -- in that twenty
15 (20) to twenty-five dollar (\$25) range.

16 DR. DEAN MURPHY: So it is higher than
17 the CO2 -- higher and sooner than the CO2 price that is
18 in the base case, and the base case begins in 2020 at
19 approximately sixteen dollars (\$16) per tonne of CO2.

20 MR. BYRON WILLIAMS: Okay. And if we
21 stay with the blue, would I be correct in suggesting to
22 you that it's growing at about 5 percent a year out to
23 2034, sir?

24 DR. DEAN MURPHY: The CO2 price was
25 growing at 5 percent per year. That doesn't

1 necessarily imply that the electricity price is growing
2 at exactly that same rate.

3 MR. BYRON WILLIAMS: Okay.

4 DR. DEAN MURPHY: But it is driven --
5 the electricity price is driven in part by the CO2
6 price.

7 MR. BYRON WILLIAMS: So just to
8 understand the scenario, you're starting in 2018
9 somewhere between twenty dollars (\$20) per megawatt
10 hour and twenty-five dollars (\$25). And that's moving
11 out on a trajectory of, in terms of CO2 prices
12 increasing, about 5 percent each year out to 2034.

13 Is that right, sir?

14 DR. DEAN MURPHY: That's right. And I
15 -- I should clarify that it's 5 percent in real terms,
16 so that's after taking out inflation. If you were to
17 include inflation, it would be a rate higher than 5
18 percent.

19 MR. BYRON WILLIAMS: And to understand
20 the reference case in the red, you're starting there in
21 about 2020 at fifteen dollars point seven (\$15.7) per
22 megawatt hour, correct, sir, subject to check?

23 DR. DEAN MURPHY: Per tonne of CO2.

24 MR. BYRON WILLIAMS: Excuse me. Okay.
25 And then you're growing -- going out at 3 percent each

1 year --

2 DR. DEAN MURPHY: Growing the CO2 price

3 --

4 MR. BYRON WILLIAMS: -- in terms of
5 price?

6 DR. DEAN MURPHY: -- at 3 percent in
7 real terms.

8 MR. BYRON WILLIAMS: Okay. Now, if I
9 look towards the bottom of this graph, and it's -- I'm
10 going to call it a -- a purple, I will see these low
11 CO2 scenarios, sir?

12 DR. DEAN MURPHY: Yes. It's difficult
13 to distinguish with the other lines, but yes.

14 MR. BYRON WILLIAMS: And am I correct
15 in suggesting that it has no carbon cost pricing
16 through the entire period?

17 DR. DEAN MURPHY: That has a zero CO2
18 price throughout the time horizon of the study.

19 MR. BYRON WILLIAMS: So to -- just to
20 kind of -- sir, I want to take a look at the low
21 scenario versus the high CO2 scenario at two (2) points
22 in time: one at 2018 and then I'll take you out to
23 about 2034.

24 So if I were to go on the X-axis and
25 draw a line up from the year 2018 through the -- up to

1 that -- that purple line, would I see the estimated
2 average energy price under the low CO2 scenario at
3 about thirty dollars (\$30) per megawatt hour, sir?

4 DR. DEAN MURPHY: Yes. It'd be
5 approximately thirty dollars (\$30) per megawatt hour,
6 all hours average.

7 MR. BYRON WILLIAMS: And if I were to
8 perform that same exercise drawing up through 2018 but
9 to the -- the blue high export scenario, you're looking
10 at somewhere between fifty (50) and -- and fifty
11 dollars (\$50) per megawatt hour and fifty-five (55),
12 sir?

13 DR. DEAN MURPHY: In 2018,
14 approximately fifty dollars (\$50) per megawatt hour,
15 yes.

16 MR. BYRON WILLIAMS: Okay. So about a
17 twenty dollar (\$20) per -- per megawatt difference,
18 sir?

19 DR. DEAN MURPHY: At that point in
20 time.

21 MR. BYRON WILLIAMS: And if I go now to
22 the end of the -- this scenario, the 2034 year, I will
23 see the low gas scenario at a bit less than fifty
24 dollars (\$50) per megawatt hour.

25 Is that correct, sir?

1 DR. DEAN MURPHY: I presume you meant
2 to say the low CO2 scenario?

3 MR. BYRON WILLIAMS: Excuse me. The
4 low CO2 scenario, sir, I'll see at a bit less than
5 fifty dollars (\$50) --

6 DR. DEAN MURPHY: Yes.

7 MR. BYRON WILLIAMS: -- per megawatt
8 hour?

9 DR. DEAN MURPHY: That's correct.

10 MR. BYRON WILLIAMS: And if I go up to
11 the high, I'm seeing at about eighty dollars (\$80) per
12 megawatt hour.

13 DR. DEAN MURPHY: That's correct.

14 MR. BYRON WILLIAMS: And by 'high', I
15 meant the high CO2 scenario.

16 DR. DEAN MURPHY: The high CO2, yes.

17 MR. BYRON WILLIAMS: And so, sir, we
18 have a difference of -- by 2034 of about thirty dollars
19 (\$30) per megawatt hour between the low CO2 scenario
20 and the high CO2 scenario.

21 Would that be fair?

22 DR. DEAN MURPHY: That's what these
23 results characterize, yes.

24 MR. BYRON WILLIAMS: Okay. One (1)
25 other line that -- that I just wanted to better

1 understand is the black -- I'm going to call it the
2 black line, which is the AEO reference case.

3 Do you see that, sir?

4 DR. DEAN MURPHY: Yes.

5 MR. BYRON WILLIAMS: And am I correct
6 in suggesting that the AEO reference case attempts to
7 match the assumptions behind the US Energy Information
8 Administration's 2013 annual energy outlook reference
9 case forecast?

10 Would that be fair?

11 DR. DEAN MURPHY: Yes, that's what we
12 tried to characterize with that.

13 MR. BYRON WILLIAMS: And that assumes,
14 in essence, that the current laws and regulations
15 affecting the energy sector remain un -- unchanged
16 throughout the projection period.

17 Would that be fair?

18 DR. DEAN MURPHY: Yes, it does.

19 MR. BYRON WILLIAMS: Sir, just very
20 quickly, and if we move to the right-hand side of this
21 figure, you've named and numbered the different
22 scenarios, the -- the eleven (11) different scenarios.

23 Would that be fair, sir?

24 DR. DEAN MURPHY: Yes, these are the
25 scenarios in -- in the 2013 price forecasts that I

1 developed for Manitoba Hydro.

2 MR. BYRON WILLIAMS: And if we look
3 kind of at number 9, the EE conserve scenario, do you
4 see that about in the middle of those figures on the
5 right, sir?

6 DR. DEAN MURPHY: Yes, it's just below
7 the red base case line for most of the horizon.

8 MR. BYRON WILLIAMS: And that scenario
9 assumes greater energy efficiency and con --
10 conservation.

11 Is that fair, sir?

12 DR. DEAN MURPHY: Yes, it does. A -- a
13 relatively high degree of conservation.

14 MR. BYRON WILLIAMS: And you also go up
15 and look at a load shifting scenario which terminates
16 really close to the base case as well.

17 Do you see that, sir?

18 DR. DEAN MURPHY: Yes, it's just above
19 the base case for -- for the latter part of the horizon
20 and it's essentially obscured behind the base case line
21 for the earlier part.

22 MR. BYRON WILLIAMS: And the load
23 shifting scenario, one (1) of the assumptions there is
24 that peak loads are being shifted to off-peak times.

25 Would that be fair?

1 DR. DEAN MURPHY: Yes, it's a -- it's a
2 suppression of peak. Whether the -- the load would
3 actually be shifted to off-peak times is almost
4 immaterial to power prices, because the -- the peak
5 load suppression happens only in a very small number of
6 hours. So it's very little energy in total. But it
7 does reduce the peak, which is important in the MISO
8 thermal system, because the system is built to
9 accommodate peak without energy limits.

10 MR. BYRON WILLIAMS: Okay. And just to
11 -- to finish that thought, sir, in terms of the energy
12 efficiency conservation and the load shifting
13 scenarios, what's the thinking behind including them?

14 What's the insight that we -- that we
15 get from those, sir?

16 DR. DEAN MURPHY: Well, it was really
17 to understand what would be the effect of -- of these
18 kinds of measures and to -- to answer the question:
19 Would they have a dramatic effect on power prices.

20 And what we found is, no, that they
21 don't have a dramatic effect. They have a -- a
22 relatively modest effect, at least in comparison with
23 the magnitude of the effect of -- of some of the other
24 factors that we considered, like gas price and carbon
25 price.

1 MR. BYRON WILLIAMS: Okay. Recognizing
2 that I -- I think I've come one (1) minute past my
3 eight (8) minute estimate, but that was pretty good,
4 sir. Mr. Chair, if it's satisfactory to the panel, I'd
5 suggest a break at this point in time.

6 THE CHAIRPERSON: Okay. Let's -- let's
7 break. I -- I suggest we get back here at ten (10) to,
8 sharp so that we don't use up Mr. Williams's time.
9 Thank you.

10

11 --- Upon recessing at 10:36 a.m.

12 --- Upon resuming at 10:53 a.m.

13

14 THE CHAIRPERSON: I believe everybody
15 is in position. We should resume the proceedings.
16 Back to you, Mr. Williams, please.

17 MR. BYRON WILLIAMS: Yes, thank you.

18

19 CONTINUED BY MR. BYRON WILLIAMS:

20 MR. BYRON WILLIAMS: Dr. Murphy, you've
21 discussed this already, but the Upper Midwest region of
22 the United States, including MISO, is an area that is
23 generally heavily coal reliant, agreed?

24 DR. DEAN MURPHY: Yes, it is.

25 MR. BYRON WILLIAMS: And when we look

1 at those states as a general characterization, we could
2 also agree that they tend to be fairly heavily
3 industrialized?

4 DR. DEAN MURPHY: Yes, that's my
5 understanding.

6

7 (BRIEF PAUSE)

8

9 MR. BYRON WILLIAMS: When we look at
10 the dra -- what is likely to be for these coal reliant,
11 heavily industrialized regions, when we look at what is
12 likely to be a driver in terms of carbon pricing, or --
13 either directly or indirectly, would it be fair to say
14 that the primary driver of -- of that carbon pricing
15 effect we would expect to come from the federal level,
16 either legislative or administrative?

17 DR. DEAN MURPHY: That's certainly one
18 (1) place that it could come from, but it's not the
19 only possibility. There -- there are a number of
20 states in the US that have implemented a carbon price
21 that has nothing to do with federal legislation.

22 MR. BYRON WILLIAMS: When we look at
23 your high CO2 scenarios, are they driven primarily by
24 expectations of federal legislation?

25 DR. DEAN MURPHY: No, they're driven by

1 a high CO2 price, by whatever means it manifests.

2 MR. BYRON WILLIAMS: And, sir, if it's
3 -- if this is beyond your experience or your -- your
4 knowledge, fair -- you'll -- you'll point this out to
5 me, but are you aware of resistance within the MISO
6 region, the MISO states, to concepts such as carbon --
7 carbon pricing?

8 DR. DEAN MURPHY: There is resistance
9 from many quarters to -- to, certainly, federal
10 legislation that would put a price on carbon.

11 MR. BYRON WILLIAMS: And, indeed,
12 coming from the states such as Indiana, and -- there
13 has been a suggestion that -- that carbon pricing
14 efforts are -- are coming from forces external to the
15 region.

16 DR. DEAN MURPHY: I'm not sure exactly
17 what you're referring to, but I wouldn't be surprised.

18 MR. BYRON WILLIAMS: Yeah.

19 DR. DEAN MURPHY: There are many who
20 make statements, particularly those associated with the
21 political system.

22 MR. BYRON WILLIAMS: And -- and if
23 we're going too far you'll again stop me. But
24 allegations that it's, you know, the -- the
25 intellectuals in Cambridge, and the wall -- and people

1 in New York, and -- and folks on the west coast that
2 are almost exercising a form of carbon pricing
3 imperialism on the US Midwest.

4 Are you familiar with those sentiments?

5 DR. DEAN MURPHY: I presume you're not
6 referring to me as one of those Cambridge
7 intellectuals. I -- I wouldn't be surprised to hear
8 that. There's a lot of rhetoric on this, from both
9 sides.

10 There -- there are many who say that,
11 you know, some form of climate change action is
12 absolutely imperative, and that carbon pricing is an
13 efficient and effective way to do that including -- and
14 perhaps surprisingly these days given the -- the
15 political polarity in the US, including some on the
16 conservative side of the spectrum.

17 MR. BYRON WILLIAMS: Okay. And you
18 probably wouldn't find me personally disagreeing with
19 you on this issue. I'm not speaking for my client.

20 DR. DEAN MURPHY: Perhaps.

21 MR. BYRON WILLIAMS: You did have a --
22 I'm going to ask we turn back to CAC book of documents
23 45-3, Tab 9, page 38.

24

25 (BRIEF PAUSE)

1 MR. BYRON WILLIAMS: Page 38, Mr.
2 Wojczynski. And, Dr. Murphy, you'll recall the
3 discussion you had with the Chairperson on Tuesday
4 about the potential for comprehensive federal action on
5 greenhouse gases and its implications for direct or
6 indirect carbon pricing.

7 Do you remember having the discussion
8 with him?

9 DR. DEAN MURPHY: Yes.

10 MR. BYRON WILLIAMS: And we look at --
11 here at page 38, without asking you to elaborate at
12 this point in time, where -- this is an editorial, or
13 opinion piece you presented in 2007 where you were
14 making the case that:

15 "Greater business certainty would be
16 achieved by a revenue-neutral carbon
17 fee rather than a cap on emissions."
18 Fair enough?

19 DR. DEAN MURPHY: Yes, I believe that's
20 true. I -- I still believe that to be the case.

21 MR. BYRON WILLIAMS: I thought that was
22 your point. And we don't have to turn there for the
23 electronic version but if we flip the paper version to
24 the next page, set out there are -- is a very lengthy
25 list of proposed cap and trade bills that were before

1 the 110th US congress. Would that be fair, sir?

2 DR. DEAN MURPHY: Yes. And a very,
3 very brief summary of those.

4 MR. BYRON WILLIAMS: And really, if we
5 think back to 2007, and we can flip back to the
6 previous pages, there were really halcyon days in the
7 US for many persons concerned with climate change and
8 the need for action, would that be fair? There was a
9 lot of confidence about the potential and the
10 opportunity for action.

11 Would that be fair, sir?

12 DR. DEAN MURPHY: There was -- there
13 was a relative broad expectation at that point in time
14 that -- that some form of federal climate legislation
15 would be passed in the relatively near term. And the
16 leading -- the leading candidates for that were cap and
17 trade proposals. As -- as events have transpired, of
18 course, the -- the global recession kind of knocked
19 that train off the rails.

20 MR. BYRON WILLIAMS: And just to -- if
21 you go to the first paragraph of your guest commentary,
22 lines 4 and 5, you're suggesting that national
23 greenhouse gas regulation has become a near-term
24 likelihood.

25 Do you see that statement, sir?

1 DR. DEAN MURPHY: Yes. At that time it
2 was believed that it was.

3 MR. BYRON WILLIAMS: And in terms of a
4 near-term likelihood at that time, were you thinking
5 within five (5) years, or -- or even less?

6 DR. DEAN MURPHY: At that time it
7 appeared that legislation would likely be passed within
8 a year or two (2), that carbon prices might not
9 actually be implemented quite so quickly. It would
10 take a bit of time to -- to implement the -- the
11 system.

12 MR. BYRON WILLIAMS: And if we could
13 turn to an article that we visited before at Tab 10,
14 page 43, and we can scroll down the page. Right there
15 is perfect.

16 Dr. Murphy, again, this is another piece
17 you did on -- in 2008? And --

18 DR. DEAN MURPHY: Yes, it is.

19 MR. BYRON WILLIAMS: Thank you. And if
20 we direct our attention to the right-hand side, under
21 'Climate Policy and Legislation', again you're
22 suggesting that federal climate change legislation is
23 likely to be enacted within the next sev -- several
24 years.

25 Would that be fair, sir?

1 DR. DEAN MURPHY: This -- this was only
2 a short time after the -- the previous piece, and the
3 expectations at that time were similar.

4 MR. BYRON WILLIAMS: And -- and, sir, I
5 want to be clear that our clients consider you to be a
6 very able forecaster. But the -- the challenge with
7 predicting CO2 outcomes, of course, is it's not
8 economics, really, that you're predicting.

9 Would that be fair?

10 DR. DEAN MURPHY: That does make it
11 challenging.

12 MR. BYRON WILLIAMS: In essence you're,
13 to a certain degree, guessing about politics.

14 DR. DEAN MURPHY: Certainly, to -- to
15 come up with any prediction statement about how it will
16 be implemented, yes, there's a political dimension to
17 it. There's also the -- the geophysical dimension of -
18 - of climate change that is -- that keeps reminding the
19 political system. And so for better or worse,
20 ultimately it's worse, our -- our planet is reminding
21 us that climate change is not just a -- a theory put
22 forward by a few Cambridge intellectuals, but -- but it
23 is -- but it is a real effect.

24 MR. BYRON WILLIAMS: And you won't find
25 my client or their lawyer disagreeing with you on that,

1 sir.

2 But we can agree going -- leaving aside
3 the geophysical reality on which we are in agreement,
4 that in terms of predicting, it's highly dependent
5 about guesswork, about the US political system, agreed?

6 DR. DEAN MURPHY: Yes, and -- and
7 certainly the form that climate policy might take.
8 Even -- even someone who has high confidence that
9 climate policy of some form will be implemented will
10 probably still have some uncertainty about what that
11 form will be, how it will be manifest.

12 MR. BYRON WILLIAMS: And you were
13 apologetic about your political system, I think it was
14 Tuesday. I -- I'm not sure, given -- no, I won't make
15 any Canadian comments. But I'm not sure you needed to
16 comment -- apologize, but we can agree that in a world
17 that has both Barack Obama and -- and Ted Cruz, the Tea
18 Part -- the Tea Party senator from Texas, that making
19 political prognostications is pretty challenging.

20 DR. DEAN MURPHY: It certainly can be,
21 particularly if one is trying to predict the results of
22 the next election, for instance.

23 MR. BYRON WILLIAMS: Or climate change
24 initiatives?

25 DR. DEAN MURPHY: Yeah. And, again,

1 particularly if you're trying to -- to look at the
2 particular timing of climate policy implementation.
3 Just to recall, we don't need to bring it back onto the
4 screen, but the -- the graph that we were looking a
5 while ago -- at a while ago of the various scenarios
6 and their price projections.

7 We had some scenarios that had a CO2
8 price manifest in 2018. Some scenarios had a CO2 price
9 manifest in 2020. And the remainder of the scenarios
10 had no CO2 price ever for the re -- for the balance of
11 the horizon. As I had said earlier in my -- my Price
12 Forecasting Report, there's -- one (1) of the hazards
13 of doing this kind of -- of forecasting, scenario
14 forecasting, where you're limited to a relatively small
15 number of scenarios that you can analyze, is that you
16 end up with scenarios that are perhaps too persistent
17 relative to how the world might work out.

18 So I didn't evaluate any scenarios that
19 had a carbon price manifesting at any time other than
20 2018 or 2020. But if we somehow could see into the
21 future and know that there would be no carbon price in
22 2018 or in 2020, we still would not know that there
23 would never be carbon policy or that there would never
24 be a carbon price.

25 It's quite possible, even though my

1 scenarios don't reflect it, that there would be a kind
2 of legislation that would create a carbon price in 2025
3 or 2027. So the fact that it hasn't happened now
4 doesn't mean it won't happen. Even if it doesn't
5 happen within the next five (5) years, that doesn't
6 mean that it won't happen.

7 My -- I have faith in climate
8 scientists, of -- of whom I am not one, but I have
9 faith that the climate scientists have largely got this
10 one right in terms of the -- the direction and relative
11 magnitude of the climate issues facing us. And that
12 sooner or later, and hopefully sooner, but perhaps
13 later, we will as a species try to do something about
14 it.

15 It turns out that a carbon price is one
16 (1) very effective and efficient way to do it, but it's
17 not the only way that we could -- that we could attempt
18 it.

19 MR. BYRON WILLIAMS: Okay. And we'll
20 turn to page 57. And this is a -- you'll agree with
21 me, is an excerpt from -- again, from your report for
22 the State of Connecticut on integrated resource
23 planning, sir?

24 DR. DEAN MURPHY: Yes, this is from the
25 2010 Connecticut Integrated Resource Plan.

1 MR. BYRON WILLIAMS: And we'll probably
2 move through this a little quicker, because I think you
3 anticipated some of my questions about forty-five (45)
4 minutes ago.

5 But, sir, in -- in this -- on behalf of
6 the State of Connecticut you're -- the Brattle Group is
7 -- is doing some forecasting of gas prices, CO2 prices,
8 and their implications for the load growth as well,
9 agreed?

10 DR. DEAN MURPHY: Yes, in the context
11 of the Resource Plan.

12 MR. BYRON WILLIAMS: Of course. And at
13 -- at this point in time, this was really at the heyday
14 of the confidence of -- that we had in -- in the
15 likelihood of some federal legislation being passed
16 that -- that would be comprehensive and use -- useful
17 at the American level.

18 Would that be fair?

19 DR. DEAN MURPHY: It was at a high
20 point as relative to now. I hope that in the future
21 sometime we will have another heyday.

22 MR. BYRON WILLIAMS: And the -- in
23 essence, the scenarios that you were working off in --
24 in this estimate were based upon a bill actually that
25 had been passed at the House of Representatives known

1 as Waxman Markey; W-A-X-M-A-N, M-A-R-K-E-Y, for the
2 reporter.

3 Would that be fair, sir?

4 DR. DEAN MURPHY: Yes, and to elaborate
5 just a bit, the particular price trajectories that we
6 selected here were based on EPA's analysis of the
7 Waxman Markey bill and the CO2 price that would be
8 implied under several different assumptions about how
9 that bill might ultimately be passed.

10 MR. BYRON WILLIAMS: And we can turn, I
11 guess -- we can -- actually, just let's go down the --
12 this -- the table here. This -- this smaller chart,
13 Figure 16, will be fine.

14 Sir, in essence, you were -- you were
15 using a low CO2 price, a medium CO2 price, and a high
16 CO2 price expectations, agreed?

17 DR. DEAN MURPHY: Yes.

18 MR. BYRON WILLIAMS: And you had them
19 staring in 2012.

20 Would that be fair?

21 DR. DEAN MURPHY: Yes, that's when the
22 carbon price started.

23 MR. BYRON WILLIAMS: And the point you
24 made quite some time ago, maybe forty-five (45) minutes
25 ago, was that your projections back in 2010 were for

1 the effect to be sooner and of a higher magnitude than
2 you might be prot -- projecting now.

3 Would that be -- in terms of carbon
4 prices would that be fair, sir?

5 DR. DEAN MURPHY: Yeah, I have high
6 confidence in projecting that we will not have a carbon
7 price by 2012.

8 MR. BYRON WILLIAMS: But, sir, the --
9 the point --

10 DR. DEAN MURPHY: Yes, but -- but, yes,
11 the point -- the point is a valid one, that current
12 expectations for what is likely to come out of the US
13 political process in the near term, maybe the next five
14 (5) years, anticipate a lower and later start to a CO2
15 price than had been expected four (4) or five (5) years
16 ago.

17 MR. BYRON WILLIAMS: And if we could go
18 to the next page, page 58, and, sir, this is -- again
19 you're projecting the -- in Figure 29, the implications
20 of different gas and CO2 price trends upon different
21 portfolios of -- of demand side and -- and power
22 generation options before the State of Connecticut,
23 correct?

24 DR. DEAN MURPHY: Different resource
25 strategies, yes. And it was looking at the performance

1 of several different resource strategies which are the
2 -- the columns along the -- along the X-axis as
3 compared against multiple different scenarios, outcomes
4 of gas and CO2 prices, et cetera, which form the -- the
5 range on the Y-axis.

6 MR. BYRON WILLIAMS: And -- and the
7 reason I point you to the -- to this table or figure,
8 and you'll correct me, but I don't see a no CO2
9 scenario in here. And -- and so my -- my question to
10 you, sir, was:

11 At this point in time in 2010, were you
12 looking at no CO2 scenarios?

13 DR. DEAN MURPHY: In this study, we did
14 not examine a zero CO2 price scenario.

15 MR. BYRON WILLIAMS: If we can turn to
16 page 63 of this same document, Dr. Murphy, you'll --
17 you'll recall as well on Monday and Tuesday of this
18 week, I think both days, you've mentioned the Regional
19 Greenhouse Gas Initiative, or RGGI.

20 Do you recall that, sir?

21 DR. DEAN MURPHY: Yes, I do.

22 MR. BYRON WILLIAMS: And it is, as I
23 understand it, a market-based program designed to
24 reduce CO2 emissions in the northeast and mid-Atlantic
25 states.

1 Would that be fair, sir?

2 DR. DEAN MURPHY: Yes. The northeast
3 plus two (2) mid-Atlantic states. It's a -- it's a cap
4 and -- essentially a cap and trade program that applies
5 to electric generators.

6 MR. BYRON WILLIAMS: And sounds like
7 something like we were talking about in the Midwest
8 back in 2007.

9 DR. DEAN MURPHY: Yes. I believe the
10 Midwest was looking to RGGI as a potential model.

11 MR. BYRON WILLIAMS: Okay. And in
12 essence, RGGI, or RGGI, as you call it, was the first
13 regional greenhouse gas emissions reductions program in
14 the United States.

15 Would that be fair?

16 DR. DEAN MURPHY: I believe it's the
17 first one to use this type of mechanism.

18 MR. BYRON WILLIAMS: Okay. Now,
19 directing your attention -- if we can scroll down just
20 a little bit, at that point in time, 2010, directing
21 your attention to the third paragraph, at that point in
22 time the RGGI CO2 prices were expected -- effect --
23 excuse me, were expected to have -- to be relatively
24 modest, at about two dollars (\$2) per tonne.

25 Is that fair, sir?

1 DR. DEAN MURPHY: Yes, that's true.

2 And in fact it turned out to -- the price did turn out
3 to stay relatively low up until recently. And the
4 reason of course is that the cap was set relatively
5 high. So only a little bit of emissions reduction was
6 necessary in order to meet that cap.

7 And it became even easier to meet those
8 targeted emissions reductions in light of the recession
9 that -- that reduced economic activity and reduced the
10 emissions that would have happened in the absence of
11 any kind of climate policy.

12 The -- the cap has since been tightened.
13 I see you were about to go there. The cap has since
14 been tightened, and -- and the price has come up. In
15 fact, the price is now at the ceiling. RGGI now
16 includes a ceiling price, a cap on prices, to -- to
17 limit the -- the -- how high prices can get. That
18 ceiling rises over time, but the price is currently at
19 the ceiling.

20 MR. BYRON WILLIAMS: Okay. And in
21 terms of the implications of that, you were talking
22 about a -- a two dollar (\$2) a tonne cost adder back in
23 2010.

24 Where are we now?

25 DR. DEAN MURPHY: Most recently, it's

1 at four dollars (\$4), or approximately four dollars
2 (\$4), I believe.

3 MR. BYRON WILLIAMS: And just so I
4 understand it, sir, when you were talking about the two
5 dollar (\$2) a tonne cost adder, your suggestion in your
6 analysis in 2010, going down to the sixth or seventh
7 line, is that -- at least as I understand it, that that
8 was not a -- expected at that level to make a material
9 effect on market prices.

10 Would that be fair?

11 DR. DEAN MURPHY: In the context of
12 that time, which included higher gas prices than we
13 have now. At this point in time, even a relatively low
14 CO2 price, perhaps not as low as two dollars (\$2), but
15 even a relatively low CO2 price will cause some amount
16 of dispatch switching between coal and gas, because at
17 low gas prices the dispatch cost of a gas plant is
18 comparable to that of a coal plant. And, in fact, some
19 gas plants are cheaper than some coal plants. And so
20 even a small CO2 price now will cause additional
21 substitution of gas for coal.

22 MR. BYRON WILLIAMS: And, so just so I
23 understand, when you use the word 'small', what figure
24 would you be -- have in mind, sir?

25 DR. DEAN MURPHY: Well, almost any CO2

1 price at this point will cause some additional
2 switching -- some switching of gas for coal,
3 substitution of gas for coal. Of course, if it's a
4 very low CO2 price it won't cause much. But because
5 gas and coal -- because gas prices have come down quite
6 a lot, the -- the relative economics of gas and coal
7 plants are quite comparable now, so any small change in
8 the relative economics will cause them to crossover
9 more than they do, will cause gas to dispatch more and
10 coal less.

11 MR. BYRON WILLIAMS: Okay. That --
12 that's helpful. Thank you very much.

13 Dr. Borison, I --

14 MS. MARILYN KAPITANY: Mr. Williams,
15 can I just ask a question on this point before we move
16 on?

17 MR. BYRON WILLIAMS: Yes.

18 MS. MARILYN KAPITANY: So I notice here
19 that it says that low CO2 generation plants. And in
20 there is included gas-combined cycle plants?

21 DR. DEAN MURPHY: Yes.

22 MS. MARILYN KAPITANY: Would that still
23 be the case in the -- the current context?

24 DR. DEAN MURPHY: Would -- would gas-
25 combined cycle plants still be considered low CO2, is

1 that your question?

2 MS. MARILYN KAPITANY: Yes.

3 DR. DEAN MURPHY: They are certainly
4 low CO2 relative to coal plants, which is more
5 important in MISO than it is in New England, because
6 New England has had at -- at the time of the -- the
7 Connecticut IRP, had relatively little coal generation,
8 and it has less now because it has retired many of the
9 old coal plants.

10 So, in the midwest, a gas-combined cycle
11 plant is low CO2 relative to the installed base of
12 generation.

13 MS. MARILYN KAPITANY: Thank you.

14

15 CONTINUED BY MR. BYRON WILLIAMS:

16 MR. BYRON WILLIAMS: Dr. Borison, how
17 are you?

18 DR. ADAM BORISON: Very well, thank
19 you.

20 MR. BYRON WILLIAMS: Eventually we're
21 going to be moving to Tab 13, page 92 of CAC Exhibit
22 45-3.

23 And, Dr. Borison, I don't know if you
24 recall but you may have heard Mr. Peters gently mocking
25 me for being a farm boy.

1 Do you remember that, sir?

2 DR. ADAM BORISON: I do.

3 MR. BYRON WILLIAMS: I'm not sure if he
4 said I was just a humble farm boy just off the turnip
5 truck, but that was the implication I drew.

6 So, sir, I want to just talk to you a
7 little bit about shadow pricing. And -- so, in the
8 terms that even a humble farm boy can understand, if I
9 suggested to you that shadow pricing was the
10 opportunity cost of an activity or a project to a
11 society computed when the actual price is not known, or
12 if known does not reflect the real sacrifice made, is
13 that a definition we can work with, or do you want to
14 improve it a little bit?

15 DR. ADAM BORISON: No, I -- I think
16 that's pretty good.

17 MR. BYRON WILLIAMS: And I'm going to
18 try and advance on it a little bit in a -- in a couple
19 different ways, just -- it would be fair to say that
20 sometimes this term is used to discuss less -- the cost
21 of decisions made at the margarine -- margin without
22 consideration for the total cost?

23 Would that be fair? Or I can give you
24 an example, sir, if you're -- if that would help.

25 DR. ADAM BORISON: That would be good.

1 That would be good. Thank you.

2 MR. BYRON WILLIAMS: If I was talking
3 to one of my sons and I -- he was saying they were
4 going on a trip, I might ask, How much is this trip
5 going to cost me?

6 DR. ADAM BORISON: Right.

7 MR. BYRON WILLIAMS: And they would
8 tell me it would cost so much for gas. But they would
9 be unlikely to include the wear on the tires, or the
10 cost of the money I might have had to borrow to
11 purchase the car.

12 DR. ADAM BORISON: Right. Yeah, I'm
13 not entirely sure if that's the example I would use.
14 To me, when I use the term 'shadow price', it's
15 typically in the context of a -- where you -- where
16 there's -- well, cap and trade would be a good example.
17 Essentially, if -- if you, basically, impose a
18 constraint on something, then you're effectively
19 putting a price on it. And that's often what people --
20 the term people would use as is a 'shadow price'. What
21 is the shadow price on carbon, for example, if you're
22 looking at a constraint? Something along those lines.

23 Is -- is that --

24 MR. BYRON WILLIAMS: That's helpful,
25 and -- and it's better than my example. As I

1 understand it, the main idea is that the shadow price
2 has to be inferred, since, while it is the basis for
3 the dec -- decision, it is not observed?

4 DR. ADAM BORISON: That is -- I think
5 that's fair, yes.

6 MR. BYRON WILLIAMS: Okay. I should
7 have just asked you what a shadow price was.

8 DR. ADAM BORISON: Okay.

9 MR. BYRON WILLIAMS: I -- now, again,
10 to you -- you they don't say this on the farm, but are
11 you familiar with the statement that the traditional
12 rule is that if the discounted expected N -- NPV is
13 positive, we should invest?

14 DR. ADAM BORISON: The simple NPV rule.
15 Yes. And, of course, as -- as we will soon find out,
16 there are many subtleties to that -- that statement.
17 But, yes, by and large, the simple rule for a set of
18 investments that are go/no-go at a particular moment in
19 time, is -- is that. Yes.

20 MR. BYRON WILLIAMS: And you pointed
21 that there are subtleties to this, and we'll come to
22 those --

23 DR. ADAM BORISON: Right, right, right.

24 MR. BYRON WILLIAMS: -- but you'll
25 agree with me, at a high level, while this is a basic

1 rule and a traditional rule, it is not always a rule
2 that one should follow?

3 DR. ADAM BORISON: Exactly true, yes.

4 MR. BYRON WILLIAMS: And so if we can
5 turn to page 93 of this -- your really interesting
6 article on the rush to coal.

7 DR. ADAM BORISON: Right.

8 MR. BYRON WILLIAMS: And just to remind
9 ourselves, Dr. Borison, you talk in your PowerPoint --
10 the PowerPoint that was presented on --

11 DR. ADAM BORISON: Right.

12 MR. BYRON WILLIAMS: -- on Monday -- we
13 do not need to go -- to go there --

14 DR. ADAM BORISON: Sure.

15 MR. BYRON WILLIAMS: -- but you talked
16 at slides 54 and 56 about the value of learning.

17 DR. ADAM BORISON: Yes.

18 MR. BYRON WILLIAMS: Do you recall
19 that, sir?

20 DR. ADAM BORISON: Right, right.

21 MR. BYRON WILLIAMS: And what you
22 presented at the -- the right-hand side of page 93 of
23 CAC Exhibit 45-3 is an -- a simplified illustrative
24 example of the -- of -- of the value of learning.

25 DR. ADAM BORISON: Right, right.

1 MR. BYRON WILLIAMS: And I see there
2 that you use a -- a figure of 1 billion, or 1,000
3 million, but I know Mr. Wojczynski likes a few extra
4 zeroes.

5 DR. ADAM BORISON: Right. Okay.

6 MR. BYRON WILLIAMS: So -- so maybe we
7 could -- we -- we could make it 10 billion instead of -
8 - instead of 1 billion.

9 Is that okay with you, Dr. Borison?

10 DR. ADAM BORISON: Sure, sure, yes.
11 Okay.

12 MR. BYRON WILLIAMS: And, Mr.
13 Wojczynski, does that work for you? You like the big
14 numbers?

15 MR. ED WOJCZYNSKI: Whatever works for
16 you works for me.

17 MR. BYRON WILLIAMS: And if we could
18 flip over one (1) more page, because I think the
19 example, Dr. Borison, is well ill -- illustrated. So
20 we should just add on -- so, Dr. Borison, essentially
21 I'm asking you to assume that an opportunity exists to
22 build a \$10 billion something --

23 DR. ADAM BORISON: Right.

24 MR. BYRON WILLIAMS: -- whose out --
25 output will be sold for export. And you can see here

1 that the investment would be made at the start of
2 period 1. And I'm going to ask you to assume that
3 we're very confident that net revenues of \$2 billion
4 are assured for the end of the first period.

5 DR. ADAM BORISON: Okay.

6 MR. BYRON WILLIAMS: You're with me,
7 sir?

8 DR. ADAM BORISON: I think so.

9 MR. BYRON WILLIAMS: But when we get to
10 the end of period 1, net revenues after that period are
11 uncertain. You'll -- you'll share that with me, sir,
12 that assumption?

13 DR. ADAM BORISON: Okay. I think so.

14 MR. BYRON WILLIAMS: And we're
15 uncertain whether the net present value will be 8
16 billion or -- or 13 billion.

17 Do you see that, sir?

18 DR. ADAM BORISON: Okay. Yeah, sure,
19 sure.

20 MR. BYRON WILLIAMS: Okay. And
21 currently the best information we have before we make
22 the decision whether to build or not, suggests that the
23 probability of either outcome in period 2 is 50/50.

24 Okay, sir? You're with me?

25 DR. ADAM BORISON: Okay. Okay. I

1 think so, yes.

2 MR. BYRON WILLIAMS: And so the
3 traditional rule would be if the discounted expected
4 net present value is positive we should invest? We've
5 talked about that before.

6 DR. ADAM BORISON: Right. If -- if the
7 choices are do nothing, or do this with no future
8 adjustments that would be the rule. Yes.

9 MR. BYRON WILLIAMS: Okay.

10 DR. ADAM BORISON: Let me -- let me
11 give you an example, which I -- if I can? Let me just
12 thank my colleague Matt Tanner if that's okay? A quick
13 example, or no?

14 MR. BYRON WILLIAMS: Absolutely.

15 DR. ADAM BORISON: The example I think
16 he -- he was --

17 MR. BYRON WILLIAMS: Lunch -- lunch is
18 waiting, but you're -- no, it's fine. I'm teasing.

19 DR. ADAM BORISON: It's -- it's --
20 yeah, but it's very -- it's good. I think it's Matt
21 that gave me this example. It's the issue if you were
22 buying a -- you're looking to buy an airline ticket and
23 you look at the airline tickets and you look across the
24 board and you decide, Well, here are my alt -- my
25 choices. I could buy an airline ticket for this, or

1 for that, and -- and I really want to go on vacation.
2 And -- and you do it, and you do an analysis and you
3 say, You know, it really is worth it and I should go
4 ahead and buy the ticket. And that would be the simple
5 rule, which is I have to -- I can buy a ticket, I
6 cannot buy a ticket, I can go on vacation, I can't go
7 on vacation.

8 And among those choices I'm going to buy
9 the ticket. It turns out it's going to cost me seven
10 hundred dollars (\$700). Now, if someone said to you,
11 Oh, but by the way, there's a pretty good chance that
12 next week there's a big sale and that prices are going
13 to go down to three hundred dollars (\$300). I'm not
14 sure, but it might happen, or it might go up to nine
15 hundred (900). I'm not -- I'm not entirely sure.

16 Well, then you might -- that's going to
17 just change your analysis, right. You are going to
18 say, Well, even though among my alternatives now I
19 really want to buy that ticket, you'd say that simple
20 rule, it's a little bit too simple. And instead not
21 that the rule -- not that the idea is not sound, but
22 you have to expand your alternatives and say, There's
23 some things I could do in the future. And if I -- if I
24 could improve my situation in the future, I might not
25 want to jump so quickly. And that's the basic idea.

1 MR. BYRON WILLIAMS: You might want to
2 wait, because there's a value to waiting?

3 DR. ADAM BORISON: Exactly. Exactly.
4 Or not, again, in the airline case, just to be clear,
5 you might say, Oh, guess what, there's a pretty good
6 chance that -- this is the -- the window I have, the --
7 the period is over, and I better go now. So it -- it
8 is not always the case, although sometimes it is, that
9 waiting is the right -- the right choice.

10 But that's -- I think the ticket's a
11 good example.

12 MR. BYRON WILLIAMS: And that's
13 fabulous, sir. And -- and so what you're trying to
14 illustrate in this simple hypothetical you present in
15 your paper, and what I'm inelegantly trying to
16 illustrate as well, is -- is how one can examine the
17 value of learning waiting --

18 DR. ADAM BORISON: Exactly.

19 MR. BYRON WILLIAMS: -- and -- and make
20 a -- a decision based upon that.

21 DR. ADAM BORISON: Exactly right.
22 Exactly right.

23 MR. BYRON WILLIAMS: So let's just take
24 the -- the -- estimating the net present value of
25 making the decision to build in period 1.

1 DR. ADAM BORISON: Right.

2 MR. BYRON WILLIAMS: It's on the
3 previous page if you need to -- to scroll to it, sir.
4 Or -- in essence, if I was using a 10 percent discount
5 rate, I'd take my \$10 billion investment, plus --
6 that's a negative, plus the -- the first period
7 returns, there -- there we have it there, of 2 billion
8 divided by one point one (1.1), which represents the
9 discount rate. And that would give us the expected
10 return for the -- the first period.

11 And then I would take into account the
12 expected return for the second period, recognizing that
13 there's a 50/50 chance it would be 13 billion and a --
14 versus 8 billion, agreed?

15 DR. ADAM BORISON: Yes.

16 MR. BYRON WILLIAMS: And so if we make
17 that decision at that point in time we would make it
18 knowing that the net present value would be \$496
19 million for that period.

20 Agreed, sir?

21 DR. ADAM BORISON: Yes. I think so.
22 If -- if the guys who wrote this article were right.

23 MR. BYRON WILLIAMS: Do you consider
24 Dr. Borison to be a reliable --

25 DR. ADAM BORISON: And -- yeah, both.

1 Yes, okay.

2 MR. BYRON WILLIAMS: And if we go to
3 the -- to page 94, we look at your calculation of the -
4 - on the assumption that we delay.

5 DR. ADAM BORISON: Right. Right.

6 MR. BYRON WILLIAMS: And if we delay
7 one (1) period, you present your calculation of the
8 expects NPV?

9 DR. ADAM BORISON: M-hm.

10 MR. BYRON WILLIAMS: Based upon a 50/50
11 probability and a 10 percent discount rate. And in
12 this simplified example, you get a value of 826.4 --

13 DR. ADAM BORISON: Right. Right.

14 MR. BYRON WILLIAMS: -- million,
15 agreed?

16 DR. ADAM BORISON: Yes.

17 MR. BYRON WILLIAMS: And, again, sir,
18 recognizing that this is a simplified example, what it
19 suggests is that not only can a simple NPV rule be
20 wrong, it can often be very wrong.

21 Would that be fair?

22 DR. ADAM BORISON: Sure, yeah, that is
23 -- that's true.

24 MR. BYRON WILLIAMS: I may come back to
25 that a bit -- a bit later.

1 DR. ADAM BORISON: Just again, I -- I -
2 - obviously, it depends on the circumstances, exactly,
3 it's certainly true.

4 MR. BYRON WILLIAMS: Mr. Chair, I just
5 have a -- a cramp. If I could -- a leg cramp. If I
6 could be allowed to stand up and walk around for just a
7 second? I've never had this happen before.

8 THE CHAIRPERSON: Why don't we all
9 stretch?

10

11 (BRIEF PAUSE)

12

13 CONTINUED BY MR. BYRON WILLIAMS:

14 MR. BYRON WILLIAMS: I don't know if I
15 was so excited by -- by that example or not. I
16 apologize for that.

17 DR. ADAM BORISON: If -- if I may --
18 sorry. I hope your cramp is better. Let me just see
19 if I may --

20 MR. BYRON WILLIAMS: Thank you.

21 DR. ADAM BORISON: -- can I just
22 clarify one (1) response? I -- I don't -- I want to
23 make sure I'm not misinterpreted, and I will speak more
24 slowly. The value of optionality, the value of delay,
25 is very much dependent on the cost of delay and the

1 alternatives that you have.

2 My example of the airline ticket again
3 is -- I think is very relevant. You might look at that
4 and say, Well, the opportunity expires or something
5 along -- along those lines.

6 So it's -- it's -- you have to be very
7 careful to look at the situation and determine if in
8 fact there is a -- what the costs are of the delay and
9 the potential benefit of that delay.

10 And part of what -- getting more to --
11 moving from airline tickets, more towards resource
12 planning and decision making, part of what I think I
13 helped Manitoba Hydro do was to look explicitly at that
14 very thing. And to their credit, which is not as
15 common as I think it should be, there was a great deal
16 of attention paid to looking at the possibility of
17 learning, what you might learn, and the flexibility you
18 might have.

19 And that's the -- that's all the work
20 that was done in the pathway conversation, to try to
21 understand which factors might one learn about, what
22 would the costs of that be, what would the benefit of
23 that be, and ultimately how might that contribute both
24 to higher value and lower risk.

25 So again, not to move away from the idea

1 that -- that delay can always be a good thing or, you
2 know, this -- all this conversation about the value,
3 that learning is always a good thing, that's -- that's
4 clear. But the costs and benefits of that learning
5 must be weighed very carefully, and just like in
6 airline tickets, also in resource planning.

7 MR. BYRON WILLIAMS: And that was the
8 message in slides 54 and 56 of your presentation, sir.

9 DR. ADAM BORISON: Thank you.

10 MR. BYRON WILLIAMS: Would I be fair in
11 saying that one of the points of your article about the
12 rush to coal is -- a central premise of that was, in
13 times of high uncertainty, that is particularly the
14 time that one must take into account the value of -- of
15 learning and -- and carefully assess both the
16 consideration of proceeding and also the delay?

17 DR. ADAM BORISON: Absolutely true,
18 yes.

19 MR. BYRON WILLIAMS: Okay. I have a
20 couple of short snappers, and they probably go to you,
21 Ms. Flynn. They relate to your PowerPoint presentation
22 of Monday, Exhibit 95, but they also -- I'm not sure
23 you're the witness, but you'll -- you'll tell me if I'm
24 -- I've got the wrong one.

25 And slide 20 from Pow -- Manitoba Hydro

1 Exhibit 95, and if you can scroll down the page. And,
2 Ms. Flynn, perhaps you can clarify this for both myself
3 and Mr. Harper.

4 MS. JOANNE FLYNN: Excuse me, Mr.
5 Williams. That will be Mr. Cormie.

6 MR. BYRON WILLIAMS: Okay. Sorry. I
7 apologize, Mr. Cormie. I have missed you. If we go
8 down to the bottom bullet, sir, we -- we see a
9 discussion of the WPS 300 megawatt system power sale.

10 Do you see that, sir?

11 MR. DAVID CORMIE: Yes.

12 MR. BYRON WILLIAMS: And the -- the
13 very last sub-bullet on the -- this page suggests that
14 it -- it is subject to Keeyask, Conawapa, and the new
15 US interconnection.

16 Do you see that, sir?

17 MR. DAVID CORMIE: Yes.

18 MR. BYRON WILLIAMS: And just as a
19 point of clarification -- and you may have discussed
20 this with Mr. Peters and I may have missed it, and if
21 so, I apologize.

22 Am I to take it that this means that the
23 contract requires Conawapa to be built, or am I to take
24 it that Manitoba Hydro has the option to cancel the WPS
25 sale if Conawapa does not proceed?

1 MR. DAVID CORMIE: The -- the contract
2 does not require Manitoba Hydro to build Conawapa. If
3 it does chose to build Conawapa, we are required to
4 deliver under the contract.

5 MR. BYRON WILLIAMS: Thank you.
6 Appreciate that.

7 MR. ED WOJCZYNSKI: Could I add to
8 that?

9 MR. BYRON WILLIAMS: Absolutely.

10 MR. ED WOJCZYNSKI: And Mr. Cormie can
11 comment, of course, on my comment. That is -- that --
12 that-- the intent with WPS is they want to have new
13 hydro, and that one (1) way of achieving that, and as
14 the contract calls -- or contemplates is that it would
15 come from Conawapa.

16 But in -- but -- but it also allows for
17 that it's new hydro, and we -- we can have plans such
18 as Keeyask/Gas, where the WPS and MP sales are met from
19 Keeyask and -- and then other -- as load grows in the
20 future, other resources are used to meet that other
21 load growth but the sales are met from Keeyask. So
22 that's the basis of the -- of the Keeyask/Gas 750 Plan.

23 MR. BYRON WILLIAMS: And -- and that's
24 very helpful, both Mr. Cormie and Mr. Wojczynski, so I
25 think you. Slide 87 talks about the cost of the 750

1 megawatt US interconnection.

2 Is that you, Ms. Flynn?

3 MS. JOANNE FLYNN: Yes, it is.

4 MR. BYRON WILLIAMS: And the second-
5 last sub-bullet on that page says:

6 "Plans with WPS sale, Manitoba Hydro
7 portion of capital, and ongoing
8 operating expenses equals 40
9 percent."

10 Do you see that?

11 MS. JOANNE FLYNN: Yes, I do.

12 MR. BYRON WILLIAMS: And I have -- may
13 have misunderstood Hydro's evidence on this point, but
14 I certainly was under the assumption that Manitoba
15 Hydro would be responsible for up to 49 percent of the
16 capital, as well as ongoing operating costs assoc --
17 associated with its share of the investment being 49
18 percent, as well as 17.7 percent of the ongoing
19 operating costs of Minnesota Power.

20 Would that be correct?

21 MS. JOANNE FLYNN: Just give me a min -
22 -minute there, Mr. Williams.

23

24 (BRIEF PAUSE)

25

1 MS. JOANNE FLYNN: There -- at the time
2 that we did the NFAT submission, there weren't -- there
3 weren't quite all those arrangements in place. So at
4 the time of the NFAT submission it was a little more
5 approximated than that, but it still fell within this
6 situation where we would not take -- take an ownership
7 position of more than 49 percent.

8 So the assumption that the 40 percent of
9 capital and operating costs and the 66 or 67 percent is
10 based on -- are a little bit different. And actually
11 it might be helpful to bring up slide 88. And I'll
12 just try and clarify --

13 MR. BYRON WILLIAMS: And if I could
14 interrupt you, just -- and then I'll let you do that
15 very happily. I just want to, before we leave page 87,
16 you pointed out to me the error I made was to think
17 that that slide was intended to represent the current
18 situation.

19 What you were doing with slide 87 was
20 explaining the basis for the analysis of the plans that
21 you undertook in 2012 and in 2013?

22 MS. JOANNE FLYNN: That's correct.

23 MR. BYRON WILLIAMS: Okay. Thank you.
24 And then, please, proceed.

25 MS. JOANNE FLYNN: Okay. Okay. So,

1 again, hopefully in simpler terms. The megawatts were
2 seven (7) hun -- or 750 megawatt. MP would be taking -
3 - initially taking a position on 33 percent, or -- or
4 250 megawatts of the 750 megawatts, which equals a
5 third. WPS was intending to take 200 of the 750
6 megawatts, which equals 27 percent.

7 Now, from the arrangements that were
8 being discussed at that time, Manitoba Hydro's actual
9 investment percentage in the line was going to be 18
10 percent. So the 40 percent that you see -- and -- and
11 actually, if you look at slide 88, the 122 million that
12 you see for Plans 5 and Plans 14, that represents that
13 18 percent investment in capital that Manitoba Hydro
14 was going to -- going to make.

15 And then by arrangements that were being
16 discussed -- the arrangement that was under discussion
17 at the time meant the rest of any sort of capital
18 portion would be funded and would show up in Manitoba
19 Hydro's ongoing operating and maintenance costs. So
20 the 499 million that you see for the ongoing operating
21 and maintenance costs consists of what I would call
22 actual operating and maintenance costs for the line
23 itself, and then the rest of this arrangement.

24 When WPS indicated that they would not -
25 - that there was a potential that they would not invest

1 in the line, we then did the analyses where you see
2 there 66 percent of the cost of the line capital and
3 operating cost of the line combined that are picked up
4 by Manitoba Hydro.

5 But in terms of the analysis, because we
6 didn't really have much more detail to go on, we simply
7 took the MP portion -- sorry, the WPS portion of the 27
8 percent, which was from the 200 megawatts divided by
9 the 750 megawatts, and added it to Manitoba Hydro's
10 portion.

11 So that became the 18 percent, plus the
12 27 percent, which is 45 percent of the capital cost, or
13 the investment portion of the line. And the rest,
14 again, to make up the -- any operating costs that --
15 that WPS was intended to pick up would then have been
16 added to the operating -- the ongoing O&M, as shown on
17 the slide by the number 567 million. So I hope that
18 provides some clarity.

19 MR. BYRON WILLIAMS: If it doesn't for
20 you, hopefully it will for Mr. Harper. If I could just
21 finish the thought.

22 So clearly, the 40 percent does not
23 represent current expectations, agreed?

24 MS. JOANNE FLYNN: Agreed.

25 MR. BYRON WILLIAMS: Does the 66

1 percent reflect current expectations?

2 MS. JOANNE FLYNN: No, they're both
3 done on that consistent basis. And I guess the other
4 thing I would add is you heard Dr. Jacobson talk about
5 the -- or in his slides was an indication that the cost
6 of the line has gone down. And the reduction in the
7 cost of the line is not reflected in these numbers
8 either.

9 MR. LARRY SOLDIER: Can I ask a -- a
10 question? In your CEF13 you identify Dorsey, the US
11 border of fi -- new 500 kV transmission line. And in
12 there it -- it states that in order to -- to facilitate
13 the transmission line, you need to spend some money.
14 And the -- the amount is 350 million.

15 Where is that in -- in this discu --
16 discussion? Like, do you -- is it to remain with
17 Manitoba Hydro? Or is it put as part of the
18 transmission line?

19 MS. JOANNE FLYNN: That represents the
20 Manitoba portion of the entire inter --
21 interconnection. And slide 88 is still up, so you see
22 on the -- towards the left-hand side of the slide, you
23 see Manitoba Minnesota Transmission Project. And you
24 see a capital cost of 277 million and the ongoing
25 operating and maintenance costs of 12 million.

1 The 350 million that you're looking at
2 is in nominal dollars. And this would be in base
3 dollars for the economic analysis. But those two (2)
4 numbers are reconciled on CAC/MH Round 1, 18b. And
5 you'll see that it's -- the 277 million is a 2014 cost.
6 And when you consider interest and escal -- escalation
7 and a revision made in the capital side of things, it -
8 - it will reconcile back to the 350 million.

9 One (1) is used in the financial
10 analysis, the other is used in the economic analysis.
11 If you go to the -- just go to the next page. This --
12 this is the -- the reconciliation of those -- those
13 numbers. So the economic analysis uses the value of
14 two seventy-seven (277) from Appendix 9.3, and that's
15 reflected in 2014 dollars.

16 The line underneath is the same number,
17 but in 2012 dollars. Then there's interest and
18 escalation that would be applicable to the financial
19 analysis. There's also a million dollars of sunk costs
20 that wouldn't be considered in the economic analysis,
21 to give you an in-service cost of 331 million.

22 And then on the capital side there is a
23 revision that added another nineteen (19).

24

25 (BRIEF PAUSE)

1 CONTINUED BY MR. BYRON WILLIAMS:

2 MR. BYRON WILLIAMS: Ms. Flynn, just to
3 try and get my head around the actual relationship now,
4 first of all, we know that Minnesota Power has revised
5 their capital estimate of the program to -- the
6 midpoint of their estimate is about 507 million.

7 Is -- is that right?

8 MS. JOANNE FLYNN: I believe that's the
9 number provided by Dr. Jacobson.

10 MR. BYRON WILLIAMS: Okay.

11 DR. DAVID JACOBSON: I can confirm
12 that, yes. That was Dr. Jacobson, back row, behind the
13 post.

14 MR. BYRON WILLIAMS: Just where we like
15 you, Dr. Jacobson. Ms. Flynn, in terms of the current
16 relationship, it's -- that's not -- this -- that's not
17 the 40 or the 66 percent?

18 MS. JOANNE FLYNN: Do you mean the 507
19 million?

20 MR. BYRON WILLIAMS: Yeah. And -- and
21 so I -- agreed? Like --

22 MS. JOANNE FLYNN: The -- the 507
23 million is the total cost of the Great Northern
24 Transmission Line, without considering who will invest
25 in it.

1 MR. BYRON WILLIAMS: And Manitoba Hydro
2 is responsible for 40 -- currently for 49 percent of
3 the construction costs, agreed?

4 MS. JOANNE FLYNN: I think I have to
5 pass this --

6 MR. BYRON WILLIAMS: And I'll get to
7 the --

8 MS. JOANNE FLYNN: -- over to Dr. -- to
9 Mr. Cormie.

10 MR. BYRON WILLIAMS: Okay. And, Mr.
11 Cormie, I'm going to try and -- Mr. -- Dr. Cormie.
12 I'll -- I'll try and confirm my understanding and then
13 -- in little pieces and then you'll correct me when I -
14 - when I get it wrong, which I no doubt will on this
15 particular issue.

16 Leaving aside any additional
17 contribution from Hydro to Minnesota Power for OM&A, in
18 terms of the construction costs, Manitoba Hydro will be
19 responsible for 49 percent, as well as responsible
20 directly for 49 percent of the OM&A associated with the
21 US line.

22 Is that correct, sir?

23 MR. DAVE CORMIE: Yes.

24 MR. BYRON WILLIAMS: And then in
25 recognition of the fact that Minnesota Power was

1 planning on a 33 percent ownership stake and has -- now
2 has a 51 percent ownership stake, Manitoba Hydro will
3 make a contribution to the OM&A costs of Minnesota
4 Power of 17.7 percent?

5 MR. DAVE CORMIE: No, Minnesota Power
6 will be making an additional 18 percent investment.
7 There's a revenue requirement that flows from that
8 investment. And the revenue requirement includes the -
9 - all the costs associated with maintaining that asset
10 and paying for it over the life of that asset.

11 And so -- and -- and as -- as we do in a
12 rate hearing when we talk about the rate -- the revenue
13 requirements assoc -- meet -- meeting the revenue
14 requirements associating with us investing in a
15 generating station, those costs include the
16 depreciation, the taxes, and in -- and in the case of
17 Minnesota Power, there will be a return on the
18 investment. Plus, the -- you know, the ongoing
19 operating and maintenance costs of sending the crews
20 out there to do brush clearing and -- and inspections
21 of the line.

22 So all those costs will have to -- have
23 to be -- flows into the revenue requirement, and
24 Manitoba Hydro will be paying that revenue requirement.

25 MR. BYRON WILLIAMS: Okay. So in -- in

1 terms of Minnesota Power's share, they will be
2 responsible for 51 percent of the construction costs --

3 MR. DAVID CORMIE: Yes.

4 MR. BYRON WILLIAMS: -- agreed? And
5 out of their pockets will come 33 percent of the OM&A?

6 MR. DAVID CORMIE: Their -- their
7 customers will pay the revenue requirements for the --
8 the 33 percent, yes.

9 MR. BYRON WILLIAMS: And the associated
10 revenue requirement with the additional 18 percent
11 investment of Minnesota Power will be paid by Manitoba
12 Hydro to Minnesota Power --

13 MR. DAVID CORMIE: Yes --

14 MR. BYRON WILLIAMS: -- agreed?

15 MR. DAVID CORMIE: -- on an annual
16 basis.

17 MR. BYRON WILLIAMS: And included in
18 that will be a return on equity?

19 MR. DAVID CORMIE: Yes.

20 MR. BYRON WILLIAMS: Okay. Just one
21 (1) second, please.

22

23 (BRIEF PAUSE)

24

25 MR. BYRON WILLIAMS: That's helpful.

1 If -- if we can go back to slide 88, I believe, for a
2 moment, Ms. Flynn?

3 Would -- would Manitoba Hydro, perhaps
4 by way of undertaking, be able to provide the
5 derivation for both the capital costs column -- 2014
6 capital cost columns as well as the ongoing O&M
7 columns?

8 We're -- we're having trouble kind of
9 making the math work. Would you undertake to provide
10 the derivation for both those columns?

11 MS. JOANNE FLYNN: Yes, we can do that.

12 MR. BYRON WILLIAMS: By way of
13 confirming the undertaking, Manitoba Hydro, with regard
14 to the slide 88 of Hydro Exhibit 99, is undertaking to
15 provide the derivation of the capital cost estimates in
16 2014 dollars set out for the second-last column, as
17 well the ongoing O&M calculation set out in 2014
18 dollars of the last column.

19 MS. JOANNE FLYNN: Do we understand,
20 Mr. Williams, that you're only interested in the Great
21 Northern Transmission line portion?

22 MR. BYRON WILLIAMS: That's what I
23 understand, but let me just check. We're very happy
24 with that, thank you.

25

1 --- UNDERTAKING NO. 42: Manitoba Hydro to provide,
2 with regard to the slide 88
3 of Hydro Exhibit 99 and the
4 Great Northern Transmission
5 line portion, the
6 derivation of the capital
7 cost estimates in 2014
8 dollars set out for the
9 second-last column, as well
10 the ongoing O&M calculation
11 set out in 2014 dollars of
12 the last column
13

14 MR. BYRON WILLIAMS: Mr. Chair, I do
15 note -- I've been in consultation with my colleagues.
16 I expect to have about an hour to an hour and twenty
17 (20) minutes remaining. I note Ms. Saunders has -- has
18 indicated to me that her time estimate is around an
19 hour or a bit less than an hour, and I also understand
20 that my friend Mr. Orle does not anticipate cross-
21 examination, so I'm hoping, with permission of the
22 Board, that we can proceed.

23 We're -- some of our questions are aimed
24 at assisting other panellists as well, so we'd like to
25 extend into the afternoon with -- with your permission?

1 And if this is a good time for a break?

2 I really want to thank Manitoba Hydro for this last
3 bit. It's -- you -- you were helpful in cleaning --
4 cleaning up a fair bit of confusion, at least on my
5 part, and perhaps on Mr. Harper's part, as well.

6 Mr. Chair, I suggest we maybe stand
7 down, and I'm ready to return at 12:45, or 1:00,
8 whatever you determine.

9 THE CHAIRPERSON: Okay. I -- I would
10 like to understand -- following up on the request that
11 has been made by Mr. Williams, I need to understand the
12 revenues that will flow to support the investment and
13 the OM&A costs that have to be supported. So I'm
14 trying to understand the source of the revenues that
15 will pay for those costs.

16 So I wonder if you could extend the
17 request that's just been made to include a derivation
18 of the revenues that will flow for this investment.

19 Is that possible?

20 MR. DAVID CORMIE: I'm -- I'm unclear,
21 Mr. Chairman. What revenues are you speaking of?

22 THE CHAIRPERSON: Well, what I'm trying
23 to understand is, revenues need to flow to cover the
24 cost of this investment and the ongoing operating and
25 maintenance costs. And I understand that some of it

1 will -- will originate from transmission flows not
2 related to Manitoba Hydro. In other words, you know,
3 you will be selling somewhat more -- I'm sorry, you'll
4 be selling some of the transmission that will be
5 flowing on that line to other parties, I'm assuming.

6 So you -- I -- I guess I'm wondering, in
7 terms of justifying it as an investment, is there an
8 underlying business case that would show the amount of
9 revenue that will need to be supported by Manitoba
10 Hydro, relative to what would be generated from other
11 sources?

12 MR. DAVID CORMIE: In the -- in the
13 economic analysis of every development plan that
14 includes the 750-megawatt line, these -- these revenues
15 and costs are part of that -- part of that plan. And -
16 - and then, through the -- the analysis associated with
17 the delivery of surplus energy, the sale of that
18 surplus energy shows up as revenue, because it's
19 facilitated by that line, and our ability to purchase
20 power at a lower cost than we would otherwise shows up
21 as -- as reduced cost.

22 And so through the production costing
23 analysis associated with each plan, the overall cost of
24 that plan incorporates the revenues, the -- the
25 incremental revenues and the -- and -- and the costs

1 associated with importing power on that line. So
2 that's all built into the economic analysis associated
3 with each plan.

4 There -- there's not a separate -- it --
5 it would be -- it's the same as the northern collector
6 lines for the generating station. Those costs are --
7 are -- those costs are necessary for that generating
8 station to deliver power to the grid. The costs
9 associated with the Great Northern Line are -- are
10 necessary because the 750 line needs -- 750-megawatt
11 case needs the Great Northern line, so those revenues
12 and costs associated with that plan are -- include all
13 -- all those costs. There is no other analysis other
14 than the ones that we've prepared.

15 And so when you see the -- when you see
16 the -- the expected value of the -- in -- in the quilt,
17 for example, and you're comparing one (1) plan to
18 another plan, and one (1) plan has the 750-megawatt
19 line in and one (1) plan has a 250-megawatt line in,
20 the difference in -- in expected benefits is
21 attributable to making the investment in -- the
22 incremental investment in the -- the larger line,
23 because it -- it -- and -- and it also -- and some of
24 those benefits are from increased sales, more
25 arbitrage, and reduced power purchases costs because

1 you're able to import low-cost energy.

2 The -- I believe the only thing that's
3 not built into there is the reliability benefits, and I
4 could be corrected on that. There's no -- no
5 additional value put on -- on those scenarios.

6 MR. RICHARD BEL: Mr. Cormie, I
7 understand what the Chairman was asking, but -- so
8 maybe I can ask it in a different way.

9 You said that -- or it was discussed
10 that once this line was built it could be sold. So in
11 fact if you did sell your portion of that transmission
12 line, I guess what we're asking is:

13 What kind of fees would be charged to
14 support them investing from some other company to
15 Manitoba Hydro, or whatever power is flowing over that.
16 We're looking to try and get an idea of what kind of
17 revenue it could earn if you analyzed it a different
18 way.

19 In other words, what will you charge
20 yourself for that line, I guess.

21 MR. DAVID CORMIE: The -- the business
22 case that we put forward assumes that we don't sell off
23 that asset in the United States. We -- we assume that
24 we are -- we're stuck with these costs in perpetuity.
25 That's the numbers that are shown on slide 888. To the

1 extent that we can sell that asset, that would make the
2 -- make the investment better.

3 And, as I said a -- a couple of days
4 ago, Manitoba Hydro, if -- if we were able to, would be
5 the least-cost developer of this line, because our
6 lower cost of capital. And it would be preferable if
7 we could build the whole line to Duluth, and -- and own
8 it, and pay -- you know, pay for it. That would be the
9 most attractive thing to do, but because Minnesota
10 Power has the right of first refusal, they -- they --
11 we -- we don't have that option.

12 And so we have to -- we have to have
13 them as an owner. And -- and the question is -- is:
14 Can Manitoba Hydro find another transmission owner
15 who, compared to Minnesota Power, would be -- would
16 cost Manitoba Hydro less? And that's -- that's -- as I
17 mentioned before, we're trying to find another US owner
18 who's expectations to earn on the line are less than --
19 than Minnesota Power, so that, in effect, we can have -
20 - it -- it would be the same as if Manitoba Hydro were
21 owning the line in the United States, the -- the
22 economic outcome.

23 So we're trying to find an option that
24 reduces the cost of -- of the numbers that are shown on
25 this -- on this slide. And -- and as -- as I mentioned

1 before, we are in active discussions with -- with a
2 transmission owner who -- who is -- who is keenly
3 interested in doing that. And, hopefully, these
4 numbers that are -- that have been included are on the
5 high -- on the very high side of what it ultimately
6 costs once we have all the business arrangements in
7 place.

8 MR. RICHARD BEL: Mr. -- oh, sorry.

9 THE CHAIRPERSON: So just to make sure
10 I understand, in respect of the -- the counterparty in
11 this case, or your partner in this case, so their
12 revenue flow in relation to their investment is purely
13 the power they buy from -- I mean, they're not getting
14 any revenue source related to this investment to
15 support -- they want to put money up front to get -- to
16 get this thing built, as will Manitoba Hydro.

17 So what's the revenue source for them in
18 respect of this transaction?

19 MR. DAVID CORMIE: So Minnesota Power
20 is investing in the extra capacity from 33 percent up
21 to 51 percent. There's a cost associated with that.
22 They have to go and borrow the money, they have to take
23 some of their equity, and they will want to earn on
24 that. And so they will -- they will earn on the amount
25 of equity that they invest in that line. And so they

1 get a return on investment, and -- and so there is an
2 incentive there.

3 The other incentive that they have is
4 that the cost that their customers have to pay for
5 transmission is reduced, because of economies of scale.
6 Taking a third of a large line is less expensive than
7 building a small line on a -- in -- in terms of capital
8 cost. There's a 10 percent cost saving there. So they
9 can -- they can provide transmission service to their
10 customers at a lower cost by that.

11 In addition, we've agreed to provide
12 them with more wind storage benefits, and -- than they
13 would get under the 250-megawatt sale agreement. Under
14 that agreement they're entitled to a quarter of a
15 million megawatt hours of wind storage benefits a year.
16 As part of the incen -- of -- of the -- of agreeing to
17 upsize the line from 250 megawatts to 750, we've agreed
18 to give them another three quarters (3/4s) of a million
19 megawatt hours of wind storage benefits a year.

20 And, in addition to that, they are
21 entitled to some additional environmental attributes.
22 And so there's a package of -- of benefits that
23 Minnesota Power will receive, and this package was
24 described in the 500 kV interconnection term sheet.
25 And -- and we are in the process of -- of trying to

1 convert that term sheet into a -- a final contract.
2 And we need to have that contract finalized shortly so
3 that we now can enter into the facility's construction
4 agreement with MISO, and Minnesota Power can get on
5 with -- with the -- the regulatory process. Because
6 until they bring the complete package to the regulator
7 saying -- to show how the extra costs associated with
8 the line are going to be paid for, they -- they can't
9 proceed.

10 And so it is on the critical path, and
11 we're actively working on that. The delay has been
12 that Manitoba Hydro and Minnesota Power have to define
13 what that business relationship is. And -- and there
14 are several options and they all involve tax and
15 regulatory issues. And -- and we are going through a
16 screening exercise to find out which one (1) of those
17 is -- is the best one.

18 Really, that's only relevant though if
19 we -- if we end up being an owner by the time we get to
20 the point of making the investment. If -- if Manitoba
21 Hydro can find another transmission owner in the United
22 States to take over that 49 percent, then Manitoba
23 Hydro can -- can walk away from the ownership issue and
24 the investment issue. We will just then have to fund -
25 - we'll have some fund -- ongoing funding requirements,

1 but we don't have the ownership issue anymore, because
2 it'll now be owned by entities that normally do
3 business in the United States and -- and normally pay
4 taxes.

5 And so Manitoba Hydro is trying to find
6 a structure that avoids the tax and regulatory issues
7 of owning an asset in the United States. That doesn't
8 relieve us of -- of some cost obligations, but -- but
9 hopefully we will be able to get the -- this third
10 party to -- to take on those things at a lower cost and
11 at a lower risk to the company than if we stayed as the
12 owner of last resort.

13

14 (BRIEF PAUSE)

15

16 MR. DAVE CORMIE: And I -- I would say,
17 Mr. Chairman, I expect that those arrangements will be
18 finalized and we will file that arrangement with the
19 panel before the -- before this hearing adjourns.

20 MR. RICHARD BEL: Just a point of
21 clarification, are you talking -- when you're looking
22 for the other party for the transmission line, are you
23 talking about the 18 percent portion or your entire
24 ownership?

25 MR. DAVE CORMIE: The ownership

1 structure as it is now is Minnesota Power will own 51
2 percent, Manitoba Hydro will go 49. It's the 49
3 percent that -- we will not be the owner of that 49
4 percent.

5 MR. RICHARD BEL: Okay --

6 MR. DAVE CORMIE: The -- the 18
7 percent, the cost of -- of Minnesota Power's
8 incremental ownership from 33 to 51, the revenue
9 requirements have to be paid for by Manitoba Hydro.

10 MR. RICHARD BEL: Thank you. That's
11 clear. Thank you.

12 THE CHAIRPERSON: It's an appropriate
13 time to break. I would suggest that we resume the
14 proceedings at one o'clock sharp, please. Thank you.

15

16 --- Upon recessing at 12:08 p.m.

17 --- Upon resuming at 1:03 p.m.

18

19 MR. BYRON WILLIAMS: Good afternoon,
20 members of the panel. Sorry.

21 THE CHAIRPERSON: Good afternoon. I
22 notice that we have some documents that have been
23 provided to us. I wonder if we can acknowledge them
24 right now?

25 MR. BYRON WILLIAMS: Yeah. If -- this

1 is Exhibit CAC-45-4. There's three tabs to it. And in
2 reviewing the documentation last night, I noted that we
3 had a labelling error, not a numerical error but a
4 labelling error, on the very last page, being page --
5 the page numbered 6 of 45-4.

6 So you may have received a separate
7 table individually provided called 'Comparison of ROE
8 Premiums', or alternatively I'll explain how to -- it's
9 -- so the very -- the single page handout is just a
10 replacement page for the last page of CAC-45-4. And
11 I'll explain it when we get to it. It's -- it's not a
12 number change. It's just how we labelled it.

13 MR. ED WOJCZYNSKI: Mr. Chair and Mr.
14 Williams, I was wondering if we -- if we would be able
15 to provide some additional response to Mr. Williams
16 question earl -- from earlier this morning on learning,
17 if that would be acceptable?

18 THE CHAIRPERSON: Absolutely.

19 MR. ED WOJCZYNSKI: And I appreciate
20 Mr. Williams's flexibility and openness to us giving
21 more information. There was a discussion shortly
22 before lunch on learning, and how -- I couldn't say it
23 as well as was said this morning but how there is
24 benefit from -- as you go along to learn things, and --
25 and make a decision at various points whether you

1 should proceed with something or not.

2 And sometimes as you learn more you
3 decide there -- there's a -- you should delay, and as
4 you learn more maybe you should delay more. Other
5 cases, you decide, no, you've learnt something and you
6 should proceed. Now, that -- that isn't putting it
7 very well but -- but there was an interrogatory that we
8 had prov -- provided a response, PUB/Manitoba Hydro-I-
9 279, where we provided some work we had done on the
10 effects of learning on our pathways.

11 You will remember there were five (5)
12 pathways, and -- and we said for each pathway there
13 were different plans you could go with, and that also
14 in the plans -- I'll use Conawapa as the -- the big
15 one, we don't have to necessarily decide right away.
16 And now we're in 2018 to Conawapa, we could decide to
17 do gas or we could defer Conawapa and do it later.

18 And one of the benefits, and this is
19 discussed in Chapter 14, is between now and 2018 we'd
20 learn more. We'd learn more about DSM, gas prices,
21 export prices, Dave Cormie's negotiations.

22 And so there -- we -- we did have work -
23 - work in this PUB-1-279, where we took the pathways
24 and applied just a different -- I won't try and explain
25 the whole thing here, but decision points. And the --

1 the conclusion of that was -- and it's on page 8 of
2 that interrogatory about halfway down the page, I
3 guess. The -- the -- page 8 of the interrogatory. I
4 don't think we're there yet. Yeah. Page -- page 8.

5 MR. BYRON WILLIAMS: Is -- is it 279?

6 MR. ED WOJCZYNSKI: Okay. 279, PUB-1-
7 279. And this is -- this is the right one. And I
8 don't -- I don't want to take time here explaining the
9 whole thing.

10

11 (BRIEF PAUSE)

12

13 MR. ED WOJCZYNSKI: Yeah, just a tinge
14 further. Thank you. What we did is we looked at all -
15 - different decision points, and at different time --
16 depending on what's happened with gas prices, export
17 prices, at a future point in time we'd change our mind
18 about do we go with gas, do we go with Conawapa, or --
19 or do we defer Conawapa.

20 And -- and we did an analysis that said,
21 well, what -- how would having that learning and
22 flexibility and optionality affect our choice between
23 those five (5) pathways that we're looking at at that
24 time. And our conclusion was that in Pathway 1, that
25 depending on what's happening, there -- there wasn't --

1 there wasn't really an optionality effect, or at least
2 certainly not a significant one.

3 And in that analysis, that Pathway 4
4 which had Keeyask, either gas or Conawapa, because
5 Pathway 4 you -- you just start with Keeyask and decide
6 later, but it probably had the best benefit from
7 learning and optionality.

8 So that -- that was a -- a study of what
9 learning could do, and it's a little bit closer to the
10 real world than just looking at the fixed plans,
11 because we know we can learn over time and adapt what
12 we're doing.

13 So, anyways, I thought we'd draw the
14 attention to there are about three thousand (3,000) IRs
15 and nobody -- well, I shouldn't say nobody has read all
16 of them, but not many have read them all. And -- and
17 this is one that sort of got, I -- I think, paid undue
18 attention. So we wanted to draw, particularly given
19 the discussion this morning....

20 What this doesn't do to -- to -- and I -
21 - I want to be careful. We didn't have something where
22 we -- we could look at a higher DSM level and push
23 things back five (5) years, and start analyzing those
24 things. That -- that was not analyzed in the -- this
25 was in the original submission context, so. But it

1 still, I think, provides some useful information.

2 Thank you.

3 MR. BYRON WILLIAMS: And -- and, Mr.

4 Wojczynski, I -- I thank you very much for that,

5 because this -- this is one of my favourite IR

6 responses of the -- of the proceeding. And -- but

7 you've -- I think you've anticipated my -- my question,

8 is that this would not take into account the reduced

9 load through DSM Scenarios 1 or 2 or -- or 3.

10 Would that be fair?

11 MR. ED WOJCZYNSKI: Yeah, this one did

12 not start with that. This started with the 2012, and -

13 - and it was focussing on what happens as gas prices or

14 export prices evolve. It didn't deal with changing

15 load or changing capital cost.

16 And a -- a full scale, as we indicate in

17 the -- at the bottom of the page where it says,

18 "discussion," really to do the -- the ideal job in this

19 you'd look at a thousand different possibilities and

20 put probabilities to them and all integrate them. And

21 we certainly didn't do that. It was -- it was a step

22 in that direction, but -- but not as far as you could

23 theoretically go. I don't know if -- Mr. Borison is

24 more familiar with this. It was under his guidance we

25 had prepared this.

1 DR. ADAM BORISON: Yeah. Again, I hope
2 it's not going to take too much time. I'd like to just
3 maybe expand slightly on what I -- I said this morning,
4 again, along the lines of -- of what Ed has talked
5 about. As you might -- if you look at my CV I think
6 you might see, I -- I am a big fan of optionality and
7 option value. And it can, in fact, be significant in
8 many cases. And we look at it quite closely here.

9 What I wanted to -- to make it also
10 clear is one of the conditions when, in fact, there is
11 a significant options value and -- and things like the
12 simple NPV rule don't make a lot of sense.

13 And I just want to be very careful to
14 make it clear that there are three (3) conditions, not
15 just one (1), where that's the case. One, you have to
16 have uncertainty. And I think we all agree there's a
17 lot of uncertainty; whether it's more or less, but
18 there's definitely a lot of uncertainty.

19 Second thing -- and we -- so we have
20 that -- we -- we get that for free, basically. The
21 second thing, you -- you do have to have learning. And
22 a lot of times you think, we'll, I'm going to learn,
23 but you don't, or -- or you might -- it's very -- you
24 have to be careful about, What will I really learn in
25 the next few weeks, few months, few years, because

1 you'll look back at history and you might say, Gee, I
2 didn't learn that much, you know, about natural gas.
3 You know, I thought I was. I didn't really -- along
4 those lines. So you have to think carefully about when
5 you really have learning.

6 And the third piece which you have to
7 make sure not to forget is you have to be able to act.
8 You have to have flexibility. In other words, you have
9 to have uncertainty and then learn, and then you have
10 to have some capability to change your mind. And if
11 conditions have changed so you can't do that, you don't
12 get that extra value.

13 And one of the things that people often
14 do that I think is -- sometimes can be a little bit
15 incorrect is to think of delay as a good thing. Delay
16 by itself usually is costly, frankly. So delay itself
17 is not the thing you're looking for. You're saying,
18 The delay will allow me to do some things. Well, it
19 will allow me to learn, and then it will allow me to
20 act. And so that's where the value comes from.

21 And so what we tried to do in this IR
22 and in our analysis was to think carefully about what
23 are the situations here, what might we learn about, and
24 how might we act? And just like the airline ticket
25 example, there may be cases where you lost a -- lost a

1 chance.

2 You -- you can't act. You lost your
3 chance to do something. Perhaps that's a transmission
4 or an export sale or building a dam in the right
5 season. You have to be careful you haven't lost those.

6 But there is this idea that we have to
7 be careful when we look at uncertainty and do that kind
8 of analysis to think about the uncertainty itself, the
9 learning we might get if we postpone or some other
10 action, and then what we might do once we have
11 postponed.

12 And those are three (3) pieces necessary
13 really to establish an added value that you need to be
14 careful about when you look at something like NPV. I
15 hope that helps.

16 MR. BYRON WILLIAMS: Thank you. It was
17 helpful to me if -- and no doubt to Mr. Dunsky and Mr.
18 Higgins as well. So I thank you for that.

19 Ms. Flynn and Mr. Wojczynski, CAC
20 Exhibit 45-3, page 37, just for a moment. And don't --
21 don't worry, I'm not going to read through all the
22 plans. But -- but just for your benefit and for the
23 benefit of the Board, in our next discussion we are
24 going to be going through some of the evaluations that
25 Manitoba Hydro undertook and using some of the plans.

1 So I would -- I would suggest that you
2 might want to just keep your finger or a -- a sticky on
3 this page as we go through if you want to reflect back.
4 And if at any point in time in our following discussion
5 you get last -- lost on which plan we're talking about,
6 please stop us and we'll -- we'll reorientate everyone.

7 THE CHAIRPERSON: So I -- I just wanted
8 to follow up on what we just talked in respect of the
9 benefits from learning. When applied to a decision
10 that is before us, and -- and namely Keeyask now,
11 Keeyask -- I'm sorry -- decide to proceed June versus
12 deciding to proceed two (2) years from now, can you --
13 can you apply this methodology to help you make that
14 decision?

15 MR. ED WOJCZYNSKI: If we had a -- a
16 large number of other plans and information, we could
17 do that. But one (1) of the pieces of information we
18 have right now that -- if -- if we at -- in June 20th
19 said we'd been collectively -- PUB recommend/government
20 decide that we're not going to accept proceeding with
21 interconnection and Keeyask for '19, that we want to
22 wait two (2) years and decide then, one (1) piece of
23 information we have today is that in all likelihood
24 that option will not be available as two (2) years from
25 now.

1 We could probably make export sales two
2 (2) years from now, maybe not to Minnesota Power. And
3 Mr. Cormie talked about that a bit the other day. But
4 the -- the real window of opportunity we have is for
5 the infrastru -- the interconnection infrastructure.

6 Manitoba Hydro fully expects that two
7 (2) years and five (5) years and ten (10) years from
8 now, that, assuming we have firm surplus available in
9 the future, we'll find export sales and we'll be able
10 to sell it. And the -- the price would be the market
11 price then.

12 What we have uniquely right now is a
13 combination of opportunities for the inter -- the
14 interconnection. And Minnesota Power's not going to
15 sit for two (2) years waiting for us to decide whether
16 we want to do that or not. They'll -- they'll have to
17 decide and -- and go do something else.

18 So we -- if we did what you're
19 suggesting, we could do an optionality analysis on
20 that, but one (1) of the things in that would be that
21 in all likelihood we would have lost this
22 interconnection opportunity and we couldn't two (2)
23 years from now be assuming we would have it.

24 What -- what this did is say that -- we
25 -- we've said many a time that you're not committing to

1 Conawapa right now. And we've done an evaluation that
2 says if you do have Conawapa this is what the benefit
3 is with all the twenty-seven (27) scenarios. We have
4 another plan that says if you don't do Conawapa, but
5 you do Keeyask/Gas, under all the twenty-seven (27)
6 scenarios this is what you have.

7 But this says you decide now on Keeyask
8 and the interconnection and two (2) years, or three (3)
9 years, four (4) years from now -- four (4) years from
10 now, you look at gas prices and export prices and if
11 they're high you go with Conawapa; if they're low you
12 go with gas. And now you compare that against one (1)
13 of the other pathways. That's what this does.

14 MR. BYRON WILLIAMS: Thank you. And
15 just for a -- a time update, and -- it was kind of Mr.
16 Wojczynski to offer to provide his insight, and we're -
17 - I think we're fine for time. Just for the Board's
18 information, we've canvassed now with M. Monnin, as
19 well as Ms. Saunders, and Mr. Orle, and we have about
20 an hour for Ms. Saunders, less than one half (1/2) hour
21 for Mr. Monnin. And then MKO will not be taking time
22 now.

23 I'm going to try and be done on a timely
24 basis, but I'm interrupting less, perhaps, because I --
25 I think we do have a bit of time for the panel.

1 (BRIEF PAUSE)

2

3 CONTINUED BY MR. BYRON WILLIAMS:

4 MR. BYRON WILLIAMS: I'm not sure who
5 the next couple questions go to, but Manitoba Hydro can
6 confirm that at the time the 20 -- 2012 basic
7 evaluation was undertaken, the need-date was the
8 2022/2023 year.

9 Is that fair?

10 MS. JOANNE FLYNN: Yes.

11 MR. BYRON WILLIAMS: And at the time of
12 the 2013 update of your evaluations the assumed need-
13 date was 2023/'24, agreed?

14 MS. JOANNE FLYNN: That's correct.

15 MR. BYRON WILLIAMS: And the
16 information we have from the NFAT, we do not need to
17 turn there, but chapter 12, is that the Corporation's
18 expectation of the earliest in-service date for
19 Conawapa is now 2026/'27.

20 Would that be accurate?

21 MS. JOANNE FLYNN: Yes, that was the
22 assumption.

23 MR. BYRON WILLIAMS: Okay. If we can
24 turn to Hydro Exhibit 95, page 4, please.

25

1 (BRIEF PAUSE)

2

3 MR. BYRON WILLIAMS: And I'm not sure
4 if this is Ms. Flynn, or Mr. Cormie, but you'll just --
5 in terms of what this -- this slide demonstrates, or
6 discusses, is the need for new resources assuming no
7 new exports.

8 Would that be accurate?

9 MS. JOANNE FLYNN: Yes.

10 MR. BYRON WILLIAMS: And on --
11 generally we consider Hydro to be energy constrained
12 rather than capacity constrained for the foreseeable
13 future?

14 MS. JOANNE FLYNN: The Manitoba Hydro
15 system is typically energy constrained rather than
16 capacity constrained.

17 MR. BYRON WILLIAMS: And -- and what
18 this table does -- what this table does is sens -- sets
19 out the 2012 planning assumptions through to the
20 planning assumptions associated with a variety of the
21 DSM scenarios, including Plans 1, 2, and 3, agreed?

22 MS. JOANNE FLYNN: Yes.

23 MR. BYRON WILLIAMS: And if we focus on
24 the dependable energy side, and we can see that of the
25 DSM scenarios, the -- under -- the earliest need-date

1 under DS -- NFAT DSM 2, with increased pipeline load
2 would be 2027/'28, agreed?

3 MR. TERRY MILES: That's correct.

4 MR. BYRON WILLIAMS: Mr. Miles, there
5 was a reason you were at the front row.

6 MR. TERRY MILES: I guess so.

7 MR. BYRON WILLIAMS: And the farthest
8 out date we see on the energy side would be associated
9 with DSM Scenario 3 being the year 2033/'34, agreed?

10 MR. TERRY MILES: That's correct.

11 MR. BYRON WILLIAMS: And in terms of
12 winter peak capacity, leaving aside DSM Scenario 2, the
13 winter peak capacity need-date for the DSM scenarios is
14 later than the dependable energy need-date.

15 Would that be fair, Mr. Miles, with that
16 one (1) exception?

17 MR. TERRY MILES: That's fair, yes.

18 MR. BYRON WILLIAMS: And the one
19 exception is DSM Scenario 2, where we see that the
20 need-date both for winter peak capacity and dependable
21 energy is the '31/'32 year, agreed?

22 MR. TERRY MILES: Correct.

23

24 (BRIEF PAUSE)

25

1 MR. TERRY MILES: Yeah, I think -- it
2 was just pointed out to me, DSM-3 has a similar
3 situation, as well. Dependable energy requirement
4 2033/'34, and a requirement for winter peak capacity in
5 2033/'34, as well.

6 MR. BYRON WILLIAMS: I apologize for
7 that. Thank you for that clarification.

8 And one (1) kind of clean-up question
9 related to Manitoba Hydro Exhibit 107 revised, which
10 was filed yesterday. I don't know if that's you, Ms.
11 Flynn, or Mr. Wojczynski, but one (1) of you two (2), I
12 suspect.

13 MR. ED WOJCZYNSKI: I can certainly
14 start with it, and...

15 MR. BYRON WILLIAMS: And I was
16 referring to Manitoba Hydro Exhibit 107 revised, page 1
17 of 1.

18

19 (BRIEF PAUSE)

20

21 MR. BYRON WILLIAMS: Thank you. And,
22 Mr. Wojczynski, just to let you know where the
23 questions are going, I'm -- I'll get to the question in
24 a moment, but I'm trying to understand the implications
25 of the DSM Scenarios 2 and 3 on plan -- on the Hydro

1 Plan, and on the -- the Keeyask/Gas Plan.

2 And just, if I look the third row down,
3 in term -- am I correct in suggesting to you that if I
4 look at Scenario 2 for Keeyask and then Gas, the
5 benefit to Manitoba Hydro would be in the range of \$410
6 million?

7 Is that right, sir?

8 MR. ED WOJCZYNSKI: Yes.

9 MR. BYRON WILLIAMS: And if I go down
10 one (1) line, am I correct in saying -- looking at
11 Scenario 2 again but Keeyask/Conawapa, is the benefit
12 there 45 million?

13 MR. ED WOJCZYNSKI: Yes.

14 MR. BYRON WILLIAMS: And then I -- I
15 get down to DSM Scenario 3, and again the Keeyask/Gas
16 scenario I have a NPV of 373 million, correct, sir?

17 MR. ED WOJCZYNSKI: Yes.

18 MR. BYRON WILLIAMS: And then for the
19 Keeyask/Conawapa option it's -- it's minus seven (7) as
20 an NPV?

21 MR. ED WOJCZYNSKI: Yes.

22 MR. BYRON WILLIAMS: And just at a high
23 level, why is it, sir, that the Keeyask/Conawapa
24 package in terms of NPV would tend to perform less well
25 at higher levels of DSM?

1 MR. ED WOJCZYNSKI: I tried to explain
2 the other day, and I'll -- I'll try again, and it's --
3 it's a good question. You -- Conawapa is a -- as we
4 all know, a large amount of capacity energy, and so in
5 the Keeyask/Gas situation you've got, I don't remember
6 how many but a number of gas turbines spaced out in
7 time, and where -- and they're providing the equivalent
8 supply as a big Conawapa.

9 And if you cha -- reduce the load growth
10 then these -- let's say there are five (5) gas
11 turbines. The exact number is not important. But the
12 -- the five (5) gas turbines can each respond to the
13 load growth and move back.

14 Whereas, in the Conawapa case, it can
15 only move back -- it'll move back the one (1) year,
16 perhaps, or not at all. And it's one (1) large chunk,
17 and it's not as flexible to respond to lower load
18 growth than the gas turbines would be. And that's --
19 and that's always an intrinsic benefit of having
20 smaller resources than big ones. You -- you have that
21 extra flexibility when you're reducing load growth.
22 And we saw that in the original submission as well.
23 The same thing happened there.

24 MR. BYRON WILLIAMS: Okay. And I thank
25 you for that. That's helpful. Now, Ms. Flynn, and for

1 the benefit of the tech -- technical people, we'll be
2 turning to CAC Exhibit 45-4, page 1.

3 Ms. Flynn, you'll agree with me that in
4 -- since the rebuttal evidence of Hydro in the first
5 couple of weeks of this hearing, there's been a lot of
6 analytic moving parts?

7 Would that be fair?

8 MS. JOANNE FLYNN: There has been some
9 anal -- analysis done, yes.

10 MR. BYRON WILLIAMS: We've been
11 presented with a number of different DSM scenarios,
12 agreed?

13 MS. JOANNE FLYNN: Yes.

14 MR. BYRON WILLIAMS: We've been
15 presented with revisions to the capital estimates which
16 have a significant effect on the net present value of a
17 number of the plans, agreed?

18 MS. JOANNE FLYNN: Yes.

19 MR. BYRON WILLIAMS: And it won't
20 surprise you, I'll suggest to you, to understand that
21 it -- it may have led to some uncertainty or confusion
22 on the part of, at least my client's lawyer, and my
23 client, and perhaps our analysts as well?

24 That would not surprise you?

25 MS. JOANNE FLYNN: Not really.

1 MR. BYRON WILLIAMS: So what I'm going
2 to do is try and take you through some illustrative
3 examples of our understanding of how your evaluations
4 have worked. And hopefully I've got it all right, but
5 if I'm missing something you're going to correct me, or
6 let me know where I've gone wrong, okay, Ms. Flynn?
7 Would that be okay with you?

8 MS. JOANNE FLYNN: We'll give it a try.

9 MR. BYRON WILLIAMS: Okay. So, Ms.
10 Flynn, in -- in the first one -- and -- and, again,
11 these -- the -- the pictures, of course, just for Ms.
12 Ramage's benefit, are CAC-generated pictures -- there a
13 -- you -- you understand that, Ms. Flynn; they're not a
14 Hydro product?

15 MS. JOANNE FLYNN: Yes, I understand
16 that.

17 MR. BYRON WILLIAMS: Okay. You can get
18 them from us for quite cheaply, though, if you make
19 that decision.

20 MS. JOANNE FLYNN: I already have them.

21 MR. BYRON WILLIAMS: What we're -- what
22 I'm suggesting to on this first table is the 2012 base
23 case and the 2012 assumptions led to the evaluation of
24 fifteen (15) different plans.

25 Would that be fair, Ms. Flynn?

1 MS. JOANNE FLYNN: Yes.

2 MR. BYRON WILLIAMS: And if we try and
3 think of those plans analytically, we could think of
4 them as being in three (3) great streams. The first
5 being what I've called domestic need, but which means
6 no new interconnection.

7 Would that be fair, that that's one (1)
8 of the streams of analysis?

9 MS. JOANNE FLYNN: Yes.

10 MR. BYRON WILLIAMS: And a second
11 stream of analysis would be the stream of advancing
12 Keeyask and seeking a new 250 megawatt interconnection,
13 agreed?

14 MS. JOANNE FLYNN: Yes, including the -
15 - the Minnesota Power sale.

16 MR. BYRON WILLIAMS: Fair enough.
17 Thank you. And another stream of analysis would be the
18 advance-Keeyask and seek a 750 megawatt
19 interconnection, a new one, agreed?

20 MS. JOANNE FLYNN: Yes, including
21 sales.

22 MR. BYRON WILLIAMS: Fair enough. And
23 if we just go back to that domestic need on the left-
24 hand side for a moment, would -- without needing any
25 specific details of the plan -- but would I be correct

1 in suggesting that within there were -- there were some
2 that had an all gla -- all gas assumption, that the
3 generation source would be All Gas?

4 MS. JOANNE FLYNN: Yes, Plan 1 was the
5 All Gas Plan.

6 MR. BYRON WILLIAMS: And there would be
7 some where there would be a mix of Keeyask and gas,
8 agreed? Plan 2.

9 MS. JOANNE FLYNN: Yes.

10 MR. BYRON WILLIAMS: And there would be
11 some where we saw wind mixed, either with gas or with
12 Conawapa, agreed?

13 MS. JOANNE FLYNN: Yeah.

14 MR. BYRON WILLIAMS: And there would be
15 a Keeyask/Conawapa mix in there, as -- as well.

16 Am I right?

17 MS. JOANNE FLYNN: Yes.

18 MR. BYRON WILLIAMS: Okay. Now, in
19 terms of the -- the input into your evaluation of the
20 plans, it was based upon one (1) load forecast and one
21 (1) assumed level for energy efficiency savings.

22 Would that be fair?

23 MS. JOANNE FLYNN: Yes, one (1) DSM
24 plan, one (1) load level.

25 MR. BYRON WILLIAMS: Okay. And I've

1 put Power Smart 2012 there -- would that -- that -- to
2 -- to illustrate that. That would be at the heart of
3 your evaluation?

4 MS. JOANNE FLYNN: Yes.

5 MR. BYRON WILLIAMS: And just if we
6 look outside the funnel, in terms of your evaluation
7 you would not have had the -- available to you, DSM
8 Scenarios 1, 2, or 3, agreed?

9 MS. JOANNE FLYNN: That's correct,
10 which is why we did the sensitivity in chapter 12 to --
11 to the DSM, and we do one and a half (1 1/2) and four
12 (4) times DSM in that sensitivity.

13 MR. BYRON WILLIAMS: Now, we could get
14 into a long debate about that, but Hydro does -- would
15 not suggest that -- that that would be the equivalent
16 of an optionality analysis of DSM?

17 MS. JOANNE FLYNN: It was -- it was an
18 analysis which showed the impact on selected
19 development plans. It -- it wasn't an evaluation of
20 which level of DSM would be economic.

21 MR. BYRON WILLIAMS: Thank you. And I
22 put on the left-hand side of this table that Con --
23 there was no plan evaluated with Conawapa coming first;
24 and I'll suggest to you that would be because of the
25 expected in-service date of Conawapa being some years

1 past the assumed need date.

2 Is that right?

3 MS. JOANNE FLYNN: That's correct.

4 MR. BYRON WILLIAMS: Okay.

5 MR. ED WOJCZYNSKI: I -- I think we
6 could add to that, that when we did the simple-cycle
7 gas turbine of 235 megawatts and then Conawapa, that
8 that was very close to being a Conawapa first, given
9 that simple-cycle turbine was only needed for capacity
10 and is relatively low capital cost. So it's -- it's
11 tantamount -- the simple-cycle Conawapa Plan was
12 tantamount to a Conawapa first plan.

13 MR. BYRON WILLIAMS: Now, Ms. Flynn --
14 thank you, Mr. Wojczynski.

15 Ms. Flynn, just before we leave this
16 page, amongst the domestic need plans, would it be fair
17 to say that Plan 2, being a -- a Keeyask/Gas scenario,
18 was superior to Plan 1, both in terms of net present
19 value and lower risk?

20 Would that be fair?

21

22 (BRIEF PAUSE)

23

24 MR. BYRON WILLIAMS: I have citations
25 for that, Ms. Flynn, if you need. Ms. Flynn, just --

1 just if it'll -- if -- if it'll save it, I'll just
2 suggest to you that Hydro's analysis, you'll accept
3 subject to check, based upon chapter 9, page 17, was
4 that the K22/Gas Plan had one of the highest increment
5 -- incremental NPVs compared to All Gas.

6 Would that be fair?

7 MS. JOANNE FLYNN: Yes. From a
8 reference perspective, yes.

9 MR. BYRON WILLIAMS: And in terms of
10 risk profile, would I also be correct in suggesting
11 that the K22/Gas scenario was superior to the All Gas?

12 MS. JOANNE FLYNN: Yes.

13 MR. BYRON WILLIAMS: So of the domestic
14 need plans, clearly the K22/Gas scenario, based upon
15 your analysis, was superior to Plan 1.

16 MS. JOANNE FLYNN: Yes.

17 MR. BYRON WILLIAMS: Now, Ms. Flynn,
18 turning to page 2 of CAC Exhibit 45-4, you'll see Mr.
19 Williams and Ms. Menzies attempting to depict the
20 evaluations that went into the 2013 plan. Okay?

21 MS. JOANNE FLYNN: Okay.

22 MR. BYRON WILLIAMS: And am I correct
23 in suggesting to you that when you did your 2013
24 update, there were five (5) plans evaluated?

25 MS. JOANNE FLYNN: Yes.

1 MR. BYRON WILLIAMS: And under the
2 domestic scenario, that would be Plan 1 which is the
3 All Gas scenario, agreed?

4 MS. JOANNE FLYNN: Yes.

5 MR. BYRON WILLIAMS: And Plan 2, which
6 was the K22/Gas scenario, agreed?

7 MS. JOANNE FLYNN: Yes.

8 MR. BYRON WILLIAMS: Under the advanced
9 Keeyask/Minnesota Power/250 megawatt plans evaluated,
10 that would be Plan 4, correct?

11 MS. JOANNE FLYNN: Correct.

12 MR. BYRON WILLIAMS: And under the
13 advanced Keeyask 750 megawatt interconnection
14 associated with various sales, you would have evaluated
15 two (2) plans, being twelve (12) and fourteen (14),
16 correct?

17

18 (BRIEF PAUSE)

19

20 MS. JOANNE FLYNN: Yes.

21 MR. BYRON WILLIAMS: And I'm not
22 meaning to be derogatory in any way. I'm just trying
23 to clarify what was in and -- and what was out. So I
24 would be correct in suggesting that in your 2013 update
25 there would be no update on the two (2) wind plans?

1 Would that be fair?

2 MS. JOANNE FLYNN: That's correct.

3 MR. BYRON WILLIAMS: And again, for the
4 reasons that we discussed in 2012, there was no
5 specific Conawapa first, although I have Mr. Poj --
6 Wojczynski's point, but there was no specific Conawapa
7 first?

8 MS. JOANNE FLYNN: Right. And -- and
9 the reason we narrowed it down for the 2013 update is -
10 - is -- was based on some of the -- some of the
11 conclusions you could make from the -- from seeing the
12 2012 results.

13 So -- because Keeyask/Gas in -- in the
14 grouping of no new interconnection or -- serving
15 Manitoba load was the superior plan, we've used Plan 1.
16 We bring Plan 1 forward because our reference point is
17 to compare back to All Gas. But it's basically taking
18 the -- the best plans from each of the groups.

19 MR. BYRON WILLIAMS: Okay. And -- and
20 we'll come back to that. And just to finish off on the
21 right-hand side of the funnel, you did not have
22 available to you, for the purposes of your analysis,
23 any of the different DSN -- DSM scenarios, being
24 Scenario 1, 2, or 3, agreed?

25 MS. JOANNE FLYNN: Correct.

1 MR. BYRON WILLIAMS: So just if -- if
2 we look at what was excluded from the analysis, there
3 would not have been a consideration of Plan 5. For
4 example, the K19/Gas25 750 megawatt assessment, agreed?

5 MS. JOANNE FLYNN: Agreed.

6 MR. BYRON WILLIAMS: And there also
7 would not have been an -- an assessment of Plan 6,
8 being the K19/Gas31 750 megawatt, agreed?

9 MS. JOANNE FLYNN: Agreed.

10 MR. BYRON WILLIAMS: And you can accept
11 this subject to check, or check with Mr. Kuczek, or
12 just trust me, when we look at the Power Smart 2013 as
13 an input to this evaluation, you'll agree with me that
14 the expected savings for Power Smart 2013 were somewhat
15 less than the expected savings for Power Smart 2012?

16 MS. JOANNE FLYNN: Yes, it's true.

17 MR. BYRON WILLIAMS: Now, as we move to
18 the next slide, or -- which is CAC 45-4, page 3 -- and,
19 Ms. Flynn, you may have to do a bit more correcting of
20 me on this page. We'll see. I'll blame Ms. Menzies.

21 You presented -- you presented to us, I
22 believe on Monday, an updated analysis of the impact on
23 certain plans of the updated capital estimates for
24 Keeyask and Conawapa, correct?

25 MS. JOANNE FLYNN: Yes.

1 (BRIEF PAUSE)

2

3 MR. BYRON WILLIAMS: Now, Ms. Flynn,
4 this is where I need to see whether you're going to
5 correct me or not. Was this updated analysis of the
6 cap -- implications of -- of capital cost updates, was
7 it based on the 2012 assumptions, or the 2013
8 assumptions? I was assuming 2012.

9 MS. JOANNE FLYNN: Yes, these are the
10 plans that we did the updated probabilistic analysis
11 on. And we had to go back to the 2012 assumptions for
12 that, because that was the basis for the probabilistic
13 analysis.

14 MR. BYRON WILLIAMS: And so in there
15 would have been Power Smart 2012, for example?

16 MS. JOANNE FLYNN: Yes.

17 MR. BYRON WILLIAMS: Okay. So you
18 didn't have to correct me so far. That's good.

19 In this analysis you've lost Plan 12, in
20 that it was not assessed. Agreed?

21

22 (BRIEF PAUSE)

23

24 MS. JOANNE FLYNN: In the slide that we
25 provided you, we did not have Plan 12, but in our

1 checking in terms of what was available, we will be
2 able to add Plan 12 to that analysis.

3 MR. BYRON WILLIAMS: Okay. Well, I'm
4 on a roll. Will you be able to add Plan 6?

5 MS. JOANNE FLYNN: We don't have the
6 work completed on Plan 6.

7 MR. BYRON WILLIAMS: Is the work on
8 Plan 6 in -- on -- underway?

9 MS. JOANNE FLYNN: Not at this time.

10 MR. BYRON WILLIAMS: So I would have to
11 persuade you to --

12 MS. JOANNE FLYNN: Yes.

13 MR. BYRON WILLIAMS: Okay. Towards the
14 end of my cross-examination, I'm going to attempt to do
15 that, or perhaps I'll do it right now, if you'll bear
16 with me for a second.

17 MS. JOANNE FLYNN: Okay.

18

19 (BRIEF PAUSE)

20

21 MR. BYRON WILLIAMS: I should have this
22 slide memorized. I think only Mr. Bowman and Mr.
23 Harper do. But if -- if you could turn to Appendix 9.3
24 for a moment, and -- and slide 67, we -- we should have
25 the probabilistic analysis figures, Figure 2.7, yes.

1 And, Ms. Flynn, if I could direct your
2 attention, Plans 5 and 6, you'll agree with me, appear
3 about seven (7) and eight (8) plans -- or eight (8)
4 columns into -- into this display, Plan 5 being
5 K19/Gas25, and Plan 6 being K19/Gas31?

6 Do you see that?

7 MS. JOANNE FLYNN: Yes.

8 MR. BYRON WILLIAMS: And if you could
9 go down a number of lines to the ref/ref/ref row.

10 MS. JOANNE FLYNN: Yes, I'm with you.

11 MR. BYRON WILLIAMS: And am I correct
12 in suggesting to you that the -- under that evaluation,
13 you had the NPV for Plan 5 at 1.097 billion?

14 Would that be fair?

15 MS. JOANNE FLYNN: Yes.

16 MR. BYRON WILLIAMS: And for Plan 6,
17 you would have it at 1.091 billion, agreed?

18 MS. JOANNE FLYNN: Yes.

19 MR. BYRON WILLIAMS: And taking Mr.
20 Wojczynski's rule of thumb that it's only 6 million,
21 those would be roughly equivalent under the ref values.

22 Would that be fair?

23 MS. JOANNE FLYNN: They're very close,
24 yes.

25 MR. BYRON WILLIAMS: And if we go down

1 to the incremental evaluation as compared to All Gas,
2 the very last line, we -- we see under that evaluation
3 Plan 5 performing slightly better or somewhat better at
4 -- at 842 million.

5 Would that be fair? Do you see that,
6 Ms. Flynn, the very last --

7 MS. JOANNE FLYNN: Yes, the expected
8 value difference --

9 MR. BYRON WILLIAMS: Yeah.

10 MS. JOANNE FLYNN: -- from All Gas.

11 MR. BYRON WILLIAMS: Yeah. As com --
12 but you'll agree with me that the expected value all
13 difference from -- All Gas for Plan 6 was 776 million?

14 MS. JOANNE FLYNN: Yes.

15 MR. BYRON WILLIAMS: Now, if I'm
16 looking at Plan 5, would that have included at this
17 point in time of your evaluation the inve -- expected
18 investment from WPS in transmission?

19 MS. JOANNE FLYNN: Yes.

20 MR. BYRON WILLIAMS: And so that would
21 have been something that would have attributed more
22 value to Plan 5 relative to Plan 6.

23 MS. JOANNE FLYNN: At that time, yes.

24 MR. BYRON WILLIAMS: And that
25 investment is -- is no longer in play?

1 MS. JOANNE FLYNN: That's right.

2 MR. BYRON WILLIAMS: Okay. So all
3 other things being equal, that would tend to narrow the
4 gap, in terms of expected value, between the two (2)
5 plans?

6 MS. JOANNE FLYNN: Yes, it would.

7 MR. BYRON WILLIAMS: Ms. Flynn, have I
8 persuaded you yet?

9 MS. JOANNE FLYNN: Well, the persuasion
10 is much more to do with how long it takes to do the
11 work.

12 MR. BYRON WILLIAMS: I'm going to ask
13 you to consider -- I'm not -- just for the reporter,
14 I'm not asking for an undertaking, but I'm asking you
15 to consider this with your legal counsel and then
16 perhaps speak with me at the break, or we can -- you
17 can report back at -- at a later time?

18 MS. JOANNE FLYNN: I can certainly
19 speak to my legal counsel.

20 MR. BYRON WILLIAMS: Okay. Going back
21 to CAC-45-4, ta -- page 3. The two (2) new additions
22 to this analysis were Plans 8 and Plan 5, agreed? As
23 compared -- sorry, Ms. Flynn. Let me ask that question
24 better.

25 If we were going to compare this to your

1 update from 2013 -- if I was looking back at 2013, the
2 update Plan 5 would not appear there, agreed?

3 MS. JOANNE FLYNN: That's right.

4 MR. BYRON WILLIAMS: And Plan 8 would
5 not appear there, correct?

6 MS. JOANNE FLYNN: That's correct.

7 MR. BYRON WILLIAMS: So the two (2) new
8 additions as compared to the 2013 update would be Plans
9 5 and 8, correct?

10 MS. JOANNE FLYNN: Yes, but the reason
11 that Plan 5 is there is because -- because it is clear
12 now that WPS is not investing in the line. So that --
13 that was the -- the selection of Plan 5 and the update
14 that was made to Plan 5 to -- to have it done without
15 the WPS investment. So that is the representative case
16 -- or, sorry, the representative plan.

17 MR. BYRON WILLIAMS: Now, what's -- the
18 other one that appeared in the 2013 update, but which
19 does not appear here, I'll suggest to you, is Plan 12,
20 correct?

21 MS. JOANNE FLYNN: Yes, and -- and that
22 was for the same reason, because Plan 12 did not
23 include the WPS sale. And the WPS sale is now signed,
24 so there was less reason to bring forward that
25 particular plan.

1 (BRIEF PAUSE)

2

3 MR. BYRON WILLIAMS: Ms. Flynn, just on
4 -- on that point, if I were trying to evaluate whether
5 the Keeyask/Conawapa 750 megawatt approach looked
6 better with WPS or without WPS, would not the natural
7 comparator to your Preferred Plan be Plan 12?

8

9 (BRIEF PAUSE)

10

11 MS. JOANNE FLYNN: Mr. Williams, I -- I
12 think what that would do or -- would isolate the value
13 of the WPS sale, which is starting to get into the
14 territory of CSI.

15 MR. BYRON WILLIAMS: So -- so just for
16 my understanding, you're not saying that it's not a
17 relevant comparator -- and, Ms. Ramage, pop in if you
18 feel the need. Your position is that disclosure of
19 this comparator would somehow lead to a disclosure of
20 CSI?

21

22 (BRIEF PAUSE)

23

24 MS. JOANNE FLYNN: We would have to
25 give that some further thought. That's on the spot

1 what I think it would do, but I'd have to give it some
2 consideration.

3 MR. BYRON WILLIAMS: And we'll --

4 MS. PATTI RAMAGE: Mr. -- I think
5 you've raise -- you've got the concern. You don't have
6 the answer --

7 MR. BYRON WILLIAMS: Okay.

8 MS. PATTI RAMAGE: -- to the concern.

9

10 CONTINUED BY MR. BYRON WILLIAMS:

11 MR. BYRON WILLIAMS: And I -- I don't
12 want to belabour this point. We'll -- we'll certainly
13 rejoin this conversation.

14 But in terms of WPS as it was evaluated
15 previously, the -- and what we have now, is the only
16 difference the transmission? Like, what's different in
17 terms of the -- the sale in terms of your information?
18 That's what I'm trying to understand.

19 MS. JOANNE FLYNN: For purposes of the
20 evaluation, the difference is removal of the
21 investment.

22 MR. BYRON WILLIAMS: Okay. I'm going
23 to have to reflect upon that as well. Now, in terms of
24 the -- staying on slide 3, the plan for -- that you're
25 looking at here on slide 3, looking -- when you looked

1 at the updated capital costs for Keeyask and Conawapa,
2 am I correct in suggesting to you that the gas date was
3 changed from 2024 to 2030?

4

5 (BRIEF PAUSE)

6

7 MS. JOANNE FLYNN: For the
8 probabilistic analysis, the date was held -- held to be
9 the same. It doesn't move.

10 MR. BYRON WILLIAMS: Okay. And -- and
11 --

12 MS. JOANNE FLYNN: And just -- just
13 maybe to -- to help, the -- the only changes me made to
14 the assumptions were very literally the increase in
15 capital costs for Keeyask and Conawapa, only those two
16 (2) plants, and the removal of the WPS investment.
17 There were no other changes to the assumptions.

18 And then the -- we did the -- the
19 refinement to the -- to the common costs as an approach
20 change. But in terms of the assumptions themselves, we
21 didn't -- we didn't make any other changes. It's
22 difficult to make those changes to the probabilistic
23 analysis.

24 MR. BYRON WILLIAMS: Okay, thank you
25 for that. And -- and I think you -- I understand your

1 point, but I just want to ask a question of
2 clarification. So for Plan 14, would the date for
3 Conawapa have been '25 or '26?

4

5 (BRIEF PAUSE)

6

7 MS. JOANNE FLYNN: I stand corrected on
8 one (1) item, and that is that we -- in the
9 probabilistic analysis we have not removed the WPS
10 investment. In the DSM analysis we removed the WPS
11 investment.

12 And the Conawapa in-service date for the
13 Preferred Plan is still at 20 -- is still in 2025
14 because that would affect all the revenue assumptions,
15 as well. But what we did do is we combined the costs
16 in the first two (2) years to make it reflective of --
17 of the '26-type costs.

18 MR. BYRON WILLIAMS: Just so I'm clear
19 -- and let's break this into little pieces. In your
20 evaluation of Keeyask and Conawapa updated capital
21 costs, you kept in the WPS investment?

22 MS. JOANNE FLYNN: Yes, the only -- the
23 only change we were made were to the Keeyask and
24 Conawapa capital costs.

25 MR. BYRON WILLIAMS: So that would

1 imple -- impact Plan 14, agreed?

2 MS. JOANNE FLYNN: Yes.

3 MR. BYRON WILLIAMS: And it would
4 impact Plan 5, agreed?

5 MS. JOANNE FLYNN: Yes, they would both
6 still have the investment.

7 MR. BYRON WILLIAMS: And would it bias
8 the analysis towards those plans?

9 MS. JOANNE FLYNN: They would be -- the
10 results would be more favourable as a result of
11 maintaining the investment in-- that -- that WPS still
12 is investing in the line.

13 MR. BYRON WILLIAMS: You and your legal
14 counsel will hate me for this question. How
15 challenging would it be to renew -- redo the analysis,
16 taking out the -- the bias towards Plans 14 and 5?

17 MS. JOANNE FLYNN: Removing the
18 investment?

19 MR. BYRON WILLIAMS: Yeah.

20 MS. JOANNE FLYNN: We will take that
21 under advisement.

22 MR. BYRON WILLIAMS: Okay. And be --
23 before I lose my thought, in terms of what you did --
24 do you need a moment, Ms. Flynn?

25

1 (BRIEF PAUSE)

2

3 MS. JOANNE FLYNN: Mr. Williams, I
4 think we -- we chose to make the changes very limited
5 to try and get the analysis out as quickly as we could,
6 but also because there's a multitude of things that
7 have changed, some that are -- that would positively
8 affect the Preferred Plan and some that would
9 negatively affect the Preferred Plan.

10 And we are -- the -- the increase in
11 capital costs is something that reduces the net present
12 value, as does the investment. The lower cost of the
13 interconnection is something that would improve the
14 position.

15 So there would be quite a few changes to
16 be made to -- to kind of fairly represent the plans.
17 So what we wanted to ensure that was before the Board
18 was the impact of this -- of the capital costs changes
19 for Keeyask and Conawapa.

20 MR. BYRON WILLIAMS: I certainly will
21 reflect upon that. Just for point of clarification, to
22 redo the analysis taking out the WPS investment in
23 transmission, am I correct in suggesting to you that
24 that would not require rerunning SPLASH, S-P-L-A-S-H?

25 MS. JOANNE FLYNN: That's true. It

1 wouldn't require running -- rerunning SPLASH.

2 MR. BYRON WILLIAMS: Mr. Chair, and --
3 and with the -- Ms. Ramage's, I hope, agreement, I'd
4 like to reflect upon this and -- and to chat with our
5 analysts and My Friend Mr. Hacault and -- and Mr.
6 Bowman and just see whether we'd like to come back on
7 this point or not.

8 And is that fine with you, Ms. Ramage?

9 MS. PATTI RAMAGE: Yes.

10

11 (BRIEF PAUSE)

12

13 CONTINUED BY MR. BYRON WILLIAMS:

14 MR. BYRON WILLIAMS: It took a little
15 longer than I thought, but I'd like to move to Exhibit
16 CAC 45-4, page 4.

17

18 (BRIEF PAUSE)

19

20 MR. BYRON WILLIAMS: And I see a typo
21 on the electronic version. When we looked under
22 Advance Keeyask 750 megawatts, Ms. Flynn, in terms of
23 the plan assessed, you would agree with me that it
24 should be Plan 14 and not Plan 1? And it wasn't
25 wishful thinking.

1 MS. JOANNE FLYNN: Yes.

2 MR. ED WOJCZYNSKI: And we're -- and
3 we're happy to see we're not the only ones who make
4 small typos.

5 MR. BYRON WILLIAMS: I believe it's
6 corrected on the paper version, but I apologize for
7 that.

8 Now, Ms. Flynn, you'll agree what --
9 this appears to be an attempt to replicate the -- the
10 update that you gave us in terms of a DSM evaluation
11 that you presented on March 10th, 2014?

12 Fair enough?

13 MS. JOANNE FLYNN: Yes.

14 MR. BYRON WILLIAMS: And what you did
15 was used a number of different scenarios to evaluate
16 three (3) plans, agreed?

17 MS. JOANNE FLYNN: Yes.

18 MR. BYRON WILLIAMS: And so you looked
19 at Plan 1, which is the All Gas, correct?

20 MS. JOANNE FLYNN: Correct.

21 MR. BYRON WILLIAMS: And you looked at
22 Plan 14, which is I believe still the Hydro Preferred
23 Plan?

24 MS. JOANNE FLYNN: It is.

25 MR. BYRON WILLIAMS: And then you

1 looked at Plan 5, correct?

2 MS. JOANNE FLYNN: Correct.

3 MR. BYRON WILLIAMS: And just so I'm
4 clear, would 14 and 5 have the WPS investment in them
5 or not?

6 MS. JOANNE FLYNN: WPS investment
7 removed on those two (2) plans.

8

9 (BRIEF PAUSE)

10

11 MR. BYRON WILLIAMS: So the WPS
12 investment was in for the capital update for Plans 14
13 and 5, but out for the DSM outdate -- update for Plans
14 14 and 5, correct?

15 MS. JOANNE FLYNN: The DSM update also
16 has the new capital costs in it. So the DSM update for
17 these three (3) plans has updated Keeyask and Cap --
18 Conawapa capital costs and has the WPS investment
19 removed.

20 MR. BYRON WILLIAMS: Okay. And, Ms.
21 Flynn, that's very helpful, because I was going to come
22 to that question. I -- I think I know that answer.

23 But just in -- if I was distinguishing
24 between the treatment of the WPS investment, it was
25 included for the purposes of the capital evaluation

1 that we discussed on the previous page, but it wasn't
2 included for -- for this evaluation?

3 MS. JOANNE FLYNN: That would be
4 correct.

5 MR. BYRON WILLIAMS: And you're making
6 the additional point that in the updated DSM evaluation
7 we have the updated capital costs for Conawapa and
8 Keeyask, correct?

9 MS. JOANNE FLYNN: That's correct.

10 MR. BYRON WILLIAMS: I'm going to come
11 back to this page in just one (1) second, but I wonder
12 if we could turn to first the Hydro Exhibit 95, page
13 36.

14

15 (BRIEF PAUSE)

16

17 MR. BYRON WILLIAMS: Page 36, Mr.
18 Wojczynski. And, Ms. Flynn, just the simple point I
19 want to make here is that your updated DSM evaluation
20 looked at four (4) different levels of DSM being the
21 DSM found in the 2013 Power Smart plan, the Scenario 1,
22 the Scenario 2, and a Scenario 3.

23 Is that correct?

24 MS. JOANNE FLYNN: Correct.

25 MR. BYRON WILLIAMS: And then you

1 performed additional evaluations based upon expected
2 pipeline load, correct?

3 MS. JOANNE FLYNN: Correct.

4 MR. BYRON WILLIAMS: Now, if we can
5 turn to Hydro Exhibit 87, page 12. That's Hydro
6 Exhibit 87, page 12. That's the presentation from last
7 week. Now, Ms. Flynn, you'll recall that last week Mr.
8 Kuczek discussed a number of potential adjustments to
9 the load forecast. Just one (1) -- I'll let you get
10 there.

11

12 (BRIEF PAUSE)

13

14 MR. BYRON WILLIAMS: You'll recall that
15 last week Mr. Kuczek discussed a number of potential
16 adjustments to the load forecast?

17 MR. ED WOJCZYNSKI: Yes.

18 MR. BYRON WILLIAMS: And one (1) of the
19 -- one (1) of those which would tend to impact the load
20 forecast upwards was the pipeline sector adjustment,
21 agreed?

22 MR. ED WOJCZYNSKI: Yes.

23 MR. BYRON WILLIAMS: And those which
24 would tend to effect the -- the forecast downwards
25 would includes codes and standards, price elasticity,

1 and fuel choice?

2 MR. ED WOJCZYNSKI: Yes.

3 MR. BYRON WILLIAMS: And -- and just
4 for clarification, the updated analysis done in -- in
5 the updated analysis presented by Hydro on Monday,
6 would that have been restricted to the pipeline
7 forecast -- potential forecast adjustments, or would it
8 have included the codes and standards, price
9 elasticity, and fuel choice adjustments?

10 MR. ED WOJCZYNSKI: That analysis
11 didn't use the 1,700 gigawatt hour pipeline. It used a
12 1,300 gigawatt hour pipeline increase in the load. And
13 the additional information on codes and standards,
14 price elasticity, and fuel choice wasn't available to
15 us until sometime after that analysis had been started.
16 So the -- the -- it doesn't quite match, but it's --
17 it's off essentially by the price elasticity amount,
18 because we -- yeah.

19 MR. BYRON WILLIAMS: Okay. Thank you
20 for that.

21

22 (BRIEF PAUSE)

23

24 MR. BYRON WILLIAMS: Now, Ms. Flynn, in
25 terms of -- going back to CAC 45-4, page 4.

1

2

(BRIEF PAUSE)

3

4

MR. BYRON WILLIAMS: Am I correct on --
the left-hand side is suggesting that you only reported
on one (1) evaluation in terms of domestic need, and
that would be Plan 1?

8

MS. JOANNE FLYNN: That is correct.

9

MR. BYRON WILLIAMS: Did I hear you
correctly earlier this week in that there is at least
some more information forthcoming in terms of Plan 2?

12

MS. JOANNE FLYNN: We will be able to
provide Plan 2 at the base level of DSM.

14

MR. BYRON WILLIAMS: So you would not
be able to evaluate Plan 2 in terms of any of the
higher DSM scenarios including 1, 2, and 3?

17

MS. JOANNE FLYNN: We do not have any
work on -- started on those.

19

MR. BYRON WILLIAMS: Can we agree that,
as we did previously, that in terms of net-present
value and lower-end risk, that Plan 2 is superior to
Plan 1?

23

MS. JOANNE FLYNN: Yes, it would still
be superior to Plan 1.

25

MR. BYRON WILLIAMS: So, for

1 comparative purposes, we don't have the best domestic
2 need plan, agreed?

3

4 (BRIEF PAUSE)

5

6 MS. JOANNE FLYNN: We're -- we're just
7 putting the finishing touches on -- on that
8 undertaking. So the -- the new -- or, sorry, the value
9 for Plan 2, the comparable value, will be 111 million
10 of NPV at the level of base DSM.

11 MR. BYRON WILLIAMS: I -- thank you for
12 that. And my question, though, is: You will not be
13 able to eval -- you -- you have not undertaken an
14 evaluation of Plan 2, in terms of the reduced load
15 scenarios associated with DSM Scenario 1, DSM Scenario
16 2, and DSM Scenario 3, agreed?

17 MS. JOANNE FLYNN: Agreed. We have
18 not.

19 MR. BYRON WILLIAMS: And I'm suggesting
20 to you, that in terms of evaluating plans against the
21 Hydro Preferred Plan or Plan 5, you're not putting
22 forward what is potentially the best domestic need
23 choice, which is Plan 2.

24 Would you agree with that suggestion?

25

1 (BRIEF PAUSE)

2

3 MS. JOANNE FLYNN: Mr. Williams, if you
4 take your thought process one (1) step further, the
5 analyses to date have shown that there's always value
6 in adding an interconnection.

7 So while it's true it wouldn't be
8 evaluated totally from the domestic need perspective,
9 the point in -- in going to the plans with an
10 interconnection, is it provides a better incremental
11 benefit to the -- to -- to Man -- to Manitoba -- to
12 Manitobans. So -- and it would still have Key -- it
13 still has Keeyask in it, so it would still be affected
14 by the increased capital costs.

15 MR. BYRON WILLIAMS: It would be
16 affected by the 300 million for Keeyask -- let me back
17 up. I appreciate your answer, and thank you for that.

18 Am I being fair in suggesting to you
19 that you are not putting forward the best domestic need
20 plan for evaluation against the Hydro Preferred Plan,
21 because you are not doing scenas -- DSM scenario
22 analysis for low -- for Plan 2?

23 MR. ED WOJCZYNSKI: I think -- I --
24 what Ms. Flynn was communicating, and I agree with, is
25 that the -- the Keeyask/Gas Plan without an

1 interconnection as com -- is compared in the base DSM
2 against Keeyask with a 750 megawatt interconnection.
3 And by that -- the -- the increase in capital cost is
4 accounted for already there, and you see the benefits.
5 There are still -- the -- the been -- there are
6 benefits from going from Keeyask/Gas to the
7 interconnection. And -- and that will -- that relative
8 difference will carry -- tend to carry through for all
9 the levels of DSM.

10 So we -- we haven't got that plan
11 specifically, but the information we've got from other
12 work already gives us the information of what the
13 interconnection does for us.

14 MR. BYRON WILLIAMS: Fair enough, Mr.
15 Wojczynski. And I just -- I understand your argument.
16 I -- I just would like an answer to my question.

17 Am I being fair in suggesting that you
18 are not putting forward the best domestic plan to
19 evaluate against these different levels of DSM, in that
20 you are not putting forward Plan 2?

21 MR. ED WOJCZYNSKI: There are two (2)
22 halves to the answer. The first half of the answer is
23 we do not have a case here that exactly has Plan 2 with
24 Keeyask/Gas at the different levels of DSM for -- with
25 all of the updated information. We do not have that.

1 That's the first half of the answer.

2 But the second half of the answer is, we
3 don't have that case, but we have information from the
4 various analyses that we can apply using judgment to
5 tell us how it would look under those different plans.

6 MR. BYRON WILLIAMS: Before we leave
7 this, Mr. Wojczynski, you would agree with me that Plan
8 2 is superior to Plan 1, in terms of net present value,
9 or less risk? Agreed?

10 MR. ED WOJCZYNSKI: I would say it's
11 probably better just about in every regard I can think
12 of.

13 MR. BYRON WILLIAMS: Ms. Flynn, before
14 we leave this slide, the different DSM scenarios,
15 you'll agree with me, were not used to evaluate any of
16 the Keeyask 250 megawatt plans?

17 MS. JOANNE FLYNN: That is correct.

18 MR. BYRON WILLIAMS: If we can turn to
19 page 5.

20

21 (BRIEF PAUSE)

22

23 MR. BYRON WILLIAMS: Ms. Flynn, we may
24 have to change -- change some -- oh, sorry, I'll let
25 you continue your discussion.

1 (BRIEF PAUSE)

2

3 MR. BYRON WILLIAMS: Mr. Chair, I -- I
4 note -- we sent the electronic report, I think twice.
5 I think we may have the earlier version. I see a
6 modest -- oh, there's the -- there's the other one.
7 That's perfect. Thank you. If you could switch it the
8 other way. Thank you.

9 Ms. Flynn, just -- we'll get to probably
10 what need to be some year connections in the 2014
11 updates. But, generally, you -- you see what we're
12 attempting to do here is -- is look at your different
13 evaluations of the Hydro plans and -- and consider
14 which plans have been carried through in terms of the
15 evaluations?

16 Do you see that?

17 MS. JOANNE FLYNN: Yes.

18 MR. BYRON WILLIAMS: And if you'll
19 agree with me that if we -- if we get to the columns,
20 2014 Updated Capital Costs and Updated DSM Evaluations,
21 we should probably stroke out any of the year numbers
22 after Keeyask and -- excuse me, after Conawapa and
23 after Gas, because they are -- Hydro's used a number of
24 different years. So for the benefit of the panel, when
25 you get to those last two (2) columns, I would suggest

1 that you just stroke out the number behind Gas or Kee -
2 - or Conawapa, and the WPS sales and investment.

3 MS. JOANNE FLYNN: The -- Mr. Williams,
4 the dates in the second last column are held constant,
5 and the dates in the last column move. You would also
6 need to remove the in -- investment off the end of the
7 delete Gas sale.

8 MR. BYRON WILLIAMS: Okay. Well, then,
9 let's do that on the fly then. We keep the dates in
10 the second last column. They're fine. But under Plan
11 5, we delete the word "investment". And then if we
12 move over to the updated DSM evaluation, we would
13 delete the date after "Conawapa", and we would delete
14 the date after "Gas", and then we would delete the word
15 "investment".

16 Would that be correct?

17 MS. JOANNE FLYNN: Not quite, Mr.
18 Williams. In the second last column you would leave
19 the investment in.

20 MR. BYRON WILLIAMS: Okay. Ms. Flynn,
21 would you be prepared -- because -- to undertake to --
22 to re-file this page with the years corrected just so I
23 don't inadvertently misinform the Board?

24 MS. JOANNE FLYNN: Where were you
25 needing the years corrected?

1 MR. BYRON WILLIAMS: The ones we just
2 did.

3 MS. JOANNE FLYNN: Oh, in the last
4 column, I would just suggest you leave the years out --

5 MR. BYRON WILLIAMS: Okay.

6 MS. JOANNE FLYNN: -- because there's -
7 - like it gets really messy. And -- but the years are
8 available on the tables in the -- sorry, the direct
9 evidence that was provided.

10 MR. BYRON WILLIAMS: Slides 34 and 30 -
11 - okay. Fine. That's fair enough. I don't want to
12 take too much time going through this.

13 Ms. Flynn, you'll agree with me that, in
14 essence, Manitoba Hydro has conducted the 2012
15 evaluation --

16 MR. ED WOJCZYNSKI: I'm just -- well,
17 we did have an undertaking yesterday where we have all
18 the dates for the different levels of DSM and the
19 different dates of the gas turbines. It -- so --

20 MR. BYRON WILLIAMS: That's 104-2, Mr.
21 Wojczynski?

22 MR. ED WOJCZYNSKI: 104-1, it looks
23 like.

24 MR. BYRON WILLIAMS: One (1), excuse
25 me. Sorry.

1 MR. ED WOJCZYNSKI: Yeah. So there's a
2 lot of dates. So putting it on this would seem confu -
3 - this could be used -- 104-1 could be used in
4 conjunction with this.

5 MR. BYRON WILLIAMS: Okay. And we
6 don't need to put it up. Thank you, Mr. Wojczynski.
7 I'll stay on the -- the general concept. And I guess
8 just my advice to the Board is you have to be a little
9 careful on the dates when -- if one looks at this
10 exhibit.

11 Ms. Flynn, just to finish the thought
12 here, you did a 2012 evaluation, a 2013 evaluation, a
13 2014 updated capital costs evaluation, and an updated
14 DSM evaluation, agreed? We'll get to the stress tests
15 in a minute.

16 MS. JOANNE FLYNN: Yes.

17 MR. BYRON WILLIAMS: And in addition,
18 you did the DSM stress tests?

19 MS. JOANNE FLYNN: Correct.

20 MR. BYRON WILLIAMS: And if I look --
21 if you look on the left-hand side, you'll see that the
22 -- the first row -- and I'll ask you to agree with me -
23 - represents the plans that are Keeyask, the 750
24 megawatt interconnection, and associated new sales,
25 agreed?

1 MS. JOANNE FLYNN: Yes.

2 MR. BYRON WILLIAMS: And then the
3 second column, again, is the advanced Keeyask, the 250
4 megawatt interconnect, and the new plan -- excuse me --
5 and the Minnesota Power sale, agreed?

6 MS. JOANNE FLYNN: Yes.

7 MR. BYRON WILLIAMS: And finally, the
8 third column is what I've called 'the domestic need'.
9 The third row is what I've called 'the domestic need
10 row', agreed?

11 MS. JOANNE FLYNN: Yes.

12 MR. BYRON WILLIAMS: And so if we take
13 -- going back up to the advanced Keeyask, the 750
14 megawatt interconnection row, you'll agree with me that
15 the one (1) constant is Plan 14?

16 MS. JOANNE FLYNN: Yes.

17 MR. BYRON WILLIAMS: And Plan 12 gets
18 into the 2013 assumption and then disappears?

19 MS. JOANNE FLYNN: Correct.

20 MR. BYRON WILLIAMS: And Plan 5 doesn't
21 get into the 2013 assumption, or the DSM stress test
22 assumptions, but does show up in the most recent
23 analysis of Hydro?

24 MS. JOANNE FLYNN: That's right.

25 MR. BYRON WILLIAMS: And in terms of

1 the 250 megawatt interconnect associated with -- and
2 new interconnect and -- and Keeyask advancement, Plan 4
3 makes it through four (4) of the assumptions --
4 evaluations, excuse me?

5 MS. JOANNE FLYNN: Yes.

6 MR. BYRON WILLIAMS: But it's not
7 included in the updated DSM evaluation?

8 MS. JOANNE FLYNN: That's right.

9 MR. BYRON WILLIAMS: And in terms of
10 the domestic need evaluations, Plan 1 makes it into the
11 2013 assumptions, and the 2014 updated capital cost
12 assumptions, and the updated DSM evaluation, agreed?

13 MS. JOANNE FLYNN: Yes.

14 MR. BYRON WILLIAMS: But it does not
15 make it into the stress test that was conducted?

16 MS. JOANNE FLYNN: That's right.

17 MR. BYRON WILLIAMS: Plan 2 almost
18 makes it all the way. It's there for the 2013
19 assumptions, the stress test, the 2014 updated capital
20 costs, and part of it is in the updated DSM
21 evaluations?

22 MS. JOANNE FLYNN: That's right.

23 MR. BYRON WILLIAMS: If I haven't
24 confused everyone totally, Ms. Flynn, which year of
25 assumptions were used in the DSM stress tests?

1 MS. JOANNE FLYNN: The basic
2 assumptions were from 2013 plus the adjustments we have
3 been talking about.

4 MR. BYRON WILLIAMS: Okay. Thank you
5 for that.

6 This is probably for Mr. Page. And if
7 we can turn quickly -- and, Mr. Chair, I'm coming very
8 near to the -- the end, no doubt to everyone's great
9 sigh of relief.

10 Mr. Page, if you could turn to CAC 45-3
11 -- that's the bigger one I handed out this morning --
12 Tab 4, and pages 23 and 3, please. Page 23 and -- and
13 we're going to very quickly flip to page 24. So if you
14 can scroll down to the bottom of this page.

15 Mr. Page, directing your attention to
16 the very last line, the last five (5) words, and then
17 scrolling onto the next page, you'll agree with me
18 that, in terms of evaluating its reasonableness of its
19 equity return proxy, Manitoba Hydro uses a number of
20 sources including the 2013 -- Oct -- October 2013
21 report from Concentric Energy Advisors?

22 Is that correct, sir?

23 MR. IAN PAGE: That's one (1) of the --
24 that was actually the most recent source we had.

25 MR. BYRON WILLIAMS: Okay. And if you

1 -- you turn to page 25 of this same exhibit, being 45-
2 3, you'll see the Concentric report reproduced, Mr.
3 Page, agreed?

4 MR. IAN PAGE: Yes, I see it.

5 MR. BYRON WILLIAMS: And if we go to
6 the right-hand column, the first -- the second full
7 paragraph, what Concentric is -- is telling us is that
8 when regulators are setting authorized returns on
9 equity, they often consider government and corporate
10 bond yields.

11 Is that correct, Mr. Page?

12 MR. IAN PAGE: That's one (1) of the
13 things that's -- that's certainly looked at.

14 MR. BYRON WILLIAMS: Okay. And
15 certainly if we went to the next page, being page 26 of
16 this exhibit, we would see Concentric reporting on the
17 returns on common equity for a number of Canadian gas
18 and electric distributors, agreed?

19 MR. IAN PAGE: Agreed.

20 MR. BYRON WILLIAMS: And on the next
21 page we would see them reporting on the -- the next
22 page being page 27, certain authorized returns on
23 equity for US gas distributors, agreed?

24 MR. IAN PAGE: Agreed.

25 MR. BYRON WILLIAMS: And also putting

1 on that same page the economic indicators such as the
2 yield on Government of Canada long-term bonds, correct?

3 MR. IAN PAGE: That's correct.

4 MR. BYRON WILLIAMS: As well as US
5 Treasury thirty (30) year bond yields, correct?

6 MR. IAN PAGE: Yes.

7 MR. BYRON WILLIAMS: And, Mr. Page, I'm
8 going to try and short-circuit a little bit of this and
9 we'll see if -- if I have to walk you through it, or if
10 we can be agreeable at least to the results. If I can
11 direct your attention to CAC Exhibit 45-4, the -- the
12 little one (1), and page 6.

13 MR. IAN PAGE: Yes, I've seen that.

14 MR. BYRON WILLIAMS: You've had a
15 opportunity to review this, Mr. Page?

16 MR. IAN PAGE: Yes, I have.

17 MR. BYRON WILLIAMS: And on the right-
18 hand side of this table marked, "Comparison of ROE
19 Premiums," you'll agree with me that what we've
20 attempted to do is to reproduce the results from
21 Concentric Advisors in terms of the ROE and government
22 long-term bond yields for electric distributors,
23 Canadian gas distributors, and US gas distributors,
24 correct?

25 MR. IAN PAGE: I'll agree that's what

1 on the table, with the exception of your -- your
2 headings are gas -- "Gas Distribution for US" should be
3 --

4 MR. BYRON WILLIAMS: Yes.

5 MR. IAN PAGE: -- Gas Distribution
6 Canada for the first two (2), and then US for the last
7 two (2).

8 MR. BYRON WILLIAMS: Yeah. And we --
9 Mr. Page, we had that extra page that we were going to
10 hand out. But what you're telling the panel -- do you
11 have that extra page, Mister...

12 MR. IAN PAGE: I -- I don't have it,
13 but I can -- it's not hard to figure out.

14 MR. BYRON WILLIAMS: Ms. Ramage, can I
15 present that to...

16

17 (BRIEF PAUSE)

18

19 MR. BYRON WILLIAMS: Mr. Page, now that
20 I've -- I've got the -- the columns properly labelled,
21 does that look better to you, sir?

22 MR. IAN PAGE: That's more
23 representative of what's in the report, yes.

24 MR. BYRON WILLIAMS: And, indeed, the -
25 - in terms of the ROE numbers presented, you'll agree

1 that what we're simply doing is reproducing the
2 calculations found in Concentric, agreed?

3 MR. IAN PAGE: Agreed.

4 MR. BYRON WILLIAMS: And in terms of
5 the government long-term bond rates presented, you'll
6 agree that what we're doing is simply reproducing the
7 results from Concentric, agreed?

8 MR. IAN PAGE: Yes, I agree with what's
9 -- everything that's on the -- on -- on -- from the
10 Concentric report on there.

11 MR. BYRON WILLIAMS: Okay. And the
12 calculation of premium that we've undertaken is --
13 you've checked the math and you're confident that it
14 accurate -- that it is -- is accurate, sir?

15 MR. IAN PAGE: Yes.

16 MR. BYRON WILLIAMS: And, sir, going
17 back to my introductory question to you about
18 regulators taking into account bond yields in setting
19 rates, I take it you're familiar with the most recent
20 report on the cost of capital by the Ontario Energy
21 Board, or are you?

22 MR. IAN PAGE: I've -- I've seen it,
23 yes.

24 MR. BYRON WILLIAMS: Okay. You'll
25 agree with me that in its most recent report on the

1 costs of capital, the Ontario Energy Board provided for
2 a return on equity based upon a calculation of five
3 hundred and fifty (550) basis points above the forecast
4 long-term Government of Canada bond yield?

5 MR. IAN PAGE: Yes.

6 MR. BYRON WILLIAMS: Okay. So, Mr.
7 Page, on the left-hand side of this table marked
8 "Comparison of ROE Premiums," which is found at CAC
9 Exhibit 45-4, you'll see what purport to be
10 calculations of the Manitoba Hydro premium, do -- do
11 you see that in the second column, sir?

12 MR. IAN PAGE: Yes, I do.

13 MR. BYRON WILLIAMS: And do you take
14 issue with that -- anything in that column, sir?

15 MR. IAN PAGE: What I take issue with
16 is -- is not trivial, I would say. The Concentric
17 numbers when it's showing the Government of Canada
18 long-term bond rates, those are the -- those are the
19 rates that were in place at the time.

20 The Manitoba Hydro four point six-five
21 (4.65), that's our forecast rate for the year '18/'19
22 and on, so it's quite a number of years out. Our --
23 our equivalent rate for -- for 2013, I think, is 2.15
24 percent.

25 MR. BYRON WILLIAMS: Okay, sir. Now,

1 in terms of the ECS calculations in the fourth row
2 over, you've reviewed those from the evidence of Mr.
3 Harper?

4 MR. IAN PAGE: Yes, I recall going
5 through those calculations.

6 MR. BYRON WILLIAMS: And you'll
7 understand that those were based upon the results of
8 three (3) regulators, in terms of their forecasts of
9 government long-term bond rates?

10 MR. IAN PAGE: I can't recall that they
11 were all based on forecasts, but I remember it was
12 based on three (3) orders.

13 MR. BYRON WILLIAMS: Okay. And one of
14 those was the OEB order, which you've agreed with me
15 previous --

16 MR. IAN PAGE: Yes, one of those was,
17 yes.

18 MR. BYRON WILLIAMS: Yes. And just to
19 finish my thought, and that clearly was based upon a
20 forecast looking forward?

21 MR. IAN PAGE: I'll have to rely on you
22 for that. I don't recall that.

23 MR. BYRON WILLIAMS: Well, why don't
24 you accept it subject to check?

25 MR. IAN PAGE: I -- I can do that.

1 MR. BYRON WILLIAMS: And you'll want to
2 review -- look at the Ontario Energy Board decision
3 from 2009 on cost of capital, if you -- if you wish to
4 check up on me. Agreed?

5 MR. IAN PAGE: Agreed.

6 MR. BYRON WILLIAMS: And in terms of
7 our presentation of the results for Morrison Park
8 Advisors, you recognize that we've made a .5 percent
9 upwards adjustment because of -- as -- as explained in
10 the foot -- footnotes, sir?

11

12 (BRIEF PAUSE)

13

14 MR. IAN PAGE: Okay, yeah, I can read
15 the footnote, and I -- I have no --

16 MR. BYRON WILLIAMS: Okay. So you --

17 MR. IAN PAGE: -- no understanding of
18 what --

19 MR. BYRON WILLIAMS: -- you can't speak
20 to --

21 MR. IAN PAGE: -- what's behind it, no.

22 MR. BYRON WILLIAMS: -- to that. So,
23 sir, you maybe disagreeing with the premise of this
24 table but you are not disagreeing with the presentation
25 of the information from Concentric's, agreed?

1 MR. IAN PAGE: No, I agree. And -- and
2 that's what I said when I -- when we presented the
3 Concentric. That was the latest information that we
4 had, and the purpose of that was to give people the
5 most current information available in terms of returns.
6 Manitoba Hydro looks at a wide number of -- of things,
7 and we're also -- when I mentioned that -- our long-
8 term bond rate, that's our forecast quite a few years
9 out.

10 So just one thing I wanted everybody to
11 be clear on is that we don't calculate a weighted
12 average cost of capital for each year going forward.
13 We wait till it sort of levels out so that in essence
14 the -- projects like Keeyask that are having spending
15 happen before that are really getting a bit of an
16 artificial penalty because the -- our weighted average
17 cost of capital isn't a five point five (5.5) real in
18 those first years, or five point four (5.4) like it is
19 now. It's actually somewhat lower than that for those
20 first few years of cash flow.

21 We don't take -- when we say that we use
22 that 3 percent spread, that 3 percent spread was based
23 on a lot information over a lot of years, and it
24 recognizes that there is not, as mentioned in -- the
25 Concentric report that you have nicely filed here for

1 us, mentions that there is not a one for one movement
2 between yields and -- and interest rates. It actually
3 indicates that there is an inverse relationship.

4 So when the Bank of Canada rate drops,
5 yields actually tend not to drop so the spread goes up
6 as -- as the -- and as we see here, when the spreads --
7 when the yield is dropping to -- our Government of
8 Canada rate's dropping to two point seven (2.7), those
9 spreads are going up.

10 We're forecasting sort of the more
11 normal, longer term approach, and that's why we've got
12 that -- that much narrower spread than -- than you see
13 than the -- than the 6 percent -- 6 and -- and over
14 percent that you see in the Concentric report.

15 But in terms of the actual absolute
16 numbers, the -- the returns are actually at or below
17 the numbers that we're using for our own return on
18 equity, and that's the purpose of providing that
19 information.

20 MR. BYRON WILLIAMS: Fair enough. Now,
21 in terms of the premium as we look across that table,
22 would it be fair to say that the ECS premium is the
23 second-most conservative?

24 MR. IAN PAGE: It's the second lowest
25 put I -- it's -- as it's -- as pointed out in the

1 report, it's calculated from -- and as you mentioned
2 earlier, it was calculated from an average of three (3)
3 sources where we -- we have used numerous sources over
4 the years in calculating our three (3) -- in our -- in
5 effect our 4.65 percent number.

6 MR. BYRON WILLIAMS: Okay. Thank you,
7 Mr. Page. That was very helpful.

8 Mr. Chair, just maybe ten (10) minutes
9 of questions, and then I -- I will be done.

10 Mr. Cormie, I guess we've already had a
11 discussion in terms of the -- who owns what in terms of
12 the US transmission line.

13 Do you recall that?

14 MR. DAVID CORMIE: Yes, I do.

15 MR. BYRON WILLIAMS: I -- I want to
16 refer you and -- and Mr. Wojczynski and also Dr.
17 Jacobson, if he's still hiding behind the pillar, to
18 Hydro Exhibit 95, sli -- slide 145.

19 Does that ring a bell, Mr. Wojczynski?

20 MR. ED WOJCZYNSKI: Ver -- very much
21 so.

22 MR. BYRON WILLIAMS: And because I'm
23 mindful of the time, I'm going to ask you to confirm
24 without asking you to elaborate that Hydro takes the
25 position that the 250 megawatt line is now hypothetical

1 and likely not viable?

2 MR. ED WOJCZYNSKI: Yes.

3 MR. BYRON WILLIAMS: Now, Mr. Cormie,
4 speaking strictly for yourself, did you reach the
5 conclusion that the 250 megawatt interconnection was
6 not viable prior to September 1st, 2013?

7 MS. PATTI RAMAGE: Before we carry on,
8 I'm not sure what's -- what you mean by 'speaking
9 strictly for yourself'. Mr. Cormie's a Manitoba Hydro
10 witness.

11 MR. BYRON WILLIAMS: Well, I -- I'm
12 curious where -- when -- when he came to the conclusion
13 that it was not viable.

14 MS. PATTI RAMAGE: Mr. -- all of our
15 witnesses speak for the Corporation.

16 MR. BYRON WILLIAMS: Okay.

17

18 CONTINUED BY MR. BYRON WILLIAMS:

19 MR. BYRON WILLIAMS: When did Manitoba
20 Hydro come to the conclusion that the -- this plan was
21 not viable?

22

23 (BRIEF PAUSE)

24

25 MR. DAVID CORMIE: We've -- we've had

1 discussions, Mr. Williams, with Minnesota Power over
2 the last nine (9) months on the viability of the 250
3 megawatt line and whether they would be willing to
4 proceed with the 250 megawatt line because we have been
5 assuming that -- that it was part of our plans.

6 And -- and as we were negotiating the --
7 the arrangement to upsize the line, it was -- it was
8 important to -- to have an alternative in order to have
9 meaningful negotiations with Minnesota Power on the
10 additional value that was associated with Manitoba
11 Hydro proceeding with the 750 megawatt line.

12 And I think we were -- we were convinced
13 last summer that there was significant regulatory risk
14 based on those discussions. And then, as we came into
15 the fall, we wanted to have a conf -- confirmation from
16 them that they still felt that a -- the 250 megawatt
17 line was still risky, and they confirmed that.

18 The -- the conclusion that it was now
19 hypothetical was drawn when we started to think that it
20 was something that we would actually be able to
21 negotiate successfully, and having recognized the cost
22 of the negotiation associated with compensating them
23 for the -- agreeing to go to the larger line.

24 And -- and it was based on that cons --
25 that consideration that we've now concluded that we're

1 not in a position to successfully negotiate a -- an
2 arrangement to build a two-fifty (250) that could
3 adequately compensate Minnesota Power and preserve it
4 as a financial -- or an economic alternative.

5 MR. BYRON WILLIAMS: Thank you for that
6 -- that answer. I'm going to -- just in terms of the
7 conclusion that it was now hypothetical, Mr. Cormie,
8 was that reached in 2014?

9 MR. DAVID CORMIE: Yes.

10 MR. BYRON WILLIAMS: Late in January,
11 sir?

12 MR. DAVID CORMIE: Mr. Williams, all
13 Manitoba Hydro's financial or economic analysis have
14 been made public. And so it's reason -- and -- and
15 it's not reasonable. I know Minnesota Power has been
16 following what's been put on the public record. They
17 know the economics associated with the difference
18 between the alternative plans.

19 And -- and at this time, to assume that
20 we would be able to successfully negotiate something
21 that would keep the 250 megawatt option viable would
22 assu -- would assume that Minnesota Power would not go
23 to the record and see exactly the information that's
24 before you, and come to that conclusion that the
25 benefits of -- to Manitoba Hydro having a 250 megawatt

1 line would be clear for them to see.

2 So it -- it just puts us, Manitoba
3 Hydro, in a very difficult situation to say that we
4 could negotiate anything that preserved that value for
5 the Company.

6 MR. BYRON WILLIAMS: Mr. Cormie, I -- I
7 understand the -- the argument you're presenting.

8 When did you reach the conclusion that
9 the negotiations with Minnesota Power in terms of their
10 increased contribution to this line were likely to be
11 successful?

12 MR. DAVID CORMIE: Just very -- just
13 very recently.

14 MR. BYRON WILLIAMS: Could you give me
15 a bit more insight, Mr. Cormie?

16 MR. DAVID CORMIE: Following the update
17 in the capital cost.

18 MR. BYRON WILLIAMS: Which was, sir?

19 MR. DAVID CORMIE: Oh, in the last
20 week. We -- we had -- we had originally felt that the
21 regulatory risk was significant, but now with the
22 economics being what they were it was more than just
23 regulatory risk. There is no -- in addition to that
24 the business case couldn't be supported. So now we
25 deemed the -- that -- that alternative to be

1 hypothetical.

2 MR. BYRON WILLIAMS: Within the last
3 week?

4 MR. DAVID CORMIE: Yes, the conclusion
5 that not just re -- regulatory risk, but now the
6 business case couldn't be made any more.

7 MR. ED WOJCZYNSKI: Perhaps I could add
8 to that, though. The regulatory risk side we've been
9 increasingly concerned about. And I -- I'm not sure,
10 but I think we may have mentioned it in the September
11 pre-hearing conference, or whatever it was called --
12 workshop, that we -- but I -- I'm not a hundred percent
13 sure.

14 But on the regulatory risk side we've
15 been increasingly concerned about that for quite a
16 while.

17 MR. BYRON WILLIAMS: Just --

18 MR. ED WOJCZYNSKI: And as a matter --
19 I think -- don't we have an IR that says that? I --
20 I'm sure we said it somewhere, but...

21 MR. BYRON WILLIAMS: Mr. Wojczynski, it
22 would be helpful to -- to see that IR, because we've
23 been searching for -- for it. Would you -- so, Mr.
24 Wojczynski, just so I under -- understand, in terms of
25 a -- a heightened apprehension of regulatory risk, you

1 believe that there is an IR related to it. And you
2 don't need to do an undertaking for this, because it's
3 -- but you'll just get your -- your people to send it
4 to my people?

5 MR. ED WOJCZYNSKI: Yes.

6 MR. BYRON WILLIAMS: Okay. Mr. Cormie,
7 as I understand your evidence, the conclusion that it
8 was no longer viable was reached within the last week
9 when you joined your apprehended regulatory risk with
10 the business case evaluation.

11 Is that fair?

12 MR. DAVE CORMIE: Yes, when we -- when
13 I saw the updated economic analysis that's the point
14 where we moved it from not just being risky, but now
15 purely hypothetical. We -- we moved the -- moved the
16 status of being -- our ability to get the
17 interconnection through the Minnesota regulatory
18 process from being just risky, because it involved a
19 lot of lost benefits, to being hypothetical, because
20 now Manitoba Hydro's business case couldn't afford it.

21 MR. BYRON WILLIAMS: And that's where
22 I'm puzzled, sir, because doesn't the evaluation of the
23 last week suggest that Plan 4 has incl -- improved in
24 comparison to Plan 14? I'm suggesting to you, sir,
25 that when we look at the updated evaluation of capital

1 costs, Plan 4 now looks -- in -- in terms of expected
2 results, the NPV looks superior to Plan 14.

3 MR. DAVE CORMIE: Only -- only if you
4 assume that Minnesota Power is going to continue to
5 contribute 33 percent of the cost of the -- or -- or
6 pay for the 250 megawatt line in the US, and Manitoba
7 Hydro won't have to assist them with that.

8 MR. BYRON WILLIAMS: And you can't
9 assume that anymore, because you've already negotiated
10 a deal?

11 MR. DAVE CORMIE: Yes. And in
12 negotiating that deal, as I said before, Manitoba Hydro
13 had put additional value on the table, and there was --
14 some additional value will still have to be put on the
15 table for them to proceed.

16 MR. BYRON WILLIAMS: So the negotiation
17 of the 750 interconnect is -- in essence killed the 250
18 megawatt interconnection plan because of the additional
19 value that Minnesota Power obtained through your
20 negotiations?

21 MR. DAVE CORMIE: No, I -- I think
22 having all the information in the public domain killed
23 our ability to negotiate, not...

24

25 (BRIEF PAUSE)

1 MR. BYRON WILLIAMS: Dr. Jacobson, did
2 I hear you testify a couple days ago that an -- an
3 assess -- that an investment of \$19 million could have
4 significantly improved the import capacity of the 250
5 megawatt option?

6 DR. DAVID JACOBSON: I did testify
7 that. But if I could add to that, we're also
8 investigating the possibility of the 750 megawatt
9 option to go up to 883 megawatts. And the early
10 indications are that that is possible at no additional
11 cost.

12 So both the 250 and the 750 Plans will
13 have additional import capability at a nominal cost;
14 nominal cost for the 250 and -- and likely no cost for
15 the 750.

16 MR. BYRON WILLIAMS: That's -- that's
17 helpful. Thank you for that. Did I understand your --

18 MR. ED WOJCZYNSKI: Mr. Williams -- and
19 just -- and also, you might find it helpful that in
20 MMF/MH-II-14 we talked about this 50 megawatt and 250
21 megawatt import limit. That was discussed the other
22 day, as well, so there was something earlier on the
23 record on that. I happened to find while looking for
24 the other thing I'm looking for

25 MR. BYRON WILLIAMS: Okay, thank you.

1 Dr. Jacobson, did I understand your evidence to be, in
2 terms of the assessment of the additional potential for
3 the import capability of the 250 megawatt line, that
4 that assessment was done too late to include in the
5 MISO, M-I-S-O, Wind Synergy Study?

6 DR. DAVID JACOBSON: That is correct.
7 It was started almost at the very end of the MISO study
8 process.

9 MR. BYRON WILLIAMS: And just to help
10 me with my dates, when did the MISO Wind Synergy Study
11 -- when was it completed?

12 DR. DAVID JACOBSON: I'd have to go
13 online to check for sure, but it was roughly spring to
14 the summer. It was done -- it was done in four (4)
15 phases over the last year and a half, so I'm -- I'm
16 thinking it was -- yeah, in the spring of 2013 that the
17 majority of the work was complete. I can confirm that,
18 but roughly that was the case.

19 MR. BYRON WILLIAMS: So -- so subject
20 to check, you're indicating it was completed in the
21 spring of 2013? Is that correct, sir?

22 DR. DAVID JACOBSON: That's correct.

23 MR. BYRON WILLIAMS: And in terms of
24 the study related to the 250 megawatt import capability
25 improvements, when was that initiated, sir?

1 DR. DAVID JACOBSON: That was initiated
2 after in the late summer or early fall of 2013.

3 MR. BYRON WILLIAMS: So in effect it
4 was initiated actually after the wind synergy MISO
5 analysis was completed?

6 DR. DAVID JACOBSON: That's correct.
7 But just -- just to point out that the Wind Synergy
8 Study was not looking at incremental benefits of -- of
9 a small tie. They were looking at 1,100 megawatt --
10 the benefits of 1,100 megawatts. So even if this
11 information was at hand, it wouldn't likely have been
12 included in the Wind Synergy Study.

13 MR. BYRON WILLIAMS: Mr. Chair, if you
14 could hold for one (1) second.

15

16 (BRIEF PAUSE)

17

18 MR. BYRON WILLIAMS: Mr. Cormie, in
19 terms of the updated capital estimates for Minnesota
20 Power, the -- the -- for the US transmission line, the
21 new estimate is what, 507 million? Is that right?

22 MR. DAVID CORMIE: Yes.

23 MR. BYRON WILLIAMS: And did that
24 revised capital estimate assist in allowing the deal
25 between Manitoba Hydro and Minnesota Power to -- to

1 come near to consummation? Like, was that an important
2 factor, sir, the revised capital estimate?

3

4 (BRIEF PAUSE)

5

6 MR. DAVID CORMIE: The revised capital
7 estimate would have made the economics of the 750
8 megawatt line, and sharing those line costs with
9 Manitoba Hydro made -- would make that line option more
10 attractive for Minnesota Power, as opposed to having to
11 build a 230 line and pay for the thing 100 percent.

12 MR. BYRON WILLIAMS: Okay. Just --
13 just a couple last questions. I believe on Monday at
14 about 10:35 you testified that Minnesota Power needed
15 an incentive to upsize the line.

16 Does that ring a bell, Mr. Cormie?

17 MR. DAVID CORMIE: Yes.

18 MR. BYRON WILLIAMS: And you also would
19 have said on Monday that they will only upsize the line
20 if they are compensated?

21 MR. DAVID CORMIE: Yes.

22 MR. BYRON WILLIAMS: And, Mr. Cormie,
23 that's just where I -- I became confused, not for the
24 first time in this hearing. Was Minnesota Power's
25 initial position that it preferred the 250 line? I --

1 I'm trying to understand the context.

2 Like why do -- why do they need the
3 incentive to upgrade?

4

5 (BRIEF PAUSE)

6

7 MR. DAVID CORMIE: Building small
8 transmission is difficult. Building bigger
9 transmission is even more difficult. And there was
10 significant, and there remains significant, enterprise
11 for Minnesota Power and -- and for their ratepayer,
12 taking on this -- this project. And I think they
13 recognize that they have -- they bring value to the
14 table and they want to be compensated for that value.

15 MR. BYRON WILLIAMS: Okay. Mr.
16 Wojczynski, my last three (3) questions are for you,
17 sir. I believe I heard you testify earlier in the
18 week, I think on Monday, that the NPV for the Preferred
19 Plan would be less than a private investor would like
20 to have.

21 Would I have -- does that ring a -- a
22 bell, Mr. Wojczynski -- Wojczynski?

23 MR. ED WOJCZYNSKI: Yes, what I said
24 was -- I don't remember my exact words, but something
25 along the line less than what a private investor

1 typically would be looking for. And I'm referring --
2 and I believe I also said, "in the market." And so
3 you've got -- you've got a private investor going to
4 the stock exchange or you've got somebody investing in
5 buying a chain of stores or something. And I -- I
6 didn't have anything particular in mind, just the
7 general -- the typical investor. I wasn't thinking of
8 someone that's very specifically looking at exactly
9 that same investment opportunity.

10 MR. BYRON WILLIAMS: Okay. With regard
11 to Keeyask, if the Keeyask Cree Nations choose to go
12 the common ute -- unit route, would they be analogous
13 to a private investor, sir?

14 MR. ED WOJCZYNSKI: No, because as I
15 explained, I believe, in the July workshop, it gets
16 confusing as to when things are said, but that -- it's
17 a -- it's a quasi-commercial arrangement with them.
18 The -- the investors -- we're talking about the four
19 (4) Cree Nations investing as -- in common units in the
20 Keeyask partnership. That was your question, as I
21 recall.

22 In -- in that -- that case, they have --
23 don't have a fully commercial arrangement. They have
24 an enhanced return that no private investor would --
25 well, they have an enhanced return that was provided by

1 us. They are not sharing in all the downside risks,
2 and they are getting an up -- an enhanced upside, and
3 they're getting, essentially, very low cost financing
4 leverage from us.

5 So it was never intended to be a fully
6 commercial arrangement. That's why we call it a quasi-
7 commercial. And it's -- it's -- so I would not
8 consider them a normal private investor by any stretch.

9 MR. BYRON WILLIAMS: We'll have to
10 reflect upon that for week 4, Mr. Wojczynski. So thank
11 you for that.

12 MR. ED WOJCZYNSKI: I look forward to
13 that.

14 MR. BYRON WILLIAMS: Mr. Chair, and --
15 I certainly thank the panel and Manitoba Hydro and
16 their guests for their -- their time and also the --

17 MR. IAN PAGE: Mr. Williams, could I
18 just add something to...

19 MR. BYRON WILLIAMS: Mr. Page, always.

20 MR. IAN PAGE: I just had a chance to
21 review the Ontario report, and it -- it -- yes, it is
22 based on a forecast, but it's a forecast formula. Half
23 of the change in Government of Canada rates and half of
24 the change in average utility rates, similar to the
25 formula used in BC. And they've -- they had to have a

1 reset of their formula because the -- when the interest
2 rates plunged, it didn't provide a appropriate return.

3 So it's, again, it's addressing that
4 issue that I was talking about. But the -- the spreads
5 between utilities' returns and -- and the Bank of
6 Canada rank not being linear in equities, they state
7 right in that report that you're referring that:

8 "The Board is persuaded that there
9 exists a non-linear relationship
10 between interest rates and ERP..."

11 Which I presume is the acronym for their
12 -- for their rate of return:

13 "...and the existing formula
14 approximate this relationship using a
15 linear specification."

16 So it's a bit -- bit awkward. And --
17 and where else did I see here...

18 MR. BYRON WILLIAMS: Mr. Page, while
19 you're looking --

20 MR. IAN PAGE: Sure.

21 MR. BYRON WILLIAMS: -- would -- would
22 I be right in -- and I'm re -- in saying that assuming
23 a forecast long-term Government of Canada bond yield of
24 4.25 percent, they concluded the initial REE to be
25 embedded in the Board's reset and refined ROE formula

1 will be 9.75 percent, i.e., 4.25 percent plus five
2 hundred and fifty (550) basis points.

3 Would that -- would that be fair, sir?

4 MR. IAN PAGE: Yes, that's correct. I
5 also had a chance to look at the other two (2) that
6 were used in the eco-analysis report. There was the
7 one (1) from Alberta, which has been su -- been
8 superceded by a December order of eight point seven-
9 five (8.75) fixed in the light of rising interest
10 rates. It's indefinitely fixed at eight point seven-
11 five (8.75).

12 So as interest rates rise, as they will
13 over the future, obviously that spreads going to be --
14 it will decline. And BC's is 8.75 percent with an
15 adjustment mechanism. But that adjustment mechanism
16 doesn't take effect until the Bank of Canada rate
17 exceeds 3.8 percent, which effectively is a 4.95
18 percent spread, which isn't far from our 4.65 percent
19 spread.

20 MR. BYRON WILLIAMS: And, Mr. Page, I
21 understand you now to be conclusively forecasting that
22 interest rates are going to climb.

23 Is that right, sir?

24 MR. IAN PAGE: I am not forecasting
25 that, but --

1 MR. BYRON WILLIAMS: I'm just teasing
2 you.

3 MR. IAN PAGE: -- all of our
4 forecasters are.

5 MR. BYRON WILLIAMS: Well, how -- how
6 have they been doing lately, sir?

7 MR. IAN PAGE: Everybody's still
8 forecasting rates to rise.

9 MR. BYRON WILLIAMS: Thank you for --
10 for that.

11 DR. DAVID JACOBSON: If I can indulge
12 as well? This is Dave Jacobson. I've looked up the
13 wind TRG -- or, sorry, the Wind Synergy Study. And it
14 ran from June 2011, and the last meeting was June 27th,
15 2013, and the final report was issued July 2013.

16 MR. BYRON WILLIAMS: Thank you. And --
17 and perhaps just the very last question then, Mr.
18 Cormie.

19 Was that the report that was filed in
20 support of the Minnesota Power's application for a
21 certificate of need? I think the very first appendix.

22 MR. DAVE CORMIE: Yes.

23 MR. BYRON WILLIAMS: Thank you.

24 THE CHAIRPERSON: So we are twenty (20)
25 minutes late for our break. But what I would suggest

1 is we recess for about twelve (12) minutes, back here
2 at a quarter after.

3

4 --- Upon recessing at 3:04 p.m.

5 --- Upon resuming at 3:21 p.m.

6

7 THE CHAIRPERSON: I believe that we're
8 ready to continue with the proceedings. So before we
9 ask M. Hacault to -- to start his cross-examination, I
10 wonder if there's any documents to acknowledge, or...

11 MS. PATTI RAMAGE: Not documents, but
12 both Mr. Wojczynski -- yeah, I've been eating peanuts -
13 - Wojczynski and Mr. Miles wanted to address two (2)
14 outstanding matters.

15 THE CHAIRPERSON: Mr. Wojczynski,
16 please.

17 MR. ED WOJCZYNSKI: Yes, I was -- we
18 were discussing about the 250 interconnection and --
19 which is Pathway 3, and -- and the risk of -- and the -
20 - now the conclusion, the risk of it being not approved
21 from a regulatory per -- perspective. And I -- and Mr.
22 Cormie added in a more recent aspect which ultimately
23 all drew us to conclude that the 250 line was likely
24 not a feasible option.

25 And I had indicated I thought that we

1 put this -- had some discussion on the record earlier.
2 I have to say so far at least, I -- I haven't been able
3 to find anything. And I have some friends looking in
4 the transcript from the Sept -- the September workshop,
5 but there is -- in December we had a interrogatory
6 LCA/MH-I-037, which asked us fundamentally to compare
7 Pathway 3 and 4 -- or expand on it and it's up on the
8 screen. And if I could take you to page -- well, I had
9 it here. Oh, page 3. Yeah. And just a little bit
10 more. Okay. Stop.

11 And there we have a few paragraphs on
12 the '250 Megawatt Interconnection in Pathway 3 at Risk
13 of Not Obtaining Approval', and it deals with
14 certificate need and some of the issues we've been
15 talking about the last few days. So this -- this has
16 been on ongoing concern. As you can see even in
17 December we had -- had that concern. And even since
18 then our concern has increased to the point where we
19 don't think it's as -- as the 250 megawatt option is
20 understood now, that it's -- we don't believe it's
21 likely viable anymore.

22 I -- I suspect that my thinking of
23 September in the workshop must have been some other
24 circumstance, but -- but anyways, we have the
25 interrogatory.

1 MR. TERRY MILES: Okay. Well, good
2 afternoon, everyone. Just to follow up on an item that
3 -- I have the transcript here from March the 11th.
4 It's page 1,837 -- 1,837. It has to do with an IR that
5 -- that I had indicated I wasn't sure if it had been
6 filed yet.

7 It's LCA69 -- 469(a), LCA469(a), and it
8 has to do with the All Combined Cycle Gas Plan, and
9 it's the -- that has been filed. It was filed on March
10 the 6th. And that includes the twenty-seven (27)
11 scenarios for the uncertainty for the All Gas -- All
12 Combined Cycle Gas Plan.

13 The other -- there was another IR. It
14 was LC469(c) I thought had been filed as well with
15 that. That has not been filed yet.

16

17 (BRIEF PAUSE)

18

19 THE CHAIRPERSON: The panel has no
20 further questions of -- of Manitoba Hydro, so, M.
21 Hacaault, please...?

22 MR. ANTOINE HACAULT: Yes. Just an
23 administrative matter. We had circulated, I believe
24 about a day and a half ago, Volume IV, a book of
25 documents to which I'll be making reference to. I

1 believe it's been marked, or should be marked, as
2 Exhibit 20-4.

3

4 --- EXHIBIT NO. MIPUG-20-4: MIPUG book of
5 documents

6

7 CONTINUED CROSS-EXAMINATION BY MR. ANTOINE HACAULT:

8 MR. ANTOINE HACAULT: I would just
9 start by making a couple of introductory comments
10 before starting my cross-examination, members of the
11 panel.

12 In MIPUG's respective view, this panel
13 is one of the more important parts of this proceeding.
14 The financial aspect will be important. When we went
15 through the needs, the load aspect, Mr. Williams had
16 shown us a chart as to how information has evolved
17 since the August filing.

18 We now don't have quilts or full
19 information to make economic analysis with respect to
20 the increase of the discount rate from five zero five
21 (505) to five point four (5.4). We now don't have
22 quilts on the economic analysis that reflects the
23 capital costs. We now -- I guess never had quilts that
24 tell us directionally what's happening on DSM options,
25 DSM-1, DSM-2.

1 And we don't have full quilts on the
2 effect of the change in Manitoba Hydro's methodology in
3 taking out the common costs. And Mr. Williams took us
4 through how that has affected the band of uncertainty,
5 and band of risk that options might involve.

6 So all of those portions are not
7 complete, and I would make a request of this panel that
8 it give serious consideration on how and if we can deal
9 with that issue. We have seen in seven (7) months, and
10 I'll go through some of the numbers, the Preferred
11 Development Plan starting from the ref/ref/ref of about
12 1.7 billion. And when we go down and drill down and
13 update information to a DSM-2 level, it's gone to 45
14 million; what Mr. Wojczynski referred to as dust, not
15 even.

16 We don't know how that affects the rest
17 of our options and alternatives in the economic
18 analysis. We've been funnelled to one (1) or two (2),
19 and basically one (1) or two (2), pieces of analysis
20 without the benefit of knowing what happens on the risk
21 side and otherwise.

22 So I'm not too sure how the panel is
23 going to deal with this, but it's a big issue from our
24 perspective. And we --

25 MS. PATTI RAMAGE: Mr. Chairman, if I

1 could interject, if there's a motion --

2 MR. ANTOINE HACAULT: Okay.

3 MS. PATTI RAMAGE: -- to be made, I
4 would suggest it be made and in -- in the proper course
5 with written materials and Manitoba Hydro's ability to
6 respond to it.

7 What I'm hearing now is -- is argument
8 or A motion. I'm not hearing cross-examination. And
9 in fairness to Manitoba Hydro, if Mr. Hacaault and his
10 client wish to make a motion, it should be filed in the
11 proper course so that it can be dealt with in the
12 proper course. This is not the time allotted for --
13 for motions and argument.

14 MR. ANTOINE HACAULT: Thank you. It
15 wasn't intended to be a motion. I just brought the
16 issues to the panel's attention before I started.

17 The other part which, Ms. Ramage, I
18 understand, or at least we hope to deal with, is the
19 government benefits. It's been collaterally referred
20 to by this panel, but we would intend to deal with that
21 in the financial analysis portion, if that's
22 acceptable.

23

24 CONTINUED BY MR. ANTOINE HACAULT:

25 MR. ANTOINE HACAULT: The first theme

1 of my cross-examination is basically exploring what is
2 the Preferred Development Plan.

3 So in an attempt to try to refocus on
4 what we're doing here, I would ask perhaps if we can --
5 if the document management person can bring up the
6 Order in Council, page 1 of 8. The Order in Council,
7 yeah. It's in the schedule. Sorry. There should be a
8 schedule attached to the Order in Council. Yes, that's
9 it.

10 And if you can go up, the plan is
11 defined in this document under the heading 'Plan'.
12 There's a red -- a blue heading. And about two (2)
13 lines in, the second line, it says:

14 "The Plan includes the Keeyask and
15 Conawapa generating stations, their
16 associated domestic AC transmission
17 lines, and a new Canada/USA
18 transmission interconnection."

19 Am I right that as of the date of this
20 Order in Council, which was back in April of 2013, that
21 this was a general description of Manitoba Hydro's
22 Preferred Development Plan?

23 MR. ED WOJCZYNSKI: Yes.

24 MR. ANTOINE HACAULT: Now, time passes,
25 and by August of 2013, the business case is filed. And

1 in Chapter 8 at page 9, there's the heading 'Preferred
2 Development Plan'. And here we get a little bit more
3 specific.

4 We have Keeyask coming in at 2019/2020,
5 Conawapa coming in at 2025, some gas later on, the 750
6 megawatt import-export interconnection. And this
7 includes the WPS sale and the investment that WPS was
8 willing to make at that time.

9 Am I correct that that was the Preferred
10 Development Plan which, when the president was speaking
11 in the opening comments, was the plan that -- I forget
12 his exact words. It was something, we're going to try
13 and persuade this Board that it's the plan that should
14 be adopted.

15 MR. ED WOJCZYNSKI: I believe you're
16 referring to the opening comments last week. And I
17 would say, generally, that's accurate. But he also
18 said that in the context of that Conawapa itself is in
19 our Preferred Plan, but that we have flexibility on
20 what we're going to do with Conawapa.

21 And -- and in the -- in the pathway
22 associated in the plan, if down the road it's
23 determined that it no lon -- that four (4) years from
24 now that -- that the conditions that have evolved to
25 that point don't -- aren't -- don't justify at that

1 time Conawapa that we would not continue with it, or
2 delay it, and -- and possibly go with something else.
3 So I think it's in that context he said that.

4 MR. ANTOINE HACAULT: Okay. Thank you
5 for those comments, and that's useful because if we
6 look at lines starting at line 10 at the very end on
7 this page that's on the screen. And I'm quoting:

8 "To meet these commitments, Manitoba
9 Hydro must build new hydroelectric
10 generation which, in this plan
11 [that's referring to the above plan]
12 consists of Keeyask generating
13 station and Conawapa generation
14 station developed by their earliest
15 in-service date."

16 So the Preferred Development Plan, as I
17 understood it, if Conawapa couldn't come in before '26,
18 that would be the earliest in-service date. But the
19 Preferred Development Plan was to put Conawapa in as
20 soon as we could provide it in-service.

21 Is that no longer what's before this
22 Board as a Preferred Development Plan?

23

24 (BRIEF PAUSE)

25

1 MR. ED WOJCZYNSKI: In -- in that
2 chapter we were refer -- we were defining it that way,
3 and -- and that's how we determined what the in-service
4 dates were with the 2012 in-service date -- the 2012
5 load forecast, my apologies. As we communicated
6 earlier that when we got the new load forecast, even in
7 the submission there wasn't the same need for Conawapa
8 to be in '25. And so then we moved it to 2026, even
9 though we still could have probably got '25.

10 So in -- in this chapter that you're
11 referring to here, it was in the context of that
12 chapter. If you go to Chapter 14, which I don't know
13 if you're going there, but in Chapter 14 we introduced
14 the concept of pathways and the flexibility, and how in
15 the real world any company who is undertaking projects,
16 whether it's an electric utility company or otherwise,
17 will adapt its plan to the circumstances; and that is
18 part of the plan. To be flexible in what you're doing
19 is part of the plan.

20 So but in -- in the very narrow
21 definition of Preferred Plan, yes, it's Keeyask and
22 Conawapa. In the broader definition of what we used in
23 Chapter 14 and in the overview, we said there was
24 flexibility and optionality and we would adapt to the
25 circumstances. And that -- what the real decision with

1 this Preferred Plan was go with Keeyask, go with the
2 big interconnection, go with MP and WPS sales, and --
3 and with the expectation we'll do Conawapa, but we may
4 not. So I -- I hope that helps.

5 MR. ANTOINE HACAULT: My question was
6 pretty specific. It was whether or not the Preferred
7 Development Plan was to put Conawapa generating station
8 at its earliest in-service date possible.

9 MR. ED WOJCZYNSKI: No.

10 MR. ANTOINE HACAULT: That's no longer
11 the Preferred Development Plan of the Corporation?

12 MR. ED WOJCZYNSKI: And -- and it
13 wasn't in the submission either.

14 MR. ANTOINE HACAULT: Okay.

15 MR. ED WOJCZYNSKI: It was -- that
16 statement in that -- was in the context of that
17 chapter. In the subsequent chapter 12, we already
18 moved off of that and were explicit in doing that.

19 And in chapter 14, we discussed moving
20 from the '25 to '26 as an example where we would
21 exercise what we called earlier today learning, or
22 flexibility and optionality. So I think there's --
23 that's evidenced in chapter 12 and 14.

24 MR. ANTOINE HACAULT: Okay. Perhaps --
25 and this is in our book of documents now. It's at page

1 51. If you could turn to page 51 of our book of
2 documents, please. At the bottom of the page, line 11
3 -- and this is from chapter 12 of your business case,
4 the chapter just referred to, sir. If we go to line
5 11, we see, three-quarters (3/4s) down the line, the
6 sentence starts:

7 "Plan 14 in Table 12.10 is the
8 Preferred Development Plan with the
9 fixed in-service dates for both
10 Keeyask and Conawapa generating
11 station. Plan 14(a) is a variant of
12 the Preferred Development Plan in
13 which the in-service date for
14 Conawapa generating station is
15 deferred for four (4) years with a
16 four (4) times DSM."

17 So you can perhaps understand why I,
18 reading this, didn't understand the same thing that
19 you're telling us today is -- and what you're telling
20 us today is that the Preferred Development Plan is not
21 putting Conawapa in at its earliest in-service date,
22 but it's optionality?

23 MR. ED WOJCZYNSKI: The Preferred
24 Development Plan has Conawapa following Keeyask, that's
25 -- that's the plan, but with flexibility as to what the

1 in-service date is, and a proviso that if the
2 circumstances don't warrant it, we would move from
3 Conawapa to say Gas or -- or defer it for -- to some
4 later date.

5 So when we use the word 'variant' in
6 this case, I -- I -- nobody at Manitoba Hydro, for one
7 (1) second, would have thought that if you have DSM and
8 we defer Conawapa due to the DSM, that that still isn't
9 the Preferred Plan.

10 MR. ANTOINE HACAULT: But you see at
11 line 16 it says:

12 "Plan 14(a), deferring Conawapa
13 generating station from 2026 to 2027
14 to 2030/'31 shows a net benefit of 11
15 million when compared to Plan 14."

16 But no quilt was ever given for what
17 we've now come to know as Level 2 DSM, correct?

18 MR. ED WOJCZYNSKI: Correct.

19 MR. ANTOINE HACAULT: And we'll go
20 through the numbers. We now know that there's more
21 than \$11 million difference between Plan 14 and Level 2
22 DSM with the updated information?

23 MR. ED WOJCZYNSKI: Yes.

24

25 (BRIEF PAUSE)

1 MR. ANTOINE HACAULT: So -- I'll just
2 let the witnesses complete their discussion.

3

4 (BRIEF PAUSE)

5

6 MR. ED WOJCZYNSKI: I think Mr. Cormie
7 has helped -- found a way to help explain this. We --
8 with -- in our Preferred Plan, the intent was that we
9 do Keeyask, the 750 interconnection, the MP sale, WPS
10 sale now. And the -- the intent is that we would do
11 Conawapa earlier than we would need for domestic load.
12 And if the circumstances warrant it with -- with export
13 contracts and load growth, and everything else, we
14 would put it in at the earliest possible Conawapa date.

15 And the -- as Mr. Cormie has recently
16 communicated, he's negotiating with SaskPower, with
17 Great River Energy, with others. And if those come to
18 fruition, the -- the intent is that we would advance
19 Conawapa to its earliest possible in-service date.

20 But it depe -- it depends on the
21 circumstances that evolve. So the plan is Keeyask 750,
22 and as long as the circumstances warrant it, Conawapa
23 as early as possible. But if the circumstance don't
24 warrant it then we would move it back or displace it.
25 I don't know if that helps or not.

1 MR. DAVE CORMIE: Yeah, Mr. Hacault, we
2 would have never signed the contract with WPS if it
3 wasn't out plan -- our intention to bring Conawapa in
4 on the date that it's scheduled. Now, our plans may
5 change, but our plan was to have Conawapa in service
6 for that. And in order to make that happen to have
7 additional export sales to -- to justify that.

8 Now, those export sales may not happen
9 and we may have to change our plans, and then we would
10 go back to WPS and say, You know what, circumstances
11 have changed and we can -- you know, we're no longer
12 going to build it.

13 But our plan is, and our representation
14 in the market is we will -- we will build it as we have
15 scheduled now. And -- and as of -- and as of three (3)
16 weeks ago when the agreement was signed, that was our
17 plan. And it -- and it's -- it remains our plan.

18 We're -- we're just not making the
19 decision to commit to Conawapa yet. We have time for
20 those additional sales to materialize. And if they do,
21 then we will fulfill -- fulfill that plan.

22 MR. ANTOINE HACAULT: Try to distill
23 that down to something that -- if we go back to the
24 Order in Council, I have to understand, as counsel for
25 MIPUG, and the Board's going to have to understand at

1 what -- at what point in time it's going to make some
2 recommendations on a Preferred Development Plan. What
3 I think I'm hearing is that the Preferred Development
4 Plan is Pathway 5. Because Pathway 5 allows for the
5 earlier in-service, but it allows for the flexibility
6 not to build that if in -- by the time the decision has
7 to be made it's not economic to build Conawapa?

8 MR. ED WOJCZYNSKI: That is correct.

9

10 (BRIEF PAUSE)

11

12 MR. ANTOINE HACAULT: And then when we
13 saw the narrowing of the information being provided to
14 the PUB as far as ref/ref/ref -- and Mr. Williams had
15 some fancy graphs on funnels, and that table --
16 basically the information that's being provided in that
17 funnel, without having the other funnels, is the
18 Pathway 5, which is the preferred development scenario.

19 Is that correct?

20 MR. ED WOJCZYNSKI: Yes.

21

22 (BRIEF PAUSE)

23

24 MR. ANTOINE HACAULT: And if we're
25 talking about numbers of plans, if I've got it right,

1 Mr. Williams had showed that we're doing -- putting
2 Plan 5 -- Plan 5 in Pathway 5, Plan 14 in Pathway 5;
3 and, as I understand it, we're also looking at DSM
4 enhancements as part of the Pathway 5.

5 So that would also be included in the
6 Preferred Development Plan, correct? Those three (3)
7 items.

8 MR. ED WOJCZYNSKI: Yes. And expanding
9 DSM was always envisaged as being part of -- of the
10 Preferred Plan, but -- but, yes.

11

12 (BRIEF PAUSE)

13

14 MR. ANTOINE HACAULT: And just so I'm
15 clear, we've moved off the in-service date as soon as
16 possible. We've moved onto a flexible in-service date
17 for Conawapa Generating Station, which is shown in the
18 materials.

19 It varies, I think, from 2026 up to
20 2031/'32, correct?

21 MR. ED WOJCZYNSKI: That's correct.
22 And -- and maybe I can just comment that maybe our
23 depiction in various places where we talked about the
24 earliest in-service date, we could have contexted it a
25 bit different and said that with an in-service date,

1 depending on the circumstances, but right now we're
2 thinking as -- as early as possible assuming things are
3 attractive.

4 MR. DAVID CORMIE: And -- and, Mr.
5 Hacaault, as I indicated when I was speaking about the
6 WPS sale, we have the flexibility, I think, up to --
7 bring Conawapa in up to 2031 and the sale -- sale still
8 remains.

9 So, you know, we've always had --
10 recognized that there's un -- some uncertainty
11 associated with that date, whether it's for regulatory
12 reasons or for economic reasons. And -- and WPS has
13 committed themselves to saying: Yeah, I'm going to --
14 you know, in that time frame that works for us. And it
15 can actually be earlier than the date that's currently
16 scheduled under that agreement.

17 So I -- I think that's consistent. But,
18 you know, we're -- we're looking for flexibility, and -
19 - to deal with all those issues.

20 MR. ANTOINE HACAULT: Okay.

21 MR. ED WOJCZYNSKI: Then I -- I can
22 help you as well. We keep -- we've been talking about
23 Keeyask19 consistently for -- about being the Preferred
24 Plan, but as the chair asked this morning -- Mr. Chair,
25 you -- this morning? Sometime today -- asked about,

1 Well, couldn't we push back the decision two (2) years?

2 I'm paraphrasing your question.

3 And in the Preferred Plan we don't have
4 the option of saying, We're going to try again in two
5 (2) years, or decide in two (2) years. What the
6 Preferred Plan does have in it, that if -- the
7 regulatory reasons that cause Keeyask to be delayed,
8 that the contracts allow for that. And that's still
9 considered the Preferred Plan even though Keeyask may
10 move.

11 MR. ANTOINE HACAULT: Okay. Now, if
12 the document organizer can bring up Exhibit 101,
13 Manitoba Exhibit 101 -- sorry, some of these aren't in
14 my document book because we got them later. It's the -
15 - what I understand to be a response to an und --
16 undertaking with respect to the NPV for -- of the
17 Preferred Development Plan over All Gas Plan that was
18 provided to Manitoba Hydro's Electric Board. And the
19 next page has on it a graph.

20 And do you see, members of the -- the
21 panel, I was confused because remind us again when this
22 was presented to the Board?

23 MR. ED WOJCZYNSKI: This was presented
24 to the Board two and a half (2 1/2) weeks ago, on
25 February 27th.

1 MR. ANTOINE HACAULT: Okay. As of
2 February 27, administration is presenting to its board
3 of Manitoba Hydro a development plan being Conawapa26.

4 Do you see that?

5 MR. ED WOJCZYNSKI: Yes.

6 MR. ANTOINE HACAULT: Okay.

7 MR. ED WOJCZYNSKI: Perhaps, I could
8 add to it. I thought you were going to follow up with
9 a question, but it looks like you're not.

10 MR. ANTOINE HACAULT: So was the Board
11 provided with the Pathway 5 Development Plan NPVs?

12 MR. ED WOJCZYNSKI: I'm sorry, I was
13 talking to my counsel and I didn't hear the beginning
14 of your question.

15 MR. ANTOINE HACAULT: Was the Board
16 provided with different information which would have
17 included different in-service dates for Conawapa?

18 MR. ED WOJCZYNSKI: What I communicated
19 to the Board was that we kept the Conawapa in-service
20 dates the same in this, but that we could also defer,
21 and that the NPV difference was very small -- it -- so
22 that we presented it this way, but it -- it could be a
23 few years later, and -- and that it didn't make a large
24 difference in the economics.

25 MR. ANTOINE HACAULT: The one (1) thing

1 that does not seem to have been provided to the Board
2 was the DSM Option 1, or Option 2.

3 Was that information provided to the
4 Board?

5 MR. ED WOJCZYNSKI: No -- no, because
6 it wasn't available yet. That information was
7 developed between the Board meeting and Saturday
8 morning.

9 MR. ANTOINE HACAULT: I've told Ms.
10 Ramage a number of times I really admire the dedication
11 of the staff in this.

12 MR. ED WOJCZYNSKI: It's good to hear.
13 Thank you.

14

15 (BRIEF PAUSE)

16

17 MR. DAVID CORMIE: Mr. Hacault, most of
18 us are peekers, but Mr. Wojczynski, we des -- described
19 him as base load.

20 MR. ED WOJCZYNSKI: I think of myself
21 as a hydro-plant. I'm also flexible.

22 MR. ANTOINE HACAULT: The -- given that
23 clarification -- I'm sorry, I've got to get to serious
24 matters. I've got to get through my stuff here. I'm a
25 -- a party pooper.

1 I want to deal with protecting Conawapa,
2 because if we're looking at a variation from 2026 up to
3 2030, I want to have some idea of the order of
4 magnitude that we're asking the ratepayers and -- and
5 this Board to make a decision on, as to what's the cost
6 of doing that.

7 So, perhaps, if I can -- you had,
8 members of the panel, referred to earlier on PUB/MH
9 Round 1 279. It was the optionality. And at page 4,
10 it should show up -- page 4. So it's Round 1 279.
11 There's an attachment, I believe.

12 And keep going, please. And we're
13 getting -- we're at page 2. I want page 4. In the
14 centre there's a table. So...

15

16 (BRIEF PAUSE)

17

18 MR. ANTOINE HACAULT: First, I don't
19 know who is best to answer this. Who did the option
20 cost calculations?

21 MR. ED WOJCZYNSKI: Staff in -- staff
22 in Ms. Flynn's shop did it with Ms. Flynn and I
23 supervising.

24 MR. ANTOINE HACAULT: Yes. And so
25 changing the date from Pathway 1, which is the All --

1 All Gas, and a number -- well, it's a no transmission,
2 it would be 308 million to protect it to that date,
3 correct? If we're going to try and build and there's
4 about a ten and a half (10 1/2) year time frame from
5 now to 2015/2016, we've got to spend 308 million to
6 protect --

7 MR. ED WOJCZYNSKI: Subject to check.
8 The \$308 million was the total sum required to protect
9 Conawapa from now until the decision is made about a
10 2026 in-service date. So for -- let's call that
11 December 2017. So it's the total sum.

12 And the idea in Pathway 1 is you start
13 with na -- gas turbines being your first source, but
14 you protect Conawapa for -- and then if it turns out
15 export prices are high, or whatever, then you can flip
16 into Conawapa in -- instead of continuing with gas. If
17 it turns out gas price are low, you will have spent
18 \$308 million, and you do not do Conawapa, and then you
19 continue with gas. So that was the idea.

20 MR. ANTOINE HACAULT: Okay. And if we
21 go to Pathway 5, which is the funnel that I understand
22 is being described as the Preferred Development Plan as
23 -- in a general way, to protect Conawapa as an option,
24 and we need to spend 308 million?

25 MR. ED WOJCZYNSKI: Yes. And I should

1 clarify that that's present value, not base dollars.

2 Present value, two thousand and four -- fourteen

3 dollars (\$2,014).

4 MR. ANTOINE HACAULT: Sorry, what was
5 that number again, the...

6 MR. ED WOJCZYNSKI: The -- you're -- on
7 this third -- third column, the option cost in 2014,
8 that's 2014 NPV, just like all the other analysis we're
9 doing.

10 MR. ANTOINE HACAULT: Okay. Now --
11 yeah, it's four hundred (400) and some, the -- before
12 we...

13 MR. ED WOJCZYNSKI: I don't know the
14 number offhand. Base dollars, three hundred and eight
15 (308). If you de-discount it, I'm guessing it'd be
16 about three forty (340) or three fifty (350), but I --

17 MR. ANTOINE HACAULT: In that range,
18 okay.

19 MR. ED WOJCZYNSKI: -- I'm just doing
20 it off the top of my head.

21 MR. ANTOINE HACAULT: Sure.

22 MR. ED WOJCZYNSKI: I can get my
23 calculator, but I don't think you want me to do that.

24 MR. ANTOINE HACAULT: So there's other
25 pathways that we're considering and in those other

1 pathways -- and the fourth pathway was actually -- the
2 only difference was is that there was no WPS sale and
3 no investment, correct? That's the major difference
4 between the Pathway 4 and Pathway 5?

5 MR. ED WOJCZYNSKI: Yes.

6 MR. ANTOINE HACAULT: And when we say
7 Pathway 4B, why does it only cost us 87 million to
8 protect that option? And what is that option?

9 MR. ED WOJCZYNSKI: In 4B, instead of
10 protecting a 2026 in-service date for Conawapa, we were
11 instead protecting a 2031 in-service date. And so
12 there -- there was -- but we used the same decision
13 point -- we used a later decision point as to whether
14 to proceed or not, so there was less at risk.

15 MR. ANTOINE HACAULT: So what types of
16 things are we spending a little bit over \$200 million
17 on?

18 MR. ED WOJCZYNSKI: I can give a
19 general answer. I can't give you the exact breakdown
20 right now. But in the -- in the first year we would be
21 continuing with environmental studies and preparing the
22 EIS for filing, and negotiating with the five (5) Cree
23 Nations in the area, plus consulting with other --
24 other Aboriginal communities, including MMF. And --
25 and thirdly, we'd be doing more engineering to advance

1 the design of it. That would be the first year.

2 And then the second year we'd be into
3 the regulatory process -- environmental regulatory
4 process, and we will -- would be doing more detailed
5 engineering. And -- and that would carry on until
6 December 2017. And this did not envisage this -- well,
7 I can stop there, yeah.

8 MR. ANTOINE HACAULT: Okay. So is it
9 your view, sir, that this extra 200 million or so would
10 all -- is not like thrown away? We don't spend it and
11 then -- based on the descriptions you've given, we
12 could still kind of keep the value of that, or would we
13 lose a significant part?

14 I'm just trying to see where we're --
15 whether we're keeping our value going forward. If we
16 spend the 300 million and we make a decision not to
17 proceed, do we still keep some value in that?

18 MR. ED WOJCZYNSKI: Yes, we would keep
19 some value in that. But it -- it would depend on how
20 much longer -- how much you delay Conawapa. I'll --
21 I'll give two (2) ex -- I'll give three (3) examples.

22 If you delayed Conawapa two (2) years it
23 would -- it would all have value. If you delayed
24 Conawapa seven (7) years -- I'll just pick a number out
25 of the air -- you'd have to probably redo the

1 environmental review pra -- process, update some of
2 those studies, and so you'd lose some of the value.

3 On the other hand, if you delayed
4 Conawapa twenty (20) years, then the engineering, and
5 field studies, and some of the basic environmental
6 studies would be useful. But, essentially, you'd have
7 to repeat the environmental studies and update your
8 engineering. So there'd be -- some would be valued,
9 but not all.

10 MR. ANTOINE HACAULT: Thank you. The
11 next theme that I'd like to get into is the other
12 points of evolution that this plan might see. We
13 haven't dealt with that very much.

14 MR. DAVE BOWEN: Sorry, if I -- if I
15 may. It's Dave Bowen. I just -- in -- in terms of the
16 cost to pursue a Conawapa 2026 in IR/PUB-MH-1-238(c),
17 those -- those costs are outlined by fiscal year. I
18 just wanted to make -- make the Board aware of that.

19 The -- what Mr. Wojczynski described in
20 terms of the activities, those are -- those are
21 summarized in that IR. They're generally consistent
22 with his answer. The -- the cost -- the cost listed
23 here, if you move to the second page -- top of the
24 second page you can see that the -- the spending from -
25 - basically from fiscal year 2015 to -- to fiscal year

1 2018, there's -- there's roughly 40 -- \$46 million in
2 the -- in the first year, \$44 million the next, \$96
3 million, and \$202 million in the fiscal year 2018.

4 The reason why the costs go up, that's -
5 - that's assuming decisions are made and we start
6 actually carrying out construction, procuring
7 contracts, that's the increase in costs.

8 Those -- yeah, those are in current --
9 in current year dollars not the NPV -- NPV dollars --
10 2014 dollars, pardon me.

11 MR. ED WOJCZYNSKI: Yeah, I -- just so
12 everybody understands, when we're doing that
13 optionality the 308 million is only the dollars after
14 June this year. Anything spent to-date is sunk and --
15 and would not be part of that three hundred and eight
16 (308).

17 MR. ANTOINE HACAULT: So we've looked
18 at various DSM options. If they're wildly successful
19 then by 2016 we see that the load is being managed
20 better than what we thought in a ref/ref/ref.

21 Do we have the flexibility of saying,
22 Okay, we've spent the amounts shown in these years.
23 We'll now defer building Conawapa for 'X' amount of
24 years and what does it cost to kind of maintain that if
25 we defer it, say, for another three (3) years?

1 MR. ED WOJCZYNSKI: If -- if -- I think
2 you're asking me for an answer. If we decide in July
3 of this year with all the information we now have to
4 push back Conawapa's in-service date for three (3)
5 years, what would be the cost in the earlier years for
6 that scenario?

7 Is that what you're asking?

8 MR. ANTOINE HACAULT: The concepts of
9 what we're gaining, what we're doing, yes.

10 MR. ED WOJCZYNSKI: Okay. We --
11 Manitoba Hydro has not made a firm plan for that. But
12 some thought has been given to all kinds of
13 possibilities. We always think about a range of
14 possibilities.

15 So some preliminary consideration has
16 been given that if we were to push back Conawapa's in-
17 service date for whatever reason, what would we -- we
18 do -- be doing. And one (1) of the things we think we
19 probably would do is carrying on with the environmental
20 studies, maybe not as quickly, and with the Aboriginal
21 negotiations 'cause we've gone a good distance.

22 And -- and we've already engaged the
23 regulators, like DFO and somewhat, and we could go at a
24 slower pace, reduce the annual expenditures, and then
25 have a schedule where you would finish the Aboriginal

1 negotiations and do the environmental studies but not
2 have done the -- all the intensive engineering you
3 would have otherwise done, and -- and then be in a good
4 position later on, so.

5 Also if you defer it three (3) years --
6 well, anyways that's -- that's what our preliminary
7 thinking is, and I don't have a dollar value for that
8 but it would be lower than what is in here.

9 MR. ANTOINE HACAULT: 'Cause if I
10 understand so far, if we take it in smaller bites, I've
11 heard Mr. Cormie say, that we don't absolutely need to
12 build Conawapa to do the WPS sale, correct? It depends
13 on DSM and load?

14 MR. ED WOJCZYNSKI: Yes, and
15 potentially other resources but yes.

16 MR. ANTOINE HACAULT: And currently if
17 we look at the graphs, and we'll be looking at them. I
18 believe DSM 2 would bring us somewhere around 2030, and
19 we'd still be able to meet the WPS sale?

20

21 (BRIEF PAUSE)

22

23 MR. ED WOJCZYNSKI: Twa -- and if you
24 go to Exhibit 1041, it would be 2031 with Level 2 DSM,
25 and without any pipeline load. With pipeline load it

1 would be a number of years earlier.

2 MR. ANTOINE HACAULT: Thank you.

3 MR. DAVID CORMIE: Now, Mr. -- Mr.

4 Hacaault, as you've indicated there's a whole bunch of
5 things that will evolve DSM costs. And -- and I -- I
6 don't bring signed export contracts to Manitoba Hydro
7 and surprise them. There's a -- a long steady process
8 of MOUs, term sheets, ultimately leading to a contract.
9 And Ms. -- Ms. Flynn and Mr. Wojczynski and I and the
10 executive of Manitoba are -- are monitoring all of
11 those things continuously.

12 And if -- if the export market were to
13 dry up now and -- and we were to stop marketing the
14 power that could be delivered from Conawapa to
15 Saskatchewan and Great River, you know, that -- that
16 variable would be off the table.

17 But it's on the table and it's
18 constantly being monitored and -- and affecting the
19 decisions on should we spend the next dollar to protect
20 Conawapa.

21 MR. ANTOINE HACAULT: You're almost a
22 mind reader because my last point, or theme, was other
23 points of the plan evolution.

24

25 (BRIEF PAUSE)

1 MR. ANTOINE HACAULT: And before going
2 to those points of plan evolution, I would like someone
3 on this panel to let me know whether or not spending
4 these amounts to protect Conawapa is still part of the
5 plan that they're seeking this Board to deal with.

6 MR. ED WOJCZYNSKI: We -- if -- if we
7 go to the terms of reference and if we go to the
8 submission, we didn't see anything in there about
9 planning and engineering studies.

10 What we saw was a recommendation of
11 whether or not to go with construction of these
12 projects or not in -- in the various circumstances.
13 And so we weren't dealing with the issue of, you know,
14 how much we'd spend next year on planning studies for
15 Conawapa; that wasn't something that we saw as part of
16 our submission details.

17 MR. ANTOINE HACAULT: Understood, but
18 if you want this Board to look at the optionality in
19 Pathway 5, would you agree with me, sir, that implicit
20 in that they have to have something to base their
21 decision on as to whether or not they think optionality
22 is a good idea, and whether you should be able to
23 maintain Conawapa as an option?

24 MR. ED WOJCZYNSKI: Yes.

25 MR. ANTOINE HACAULT: Now --

1 MR. ED WOJCZYNSKI: I think we did just
2 provide that information and...

3 MR. ANTOINE HACAULT: Plan infor --
4 plan evolution. We've been talking about various
5 aspects. And, Mr. Cormie, I believe there's a couple
6 aspects in this plan evolution that we haven't talked
7 much about. And I'd just like to identify some of
8 them. You had talked about some possible sale of 600
9 megawatts.

10 Could you say how -- would that be
11 beneficial and how does that fit into what you're
12 asking as far as a Preferred Development Plan pathway?

13 MR. DAVID CORMIE: The -- the 600
14 megawatts with Great River Energy is the -- the
15 boundary maximum in -- under which power sale
16 discussions will take place with -- with Great River
17 Energy.

18 The 600 assumes that we will continue
19 the 200 megawatt diversity, and then up to another 400
20 megawatts of baseload power, or -- or, you know, the
21 5x16 power that -- and so that's where the 600
22 megawatts comes from, and it's -- it's -- it creates in
23 an -- an environment in which Great River can consider
24 that amount as being available, but that's not
25 necessarily the amount that we will end up with. And

1 it also indicates our willingness to continue with
2 seasonal diversity arrangements.

3 So that's -- that's where the 600 comes
4 from, and so, you know, that -- that creates a context
5 in which we can have fruitful discussions.

6 MR. ANTOINE HACAULT: Okay. It's not
7 in Pathway 5 right now, but Pathway 5 gives you that
8 optionality. Is that correct?

9 MR. DAVE CORMIE: It gives us the
10 optionality, because there's enough unsold surplus
11 capacity and energy for a significant long time if
12 Conawapa is developed, to be able to deliver that.

13 MR. ANTOINE HACAULT: Do you have any
14 sense of when we'll have better information making --
15 better information to make a decision on that and how
16 it helps contribute to Conawapa?

17 MR. DAVE CORMIE: Great River Energy
18 knows their -- that Manitoba Hydro needs to make an
19 investment decision relatively soon, and -- and given
20 that the current in-service date for Conawapa aligns
21 with the year in which they've indicated they need the
22 power, there will be some urgency for us to come
23 together within the next year on defining something
24 that can be put into a term sheet.

25 So, you know, that's where the -- that's

1 where the -- the work is taking place now, trying to
2 define what a term sheet might look like and -- and --
3 but -- and it -- but it will be done in a context that
4 -- that we don't have a lot of time left.

5 If we de -- if we defer Conawapa, then
6 potentially, there -- there could be a gap created
7 between when they need it and our ability to provide
8 it.

9 MR. ANTOINE HACAULT: And I -- am I
10 correct that this particular potential sale is not
11 possible with the 250 megawatt line, it's only possible
12 with the seven hundred and fifty (750), or does it --
13 would it have worked with the 250 line?

14 MR. DAVE CORMIE: We -- we have 200
15 megawatts of transmission with them, so there will be a
16 need for up to another 400 megawatts. And given the
17 ability to expand the 750 megawatt line, as Mr.
18 Jacobson has said, if we need to expand it to meet
19 Great River's needs, we have that option.

20 MR. ANTOINE HACAULT: Okay. That -- I
21 believe there's another contract you mentioned five (5)
22 or ten (10) minutes ago with SaskPower that is the
23 subject of discussions. It's not a contract. It's
24 negotiations, sorry.

25 MR. DAVE CORMIE: Yes.

1 MR. ANTOINE HACAULT: How does that fit
2 into protecting Conawapa, or needing Conawapa?

3 MR. DAVE CORMIE: Again, it is a --
4 there's a 500 megawatt MOU, and under that MOU,
5 discussions are occurring for a -- an earlier power
6 sale that would be dependent on Keeyask, and then a
7 larger power sale that would be dependent on Conawapa.

8 And again, Saskatchewan knows when our
9 investment decision needs to be made and it aligns with
10 the years in which they need the power. And so again,
11 there's this alignment of timing that means that we
12 need to make a decision before we make the investment
13 decision.

14 The -- the issue with the Saskatchewan
15 in the larger sale is that a major transmission needs
16 to be built between Manitoba and Saskatchewan to make
17 that happen. And so it's -- it's not just the business
18 arrangements that need to be worked out. We can do
19 that relatively quickly, I think.

20 It's -- it's with Mr. Jacobson and his
21 group on how do we get the -- how do we get the
22 electricity to Regina? And that's probably going to
23 take a -- a little bit longer time, so that we can't --
24 we wouldn't be able to settle on that and -- and define
25 a term sheet until we have those cost numbers

1 available.

2 But again, we're working under the -- a
3 deadline that exists in order to protect Conawapa's
4 scheduled in-service date.

5 MR. ANTOINE HACAULT: Do you have some
6 sense, sir, as to when the critical date for that is?
7 Is it in the next year? Is it in the next two (2)
8 years?

9

10 (BRIEF PAUSE)

11

12 MR. DAVID CORMIE: I believe the
13 companies would need to know what those transmission
14 costs are before they can sign a -- a term sheet, and
15 so, it -- it -- but I expect that that will happen in -
16 - in a timely manner relative to the investment
17 decision at Conawapa.

18 MR. ANTOINE HACAULT: So you can't help
19 us with any kind of range? Is it more than five (5)
20 years? Less than five (5) years?

21 MR. DAVID CORMIE: No, it will be
22 sooner than five (5) years. Yeah, we -- we don't have
23 five (5) years, Mr. Hacault.

24 MR. ANTOINE HACAULT: There's another --

25 DR. DAVID JACOBSON: I can jump in if -

1 - if you don't mind. The -- the requests to
2 Saskatchewan are in the queue, and we will be looking
3 at them in queue order, so I will have costs for the
4 customer, I would say, within six (6) to twelve (12)
5 months.

6 MR. ANTOINE HACAULT: Okay. Now, just
7 to make it clearer, in the Pathways you've described
8 and the analysis that we've done, we have the WPS sale
9 at three-o-eight (308), correct?

10 MR. DAVID CORMIE: Yes.

11 MR. ANTOINE HACAULT: Okay. What we
12 don't have is the two (2) sales that we've just talked
13 about. Is it your belief that the Great Energy (sic),
14 was that it, and SaskPower sales would be either
15 beneficial or detrimental to the business case?

16 MR. DAVID CORMIE: To the extent that
17 we have plans that have an early in-service date, we
18 assume that the firm energy that is available from --
19 the firm energy -- the dependable energy from that
20 plant will be sold, I -- I believe that's correct, at --
21 - at Manitoba Hydro's forecast price. So it -- it's --
22 it's not being accounted for already in the analysis.

23 MR. ANTOINE HACAULT: And I'm not
24 asking you to get into CSI, but directionally, does it
25 -- would it make the plans look better do you believe,

1 or worse on Pathway 5?

2 MS. JOANNE FLYNN: Firm -- firm prices
3 will -- will eliminate some of the risk in -- in the
4 plan. So as Mr. Cormie has indicated, when we do our
5 modelling, we assume that any surplus dependable energy
6 that is uncommitted by a firm sale will be sold at the
7 long-term export price, but that price changes year by
8 year. Like, it's not fixed. So when you look at it
9 either from the -- from the probabilistic analysis for
10 sure, there's upside potential and downside risk
11 associated with those values.

12 If we have a fixed price for that
13 surplus dependable energy, then that will -- it's -- it
14 would reduce the downside risk. It would also reduce
15 the upside potential, but I believe the effect would be
16 beneficial.

17 MR. ANTOINE HACAULT: Now, there's an
18 additional sale that isn't in Pathway 5. I believe
19 it's the NSP that might occur in 2025. We saw on that
20 graph, there's a big dip there when the NSP sale ends,
21 and is subject to renewal. How does that fit into
22 Pathway 5?

23 MR. DAVID CORMIE: In -- in a similar
24 manner to that which Ms. Flynn has described. It -- it
25 will use up some of the surplus dependable energy and

1 capacity, and it's been pri -- it's been priced -- or
2 valued into the -- into that -- into that plan.

3 There's a point though that we don't
4 have enough dependable energy to serve the Great River
5 opportunity, the Saskatchewan opportunity, and the NSP
6 opportunity. So the revenue is going to be limited by
7 the availability of the -- of the product that's there.
8 We can't just say we're going to get all of these
9 sales, because we're going to run out of product before
10 we run out of customers. So that's why it's not likely
11 that we'll end up with a 600 megawatt sale, a 500
12 megawatt sale, and another 500 megawatt sale to NSP.
13 It -- we -- we just don't have the product.

14 But we know that we will end up
15 adjusting, and -- and our goal is to have a balanced
16 portfolio of large customers, not to have -- we -- we
17 don't want to be dependent on a single large customer.
18 We do have an objective of having a nice balance
19 between large customers.

20 And that's beneficial from the
21 perspective of -- think of back to the Conawapa
22 experience in the early '90s when we had one (1)
23 customer. They walked away, and our plants collapsed,
24 and so to the extent that we're exposed to having a
25 single large customer, this strategy of having

1 multiple, essentially balanced -- a balanced portfolio,
2 helps mitigate that risk.

3 MR. ANTOINE HACAULT: And I bet you
4 hope that each of Great West Energy (sic), SaskPower
5 and NSP are reading the transcript to know that they're
6 in competition with each other and better bid a good
7 price.

8 MR. DAVID CORMIE: They know that. I
9 tell them that all the time.

10 MR. ANTOINE HACAULT: Can you tell me
11 whether the -- and this may not be related -- a -- a
12 question to you, Mr. Cormie.

13 But what's the optionality to move up to
14 1,100 megawatt line from 250 as opposed to the seven
15 fifty (750)?

16 MR. DAVID CORMIE: I think Mr. Jacobson
17 should speak to that.

18 DR. DAVID JACOBSON: Yeah. Can you
19 repeat the question? What -- what are you looking at
20 exactly?

21 MR. ANTOINE HACAULT: I don't want to
22 prejudge your answer, but if I had a 250 megawatt line,
23 can I upgrade it to an 1,100 megawatt line?

24 DR. DAVID JACOBSON: The -- the short
25 answer is no.

1 MR. ANTOINE HACAULT: Okay.

2 DR. DAVID JACOBSON: The -- a 230 kV
3 line is pretty much limited to the 250 megawatt
4 transfer that's been suggested. If I want eleven
5 hundred (1,100), I would pretty much need four (4) 230
6 kV lines. So the cheapest would be, say, two (2)
7 double circuit, 230 kV lines. We could probably do
8 eleven hundred (1,100).

9 MR. ANTOINE HACAULT: So if you move to
10 what you're suggesting, the 500 kV line, what's the
11 optionality and how easy is it to move up to that 1,100
12 megawatt?

13 DR. DAVID JACOBSON: There's no
14 additional facilities in Manitoba required. As I
15 mentioned on the -- on the Monday presentation, some
16 additional facilities in the US are -- are required to
17 get past some congestion down south, so the -- the 500
18 kV line by itself, expecting the Preferred Development
19 Plan can do seven fifty (750) for sure, probably eight
20 (8) -- eighty-three (83) with no additional facilities.

21 Beyond that, additional outlet out of
22 Blackberry will re -- will be required to get up to
23 1,100 megawatts, but no additional facilities in
24 Manitoba, and there's even potential for -- for higher
25 without additional facilities in Manitoba, but those

1 haven't been studied.

2 MR. ANTOINE HACAULT: Now, I've gone
3 through a list of what I thought were things that
4 weren't specifically contemplated or included in the
5 Pathway 5 economic analysis.

6 Are there some other points that I'm
7 missing, or is there a list somewhere?

8 DR. DAVID JACOBSON: I'm -- I'm sorry.
9 Could you repeat that question?

10 MR. ANTOINE HACAULT: This wasn't so
11 much on a transmission. We've gone through all the
12 potential agreements for more energy. We've gone up on
13 the optionality to send and to import greater amounts,
14 easier with the 750 megawatt line. Those are all
15 things that are in addition to the specific things
16 we've contemplated in Pathway 5.

17 Is there something else that you can put
18 on the public record that we haven't considered?

19 MR. DAVID CORMIE: Yes -- yes, the --
20 the last thing is the -- the option of -- of expanding
21 the market into Wisconsin is created by the -- the WPS
22 sale and the transmission reservations that were put in
23 place as a result of that, and -- and it gives us the
24 option now to deal with all of the small utilities in
25 Wisconsin who aren't, by themselves, big enough to be

1 anchor tenants to justify a transmission investment,
2 but could be off-takers.

3 And, so as -- what -- what the -- the
4 WPS transaction and the associated transmission
5 investment does is it -- it essentially doubles the
6 size of Manitoba Hydro's market. The -- Wisconsin and
7 Minnesota are essentially the same size when you look
8 at an electric market, and there are other utilities
9 there, Madison Gas and Electric, Wisconsin Public
10 Power, We Energy, they're all in the same situation
11 that Wisconsin Public Service is in.

12 But now that we have a plan to get
13 transmission into Wisconsin, and that -- that
14 transmission is driven by the power purchase
15 arrangement with Wisconsin Public Service, now we can
16 start marketing to those customers, and the more
17 customers we have competing for our product, the higher
18 price we can charge and -- and the more value we can
19 get for our product.

20 And, so that's -- that -- that
21 optionality is -- is valuable. We don't have to go
22 back to the same customers over and over again and say,
23 We want to rebuy our power. We can say, You know what,
24 we have customers over here willing to pay more. We
25 may end up selling it to the existing customer set, but

1 it's because we now have a larger market, we've doubled
2 the size of our market by having market access into
3 Wisconsin.

4 That -- that optionality -- the value of
5 that optionality is -- is huge, because it will benefit
6 Manitoba Hydro forever, as long as we have surplus
7 electricity.

8 MR. ANTOINE HACAULT: Sir, you said
9 it's huge but it hasn't been quantified in this
10 Application, has it?

11 MR. DAVID CORMIE: No, no, we haven't
12 put any value on that, no.

13 MR. ANTOINE HACAULT: Okay. I'm
14 looking at the time. I think I have one (1) short, I -
15 - I'm going to use Mr. Williams's language, snapper.

16 Could you explain to me -- I -- I'm not
17 sophisticated enough to understand when you were
18 talking about the wind storage in the WPS sale. I
19 really don't understand how that works, and how we got,
20 like, from, was it, 250 megawatts of stor -- wind
21 storage, and we're giving them another seven-fifty
22 (750). I'm kind of lost.

23 MR. DAVID CORMIE: As -- as we
24 described earlier in the proceeding, how Manitoba Hydro
25 buys electricity at night when the price is low, and we

1 store the water and we return it back to the market in
2 the daytime. You can think of the -- the Manitoba
3 Hydro system being a battery, and the battery is
4 connected to the grid, and the -- and the battery gets
5 charged and discharged.

6 And to the extent that we can increase
7 the size of the transmission, we can -- and -- and we
8 build more storage, we can make a bigger battery. So
9 when a customer comes along and says Man -- to Manitoba
10 Hydro, We're willing to invest in transmission and
11 we'll make the battery bigger, we'll -- we'll assist
12 you in making the battery bigger, then they're helping
13 us achi -- bring value to Manitoba Hydro.

14 And so, we're willing to share some of
15 that value with them in proportion to the -- to -- to
16 how much new transmission they're willing to -- to
17 build on our behalf. And -- and that's different than
18 if somebody came to me as a -- as a wind generator in
19 the United States and said, We want to buy some of your
20 storage, and I say, It's not for sale. You're not --
21 you know, you're not -- you're not paying for any of
22 the facilities. You're not contributing, so I'm not --
23 it's not for sale.

24 But if you're help -- if you're helping
25 us make the battery better, Manitoba Hydro is willing

1 to share. And the way we -- we share is notionally, we
2 say that when we buy electricity at night and return it
3 to you in the daytime, there's a -- there's a on-
4 peak/off-peak spread that we're willing to -- to share
5 with them.

6 The -- now think of this -- the hydro --
7 the hydraulic situation being constant. It doesn't
8 change. We never have low years, and never have high
9 years. Then the battery's operation is very
10 predictable, and each winter we'll buy energy in the
11 off-peak and we'll sell it in the on-peak and, you
12 know, we can calculate how much electricity will flow,
13 and then we can calculate how much more money we can
14 make from -- by having a bigger transmission line.

15 And in that case, it's very easy to say
16 to the -- to an investor in the line, This is what --
17 this -- these are your megawatts that you're generating
18 from your wind farm at night. We'll buy those, put
19 them into our storage reservoirs, and return it to you,
20 and -- and here's the value of proposition.

21 When you start mixing into that the
22 uncertainty of the -- oh, and -- and then -- and then
23 it's quite easy to track the electrons and predict what
24 -- how much -- how much that benefit is. But when you
25 start raising the issue of water supply variabilities,

1 because in -- in high water years the battery doesn't
2 work very much, because we don't buy very much off-peak
3 energy in a high water year. We have enough water of
4 our own. And in the low water years we buy a lot of
5 energy. So there's -- there's volatility associated
6 with how -- when -- when that battery will be charged
7 and discharged.

8 So the -- the arrangement that we put
9 in place is one (1) that's more notional than physical.
10 And we can calculate over the long run how much
11 electricity we'll buy and sell, and how much additional
12 elect -- electricity we'll buy and sell as a result of
13 making the battery bigger. And notionally, we can
14 calculate on average what that -- that -- their
15 contribution to that benefit is and -- and then you can
16 calculate the -- the benefit.

17 So rather than having the investor in
18 the transmission worry about whether you're going to
19 have a low water year, or a high water this year, or is
20 the battery going to be effective, we commit on an
21 annual basis to provide them their share of the
22 benefits. And we take up all the risk associated with
23 the water supply volatility.

24 And so it's -- it's essentially a
25 financial arrangement that assumes that each year they

1 receive that benefit, whether the power actually flows
2 or not. Manitoba Hydro is confident over a -- a twenty
3 (20) year power purchase agreement that there will be
4 enough arbitrage transactions created and more value
5 created that we can pay that out.

6 So it's -- it's a matter of keeping it
7 simple, defining for the -- for the investor what that
8 -- that benefit is going to be each and every year of
9 the agreement rather than saying, You know, well, we're
10 having a high water year, we can't provide you any
11 benefits. Or in a lower water year we're providing
12 them with a whole bunch of benefits. It -- so we've --
13 we've made it a financial arrangement rather than a
14 physical arrangement knowing that physically the --
15 that amount of energy will flow.

16 And -- and it -- and we only do this
17 with -- with companies who will work with us in making
18 the transmission. So in Minnesota Power's case they --
19 as a minimum they said they would in -- they would
20 invest in 250 megawatts of -- of transmission. And on
21 that basis we provided them a wind storage benefit of a
22 quarter of a million megawatt hours a year.

23 Now that they've agreed to champion a
24 750 megawatt line they say, Well, now you're -- now
25 their battery is getting better by 500 megawatts. We

1 want -- we want to participate in the additional
2 benefits that that will create for you. And we said,
3 That's great. You're -- you're helping us achieve that
4 goal. We're willing to share those benefits. And
5 that's why there's an increase in benefits associated
6 with their participation in upsizing the line. And --
7 and it's -- it -- it makes sense. We couldn't do this
8 without them.

9 MR. ANTOINE HACAULT: Can you just
10 confirm -- I don't know if this is CSI or not at all,
11 whether it's a fixed value or it's based on a spread
12 between off-peak and on-peak. If that's CSI don't
13 answer it, but it...

14

15 (BRIEF PAUSE)

16

17 MR. DAVE CORMIE: Yeah, I -- Mr.
18 Hacaault, I'd have to read the agreement and see if it
19 is CSI. To the extent that there is a benefit, it's
20 been incorporated in all the analysis.

21 MR. ED WOJCZYNSKI: I -- I have some
22 further answers to your earlier -- your second last
23 question.

24 You had asked, Are there any other
25 benefits that we hadn't brought forward in this panel -

1 - with the panel in the last two (2) weeks. There are
2 two (2) that I -- that I think are worth mentioning.
3 One (1), it is describe in the submission and, that is,
4 we had Ms. Kristina Koenig discussing the variability
5 and flows and -- but fundamentally, I think, what can
6 be emphasized is that -- that the development plans
7 with the new hydro and the new interconnections have a
8 larger base of revenue than the All Gas and can
9 withstand the downside variability and stream flow from
10 -- from climate change better and benefit more from the
11 upside.

12 And the -- and she indicated that day,
13 and Mr. -- I can't remember his name, but the -- from -
14 - the doctor from Ouranous, indicated that the -- the
15 ciru -- Roy. That the -- that the -- the circulation
16 models that everybody's using, and there's a lot of
17 different ones, that they're generally, like 70 percent
18 confidence or 70 percent of the indications are that
19 the stream flows will increase, which would increase
20 our revenue compared to what we're already using from
21 our hundred year average. So -- so there's an upside
22 there, both from a risk mitigation and from increased
23 revenue.

24 The second thing I would mention is what
25 Ms. Flynn has mentioned earlier, but I think it fits in

1 here, that if we're planning to unwind our transmission
2 investment, and that's been referred to a couple of
3 times, but we haven't really put -- we don't have a
4 specific dollar value, but the thinking is that it
5 would cer -- that it would -- it's likely to be more
6 than a hundred, or even possibly \$200 million.

7 But we don't have -- we don't have
8 anything finalized on that, so all we can do is give a
9 -- a preliminary indication of the order, and it's no
10 guarantee that's going to happen, but we're intending
11 to, and we think there's a good chance that will
12 happen. And that's NPV, sorry.

13

14 (BRIEF PAUSE)

15

16 THE CHAIRPERSON: Unless there's some
17 more business to attend to, I propose to recess for the
18 day, or adjourn for the day. Is there -- there's a
19 document to acknowledge?

20 MS. PATTI RAMAGE: Yes.

21

22 (BRIEF PAUSE)

23

24 MS. PATTI RAMAGE: We have two (2)
25 exhibits to file, and before we do that, I just wanted

1 to remind everyone, or bring it to their attention that
2 Dr. Borison and Dr. Murphy both have flights out
3 tomorrow at 3 o'clock, so if there is anyone, as the
4 day proceeds tomorrow, who wants to address them, they
5 will -- they have to leave here, I think, shortly
6 before 3:00. I should say their flights leave at 5:00,
7 which means they need to get to the airport. So I
8 wanted to make sure we covered that.

9 With respect to exhibits, two (2) are
10 being distributed around the room right now. The first
11 is the response to Undertaking Number 12, which was, I
12 believe, the first panel, and that's Manitoba Hydro's
13 confirmation of assumptions going into the DSM
14 analysis. That will be Exhibit 108.

15

16 --- EXHIBIT NO. MH-108: Response to Undertaking 12

17

18 MS. PATTI RAMAGE: And the second is
19 Manitoba Hydro's response to Undertaking 34, which is
20 the provision of a revised Table 2.2 and 2.4 containing
21 a column that has the March 10th, 2014 revisions. And
22 that was a -- that was a -- the table dealt with
23 capital cost comparisons. That is Manitoba Hydro
24 Exhibit 109.

25

1 --- EXHIBIT NO. MH-109: Response to Undertaking 34

2

3 MS. PATTI RAMAGE: Two (2) other
4 housekeeping matters before we close for today. One
5 (1) was, I don't believe the MIPUG book of documents
6 was assigned an exhibit number. If I'm mistaken...

7 MR. ANTOINE HACAULT: We started by
8 marking it 20-4.

9 MS. PATTI RAMAGE: Okay. Good. Thank
10 you. And the other was Mr. Williams had a second
11 document, a comparison of ROE premiums, which was a
12 correction of the one attached to his exhibit. I was
13 wondering if he's going to file that as a revised
14 exhibit, or how that should be dealt with on the
15 record?

16 MR. BYRON WILLIAMS: That's a really
17 good question, Ms. Ramage, and a competent legal
18 counsel would have probably thought of it himself.

19 It could either be marked as CAC Exhibit
20 45-5, or alternatively, we could re-file CAC Exhibit
21 45-4 with only that single change, and I think that
22 might be an -- an easier way to do it.

23 So what I'm going to suggest, Mr. Chair,
24 is that we will re -- replace page 6 of CAC Exhibit 45-
25 4, which is merely the labelling change, and we will

1 re-file that electronically, subject to your decision.

2 THE CHAIRPERSON: I think that's the --
3 the better idea. Thank you.

4 MR. KURT SIMONSEN: And Mr. Williams,
5 Kurt Simonsen. Are you going to also correct some of
6 the numbers that were discussed in that exhibit as
7 well?

8 MR. BYRON WILLIAMS: I'm going to hold
9 off on that and take Ms. Flynn and Mr. Wojczynski's
10 advice, because I think they were -- so I'll get back
11 to you on that.

12 MS. PATTI RAMAGE: And Ms. Boyd advises
13 me for the record that the CVs for the next panel, the
14 finance panel, were distributed by email this
15 afternoon.

16 THE CHAIRPERSON: Okay. So that --
17 that will get an exhibit number, as well?

18 MS. PATTI RAMAGE: I think it will
19 become 94-3 -- the -- I've just been putting the dash
20 to -- to the Exhibit 94, and it's lining up quite
21 nicely with the panel names.

22 THE CHAIRPERSON: Okay, 94-3 it is.

23 MR. KURT SIMONSEN: 92-3.

24 MS. PATTI RAMAGE: 92-3. It wasn't
25 going to go perfect.

1 --- EXHIBIT NO. MH-92-3: CVs for Manitoba Hydro

2 Panel 5

3

4 THE CHAIRPERSON: Unless there's
5 additional business to conduct, I will adjourn today's
6 proceedings. I wish everyone a good evening, and we'll
7 see each other again tomorrow morning at nine o'clock
8 sharp. Thank you.

9

10 (PANELS RETIRES)

11

12 --- Upon adjourning at 4:44 p.m.

13

14

15 Certified correct,

16

17

18

19

20 _____

21 Cheryl Lavigne, Ms.

22

23

24

25

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\$1.168	\$5 2222:19	2305:15	2376:9,10	10:53
2214:22	2223:5	2308:17,22	2424:14,23	2242:12
\$1.5 2213:25	\$50	2309:20	2425:5,8,1	100 2377:11
\$10	2237:11,14	2310:12	1,23	101
2223:8,17	,24 2238:5	2312:21	1,300	2402:12,13
2266:22	\$6 2184:12	2313:16	2344:12	1041 2413:24
2271:5	\$7 2222:25	2314:8,11,	1,700	104-1
\$11 2396:21	\$700 2269:10	16,17	2344:11	2352:22
\$13 2223:13	\$80 2238:11	2315:10	1,837 2386:4	2353:3
\$15 2223:21	\$96 2411:2	2316:15,16	1.091	104-2
\$15.7		2317:2	2329:17	2169:23
2235:21	<u>1</u>	2319:7	1.097	2180:1
\$16 2234:19	1 2169:21	2320:4,20,	2329:13	2352:20
\$19 2374:3	2174:1	21,23,24	1.1 2271:8	107
\$2 2185:10	2180:5	2321:8,11	1.5 2188:5	2314:9,16
2187:18,25	2181:3	2322:18	2215:17	108 2436:14
2257:24	2186:23	2323:15	1.7 2388:12	109 2436:24
2258:22	2197:24	2324:2	1/2 2310:20	10th 2185:6
2259:5,14	2199:18,21	2325:15,16	2321:11	2186:5,14,
2267:3	2202:2,23	,24 2336:8	2402:24	19
\$2,014	2203:20	2339:24	2406:4	2187:15,17
2407:3	2205:8	2340:19	1:00 2290:7	,25
\$20 2223:24	2207:8	2342:11,21	1:03 2299:17	2188:4,6,9
2234:5	2214:3	2343:9,18,	10 2171:24	2208:19
2235:9	2218:17	19	2172:1,8	2218:4
2237:17	2220:2	2345:6,7,1	2173:1	2340:11
\$200 2408:16	2227:23	6,22,24	2182:14	2436:21
2435:6	2230:11,17	2346:15	2184:4,6,1	11 2208:16
\$202 2411:3	2232:7	2347:4	3,22	2239:22
\$25 2234:15	2233:6,24	2349:8	2218:5,6	2395:2,5
2235:10	2238:24	2352:24	2220:5,22,	2396:14
\$3 2184:5	2240:23	2354:15	23 2242:7	11.4
\$3.5 2186:9	2242:2	2355:10	2248:13	2212:16,20
\$30 2237:3,5	2243:18	2356:23	2266:7	2214:5
2238:19	2244:2	2357:12	2271:4	11:05
\$300 2269:13	2243:18	2358:12	2272:11	2208:19
\$308	2251:12	2376:14	2296:8	110th 2247:1
2406:8,18	2252:16	2382:7	2309:7	111 2346:9
\$4 2259:1,2	2266:2,8,1	2388:18,19	2366:8	11th 2386:3
\$410 2315:5	8	2390:6	2392:6	12 2167:7
\$44 2411:2	2267:2,10	2396:7	2406:4	2223:12
	2270:25	2403:25	2418:22	2228:19
	2272:7	2404:2	10.6 2182:17	2282:25
	2273:22	2405:9,10,	10:35	2311:17
	2277:13	25 2406:12	2377:14	
	2283:4,9	2412:18		
	2287:21	2423:22		
	2292:17,18	2428:14		
	,19	2431:9		
	2297:16	2434:3		
		2437:5		

2321:10 2324:15 2327:19,25 2328:2 2332:19,22 2333:7 2343:5,6 2354:17 2384:1 2394:17,23 2395:3 2421:4 2436:11,16 12.10 2395:7 12:08 2299:16 12:45 2290:7 122 2280:11 13 2164:24 2261:21 2267:16 2271:13 133 2233:3 14 2173:15 2185:23 2187:17 2188:5 2280:12 2301:19 2324:15 2336:2 2337:1,16 2339:24 2340:22 2341:4,12, 14 2354:15 2372:24 2373:2 2393:12,13 ,23 2394:19,23 2395:7 2396:15,21 2400:2 14(a) 2395:11 2396:12 145 2366:18 15 2200:16 2318:24	16 2254:13 2396:11 17 2212:7,11 2323:3 17.7 2278:18 2286:4 18 2214:3 2280:9,13 2281:11 2286:6 2287:10 2298:23 2299:6 18/'19 2361:21 18b 2283:4 19 2215:1 2283:23 2308:21 1st 2195:5 2196:17 2367:6 <hr/> 2 2171:17 2173:11 2174:8 2177:17 2179:7 2180:13,18 ,24 2187:8 2196:21 2197:6 2199:17 2200:3,7,1 2 2201:13 2202:22 2203:19,25 2204:25 2205:10 2212:6,11 2233:25 2236:21 2248:8 2257:3 2267:23 2271:7 2283:3 2304:9 2308:12,22	,24 2309:2,7,1 5,22 2310:8 2312:21 2313:1,12, 19 2314:11,25 2315:4,11 2320:8 2321:8 2322:17 2323:18 2324:5,15, 25 2325:24 2331:4,21 2332:7 2335:16 2336:16 2341:7 2342:22 2345:11,13 ,15,16,21 2346:9,14, 16,23 2347:22 2348:20,21 ,23 2349:8 2350:25 2355:17 2359:6,7 2382:5 2384:13 2388:18,19 2390:12 2396:17,21 2402:1,5,2 4 2404:2 2405:13 2409:21,22 2413:18,24 2420:7 2421:12 2425:6 2434:1,2 2435:24 2436:9 2437:3 2,011 2174:16 2,111 2174:17	2.15 2361:23 2.2 2436:20 2.4 2436:20 2.7 2328:25 2365:8 20 2220:13 2234:15 2275:25 2289:17 2311:6 2336:13 2383:24 2410:4 2432:3 200 2280:5 2281:8 2409:9 2416:19 2418:14 2003 2224:19 2007 2189:12,21 ,25 2246:13 2247:5 2257:8 2008 2204:15,21 2205:9 2206:12,17 2207:2,17, 22 2208:13 2248:17 2008s 2205:15 2009 2363:3 2009/2010 2232:14 2010 2209:9 2223:4,5,1 7 2252:25 2254:25 2256:11 2257:20 2258:23 2259:6 2011 2383:14 2012 2254:19	2255:7 2279:21 2283:17 2304:12 2311:6 2312:19 2318:22,23 2321:1 2325:4,12 2326:15 2327:7,8,1 1,15 2352:14 2353:12 2393:4 2013 2222:17 2223:8,16, 20 2231:22 2239:8,25 2279:21 2311:12 2323:20,23 2324:24 2325:9 2326:12,14 2327:7 2332:1,8,1 8 2342:21 2353:12 2354:18,21 2355:11,18 2356:2,20 2361:23 2367:6 2375:16,21 2376:2 2383:15 2390:20,25 2014 2164:24 2168:8,11 2194:11,19 2195:5 2196:17 2283:5,15 2288:5,16, 17 2289:7,11 2340:11 2350:10,20 2353:13 2355:11,19 2369:8 2407:7,8
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2411:10	2026/'27	2425:2,5,7	2394:20	2356:12
2436:21	2311:19	235 2322:7	26-type	2357:2
2015 2222:25	2027 2252:3	2387 2166:21	2336:17	2362:8,12
2223:11,23	2396:13	2167:6	27 2280:6	2364:22
2224:21	2027/'28	23rd	2281:7,12	2366:2,4
2225:5	2313:2	2198:16,25	2310:3,5	2378:16
2226:16	2030 2213:19	2199:4	2357:22	2384:19
2410:25	2214:20	24 2356:13	2386:10	2385:7,9,1
2015/2016	2215:11	2436 2167:7	2403:2	2 2398:15
2406:5	2219:15	2437 2167:8	277 2282:24	2400:6
2016 2411:19	2335:3	2439 2164:25	2283:5,14	2409:21
2017 2406:11	2405:3	2166:23	279 2301:9	2411:25
2409:6	2413:18	2167:9	2302:5,6,7	2412:4
2018	2030/'31	25 2220:13	2405:9,10	2413:5
2234:1,4	2396:14	2234:8	27th 2383:14	2436:3
2235:8	2031 2401:7	2336:3	2402:25	3,000
2236:22,25	2408:11	2357:1	29 2255:19	2303:14
2237:8,13	2413:24	2393:8,9	2nd	3.5 2184:9
2251:8,20,	2031/'32	2394:20	2198:7,10	3.8 2382:17
22	2400:20	250 2280:4	2199:19	3/4s 2296:18
2301:16,19	2033/'34	2296:17	<hr/>	2395:5
2411:1,3	2313:9	2319:12	<hr/>	3:00 2436:6
2019/2020	2314:4,5	2349:16	3 2174:17	3:04 2384:4
2391:4	2034 2234:23	2354:3	2179:7	3:21 2384:5
2020	2235:12	2355:1	2203:19	30 2198:13
2224:11,16	2236:23	2366:25	2209:24	2229:14,18
,17	2237:22	2367:5	2213:17	2352:10
2234:18	2238:18	2368:2,4,1	2224:16	2358:5
2235:21	2036 2218:11	6	2228:14	300 2186:15
2251:9,20,	20-4 2387:2	2369:2,21,	2235:25	2276:9
22	2437:8	25	2236:6	2347:16
2022/2023	20th 2308:18	2373:6,17	2304:9	2409:16
2311:8	21 2209:24	2374:4,12,	2305:14	308
2023/'24	2210:5	14,20	2307:12	2406:2,5,2
2311:13	2164 2164:25	2375:3,24	2310:8	4 2407:15
2024 2335:3	2167 2166:3	2377:25	2312:21	2411:13,16
2025 2175:7	2168 2166:4	2384:18,23	2313:9	2421:9
2252:2	2170 2167:4	2385:12,19	2314:25	31
2336:13	2179 2166:19	2418:11,13	2315:15	2229:13,15
2391:5	22 2218:11	2424:14,22	2319:4	,19
2422:19	2204 2167:5	2425:3	2321:8	31/'32
2026 2393:8	2289 2168:12	2428:20	2325:24	2313:21
2396:13	23 2356:12	2432:20	2326:18	33 2280:3
2400:19	230 2377:11	250-megawatt	2331:21	2286:1
2405:2		2292:19	2334:24,25	2287:5,8
2406:10		2296:13	2340:16	2295:20
2408:10		26 2336:3	2341:17	2299:8
2410:16		2357:15	2342:22	2373:5
		2392:17	2345:16	
			2346:16	

330 2164:22	13 2408:4	2339:16	2337:4,16	2295:21
331 2283:21	2425:5	2344:25	2341:1,4,1	2299:1,8
	2437:25	2358:11	3,14	2395:1
34 2167:8	4.25 2381:24	2361:9	2346:21	54 2265:16
2352:10	2382:1	2437:21	2349:19	2275:8
2436:19	4.65 2361:21	45-5 2437:20	2351:11	55 2237:11
2437:1	2366:5	469(a) 2386:7	2354:20	550 2361:3
340 2407:16	2382:18	49	2356:16	2382:2
35 2195:16	4.95 2382:17	2278:15,17	2363:8	56 2265:16
2198:15,16	4:44 2439:12	2279:7	2399:4,18	2275:8
2199:1	40 2204:11	2285:2,19,	2400:2,4	567 2281:17
2200:1	2278:8	20 2297:22	2403:11	57 2252:20
350 2282:14	2279:8	2299:2,3	2406:21	58 2255:18
2283:1,8	2280:10	499 2280:20	2408:4,22	5x16 2416:21
2407:16	2281:22	4B 2408:7,9	2415:19	
36	2284:17	4th 2202:24	2417:7	<hr/>
2342:13,17	2285:2	2203:1,5,1	2418:21	6
37 2307:20	2411:1	5	2420:19,20	<hr/>
373 2315:16	400 2164:22		,22,23	6 2188:19,22
38 2245:23	2407:11	<hr/>	2422:1,18,	2190:1
2246:1,11	2416:19	5	22	2300:5
<hr/>	2418:16	5 2167:9	2426:5,16	2326:7
4 2166:6	41 2207:6	2173:11,14	2439:2	2328:4,6,8
2170:11	42 2168:3	2180:25	5.4 2364:18	2329:2,5,1
2173:15	2289:1	2181:6,23	2387:21	6,20
2180:7,23	43 2248:14	2182:1,2,3	5.5 2364:17	2330:13,22
2181:6,23	45 2253:3	,13	5.8 2218:2	2358:12
2211:4	2254:24	2184:17	2219:5	2365:13
2247:22	2281:12	2185:6	2221:12	2421:4
2255:15	2315:12	2186:13	5:00 2436:6	2437:24
2303:3,5	2357:1	2217:20	50 2237:10	600
2310:9	2388:13	2234:22,25	2374:20	2416:8,13,
2311:24	2437:24	2235:12,15	50/50	18,21
2321:12	450 2180:25	,17	2267:23	2417:3
2324:10	45-3 2203:22	2247:22	2271:13	2423:11
2339:16	2204:1,10	2248:5	2272:10	63 2256:16
2342:20	2207:6	2252:5	500 2175:6	650 2215:19
2344:25	2209:7,25	2255:14,15	2282:11	651 2180:19
2355:2,3	2216:23	2280:12	2296:24	66 2279:9
2356:12	2245:23	2301:11	2419:4	2281:2,25
2372:23	2261:22	2302:23	2423:11,12	2284:17
2373:1	2265:23	2303:23	2425:10,17	67 2279:9
2375:14	2307:20	2309:7	2432:25	2328:24
2379:19	2356:10	2316:10,12	505 2387:21	6th 2386:10
2380:10	45-4 2300:5	2323:24	507	<hr/>
2385:7	2317:2	2326:3	2284:6,18,	7
2391:23	2323:18	2329:2,4,1	22 2376:21	<hr/>
2395:15,16	2326:18	3	51 2286:2	7 2180:13
2405:9,10,		2330:3,16,	2287:2	2182:3,13
		22 2331:22		
		2332:2,9,1		
		1,13,14		

2185:14	2242:3	9.75 2382:1	2298:9	2241:9
2187:22,23	2267:15	9:00 2169:1	2300:14	accord
2216:23	2271:14	900 2269:15	2306:7	2189:13,22
2229:11	2302:1,3,4	90s 2423:22	2309:9	2190:4,18
2280:2	2329:3	90th	2328:2,4	2191:1,11
2315:19	2331:22	2187:3,14	2345:12,15	account
2329:3	2332:4,9	92 2261:21	2346:13	2271:11
2388:9	2390:6	92-3	2368:20	2275:14
2409:24	2391:1	2438:23,24	2369:20	2304:8
70	2425:20	93 2265:5,22	2385:2	2360:18
2434:17,18	8.75	94 2272:3	2413:19	accounted
71 2208:16	2382:9,11,14	2438:20	2415:22	2348:4
2209:6	800 2185:7	94-3	2417:12	2421:22
73 2230:21	2186:19	2438:19,22	2419:24	accurate
2233:15	826.4	95 2230:21	Aboriginal	2311:20
750	2272:12	2233:15	2195:15	2312:8
2277:22,25	83 2425:20	2275:22	2199:2	2360:14
2280:2,4,5	840 2215:17	2276:1	2408:24	2391:17
2281:9	842 2215:13	2311:24	2412:20,25	achi 2429:13
2292:10	2330:4	2342:12	absence	achieve
2296:17	87 2277:25	2366:18	2258:10	2191:5
2319:18	2279:15,19	99 2168:5	absolute	2228:10
2324:13	2343:5,6	2288:14	2365:15	2433:3
2326:4,8	2408:7	2289:3	absolutely	achieved
2333:5	88 2168:4	9th 2198:12	2210:16	2246:16
2339:22	2279:11	2199:14	2228:4,24	achieving
2348:2	2280:11	<hr/>	2245:12	2277:13
2353:23	2282:21	<hr/>	2268:14	acknowledge
2354:13	2288:1,14	A	2275:17	2299:23
2368:11	2289:2	a.m 2169:1	2277:9	2384:10
2373:17	883 2374:9	2242:11,12	2300:18	2435:19
2374:8,12,15	888 2293:25	aback	2413:11	acronym
2377:7	8th 2199:11	2175:23	AC 2390:16	2190:7
2391:5	<hr/>	2176:1,7	accept	2381:11
2397:9,21	<hr/>	ability	2182:19	across
2418:12,17	9	2291:19	2194:14	2213:18
2424:15	9 2224:10	2372:16	2195:3	2268:23
2425:19	2240:3	2373:23	2212:14	2365:21
2426:14	2245:23	2389:5	2214:21	act 2195:20
2428:22	2323:3	2418:7,17	2308:20	2198:14,17
2432:24	2368:2	able 2170:1	2323:2	,19,22
750-megawatt	2391:1	2178:3	2326:10	2199:1,12
2291:14	9.3 2213:3	2192:2	2362:24	2200:10
2292:10,18	2215:25	2212:14	acceptable	2201:5
776 2330:13	2216:16	2249:6	2300:17	2306:7,20,
7th 2199:5	2283:14	2288:4	2389:22	24 2307:2
<hr/>	2328:23	2293:1	access	action
8		2294:4	2428:2	2230:7
8 2224:2			accommodate	
2230:18				

2245:11	2265:3,7,1	additional	2298:19	advised
2246:4	1,14,17,20	2177:15,18	adjusting	2169:12
2247:8,10	,25	2178:21,25	2423:15	2196:24
2307:10	2266:5,10,	2179:13	adjustment	2197:10
active	23	2194:17	2343:20	advisement
2295:1	2267:5,8,1	2201:19	2363:9	2337:21
actively	3,18,25	2259:20	2382:15	advises
2297:11	2268:6,10,	2260:1	adjustments	2438:12
activities	15,19	2285:16	2268:8	advisors
2182:5	2270:3,18,	2286:6	2343:8,16	2177:4
2410:20	21	2287:10	2344:7,9	2178:22
activity	2271:1,15,	2293:5	2356:2	2356:21
2258:9	21,25	2296:21	administerin	2358:21
2262:10	2272:5,9,1	2300:15	g 2195:20	2363:8
actual	3,16,22	2342:6	administrati	advisory
2262:11	2273:1,17,	2343:1	on 2403:2	2179:10
2280:8,22	21	2344:13	Administrati	AEO 2239:2,6
2284:3	2275:9,17	2368:10	on's	affect
2365:15	2305:1	2373:13,14	2239:8	2302:22
actually	adapt	,18	administrati	2336:14
2170:8	2303:11	2374:10,13	ve 2228:16	2338:8,9
2174:7	2393:17,24	2375:2	2243:16	affected
2181:12	add 2174:22	2398:7,20	2386:23	2199:3
2188:11	2175:21	2422:18	admire	2201:10
2198:4	2202:2	2425:14,16	2404:10	2212:1
2202:8	2225:14,17	,20,21,23,	adopted	2347:13,16
2219:21	2266:20	25 2431:11	2391:14	2388:4
2232:24	2277:7	2433:1	advance	2239:15
2241:3	2282:4	2439:5	2262:18	2414:18
2248:9	2322:6	additions	2339:22	affection
2253:24	2328:2,4	2192:24	2397:18	2208:20
2254:11	2371:7	2331:21	2408:25	affects
2279:10	2374:7	2332:8	advanced	2388:16
2280:11	2380:18	address	2324:8,13	afford
2356:24	2403:8	2206:23	2354:3,13	2372:20
2364:19	added	2384:13	advance-	afternoon
2365:2,5,1	2174:23	2436:4	Keeyask	2174:15
6 2368:20	2281:9,16	addressing	2319:18	2177:2
2376:4	2283:23	2381:3	advancement	2289:25
2401:15	2307:13	adequately	2355:2	2299:19,21
2408:1	2384:22	2369:3	advancing	2386:2
2411:6	adder	adjectives	2319:11	2438:15
2432:1	2258:22	2206:23	advice	against
ADAM 2166:7	2259:5	2207:8	2225:4	2219:9
2170:12	adding	adjourn	2353:8	2256:3
2261:18	2347:6	2435:18	2438:10	2310:12
2262:2,15,	addition	2439:5	advice	2346:20
25	2296:11,20	adjourning		
2263:6,12	2353:17	2439:12		
2264:4,8,1	2370:23	adjourns		
4,23	2426:15			

2347:20	2253:9	2426:12	2211:17	2208:18
2348:2,19	2254:16		2227:1	
Agency	2271:14,20	ahead	2242:21	amend
2193:12,13	2272:15	2202:24	2318:20	2182:6,10
2202:15	2281:23,24	2269:4	2348:4,12	America
ago	2284:21	aimed	2366:10	2225:23
2197:6,13	2285:3	2289:23	2373:9	American
2228:19	2287:4,14	air 2409:25	2394:17	2206:3
2251:5	2296:11,17	airline	2412:22	2253:17
2253:4	2311:13	2268:22,23	2421:22	among
2254:24,25	2312:21	,25 2270:4	2434:20	2269:8,18
2255:16	2313:2,9,2	2274:2,11	alt 2268:24	amongst
2294:4	1	2275:6	alternative	2229:6
2374:2	2317:12,17	2306:24	2368:8	2322:16
2386:24	2319:13,19	airport	2369:4,18	amount
2398:16	2320:8,12	2436:7	2370:25	2179:5
2402:24	2321:8	Alberta	alternativel	2230:14
2418:22	2324:3,6	2382:7	y 2300:8	2259:15
agreeable	2325:24	alignment	2437:20	2282:14
2358:10	2326:4,5,8	2419:11	alternatives	2291:8
agreed	,9 2327:20	aligns	2164:8	2295:24
2181:23	2329:17	2417:20	2178:14	2316:4
2182:14	2331:22	2419:9	2269:18,22	2344:17
2184:13,18	2332:2	allegations	2274:1	2411:23
2185:24	2337:1,4	2244:24	2388:17	2416:24,25
2186:10,15	2340:16	allotted	am 2179:18	2432:15
2187:18	2343:21	2389:12	2186:22	amounts
2188:1,11	2346:2,16,	allow	2189:10,11	2411:22
2190:4	17 2349:9	2185:19	2190:21	2415:4
2191:5	2353:14,25	2306:18,19	2192:12	2426:13
2194:11,25	2354:5,10	2402:8	2193:25	anal 2317:9
2199:22	2355:12	allowance	2221:16	analogous
2204:15,23	2357:3,18,	2222:11	2236:14	2379:12
2206:13,20	19,23,24	allowed	2239:5	analyses
2207:2,10	2360:2,3,7	2273:6	2252:8	2281:1
2209:10,19	2362:14	allowing	2276:22,23	2347:5
2210:22	2363:4,5,2	2376:24	2305:6	2349:4
2211:6,10,	5 2432:23	allows	2315:3,10	analysis
19,24	agreeing	2175:15,18	2320:16	2167:4
2214:8,14	2296:16	2277:16	2323:22	2169:23
2215:4,8	2368:23	2399:4,5	2329:11	2170:6,24
2216:19	agreement	Alphabet	2335:2	2171:13,15
2217:21	2175:7	2192:18	2338:23	,16,21,22,
2220:6	2250:3	already	2345:4	23 2177:18
2221:9	2296:13,14	2175:10,19	2347:18	2180:8,11
2222:13	2297:4	2199:13	2348:17	2181:4
2223:1,5,1	2339:3	2203:21	2382:24	2182:5,7,1
3,18	2398:16	amazes	2390:19	1 2183:4
2225:6	2401:16		2391:9	2184:3,13,
2231:18	2432:3,9		2418:9	17,21
2242:23	2433:18			
2250:5	agreements			

2185:14,15	2433:20	2232:17	2373:9	2340:9
2186:4,9,1	2436:14	2253:3	2385:21	appendix
3,15,18,24	analysts	2304:7	anyone	2212:16
2187:16,20	2317:23	Antoine	2436:3	2213:3
,25	2339:5	2165:13	anything	2214:5
2188:4,11	analytic	2166:21	2170:2	2215:25
2215:24	2317:6	2386:22	2361:14	2283:14
2216:2,11,	analytically	2387:7,8	2370:4	2328:23
12,16	2319:3	2389:2,14,	2379:6	2383:21
2217:20	analyze	24,25	2385:3	applicable
2254:6	2251:15	2390:24	2411:14	2283:18
2259:6	analyzed	2392:4	2415:8	application
2269:2,17	2293:17	2394:5,10,	2435:8	2383:20
2279:20	2303:24	14,24	anyways	2428:10
2281:5	analyzing	2396:10,19	2303:13	applied
2283:3,10,	2303:23	2397:1	2385:24	2301:24
13,19,20	anchor	2398:22	2413:6	2308:9
2291:13,16	2427:1	2399:12,24	apart	applies
,23	Anderson	2400:14	2210:12	2257:4
2292:2,13	2165:16	2401:20	apologetic	apply
2302:20	annual	2402:11	2250:13	2308:13
2303:3	2239:8	2403:1,6,1	apologies	2349:4
2306:22	2287:15	0,15,25	2230:2	appreciate
2307:8	2412:24	2404:9,22	2393:5	2188:19
2309:19	2431:21	2405:18,24	apologize	2277:6
2317:9	answer	2406:20	2175:22	2300:19
2319:8,11,	2202:2	2407:4,10,	2189:19	2347:17
17	2218:16	17,21,24	2212:13	appreciated
2321:16,18	2241:18	2408:6,15	2214:19	2189:3
2323:2,15	2334:6	2409:8	2215:22	apprehended
2325:22	2341:22	2410:10	2224:15	2372:9
2326:2,22	2347:17	2411:17	2250:16	apprehension
2327:5,10,	2348:16,22	2412:8	2273:16	2371:25
13,19	2349:1,2	2413:9,16	2276:7,21	approach
2328:2,25	2369:6	2414:2,21	2314:6	2175:15
2331:22	2405:19	2415:1,17,	2340:6	2228:16
2335:8,23	2408:19	25 2416:3	appear	2333:5
2336:9,10	2410:22	2417:6,13	2207:21	2335:19
2337:8,15	2412:2	2418:9,20	2208:2	2365:11
2338:5,22	2424:22,25	2419:1	2329:2	approaches
2344:4,5,1	2433:13	2420:5,18,	2332:2,5,1	2228:14
0,15	answers	24	9	appropriate
2347:22	2433:22	2421:6,11,	APPEARANCES	2381:2
2354:23	anticipate	23 2422:17	2165:1	approval
2369:13	2255:14	2424:3,10,	appeared	2195:24
2372:13	2289:20	21	2248:7	2197:14
2376:5	anticipated	2425:1,9	2332:18	2198:21
2387:19,22	2184:23	2426:2,10	appears	
2388:18,19		2428:8,13	2172:23	
2389:21		2433:9		
2407:8		2437:7		
2421:8,22		anymore		
2422:9		2298:1		
2426:5				

2200:17,18 2385:13 approvals 2197:21 approved 2384:20 approves 2200:20 approximate 2381:14 approximated 2279:5 approximatel y 2234:5,19 2237:5,14 2259:1 April 2202:23 2203:1,5,1 5 2390:20 arbitrage 2292:25 2432:4 area 2201:10,19 2242:22 2408:23 aren't 2219:19 2391:25 2402:13 2426:25 argument 2348:15 2370:7 2389:7,13 argument's 2196:17 arrangement 2280:16,23 2298:18 2368:7 2369:2 2379:17,23 2380:6 2427:15 2431:8,25	2432:13,14 arrangements 2279:3 2280:7,15 2295:6 2298:17 2417:2 2419:18 article 2205:9,18 2248:13 2265:6 2271:22 2275:11 artificial 2364:16 aside 2185:22 2250:2 2285:16 2313:12 aspect 2384:22 2387:14,15 aspects 2416:5,6 assess 2275:15 2374:3 assessed 2327:20 2339:23 assessment 2193:12 2202:14 2326:4,7 2375:2,4 asset 2286:9,10 2293:23 2294:1 2298:7 assigned 2437:6 assist 2178:3 2212:22 2373:7	2376:24 2429:11 assisting 2289:24 assoc 2278:16 2286:13 associated 2171:4 2173:2 2195:8 2211:18 2220:19 2244:20 2278:17 2285:20 2286:9 2287:9 2291:16,23 2292:1,2,9 12 2295:21 2297:7 2312:20 2313:8 2324:14 2346:15 2353:24 2355:1 2368:10,22 2369:17 2390:16 2391:22 2401:11 2422:11 2427:4 2431:5,22 2433:5 associating 2286:14 assu 2369:22 assume 2196:16 2266:21 2267:2 2293:23 2369:19,22 2373:4,9 2421:18 2422:5 assumed	2311:12 2320:21 2322:1 assumes 2239:13 2240:9 2293:22 2416:18 2431:25 assuming 2173:15 2175:17 2176:11 2195:5 2213:11,24 2291:5 2309:8,23 2312:6 2327:8 2368:5 2381:22 2401:2 2411:5 assumption 2267:12 2272:4 2278:14 2279:8 2311:22 2320:2 2354:18,21 assumptions 2172:8 2239:7 2240:23 2254:8 2312:19,20 2318:23 2327:7,8,1 1 2335:14,17 20 2336:14 2354:22 2355:3,11, 12,19,25 2356:2 2436:13 assure 2189:7 assured	2267:4 atmosphere 2207:1 attached 2390:8 2437:12 attachment 2405:11 attempt 2252:17 2328:14 2340:9 2390:3 attempted 2358:20 attempting 2323:19 2350:12 attempts 2239:6 attend 2435:17 attention 2204:18 2205:7 2206:23 2248:20 2257:19,21 2274:16 2303:14,18 2329:2 2356:15 2358:11 2389:16 2436:1 attractive 2294:9 2377:10 2401:3 attributable 2292:21 attributed 2330:21 attributes 2296:21 audio 2189:16
--	--	---	---	--

August	2434:21	2240:7,16,	2279:20	Bel 2164:16
2387:17	avoid 2219:8	19,20	2282:3	2218:4,16
2390:25	avoids	2261:11	2287:16	2293:6
authoring	2298:6	2283:2	2310:24	2295:8
2209:10	await	2318:22	2327:12	2298:20
authorizatio	2177:14	2345:13	2361:3	2299:5,10
n 2198:17	awaits	2346:10	2382:2	belabour
authorizatio	2193:17	2348:1	2431:21	2334:12
ns	aware	2404:19	2432:21	belief
2196:1,4,1	2193:22	2407:1,14	battery	2421:13
0	2244:5	2415:20	2429:3,4,8	believe
2198:14,22	2410:18	2434:8	,11,12,25	2170:1
2199:12	away 2274:25	based 2216:2	2431:1,6,1	2176:9
2200:10	2297:23	2225:4	3,20	2177:15
2201:5	2301:15	2253:24	2432:25	2197:11
authorize	2409:10	2254:6	battery's	2202:6
2198:21	2423:23	2270:20	2430:9	2231:10
authorized	awkward	2272:10	BC 2226:2	2242:14
2357:8,22	2381:16	2279:10	2380:25	2246:19,20
authorizing		2320:20	BC's 2382:14	2257:9,16
2196:2		2323:3,14	bear 2328:15	2259:2
authors		2325:10	became	2284:8
2229:13	background	2327:7	2258:7	2288:1
2230:4	2197:1	2343:1	2281:11	2293:2
availability	baited	2361:2	2377:23	2326:22
2194:7	2193:18	2362:7,11,	become	2340:5,22
2423:7	balance	12,19	2206:6	2372:1
available	2251:10	2364:22	2247:23	2377:13
2194:10	2423:18	2368:14,24	2438:19	2378:17
2308:24	balanced	2380:22	beginning	2379:2,15
2309:8	2423:15	2409:11	2206:6	2384:7
2321:7	2424:1	2433:11	2247:23	2385:20
2325:22	band	baseload	2438:19	2386:23
2328:1	2388:4,5	2416:20	begin	2387:1
2344:14	Bank 2365:4	basic	2234:18	2391:15
2352:8	2381:5	2264:25	begins	2405:11
2364:5	2382:16	2269:25	2234:18	2413:18
2404:6	banks	2311:6	behalf	2416:5
2416:24	2189:20	2356:1	2176:24	2418:21
2420:1	banned	2410:5	2177:3,25	2420:12
2421:18	2226:22	basically	2253:5	2421:20,25
Avenue	Barack	2263:17	2429:17	2422:15,18
2164:22	2250:17	2305:20	behind	2436:12
average	base	2325:17	2239:7	2437:5
2237:2,6	2233:16,20	2388:19	2240:20	believed
2364:12,16	,24	2390:1	2241:13	2248:2
2366:2	2234:18	2399:16	2284:12	bell
2380:24		2410:25	2351:1	2189:14,23
2431:14		basis	2363:21	2190:20
		2173:14	2366:17	2366:19
		2264:2		2377:16
		2277:22		

2378:22	2348:18	2185:10	2400:25	bond 2357:10
beneficial	2405:19	2186:5,10	2408:16	2358:5,22
2416:11	bet 2424:3	2187:18	2419:23	2360:5,18
2421:15	better	2188:1,5	bites	2361:4,18
2422:16	2215:23	2213:25	2413:10	2362:9
2423:20	2238:25	2214:23	black	2364:8
benefit	2249:19	2215:17	2239:1,2	2381:23
2232:1	2263:25	2266:2,7,8	Blackberry	bonds 2358:2
2274:9,22	2270:7	,22	2425:22	bonjour
2300:24	2273:18	2267:3,16	blame	2169:10,20
2303:6	2294:2	2271:5,7,1	2326:20	2176:16
2307:22,23	2330:3	3,14	blue 2182:24	bonus 2222:1
2310:2	2331:24	2329:13,17	2183:23,24	book
2315:5,11	2333:6	2388:12	2186:3	2167:5,6
2316:19	2347:10	bills	2232:4,21	2203:19
2317:1	2349:11	2246:25	2234:21	2204:3
2318:12	2359:21	bit	2237:9	2209:24
2347:11	2411:20	2178:5,22	2390:12	2212:6
2350:24	2417:14,15	2179:24	board	2245:22
2388:20	2421:25	2180:5	2164:3,14,	2386:24
2396:14	2424:6	2185:7	15,16,17,2	2387:4
2428:5	2429:25	2186:5	1 2165:2	2394:25
2430:24	2432:25	2193:7	2268:24	2395:1
2431:15,16	2434:10	2209:6	2289:22	2402:14
2432:1,8,2	2438:3	2212:23	2307:23	2437:5
1 2433:19	beyond	2222:24	2338:17	books
2434:10	2244:3	2224:11	2351:23	2203:20
benefits	2425:21	2227:16	2353:8	border
2275:4	bias	2230:16	2360:21	2282:11
2292:20,24	2337:7,16	2232:1	2361:1	Borison
2293:3	bid 2424:6	2237:23	2363:2	2166:7
2296:12,15	bigger	2238:4	2381:8	2170:12
,19,22	2356:11	2248:10	2391:13	2229:7
2301:18	2378:8	2254:5	2392:22	2260:13
2308:9	2429:8,11,	2257:20	2402:18,22	2261:16,18
2348:4,6	12 2430:14	2258:5	,24	,23
2369:25	2431:13	2262:7,14,	2403:2,10,	2262:2,15,
2372:19	bill 2166:11	18 2269:20	15,19	25
2376:8,10	2170:16	2272:25	2404:1,4,7	2263:6,12
2389:19	2189:8,15,	2279:10	2405:5	2264:4,8,1
2431:22	24	2289:19	2410:18	4,23
2432:11,12	2190:5,9,1	2290:3,4	2415:5,18	2265:3,7,9
2433:2,4,5	5,21	2303:9	Board's	,11,14,17,
,25	2191:6,14,	2306:14	2310:17	20,25
best 2195:13	24	2309:3	2381:25	2266:5,9,1
2228:6	2192:4,7	2310:25	2398:25	0,19,20,23
2267:21	2253:24	2326:19	Bob 2165:2	2267:5,8,1
2297:17	2254:7,9	2358:8	bodies	3,18,25
2303:6	billion	2364:15	2199:1	2268:6,10,
2325:18	2184:5,12	2370:15		15,19
2346:1,22		2381:16		2270:3,18,
2347:19		2385:9		
		2391:2		

21	2290:1	2343:12	brown	2293:21
2271:1,15,	2299:13	2344:22	2184:18	2295:6
21,24,25	2331:16	2345:2	2185:6	2297:13
2272:5,9,1	2336:19	2346:4	2186:3	2298:3
3,16,22	2383:25	2347:1	brush	2370:24
2273:1,17,	breakdown	2349:21	2286:20	2371:6
21	2408:19	2350:1	budget	2372:10,20
2275:9,17	breath	2359:17	2179:1,3	2390:25
2304:23	2193:18	2363:12	2225:17	2395:3
2305:1	brief	2367:23	build	2419:17
2436:2	2173:8,21	2373:25	2175:15	2421:15
borrow	2174:3	2376:16	2226:24	2435:17
2263:10	2176:4,13	2377:4	2266:22	2439:5
2295:22	2179:20	2378:5	2267:22	buy
bottom	2181:10	2386:17	2270:25	2268:22,25
2180:4,14	2183:6,11,	2392:24	2277:2,3	2269:4,5,6
2185:10	18 2191:16	2396:25	2294:7	,8,19
2204:11	2198:1	2397:4	2369:2	2295:13
2205:7	2200:5	2399:10,22	2377:11	2429:19
2206:10	2201:24	2400:12	2392:9	2430:2,10,
2221:16	2207:13	2404:15	2398:12,14	18
2236:9	2210:1	2405:16	2399:6,7	2431:2,4,1
2276:8	2212:9	2413:21	2406:3	1,12
2304:17	2216:7	2414:25	2413:12	buyer 2219:5
2356:14	2225:9	2420:10	2429:8,17	buying
2395:2	2226:19	2433:15	building	2268:22
boundary	2230:23	2435:14,22	2296:7	2379:5
2416:15	2231:3	briefly	2307:4	buys 2428:25
Bowen 2166:8	2243:7	2198:7	2378:7,8	Byron 2165:8
2170:13	2245:25	bring 2251:3	2411:23	2166:19
2410:14,15	2247:3	2279:11	built	2176:15,22
Bowman	2273:11	2297:6	2221:19	2179:22,23
2328:22	2278:24	2325:16	2241:8	2180:12,17
2339:6	2283:25	2332:24	2276:23	,24
boy 2177:6	2287:23	2378:13	2292:2	2181:3,12,
2261:25	2298:14	2390:5	2293:3,10	17,25
2262:4,8	2302:11	2398:3	2295:16	2182:3,12,
Boyd 2165:6	2311:1	2401:7	2419:16	16,22
2438:12	2312:1	2402:12	bullet	2183:3,8,2
brand	2313:24	2413:18	2210:18	0,21
2178:21	2314:19	2414:6	2276:8	2184:2,8,1
Brattle	2322:22	2429:13	bunch 2414:4	1,16,20
2210:19	2324:18	2436:1	2432:12	2185:1,5,9
2253:6	2327:1,22	broad	business	,13,21
Brattle's	2328:19	2247:13	2186:18	2186:1,8,1
2233:5	2333:1,9,2	broadener	2217:21	2,17,22
break	2 2335:5	2393:22	2220:17,19	2187:5,13,
2232:25	2336:5	brought	2221:14,23	21,24
2242:5,7	2338:1	2228:2	2246:15	2188:3,8,1
	2339:11,18	2389:15	2291:8	4
	2341:9	2433:25		2189:1,10,
	2342:15			18,25

2190:6,10, 17,23	2231:5,8,1 2,20,25	2266:1,6,1 2,17,24	2320:6,10, 14,18,25	2352:1,5,1 0,20,24
2191:9,18, 25	2232:10,23	2267:6,9,1 4,20	2321:5,13, 21	2353:5,17, 20
2192:5,8,2 0,25	2233:14,22	2268:2,9,1 4,17	2322:4,13, 24	2354:2,7,1 2,17,20,25
2193:10,16 ,25	2234:7,12, 14,20	2270:1,12, 19,23	2323:9,13, 17,22	2355:6,9,1 4,17,23
2194:5,15, 22 2195:4	2235:3,7,1 9,24	2271:2,16, 23	2324:1,5,8 ,12,21	2356:4,25 2357:5,14, 20,25
2196:14	2236:4,8,1 4,19	2272:2,6,1	2325:3,19	2358:4,7,1 4,17
2199:15,24	2237:7,16, 21	0,14,17,24	2326:1,6,1 0,17	2359:4,8,1 4,19,24
2201:17	2238:3,7,1	2273:4,13, 14,20	2327:3,14, 17	2360:4,11, 16,24
2203:16	0,14,17,24	2275:7,10, 19	2328:3,7,1 0,13,21	2361:6,13, 25
2204:5,6,9 ,17,25	2239:5,13, 19	2276:6,12, 18	2329:8,11, 16,19,25	2362:6,13, 18,23
2205:6,14, 23	2240:2,8,1 4,22	2277:5,9,2 3	2330:9,11, 15,20,24	2363:1,6,1 6,19,22
2206:9,18, 22	2241:10	2278:4,12	2331:2,7,1 2,20	2365:20
2207:5,15	2242:1,17, 19,20,25	2279:13,23	2332:4,7,1 7	2366:6,15, 22
2208:5,10	2243:9,22	2281:19,25	2333:3,15	2367:3,11, 16,18,19
2209:1,5,1 2,23	2244:2,11, 18,22	2284:1,2,1 0,14,20	2334:3,7,1 0,11,22	2369:5,10
2210:3,8,1 7,24	2245:17,21	2285:1,6,1 0,24	2335:10,24	2370:6,14, 18
2211:2,8,1 2,17,21	2246:1,10, 21	2286:25	2336:18,25	2371:2,17, 21
2212:3,11, 21	2247:4,20	2287:4,9,1 4,17,20,25	2337:3,7,1 3,19,22	2372:6,21
2213:8,16	2248:3,12, 19	2288:12,22	2338:20	2373:8,16
2214:2,11, 14,18,25	2249:4,12, 24	2289:14	2339:2,13, 14,20	2374:1,16, 25
2215:6,10, 15,21	2250:12,23	2299:19,25	2340:5,14, 18,21,25	2375:9,19, 23
2216:9,15, 22	2252:19	2302:5	2341:3,11, 20	2376:3,13, 18,23
2217:3,7,1 1,14,17,23	2253:1,12, 22	2304:3	2342:5,10, 17,25	2377:12,18 ,22
2218:14	2254:10,18 ,23	2307:16	2343:4,14, 18,23	2378:15
2220:1	2255:8,17	2310:14	2344:3,19, 24	2379:10
2221:5,11, 22	2256:6,15, 22	2311:3,4,1 1,15,23	2345:4,9,1 4,19,25	2380:9,14, 19
2222:8,15, 23	2257:6,11, 18 2258:20	2312:3,10, 17,23	2346:11,19	2381:18,21
2223:3,7,1 1,15,20,23	2259:3,22	2313:4,7,1 1,18	2347:15	2382:20
2224:1,9,1 5,18,25	2260:11,17	2314:6,15, 21	2348:14	2383:1,5,9 ,16,23
2225:11,16	2261:15,16 ,20	2315:9,14, 18,22	2349:6,13, 18,23	2437:16
2227:10,15	2262:3,17	2316:24	2350:3,18	2438:8
2228:11	2263:2,7,2 4	2317:10,14 ,19	2351:8,20	
2229:16,22	2264:6,9,2 0,24	2318:1,9,1 7,21		
2230:15,25	2265:4,8,1 2,15,18,21	2319:2,10, 16,22		

C	calculation	2232:15,18	,18,25	2263:21
ca 2176:18	2168:10	2246:17,25	2342:7	careful
CAC 2165:8	2272:3,7	2247:16	2347:14	2274:7
2167:5	2288:17	2257:3,4	2348:3	2303:21
2177:3,25	2289:10	2258:4,6,1	2350:20	2305:13,24
2203:19,21	2360:12	2,13,16	2353:13	2307:5,7,1
2204:3,10	2361:2	2263:16	2355:11,19	4 2353:9
2207:6	calculations	2327:6	2360:20	carefully
2209:6,24	2360:2	2341:17	2361:1	2177:24
2212:6	2361:10	capability	2363:3	2215:12
2216:23	2362:1,5	2306:10	2364:12,17	2275:5,15
2229:11	2405:20	2374:13	2370:17	2306:4,22
2245:22	calculator	2375:3,24	2372:25	caribou
2261:21	2407:23	capacity	2376:19,24	2192:6
2265:23	Cambridge	2295:20	2377:2,6	carried
2307:19	2244:25	2312:12,16	2387:23	2350:14
2317:2	2245:6	2313:12,13	2436:23	carry 2348:8
2323:18	2249:22	,20 2314:4	Capra	2367:7
2326:18	Canada	2316:4	2177:14	2409:5
2339:16	2226:15,24	2322:9	capture	carrying
2344:25	2227:13,24	2374:4	2219:12	2411:6
2356:10	2228:8,9	2417:11	2226:25	2412:19
2358:11	2358:2	2423:1	captured	case 2181:16
2361:8	2359:6	capital	2226:13	2186:18
2437:19,20	2361:4,17	2168:7	car 2263:11	2217:21
,24	2365:4,8	2171:1,5	carbon	2220:18,19
CAC/Manitoba	2380:23	2172:2,9	2218:21	2221:14,18
2233:3	2381:6,23	2174:9	2224:20	,23
CAC/MH	2382:16	2178:17	2225:5,21,	2233:16,20
2283:4	Canada/USA	2213:12	22	,24
CAC-45-3	2390:17	2214:8	2226:2,3,7	2234:4,18
2167:5	Canadian	2215:3	,8,9,12,13	2235:20
2204:3	2193:12	2278:7,16	,25	2239:2,6,9
CAC-45-4	2202:14	2279:9	2227:3,6,9	2240:7,16,
2300:1,10	2250:15	2280:13,17	,18,19,20	19,20
2331:21	2357:17	2281:2,12	2228:6,15,	2246:14,20
CAC-	2358:23	2282:24	16	2260:23
generated	cancel	2283:7,22	2229:2,9	2270:4,8
2318:12	2276:24	2284:5	2236:15	2286:16
calculate	candidates	2288:5,6,1	2241:24	2291:8
2364:11	2247:16	5 2289:6	2243:12,14	2292:11
2430:12,13	canvassed	2294:6	,20	2293:22
2431:10,14	2310:18	2296:7	2244:6,7,1	2295:11
,16	cap 2174:8,9	2304:15	0,13	2305:15
calculated	2190:12	2317:15	2245:2,12	2316:14
2366:1,2	2191:4	2322:10	2246:6,16	2318:23
calculating	2225:22	2326:23	2248:8	2332:15
2366:4	2227:2,12	2327:6	2251:19,21	2348:23
	2228:16	2335:1,15	,23,24	2349:3
		2336:20,24	2252:2,15	2370:24
		2338:11,18	2254:22	2371:6
		2341:12,16	2255:3,6	

2372:10,20	2177:21	2376:13	2435:11	2172:1,8
2375:18	2178:7	2380:14	change	2173:1
2379:22	2203:7	2401:24	2171:4	2182:14
2390:25	2205:12	2437:23	2172:7,14,	2184:13,22
2395:3	2206:16	Chairman	15,16,17,2	2217:20
2396:6	2211:16	2174:13	4 2173:3	2301:19
2421:15	2216:20	2290:21	2204:22	2311:17
2430:15	2227:15	2293:7	2227:25	2321:10
2432:18	2230:16	2298:17	2230:5	2323:3
cases 2301:5	2243:17	2388:25	2245:11	2391:1
2305:8	2244:9	Chairperson	2247:7	2393:2,10,
2306:25	2249:14	2164:13	2248:22	12,13,23
cash 2364:20	2250:7,20	2169:3,17	2249:18,21	2394:17,19
cause	2261:3	2175:23	2250:23	,23
2198:22	2273:3	2176:8	2260:7	2395:3,4
2202:22	2278:14	2183:13,15	2269:17	characteriza
2259:15,20	2303:2	2242:6,14	2300:12	tion
2260:1,4,8	2304:21	2246:3	2302:17	2207:20
,9 2402:7	2314:13	2273:8	2306:10	2208:9
2412:21	2331:18	2290:9,22	2335:20	2243:1
2413:9	2334:12	2295:9	2336:23	characterize
CEAA	2338:20	2299:12,21	2349:24	2238:23
2193:13,18	2357:13,15	2300:18	2380:23,24	2239:12
2194:17	2380:15	2308:7	2388:2	characterize
2195:7,20	certainty	2383:24	2398:5,9	d 2232:9
C-E-A-A	2246:15	2384:7,15	2430:8	charge
2193:13	certificate	2386:19	2434:10	2293:19
CEC 2197:2	2166:23	2435:16	2437:21,25	2427:18
CEF13	2383:21	2438:2,16,	changed	charged
2282:10	2385:14	22 2439:4	2187:12	2293:13
ceiling	Certified	challenge	2208:21	2429:5
2258:15,16	2439:15	2249:6	2306:11	2431:6
,18,19	cetera	challenges	2335:3	chart
central	2256:4	2183:23	2338:7	2219:4,5
2275:12	cha 2316:9	challenging	2398:11	2231:6
centre	chain 2379:5	2179:11	changer	2254:12
2405:14	chair 2169:9	2249:11	2209:17,22	2387:16
CEO 2191:20	2178:12	2250:19	changes	chat 2339:4
cer 2435:5	2183:13	2337:15	2172:2	cheaper
Ceres	2201:21	champion	2185:19	2259:19
2229:12	2203:18	2432:23	2335:13,17	cheapest
certain	2230:17	chance	,21,22	2425:6
2185:15	2242:4	2188:15	2338:4,15,	cheaply
2249:13	2273:4	2210:11	18 2422:7	2318:18
2326:23	2289:14	2221:12	changing	check
2357:22	2290:6	2269:11	2172:9	2182:19
certainly	2300:13	2270:6	2304:14,15	2212:14,18
	2339:2	2271:13	2405:25	2214:22
	2350:3	2307:1,3	chap 2172:8	2215:18
	2356:7	2380:20	chapter	
	2366:8	2382:5	2171:24	

2234:6,11	s 2273:2	clearer	CO 2233:5	2343:25
2235:22	2393:17,25	2421:7	CO2 2221:24	2344:8,13
2288:23	2396:2	clearing	2222:5,10	coffee
2323:3	2397:12,21	2286:20	2226:11	2232:25
2326:11	,22	clearly	2232:3,9,1	collapsed
2362:24	2398:10	2281:22	2,14,17,20	2423:23
2363:4	2401:1	2323:14	2233:1,5,7	collaterally
2375:13,20	2415:12	2362:19	,13,23	2389:19
2406:7	circu 2434:15	client	2234:3,4,6	colleague
checked	citations	2176:24	,17,19,24	2268:12
2179:1	2322:24	2179:4,8,1	2235:5,11,	colleagues
2360:13	clarificatio	4 2212:22	23	2176:1
checking	n 2176:9	2232:2	2236:2,11,	2198:5
2328:1	2233:1	2245:19	17,21	2289:15
Cheryl	2276:19	2249:25	2237:2	collectively
2439:21	2298:21	2317:23	2238:2,4,1	2308:19
choice	2314:7	2389:10	5,16,19,20	collector
2173:13	2336:2	clients	2243:23	2292:5
2175:14	2338:21	2249:5	2244:1	coloured
2270:9	2344:4	client's	2249:7	2231:17
2302:22	2404:23	2317:22	2251:7,8,1	column
2344:1,9,1	clarify	climate	0 2253:7	2168:9,12
4 2346:23	2192:1	2204:22	2254:7,15,	2180:19
choices	2232:12	2227:25	16	2207:7
2268:7,25	2235:15	2230:5	2255:14,20	2288:5,16,
2269:8	2273:22	2232:14	2256:4,8,1	18
choke	2276:2	2245:11	2,14,24	2289:9,12
2199:17	2279:12	2247:7,14	2257:22	2351:4,5,1
choose	2324:23	2248:21,22	2259:14,15	0,18
2379:11	2407:1	2249:18,21	,20,25	2352:4
chose 2277:3	clarity	2250:7,9,2	2260:4,19,	2354:3,8
2338:4	2281:18	3 2251:2	25	2357:6
Christian	cleaning	2252:7,9,1	2261:4,11	2361:11,14
2165:21	2290:3,4	1 2258:11	2226:22,24	2407:7
chunk	clean-up	2434:10	2242:23	2436:21
2316:16	2314:8	climb	2243:10	columns
circuit	clear	2382:22	2259:16,18	2256:2
2425:7	2184:21	close	,19,21	2288:6,7,1
circulated	2227:11	2179:18	2260:2,3,5	0 2329:4
2174:7	2249:5	2240:16	,6,10	2350:19,25
2386:23	2270:4	2322:8	2261:4,7,9	2359:20
circulation	2275:4	2329:23	2265:6	com 2330:11
2434:15	2299:11	2437:4	2275:12	2348:1
circumstance	2305:10,14	closely	coast 2245:1	combination
2385:24	2332:11	2305:8	co-author	2175:1
2397:23	2336:18	closer	2204:15	2309:13
circumstance	2341:4	2197:5	co-chair	combined
	2364:11	2303:9	2200:20	2260:25
	2370:1		codes	
	2400:15			

2281:3	commit	2201:5,8,9	comparisons	Conawapa
2336:15	2219:22	2408:24	2436:23	2174:18
2386:8,12	2398:19	community	compel	2175:9,15
comes	2431:20	2198:19	2230:6	2219:18,23
2183:15	commitment	companies	compensate	2220:18
2199:19	2175:1,16,	2420:13	2369:3	2276:14,23
2225:17	19 2190:11	2432:17	compensated	,25
2306:20	2219:18	company	2377:20	2277:2,3,1
2416:22	commitments	2293:14	2378:14	5
2417:3	2392:8	2298:11	compensating	2301:14,16
2429:9	committed	2370:5	2368:22	,17
comforting	2174:24	2393:15,16	competent	2302:18,19
2174:11	2175:10,16	comparable	2437:17	2303:4
coming	,17	2259:18	competing	2310:1,2,4
2178:23	2190:18,22	2260:7	2427:17	,11
2227:3	2203:12	2346:9	competition	2311:19
2244:12,14	2401:13	comparative	2424:6	2316:3,8,1
2321:23	Committee	2346:1	complementar	4 2320:12
2356:7	2200:19	comparator	y 2190:13	2321:23,25
2391:4,5	committing	2333:7,17,	2191:4	2322:7,8,1
command	2220:20,24	19	complete	1,12
2226:9	2309:25	compare	2195:16	2325:5,6
commencing	common	2171:16	2297:6	2326:24
2169:1	2171:14,17	2310:12	2375:17	2335:1,15
comment	,20 2172:5	2325:17	2388:7	2336:3,12,
2176:17	2182:6,10	2331:25	2397:2	20,24
2188:18	2185:15	2385:6	completed	2338:19
2192:2	2192:23	compared	2328:6	2341:18
2194:3,8,1	2230:13	2206:12	2375:11,20	2342:7
0,11	2274:15	2228:18	2376:5	2350:22
2210:18	2335:19	2256:3	completely	2351:2,13
2229:7	2357:17	2294:15	2220:10	2390:15
2250:16	2379:12,19	2323:5	complimentin	2391:5,18,
2277:11	2388:3	2330:1	g 2218:15	20
2400:22	communicate	2331:23	Compliments	2392:1,13,
commentary	2188:23	2332:8	2189:2	17,19
2196:18	2203:2	2348:1	comprehensiv	2393:7,22
2224:4	communicated	2396:15	e 2193:18	2394:3,7
2247:21	2202:9	2434:20	2194:2,7,1	2395:10,14
comments	2393:5	comparing	7,24	,21,24
2176:24	2397:16	2292:17	2198:10	2396:3,8,1
2179:12,13	2403:18	comparison	2246:4	2
2250:15	communicatin	2172:3	2253:16	2397:11,14
2387:9	g 2347:24	2241:22	computed	,19,22
2391:11,16	communities	2300:7	2262:11	2398:3,5,1
2392:5	2193:21	2358:18	con 2240:9	9 2399:7
commercial	2199:2	2361:8	2321:22	2400:17
2379:23	2200:10,11	2372:24		2401:7
2380:6,7	,12,13,23	2437:11		2403:17,19

2409:20,22 ,24 2410:4,16 2411:23 2413:12 2414:14,20 2415:4,15, 23 2417:12,16 ,20 2418:5 2419:2,7 2420:17 2423:21 Conawapa26 2403:3 Conawapa's 2412:4,16 2420:3 Concentric 2356:21 2357:2,7,1 6 2358:21 2360:2,7,1 0 2361:16 2364:3,25 2365:14 Concentric's 2363:25 concept 2353:7 2393:14 concepts 2244:6 2412:8 concern 2205:1,24 2206:3,17 2220:8,12 2221:1,7 2334:5,8 2385:16,17 ,18 concerned 2247:7 2371:9,15 concerted 2230:6 conclude 2199:6	2384:23 concluded 2185:22 2368:25 2381:24 conclusion 2181:13,22 2195:18 2302:1,24 2367:5,12, 20 2368:18 2369:7,24 2370:8 2371:4 2372:7 2384:20 conclusions 2173:1,2 2181:4 2325:11 conclusively 2382:21 condemn 2178:7 conditions 2305:10,14 2306:11 2391:24 conduct 2439:5 conducted 2352:14 2355:15 conf 2368:15 conference 2371:11 confidence 2203:10 2247:9 2250:8 2253:14 2255:6 2434:18 confident 2267:3 2360:13 2432:2 confirm	2210:11 2284:11 2285:12 2311:6 2366:23 2375:17 2433:10 confirmation 2189:9 2368:15 2436:13 confirmed 2368:17 confirming 2288:13 confu 2353:2 confused 2175:22,24 2355:24 2377:23 2402:21 confusing 2379:16 confusion 2290:4 2317:21 congestion 2425:17 congress 2247:1 conjunction 2353:4 connected 2429:4 Connecticut 2209:8 2252:22,25 2253:6 2255:22 2261:7 connections 2350:10 cons 2368:24 consequences 2227:18 conservation 2240:10,13	2241:12 conservative 2228:9 2245:16 2365:23 conserve 2240:3 consider 2207:25 2249:5 2271:23 2283:6 2312:11 2331:13,15 2350:13 2357:9 2380:8 2416:23 considerably 2232:20 consideratio n 2232:16 2262:22 2275:16 2326:3 2334:2 2368:25 2388:8 2412:15 considered 2187:11 2232:13,19 2241:24 2260:25 2283:20 2402:9 2426:18 considering 2198:21 2284:24 2407:25 consistent 2282:3 2401:17 2410:21 consistently 2401:23 consists 2280:21	2392:12 constant 2351:4 2354:15 2430:7 constantly 2414:18 constrained 2312:11,12 ,15,16 constraint 2263:18,22 constraints 2227:6 construction 2197:22 2203:10 2206:13,15 2285:3,18 2287:2 2297:3 2411:6 2415:11 consult 2179:14 consultants 2225:4 consultation 2193:21 2195:16 2197:17,19 2198:13,15 ,16,19 2199:1,5,1 0,25 2200:1 2201:2,4,6 ,12,15 2203:6 2289:15 consulted 2200:11 consulting 2199:2 2408:23 consummation 2377:1 containing
---	---	--	--	---

2436:20	2389:24	2206:5,8	2312:4	22,25
contemplated	continues	conversation	2366:10,14	2181:2,8
2426:4,16	2207:22	2193:8	2367:3,25	2182:21
contemplates	continuing	2218:7	2369:7,9,1	2183:1,25
2277:14	2169:22	2274:20	2	2184:14,25
contents	2406:16	2275:2	2370:6,12,	2185:7,11
2166:1	2408:21	2334:13	15,16,19	2186:6,19,
2193:22	continuously	convert	2371:4	22 2188:13
context	2414:11	2297:1	2372:6,12	2189:11
2253:10	contract	convinced	2373:3,11,	2190:5,16
2259:11	2218:10,12	2368:12	21	2191:10,14
2260:23	2276:23	coordinated	2376:18,22	2192:4,7,1
2263:15	2277:1,4,1	2202:16	2377:6,16,	5
2303:25	4 2297:1,2	co-	17,21,22	2193:17,25
2378:1	2398:2	proponents	2378:7	2194:4,12
2391:18	2414:8	2200:13	2383:18,22	2204:16,24
2392:3	2418:21,23	copy 2215:23	2384:22	2205:5
2393:11	contracting	Corey	2397:6,15	2209:11
2394:16	2218:13	2165:19	2398:1	2211:14
2417:4	contractor	Cormie	2401:4	2213:19
2418:3	2202:24	2166:9	2404:17	2217:22
contexted	contracts	2170:14	2413:11	2221:16
2400:24	2218:5	2174:13	2414:3	2223:9,24
contingent	2397:13	2175:25	2416:5,13	2227:14
2198:23	2402:8	2176:6	2417:9,17	2231:24
2199:13	2411:7	2208:12,18	2418:14,25	2234:21
continue	2414:6	,24	2419:3	2235:22
2203:9	contrast	2212:12	2420:12,21	2236:14
2349:25	2205:10	2216:24	2421:10,16	2237:25
2373:4	contribute	2217:2,18,	2422:4,23	2238:9,13
2384:8	2225:19	25	2424:8,12,	2239:5
2392:1	2274:23	2218:3,9,2	16 2426:19	2255:23
2406:19	2373:5	5 2220:2,7	2428:11,23	2256:8
2416:18	2417:16	2221:10	2433:17	2278:20
2417:1	contributed	2225:3	Cormie's	2279:22
Continued	2200:16	2276:5,7,1	2301:21	2285:13,22
2166:6,18,	contributing	1,17	2367:9	2311:14
20 2170:11	2429:22	2277:1,10,	corner	2313:3,10,
2179:22	contribution	24	2204:11	22
2183:20	2174:1	2285:9,11,	2213:11	2315:3,10,
2204:5	2285:17	23 2286:5	corporate	16 2318:5
2242:19	2286:3	2287:3,6,1	2357:9	2319:25
2261:15	2370:10	3,15,19	Corporation	2321:9
2273:13	2431:15	2290:20	2367:15	2322:3
2284:1	control	2291:12	2394:11	2323:10,22
2311:3	2226:9	2293:6,21	Corporation'	2324:10,11
2334:10	conventional	2295:19	s 2217:20	,16,24
2339:13		2298:16,25	2311:17	2325:2,25
2367:18		2299:6	correct	2326:24
2387:7		2309:3	2174:14	2327:5,18
			2180:9,21,	2329:11
				2332:5,6,9
				,20 2335:2
				2338:23

2340:19,20	0 2269:9	2178:25	counsel	2273:5,18
2341:1,2,1	2273:25	2182:6,10	2165:2	create
4	2277:25	2185:16	2331:15,19	2252:2
2342:4,8,9	2281:2,3,1	2205:3,25	2337:14	2433:2
,23,24	2	2206:13,15	2398:24	created
2343:2,3	2282:5,7,2	2213:12	2403:13	2418:6
2345:4,8	4	2231:21	2437:18	2426:21
2349:17	2283:5,21	2274:8,22	counterparty	2432:4,5
2351:16	2284:23	2275:4	2295:10	creates
2353:19	2288:6,15	2278:16,19	countries	2416:22
2354:19	2289:7	2279:9	2226:2	2417:4
2356:22	2290:24	2280:19,21	couple	credit
2357:11	2291:20,21	,22	2176:25	2274:14
2358:2,3,5	,23	2281:14	2191:19	Cree
,24	2294:6,16,	2282:25	2193:3	2379:11,19
2375:6,21,	24 2295:21	2283:19	2212:5	2408:22
22 2376:6	2296:4,8,1	2285:3,18	2217:25	crews
2382:4	0	2286:3,9,1	2218:2	2286:19
2391:9	2298:8,10	5,19,22	2228:12	critical
2396:17,18	2299:7	2287:2	2262:18	2196:3
2399:8,19	2304:15	2288:5	2275:20	2199:25
2400:6,20,	2322:10	2290:13,15	2294:3	2297:10
21 2406:3	2327:6	,25	2311:5	2420:6
2408:3	2338:12	2291:15,25	2317:5	cross
2413:12	2348:3	2292:6,7,8	2374:2	2289:20
2417:8	2355:11	,12,13,25	2377:13	cross-
2418:10	2360:20	2293:24	2387:9	examination
2421:9,20	2363:3	2295:6	2416:5	2166:18,20
2438:5	2364:12,17	2297:7	2435:2	2176:23
2439:15	2368:21	2335:1,15,		2177:9
corrected	2370:17	19	course	2179:22
2293:4	2373:5	2336:15,17	2207:22	2328:14
2336:7	2374:11,13	,21,24	2212:1	2384:9
2340:6	,14 2380:3	2338:11,18	2247:18	2387:7,10
2351:22,25	2405:5,20	2341:16,18	2249:7	2389:8
correcting	2407:7	2342:7	2253:12	2390:1
2326:19	2408:7	2347:14	2258:4	cross-
correction	2410:16,22	2350:20	2260:3	examine
2437:12	2411:24	2353:13	2264:15	2169:15
correctly	2412:5	2355:20	2277:11	crossover
2173:12	2419:25	2361:1	2318:11	2260:8
2345:10	2436:23	2373:1	2389:4,11,	Cruz 2250:17
cost 2168:7	costing	2377:8	12	CSI
2171:5	2291:22	2387:23	court	2333:14,20
2182:6	costly	2388:3	2169:11	2421:24
2227:18	2230:8	2410:17	cover	2433:10,12
2236:15	2306:16	2411:4,7	2290:23	
2258:22	costs	2414:5	covered	
2259:5,17	2171:1,13,	2420:14	2436:8	
2262:10,20	14,18,20	2421:3	cram 2179:10	
,22	2172:2,5,9	Council	cramp	
2263:5,8,1	,10	2390:6,8,2		
		0 2398:24		

,19	2260:20,25	2298:16,25	2424:8,16,	dealt
CSR 2198:10	2261:10	2299:6	18,24	2197:20
2199:5	2386:8,12	2301:21	2425:2,13	2389:11
cultural		2372:12	2426:8,19	2410:13
2176:20	<u>D</u>	2373:3,11,	2428:11,23	2436:22
curious	dam 2307:4	21	day 2170:3	2437:14
2173:10	dash 2438:19	2383:12,22	2197:12	DEAN 2166:14
2208:20	date 2199:22	2398:1	2199:7	2170:19
2367:12	2226:17	2410:14,15	2202:7,9	2204:8,16,
current	2311:13,18	2417:9,17	2227:23	24
2208:13	2313:8	2418:14,25	2233:4	2205:5,12,
2222:16	2321:25	2419:3	2309:3	20
2239:14	2322:1	2433:17	2316:2	2206:2,14,
2255:11	2335:2,8	DAVID	2374:22	21
2260:23	2336:2,12	2166:9,13	2386:24	2207:3,11,
2279:17	2347:5	2170:14,18	2434:12	19 2208:8
2281:23	2351:13,14	2174:13	2435:18	2209:11,20
2282:1	2390:19	2175:25	2436:4	2210:7,16,
2284:15	2392:15,18	2176:6	days 2189:7	23
2364:5	2393:4	2217:2	2198:13	2211:1,7,1
2411:8,9	2394:8	2218:9,25	2245:14	1,15,20,25
2417:20	2395:13,21	2220:7	2247:6	2231:7,10,
currently	2396:1,4	2221:10	2256:18	19,24
2258:18	2397:14,19	2276:11,17	2294:3	2232:7,11
2267:21	2398:4	2277:1	2374:2	2233:12,20
2285:2	2400:15,16	2284:11	2385:15	2234:3,10,
2401:15	,24,25	2287:3,6,1	daytime	13,16,24
2413:16	2401:11,15	3,15,19	2429:2	2235:4,14,
customer	2405:25	2291:12	2430:3	23
2421:4	2406:2,10	2293:21	de 2418:5	2236:2,6,1
2423:17,23	2408:10,11	2295:19	deadline	2,17
,25	2412:4,17	2366:14	2420:3	2237:4,13,
2427:25	2417:20	2367:25	deadlines	19
2429:9	2420:4,6	2369:9,12	2179:11	2238:1,6,9
customers	2421:17	2370:12,16	deal 2274:15	,13,16,22
2219:2,19	dates	,19 2371:4	2304:14	2239:4,11,
2220:8	2178:15	2374:6	2373:10,12	18,24
2221:6	2197:23	2375:6,12,	2376:24	2240:6,12,
2287:7	2198:4	22	2388:8,23	18
2296:4,10	2351:4,5,9	2376:1,6,2	2389:18,20	2241:1,16
2423:10,16	2352:18,19	2	2401:19	2242:24
,19	2353:2,9	2377:6,17,	2405:1	2243:4,17,
2427:16,17	2375:10	21 2378:7	2415:5	25
,22,24	2393:4	2383:11	2426:24	2244:8,16,
CV 2305:5	2395:9	2401:4	dealing	19
CVs 2167:9	2403:17,20	2404:17	2177:7	2245:5,20
2438:13	Dave 2166:8	2414:3	2415:13	2246:9,19
2439:1	2170:13	2416:13	deals	2247:2,12
cycle	2208:24	2420:12,21	2385:13	2248:1,6,1
	2285:23	,25		8
	2286:5	2421:10,16		2249:1,10,
		2422:23		14
				2250:6,20,

25 2252:24	2271:17	2396:12	delivered	depiction
2253:10,19	2274:12		2414:14	2400:23
2254:4,17,	2300:25	define		
21	2301:25	2297:12	deliveries	depicts
2255:5,10,	2302:15	2418:2	2175:10	2231:15
24	2308:9,14	2419:24	delivery	depreciation
2256:13,21	2318:19	defined	2291:17	2286:16
2257:2,9,1	2363:2	2390:11	demand	derivation
6	2393:25	defining	2255:21	2168:7
2258:1,25	2398:19	2393:2		2288:5,10,
2259:11,25	2399:6	2417:23	demonstrates	15 2289:6
2260:21,24	2402:1	2432:7	2312:5	2290:17
2261:3	2405:5		department	derogatory
debate	2406:9	definitely	2196:9	2324:22
2209:18	2408:12,13	2305:18		
2321:14	2409:16	definition	departments	des 2404:18
dec 2264:3	2415:21	2262:13	2195:25	describe
decades	2417:15,19	2393:21,22	2198:9	2434:3
2205:10,16	2419:9,12,	definitive	2199:8	described
2206:12	13 2420:17	2203:1	2202:12	2296:24
	2438:1	degradation	depe 2397:20	2404:18
December	decisions	2192:3	depend	2406:22
2382:8	2262:21		2409:19	2410:19
2385:5,17	2411:5	degree	dependable	2421:7
2406:11	2414:19	2240:13	2312:24	2422:24
2409:6	decision's	2249:13	2313:14,20	2428:24
decide	2203:13	delay	2314:3	describes
2268:24	decline	2272:4,6	2421:19	2227:20,21
2301:3,5,1	2382:14	2273:24,25	2422:5,13,	describing
5,16	decreased	2274:8,9	25 2423:4	2204:20
2303:5	2187:8,9	2275:1,16	dependent	2207:1
2308:11,20	dedication	2297:11	2175:9	2209:13
,22	2404:10	2301:3,4	2250:4	description
2309:15,17	de-discount	2306:15,16	2273:25	2167:2
2310:7	2407:15	,18 2392:2	2419:6,7	2168:2
2402:5	deemed	2409:20	2423:17	2390:21
2412:2	2224:21	delayed	depending	descriptions
decided	2370:25	2194:21	2302:16,25	2409:11
2227:24		2229:3	2401:1	design
deciding	defer	2402:7	depends	2409:1
2308:12	2301:17	2409:22,23	2273:2	designed
decision	2302:19	2410:3	2397:20	2256:23
2195:21,23	2396:3,8	delays	2413:12	Desorcy
2196:5	2403:20	2202:18	depict	2179:15
2198:24	2411:23,25	delete	2323:19	Despite
2199:7	2413:5	2351:7,11,	depicted	2177:5
2203:8,14	2418:5	13,14	2232:4	detail
2220:17	deferred	deliver	2233:1,2	2195:10
2264:3	2395:15	2277:4	depicting	
2267:22	deferring	2292:8	2231:17	
2270:20,25		2417:12		

2281:6	developments	e 2233:23	2333:18,19	2385:1
detailed	2178:13	difficult	discount	2397:2
2196:23	2197:18	2174:20	2213:12	discussions
2409:4	DFO 2200:22	2203:4	2214:6,10	2228:25
details	2202:15	2204:20	2271:4,9	2295:1
2319:25	2412:23	2236:12	2272:11	2368:1,14
2415:16	di 2233:23	2335:22	2387:20	2416:16
determine	difference	2370:3	discounted	2417:5
2274:7	2212:25	2378:8,9	2264:12	2418:23
2290:8	2215:16	dimension	2268:3	2419:5
determined	2216:1,18	2249:16,17	discu	dispatch
2391:23	2233:24	dip 2422:20	2282:15	2259:16,17
2393:3	2237:17	direct	discuss	2260:9
detrimental	2238:18	2170:25	2262:20	displace
2421:15	2292:20	2171:6,9	discussed	2397:24
develop	2330:8,13	2204:18	2233:4	Displacement
2191:3	2334:16,20	2221:14	2242:21	2233:7
developed	2348:8	2227:19	2276:19	display
2240:1	2369:17	2246:5	2280:8,16	2219:5
2392:14	2396:21	2248:20	2293:9	2329:4
2404:7	2403:21,24	2329:1	2301:19	distance
2417:12	2408:2,3	2352:8	2325:4	2412:21
developer	differences	2358:11	2342:1	distill
2294:5	2216:11,16	directing	2343:8,15	2398:22
developing	different	2205:6	2374:21	distinguish
2220:17	2205:16	2257:19,20	2394:19	2236:13
development	2239:21,22	2356:15	2438:6	distinguishi
2164:10	2254:8	direction	discusses	ng 2341:23
2172:21,22	2255:20,24	2252:10	2312:6	distributed
2173:3	2256:1,3	2304:22	discussing	2203:21
2220:11	2262:19	directional	2384:18	2436:10
2291:13	2279:10	2216:21	2434:4	2438:14
2321:19	2293:8,17	directionall	discussion	Distribution
2388:11	2301:13,24	y 2387:24	2174:15	2359:2,5
2390:2,22	2302:15	2421:24	2193:4,5	distributors
2391:2,10	2304:19	directly	2218:3	2357:18,23
2392:16,19	2317:11	2243:13	2219:14	2358:22,23
,22	2318:24	2285:20	2224:19	diversity
2394:7,11	2325:23	disagreeing	2227:8	2416:19
2395:8,12,	2334:16	2245:18	2246:3,7	2417:2
20,24	2340:15	2249:25	2276:9	divided
2399:2,3,1	2342:20	2363:23,24	2280:16	2271:8
8 2400:6	2348:19,24	disappears	2282:16	2281:8
2402:17	2349:5,14	2354:18	2300:21	division
2403:3,11	2350:12,24	discharged	2303:19	2197:7
2406:22	2352:18,19	2429:5	2304:18	doctor
2416:12	2400:25	2431:7	2307:23	
2425:18	2403:16,17	disclosure	2308:4	
2434:6	2429:17		2349:25	
	2434:17		2366:11	
	differentiat			

2434:14	2283:2,3,1	2427:5	23	2268:6,10,
document	5,17,19	doubt	2236:2,6,1	15,19
2180:4	2288:16,18	2192:13	2,17	2270:3,18,
2182:1,23	2289:8,11	2285:14	2237:4,13,	21
2209:10	2407:1,3,1	2307:17	19	2271:1,15,
2224:2	4	2356:8	2238:1,6,9	21,24,25
2256:16	2411:9,10,	downside	,13,16,22	2272:5,9,1
2390:5,11	13	2172:22	2239:4,11,	3,16,22
2402:12,14	domain	2181:6,21,	18,24	2273:1,17,
2435:19	2373:22	22 2184:3	2240:6,12,	21
2437:11	domestic	2185:23	18	2275:9,17
documentatio	2200:24	2186:25	2241:1,16	2282:4
n 2300:2	2319:5,23	2187:2,7	2242:20,24	2284:9,11,
documents	2322:16	2188:9,23	2243:4,17,	12,15
2167:5,6	2323:13	2380:1	25	2285:8,11
2203:20	2324:2	2422:10,14	2244:8,16,	2305:1
2204:3	2345:6	2434:9	19	2366:16
2209:24	2346:1,22	downwards	2245:5,20	2374:1,6
2212:7	2347:8,19	2343:24	2246:2,9,1	2375:1,6,1
2245:22	2348:18	Dr	9	2,22
2299:22	2354:8,9	2173:10,25	2247:2,12	2376:1,6
2384:10,11	2355:10	2174:5	2248:1,6,1	2383:11
2386:25	2390:16	2201:20	6,18	2420:25
2387:5	2397:11	2204:6,8,1	2249:1,10,	2424:18,24
2394:25	done 2171:19	4,16,24	14	2425:2,13
2395:2	2185:14	2205:5,12,	2250:6,20,	2426:8
2437:5	2198:23	20	25 2252:24	2436:2
dollar	2216:13,19	2206:2,14,	2253:10,19	dra 2243:10
2234:15	2229:16	21	2254:4,17,	draft
2237:17	2274:20	2207:3,11,	21	2193:20
2258:22	2282:3	19	2255:5,10,	2198:14,17
2259:5	2301:9	2208:8,10	24	drafts
2413:7	2310:1,23	2209:5,11,	2256:13,16	2174:8
2414:19	2317:9	20	,21	dramatic
2435:4	2332:14	2210:3,7,8	2257:2,9,1	2241:19,21
dollars	2344:4	,16,23	6	draw 2236:25
2168:8,11	2366:9	2211:1,7,1	2258:1,25	2303:13,18
2216:14	2375:4,14	1,15,20,25	2259:11,25	drawing
2222:19,25	2413:2,3	2218:4,16	2260:13,21	2237:8
2223:5,8,1	2418:3	2225:12	,24	drawn
2,17,21,24	2421:8	2227:16	2261:3,16,	2368:19
2231:22	door 2227:4	2229:6,7	18,23	drew 2262:5
2234:5,19	2228:15	2230:16,25	2262:2,15,	2384:23
2235:9,10,	Dorsey	2231:5,7,1	25	drill
21	2282:10	0,19,24	2263:6,12	2388:12
2237:3,5,1	double	2232:6,7,1	2264:4,8,1	drive
1,14,24	2425:7	1	4,23	2220:10
2238:5,11,	doubled	2233:4,12,	2265:3,7,9	driven
18 2257:24	2428:1	17,20	,11,14,17,	2235:4,5
2259:1,14	doubles	2234:3,10,	20,25	
2269:10,13		13,16,24	2266:5,9,1	
		2235:4,14,	0,19,20,23	
			2267:5,8,1	
			3,18,25	

2243:23,25	2411:18	2433:22	2321:20	2229:18
2427:14	2413:13,18	2434:25	2358:1	2230:1
driver	,24 2414:5	earliest	2369:4,13	2266:15
2243:12,14	2436:13	2311:18	2372:13	2277:7,10
drop 2365:5	DSM-1	2312:25	2387:19,22	2300:13,19
dropping	2387:25	2392:14,18	2388:17	2302:6,13
2365:7,8	DSM-2	2394:8	2399:7	2304:11
drops 2365:4	2387:25	2395:21	2401:12	2305:4
dry 2414:13	2388:13	2397:14,19	2426:5	2308:15
DS 2313:1	DSM-3 2314:2	2400:24	economics	2314:13
DSM 2175:2	DSN 2325:23	early	2214:11	2315:8,13,
2178:14	due 2211:23	2194:11	2215:2	17,21
2301:20	2396:8	2197:22	2249:8	2316:1
2303:22	Duluth	2374:9	2260:6,8	2322:5
2304:9	2294:7	2376:2	2369:17	2340:2
2312:21,25	Dunsky	2397:23	2370:22	2343:17,22
2313:1,9,1	2307:17	2401:2	2377:7	2344:2,10
2,13,19	dust 2388:14	2421:17	2403:24	2347:23
2314:25	dwell	2423:22	economies	2348:21
2315:15,25	2199:15	earn 2293:17	2296:5	2349:10
2317:11		2294:18	ECS 2362:1	2352:16,22
2320:23		2295:23,24	2365:22	2353:1
2321:7,11,	<hr/>	easier	Ed 2166:16	2366:20
12,16,20	<hr/>	2258:7	2170:21	2367:2
2325:23	eagerly	2426:14	2173:23	2371:7,18
2336:10	2193:23	2437:22	2188:18	2372:5
2340:10	earl 2300:16	easiest	2192:17,18	2374:18
2341:13,15	earlier	2213:4	,21,23	2378:23
,16	2193:5	easy 2425:11	2193:9,15,	2379:14
2342:6,19,	2203:3	2430:15,23	20	2380:12
20,21	2233:25	eating	2194:4,12,	2384:17
2345:13,16	2240:21	2384:12	20	2390:23
2346:10,15	2251:11	eco-analysis	2195:1,9	2391:15
,16	2300:16	2382:6	2196:20	2393:1
2347:21	2345:10	economic	2198:3	2394:9,12,
2348:1,9,1	2350:5	2167:3	2199:23	15 2395:23
9,24	2366:2	2169:22	2200:7	2396:18,23
2349:14	2374:22	2170:5,24	2202:1	2397:6
2350:20	2378:17	2171:15	2217:12,16	2399:8,20
2351:12	2385:1	2173:14	,22	2400:8,21
2352:18	2393:6	2214:10	2221:21	2401:21
2353:14,18	2394:21	2216:11,12	2222:3,14,	2402:23
2354:21	2397:11	2220:18	21	2403:5,7,1
2355:7,12,	2399:5	2221:3	2223:2,6,1	2,18
20,25	2401:15	2258:9	0,14,19,22	2404:5,12,
2387:24	2405:8	2283:3,10,	,25	20 2405:21
2395:16	2412:5	13,20	2224:8,13,	2406:7,25
2396:7,8,1	2414:1	2291:13	17,24	2407:6,13,
7,22	2419:5	2292:2	2225:7,14,	19,22
2400:3,9	2428:24	2294:22	18 2226:21	2408:5,9,1
2404:2			2227:14,22	8 2409:18
			2228:23	2411:11
				2412:1,10
				2413:14,23

2415:6,24	2244:14	2393:16	2191:3	2412:22
2416:1	eight	2402:18	2233:5,7	engineering
2433:21	2230:18	2427:8,9	emissions	2408:25
editorial	2242:3	electricity	2226:23	2409:5
2246:12	2329:3	2204:21	2230:8	2410:4,8
EE 2240:3	2382:8,10	2209:18	2246:17	2413:2
effect	2407:14	2219:6	2256:24	2415:9
2172:4,7	2411:15	2227:25	2257:13	England
2173:5	2425:19	2229:12	2258:5,8,10	2261:5,6
2178:15	eighty	2235:1,5		enhance
2185:18	2238:11	2419:22	emphasized	2175:2
2218:24	eighty-three	2428:7,25	2434:6	enhanced
2241:17,19	2425:20	2430:2,12	employed	2379:24,25
,21,22,23	EIS	2431:11,12	2212:25	2380:2
2243:15	2200:17,20	electronic	enacted	enhancements
2249:23	2408:22	2246:23	2248:23	2400:4
2255:1	either	2339:21	energy	enormous
2257:22	2173:3	2350:4	2231:16	2207:9,16
2259:9	2193:13	electronical	2237:2	ensure
2294:19	2195:6	ly 2438:1	2239:7,8,1	2338:17
2303:1	2217:17	electrons	5 2240:9	enter 2175:7
2317:16	2243:13,16	2430:23	2241:6,9,1	2297:3
2343:24	2267:23	element	1	entered
2366:5	2282:8	2197:23	2291:17,18	2226:5
2376:3	2303:4	2206:11	2293:1	enterprise
2382:16	2320:11	eleven	2312:11,15	2378:10
2388:2	2394:13	2212:19	,24	entire
2422:15	2421:14	2239:22	2313:8,14,	2236:16
effective	2422:9	2425:4,8	21 2314:3	2282:20
2219:17	2437:19	eliminate	2316:4	2298:23
2245:13	elaborate	2422:3	2320:21	entirely
2252:16	2210:5,10	eliminated	2356:21	2263:13
2431:20	2246:11	2171:18	2360:20	2269:15
effectively	2254:4	else 2172:9	2361:1	entities
2226:3,16,	2366:24	2309:17	2363:2	2298:2
22,24	elasticity	2381:17	2397:17	entitled
2263:18	2343:25	2392:2	2416:14,17	2296:14,21
2382:17	2344:9,14,	2397:13	2417:11,17	environment
effects	17	2426:17	2421:13,18	2195:19
2209:3	elect	email	,19	2198:11,20
2211:19	2431:12	2438:14	2422:5,13,	2416:23
2301:10	election	embark	25 2423:4	environmenta
efficiency	2228:8	2177:10	2424:4	l 2193:12
2240:9	2250:22	embarking	2426:12	2196:8
2241:12	electric	2176:22	2427:10	2197:3
2320:21	2230:11	embedded	2430:10	2202:14
efficient	2257:5	2381:25	2431:3,5	2211:6
2245:13	2357:18	emission	2432:15	
2252:16	2358:22		engage	
efforts			2220:4	
			engaged	

2221:19	2253:23	2345:15	2247:17	2219:22
2222:12,13	2254:14	2348:19		2304:14
2296:21	2257:12	2349:15	eventually	2397:21
2408:21	2271:4		2230:6	2414:5
2409:3	2352:14	evaluated	2261:20	
2410:1,5,7	2364:13	2321:23	everybody	evolved
2412:19	2373:17	2323:24	2242:14	2387:16
2413:1		2324:9,14	2364:10	2391:24
envisage	essentially	2334:14	2411:12	ex 2185:18
2409:6	2240:20	2347:8		2212:24
envisaged	2257:4	evaluating	everybody's	2409:21
2400:9	2263:17	2346:20	2383:7	exact
EPA 2211:23	2266:20	2356:18	2434:16	
2227:2	2344:17	evaluation	everyone	2194:13
EPA's 2254:6	2380:3	2310:1	2169:5	2195:2,11
eppt 2178:15	2410:6	2311:7	2308:6	2197:23
equal 2331:3	2424:1	2318:23	2355:24	2316:11
equals	2427:5,7	2320:19	2386:2	2378:24
2278:8	2431:24	2321:3,6,1	2436:1	2391:12
2280:4,6	establish	9 2326:13	2439:6	2408:19
equitably	2190:19	2329:12	everyone's	exactly
2185:20	2307:13	2330:1,2,1	2356:8	2235:2
equities	estimate	7 2334:20	everything	2244:16
2381:6	2242:3	2336:20	2172:9	2265:3
equity	2253:24	2340:10	2199:9	2270:3,18,
2287:18	2284:5,6	2341:25	2203:4	21,22
2295:23,25	2289:18	2342:2,6,1	2360:9	2273:2
2356:19	2376:21,24	9 2345:6	2397:13	2348:23
2357:9,17,	2377:2,7	2346:14	evidence	2369:23
23 2361:2	estimated	2347:20	2170:25	2379:8
2365:18	2237:1	2351:12	2171:6,9,1	2424:20
equivalent	estimates	2352:15	0	examination
2316:7	2168:8	2353:12,13	2178:13,24	2289:21
2321:15	2178:17	,14	2179:6	examine
2329:21	2288:15	2355:7,12	2230:5	2256:14
2361:23	2289:7	2372:10,22	2278:13	2270:16
ERP 2381:10	2317:15	,25	2317:4	example
error	2326:23	evaluations	2352:9	2186:2
2279:16	2376:19	2307:24	2362:2	2195:5
2300:3,4	estimating	2311:12	2372:7	2218:10
escal 2283:6	2270:24	2318:3	2375:1	2226:13
escalation	et 2256:4	2323:20	evidenced	2262:24
2283:6,18	Europe	2343:1	2394:23	2263:13,16
essence	2226:1	2350:13,15	evolution	,21,25
2215:6	eval 2346:13	,20	2211:9	2265:24
2239:14	evaluate	2355:4,10,	2410:12	2266:19
2249:12	2222:6	21	2414:23	2268:11,13
	2251:18	evening	2415:2	,15,21
	2333:4	2169:6	2416:4,6	2270:11
	2340:15	2439:6	evolve	2272:12,18
		events	2207:23	2273:15
		2176:25		2274:2
				2292:17

2306:25	2355:4	2387:2,4	2229:1	2191:23
2326:4	executive	2402:12,13	2243:24	2192:1,6
2327:15	2414:10	2413:24	2249:3	expires
2394:20	ex-	2436:14,16	2254:16	2274:4
examples	environmen	,24	2255:12	explain
2231:14	tal 2224:5	2437:1,6,1	2281:23	2170:9
2318:3	exercise	2,14,19,20	2282:1	2171:8
2409:21	2237:8	,24	2294:18	2195:7,12
exceeds	2297:16	2438:6,17,	expected	2196:25
2382:17	2394:21	20 2439:1	2171:7,25	2198:18
except	exercising	exhibits	2172:13,14	2300:8,11
2172:21	2245:2	2166:3	,24	2301:24
2188:24	exhausted	2167:1	2177:17	2316:1
exception	2169:20	2435:25	2180:7,8,1	2397:7
2313:16,19	exhibit	2436:9	8	2428:16
2359:1	2167:2	existing	2187:11,12	explained
excerpt	2168:5	2175:6	2222:4	2363:9
2182:13	2169:13,21	2381:13	2255:15	2379:15
2209:8	,23	2427:25	2257:22,23	explaining
2212:16	2170:5,23	exists	2259:8	2279:20
2214:5	2171:3	2266:21	2264:12	2302:8
2217:20	2174:6	2381:9	2268:3	explains
2252:21	2180:1	2420:3	2271:9,12	2171:4
excess	2203:22,24	expand	2292:16,20	explanation
2186:9,19	2204:1,3,1	2269:22	2321:25	2171:11
exchange	0 2207:6	2305:3	2326:14,15	2188:20
2379:4	2209:7	2385:7	2330:7,12,	explicit
excited	2215:1	2418:17,18	17 2331:4	2225:21
2273:15	2216:23	expanding	2343:1	2226:8,11
exclude	2221:1	2400:8	2373:1	2227:7,8
2185:15	2216:23	2426:20	expecting	2229:2,9
excluded	2230:21	expect	2194:23	2394:18
2326:2	2233:15	2178:2	2196:6	explicitly
excluding	2261:21	2207:24	2225:15	2225:20
2185:18	2265:23	2219:20	2425:18	2274:13
excuse	2275:22	2227:5	expects	explore
2186:3	2276:1	2230:4	2272:8	2230:16
2208:12	2288:14	2243:15	2309:6	exploring
2214:11	2289:3	2289:16	expend	2390:1
2223:17	2300:1	2298:17	2176:17	export
2225:12	2307:20	2420:15	expenditures	2174:25
2235:24	2311:24	expectation	2412:24	2212:24
2238:3	2314:9,16	2194:9	expenses	2218:5
2257:23	2317:2	2225:4	2278:8	2219:15
2276:4	2323:18	2247:13	expensive	2221:19
2350:22	2339:15	2311:18	2296:6	2222:12,13
2352:24	2342:12	2394:3	experience	2224:6
2354:4	2343:5,6	expectations	2244:3	2237:9
	2353:10	2206:5	2423:22	2266:25
	2357:1,16	2228:19	expert	
	2358:11			
	2361:9			
	2366:18			

2301:21	fabulous	2228:22	fall 2194:8	2199:1,8,1
2302:16	2270:13	2231:23	2368:15	1,13
2304:14	facilitate	2232:10	2376:2	2202:12
2307:4	2282:12	2234:2	familiar	2228:8
2309:1,9	facilitated	2238:21	2196:18	2230:7
2310:10	2291:19	2239:10,17	2197:9	2243:15,21
2397:12	facilities	,23	2231:6	,24 2244:9
2398:7,8	2425:14,16	2240:11,25	2245:4	2246:4
2406:15	,20,23,25	2243:13	2264:11	2247:14
2414:6,12	2429:22	2244:4	2304:24	2248:22
2422:7	facility's	2246:18	2360:19	2253:15
exports	2297:3	2247:1,8,1	fan 2305:6	federally
2233:8	facing	1 2248:25	fancy	2226:15
2312:7	2204:20	2249:9	2399:15	2227:12
exposed	2252:11	2253:18	farm 2177:6	fee 2246:17
2219:20	fact 2184:9	2254:3,20	2244:23	feed 2189:16
2423:24	2205:24	2255:4	2261:25	feedback
extend	2252:3	2257:1,15,	2262:4,8	2179:18
2289:25	2258:2,15	25 2259:10	2264:10	feel 2192:14
2290:16	2259:18	2262:19,23	2430:18	2333:18
extends	2274:8	2264:5	farther	fees 2293:13
2184:12	2285:25	2272:21	2221:8	fell 2279:5
2185:9	2293:11	2275:10	2222:24	felt 2368:16
extent	2305:7,10	2290:4	farthest	2370:20
2219:8	factor	2304:10	2313:7	fi 2175:6
2294:1	2377:2	2311:9	2313:15,17	2282:11
2421:16	factors	2317:7	2318:25	field 2410:5
2423:24	2210:13	2319:7,16,	fast 2208:18	fifteen
2429:6	2216:3,4	22 2320:22	2225:25	2200:16
2433:19	2241:24	2322:16,20	2228:21	2223:21
external	2274:21	2323:6	favour	2235:21
2244:14	fair	2325:1	2219:25	2318:24
extra 2266:3	2178:5,22	2329:14,22	favourable	fifth
2295:20	2182:7	2330:5	2337:10	2209:13
2297:7	2184:6	2340:12	favourite	fifty
2306:12	2187:5	2347:18	2304:5	2237:10,14
2316:21	2190:23,24	2348:14,17	feasible	,23 2238:5
2359:9,11	2191:13	2352:11	2173:15,17	2361:3
2409:9	2194:16	2365:20,22	,19	2382:2
extract	2199:13	2372:11	2201:14	2407:16
2171:20	2199:13	2382:3	2202:22	2418:12
extraprovinc	2205:11,19	fairly	2384:24	2424:15
ial	2206:1	2230:13	February	2425:19
2213:18,24	2207:16,20	2232:14,20	2402:25	fifty-five
2214:21	2208:5,8	2243:2	2403:2	2237:11
2215:11	2211:3	2338:16	federal	figure
eyes 2173:24	2212:3	fairness	2195:25	2218:2
	2213:25	2389:9	2197:15	
	2216:5	faith	2198:8,11,	
	2218:14	2252:7,9	23,25	
	2221:20			
	2222:2,20			

2219:5	finance	2171:3	2422:21	flights
2221:12	2438:14	2177:3		2436:2,6
2232:22	financial	2197:12	fits 2434:25	flip 2180:12
2239:21	2216:12,13	2202:7	five 2182:2	2181:25
2254:13	2219:14	2204:18	2184:8	2207:6
2255:19	2283:9,18	2206:24	2222:19	2214:2,25
2256:7	2369:4,13	2207:7	2223:5	2224:1,9
2259:23	2387:14	2209:7	2248:5	2246:23
2266:2	2389:21	2222:9	2252:5	2247:5
2328:25	2431:25	2247:21	2255:13,15	2266:18
2359:13	2432:13	2257:12,17	2301:11	2356:13
figures	financials	2267:4	2302:23	2406:15
2240:4	2216:3	2271:6,10	2303:23	flow
2328:25	financing	2284:4	2309:7	2290:12,18
file	2380:3	2294:10	2316:10,12	,23
2169:21,25	fine 2190:8	2317:4	2323:24	2295:12
2298:18	2213:1,5	2318:10,22	2356:16	2364:20
2435:25	2254:13	2319:4	2361:2	2430:12
2437:13	2268:18	2321:23	2364:17,18	2432:15
filed	2310:17	2322:8,12	2382:1,9,1	2434:9
2177:13,22	2339:8	2325:5,7	1	flowing
2179:6	2351:10	2336:16	2387:20,21	2291:5
2180:1	2352:11	2342:12	2408:22	2293:15
2314:10	finger	2348:22	2418:21	flows
2364:25	2308:2	2349:1	2420:19,20	2286:7,23
2383:19	fingertips	2353:22	,22,23	2291:1
2386:6,9,1	2195:3,14	2357:6	fixed	2432:1
4,15	finish	2359:6	2303:10	2434:5,19
2389:10	2220:1	2364:18,20	2382:9,10	fly 2351:9
2390:25	2230:17	2377:24	2395:9	Flynn
filing	2241:11	2383:21	2422:8,12	2166:10
2178:24	2281:21	2389:25	2433:11	2170:8,15,
2182:14	2325:20	2405:18	flagged	23 2173:18
2212:17	2353:11	2406:13	2211:4	2176:10
2387:17	2362:19	2408:20	flexibility	2177:16
2408:22	2412:25	2409:1	2274:17	2179:24
final	finished	2411:2	2300:20	2180:10,15
2193:23	2199:3	2436:10,12	2302:22	,21,22
2194:1,8,9	finishing	fiscal	2306:8	2181:1,14,
,23 2195:5	2346:7	2410:17,25	2316:21	15,18,24
2196:16	Finnish	2411:3	2391:19	2182:4,9,1
2199:18	2176:20	fisheries	2393:14,24	5,20
2297:1	firm 2309:8	2196:3	2394:22	2183:2,21
2383:15	2412:11	2198:14,17	2395:25	2184:1,7,1
finalized	2421:18,19	,19,22,25	2399:5	0,14,19,25
2297:2	2422:2,6	2199:12	2401:6,18	2185:3,8,1
2298:18	first	2200:1,10,	2411:21	2,17,25
2435:8	2169:13	15 2201:5	flexible	2186:7,11,
finally		fishers	2316:17	16,20,21
2354:7		2200:24	2393:18	2187:1,6,1
		fit 2416:11	2400:16	9,23
		2419:1	2404:21	

2188:2,7,1 2	2326:5,9,1 6,19,25	Flynn's 2405:22	2382:21,24 2383:8	2362:20 2364:12
2208:11,12	2327:3,9,1	focus	forecasts	2380:12
2209:1,4	6,24	2196:15	2233:11	2409:15
2212:4,12, 19	2328:5,9,1 2,17	2201:1	2239:25	2433:25
2213:1,6,1 4,15	2329:1,7,1 0,15,18,23	2221:5	2362:8,11	fossil 2230:9
2214:1,9,1 3,16,19,24	2330:6,7,1 0,14,19,23	2224:11	foreseeable	fourteen 2324:15
2215:4,5,9 ,13,14,20	2331:1,6,7 ,9,18,23	2312:23	2312:12	2407:2
2216:4,10, 20	2332:3,6,1 0,21	focusses 2170:24	forever 2208:4	fourth 2180:19
2217:4,6,9	2333:3,11, 24 2334:19	focussing 2205:1	2428:6	2362:1
2219:14	2335:7,12	2206:10	forget 2306:7	2408:1
2275:21	2336:7,22	2304:13	2391:11	fragmentatio n 2192:2
2276:2,4	2337:2,5,9 ,17,20,24	folks 2245:1	form 2225:21	frame 2199:25
2278:2,3,1 1,21	2338:3,25	font 2212:13	2232:15	2200:3,8
2279:1,22, 25 2281:24	2339:22	foot 2363:10	2245:2,11	2224:11,14
2282:2,19	2340:1,8,1 3,17,20,24	footnote 2363:15	2247:14	2401:14
2284:2,8,1 5,18,22	2341:2,6,1 5,21	footnotes 2363:10	2250:7,9,1 1 2256:4	2406:4
2285:4,8	2342:3,9,1 8,24	forces 2244:14	formal 2195:24	frames 2178:23
2288:2,11, 19 2307:19	2343:3,7	fore 2220:22	2200:17,18	frankly 2306:16
2311:10,14 ,21	2344:24	forecast 2220:22	formally 2191:11	free 2192:15,19
2312:4,9,1 4,22	2345:8,12, 17,23	2228:25	2200:20	2305:20
2314:11	2346:6,17	2239:9	formula 2380:22,25	French 2169:11
2316:25	2347:3,24	2320:20	2381:1,13, 25	friend 2177:1
2317:3,8,1 3,18,25	2349:13,17 ,23	2343:9,16, 20,24	forthcoming 2345:11	2201:18,21
2318:6,8,1 0,13,15,20 ,25	2350:9,17	2344:7	forty 2407:16	2289:20
2319:1,9,1 4,20	2351:3,17, 20,24	2361:3,21	forty-five 2253:3	2339:5
2320:4,9,1 3,17,23	2352:3,6,1 3	2362:20	2254:24	friends 2178:1
2321:4,9,1 7	2353:11,16 ,19	2364:8	forward 2207:23	2385:3
2322:3,13, 15,25	2354:1,6,1 1,16,19,24	2380:22	2211:3	front 2295:15
2323:7,12, 16,17,21,2 5	2355:5,8,1 3,16,22,24	2381:23	2220:14	2313:5
2324:4,7,1 1,20	2356:1	2393:5,6	2249:22	fruitful 2417:5
2325:2,8,2 5	2405:22	2421:21	2293:22	fruition 2397:18
	2414:9	forecaster 2249:6	2325:16	fuel
	2422:2,24	forecasters 2229:6	2332:24	
	2434:25	forecasting 2251:12,13	2346:22	
	2438:9	,14 2253:7	2347:19	
		2365:10	2348:18,20	

2205:3,17, 20 2230:9 2344:1,9,1 4 fulfill 2398:21 full 2207:7 2222:7 2304:16 2357:6 2387:18 2388:1 fully 2207:23 2309:6 2379:23 2380:5 fund 2297:24,25 fundamental 2173:13 fundamentall y 2385:6 2434:5 funded 2280:18 funding 2297:25 funnel 2321:6 2325:21 2399:17 2406:21 funnelled 2388:18 funnels 2399:15,17 future 2207:22,24 2208:3 2210:4,9,2 0 2233:18 2251:21 2253:20 2268:7 2269:23,24 2277:20 2302:17	2309:9 2312:13 2382:13 futures 2231:16 <hr/> G GAC 2165:10 gaining 2412:9 game 2209:16,22 Gange 2165:10 2174:15 gap 2331:4 2418:6 gas 2182:23 2183:24 2186:4 2189:12,22 2191:2 2205:21,24 2206:3,5,6 ,8 2208:21 2209:2,16 2210:12 2211:19 2225:24 2230:8 2237:23 2241:24 2247:23 2253:7 2255:20 2256:4,19 2257:13 2259:12,16 ,17,19,21 2260:2,3,5 ,6,9,24 2263:8 2301:17,20 2302:16,18 2303:4 2304:13 2306:2 2310:10,12 2315:4 2316:6,10, 12,18	2320:2,3,5 ,7,11 2322:7 2323:5,11 2324:3 2325:17 2330:1,10, 13 2335:2 2340:19 2350:23 2351:1,7,1 4 2352:19 2357:17,23 2358:23 2359:2,5 2386:8,11, 12 2391:5 2396:3 2402:17 2406:1,13, 16,17,19 2427:9 2434:8 gas-combined 2260:20 2261:10 gases 2190:11 2246:5 Gee 2306:1 general 2243:1 2353:7 2379:7 2390:21 2406:23 2408:19 generally 2193:22 2206:4 2218:8 2225:24 2242:23 2312:11 2350:11 2391:17 2410:21 2434:17 generated 2291:10 generating	2209:18 2286:15 2292:6,7 2390:15 2392:12 2394:7 2395:10,14 2396:13 2400:17 2430:17 generation 2193:19 2211:10 2226:12 2230:9 2255:22 2260:19 2261:7,12 2320:3 2392:10,13 generator 2429:18 generators 2257:5 gently 2261:24 geophysical 2249:17 2250:3 George 2165:15 gets 2231:1 2352:7 2354:17 2379:15 2429:4 getting 2179:17 2202:13 2274:10 2295:13 2364:15 2380:2,3 2405:13 2432:25 GHG 2190:19 2191:2,22 gigawatt 2344:11,12	given 2231:11 2245:14 2250:14 2303:18 2322:8 2396:16 2404:22 2409:11 2412:12,16 2417:19 2418:16 gives 2348:12 2417:7,9 2426:23 giving 2300:20 2428:21 gla 2320:2 glad 2189:8 gladly 2225:18 glass 2212:4 glasses 2212:6 global 2247:18 go/no-go 2264:18 goal 2423:15 2433:4 gone 2282:6 2318:6 2388:13 2412:21 2426:2,11, 12 Gosselin 2164:13 government 2228:9 2357:9 2358:2,21 2360:5 2361:4,17 2362:9 2365:7
---	---	--	--	--

2380:23	2429:4	2380:16	2419:1	2229:4
2381:23	group	guidance	2420:5,18,	2230:13
2389:19	2201:1,2	2304:24	23,24	2252:4,5,6
governors	2228:2	guy 2191:22	2421:6,11,	2269:14
2190:1	2253:6	guys 2271:22	23 2422:17	2273:7
Grant	2419:21		2424:3,10,	2364:15
2164:17	grouping		21	2398:6,8
2173:10,25	2325:14	<hr/> H <hr/>	2425:1,9	2419:17
2174:5	groups	habitat	2426:2,10	2420:15
graph 2236:9	2202:14	2192:2	2428:8,13	2435:10,12
2251:4	2325:18	Hacault	2433:9,18	happened
2402:19	growing	2165:13	2437:7	2225:23
2422:20	2234:22,25	2166:21	halcyon	2252:3
graphs	2235:1,25	2177:1	2247:6	2258:10
2399:15	2236:2	2183:22	half 2310:20	2302:16
2413:17	grows	2339:5	2321:11	2316:23
great 2168:5	2277:19	2384:9	2348:22	2374:23
2175:8	growth	2386:21,22	2349:1,2	happens
2274:15	2253:8	2387:7,8	2375:15	2173:19
2284:23	2277:21	2389:2,9,1	2380:22,23	2241:5
2288:20	2316:9,13,	4,24,25	2386:24	2304:13
2289:4	18,21	2390:24	2402:24	2388:20
2292:9,11	2397:13	2392:4	2406:4	happily
2319:4	guarantee	2394:5,10,	halfs	2279:15
2356:8	2435:10	14,24	2348:22	happy
2397:17	guess 2179:4	2396:10,19	halfway	2220:10
2414:15	2180:19	2397:1	2302:2	2288:23
2416:14,16	2185:18	2398:1,22	Hamlin	2340:3
,23	2217:15	2399:12,24	2166:11	hard 2359:13
2417:17	2230:18	2400:14	2170:16	Harper
2418:19	2254:11	2401:5,20	2189:5,8,1	2276:3
2421:13	2270:5	2402:11	0,15,19,24	2281:20
2423:4	2282:3	2403:1,6,1	2190:5,8,9	2328:23
2424:4	2291:6	0,15,25	,15,21,24	2362:3
2433:3	2293:12,20	2404:9,17,	2191:6,10,	Harper's
greater	2302:3	22	14,18,24	2290:5
2240:9	2313:6	2405:18,24	2192:4,7,1	harvesters
2246:15	2353:7	2406:20	1	2200:25
2426:13	2366:10	2407:4,10,	hand 2205:7	hate 2337:14
greenhouse	2387:23	17,21,24	2206:11	haven't
2189:12,22	guessing	2408:6,15	2319:24	2225:24
2190:4,11	2249:13	2409:8	2358:18	2307:5
2191:2	2407:15	2410:10	2359:10	2348:10
2225:23	guesswork	2411:17	2376:11	2355:23
2230:7	2250:5	2412:8	2410:3	2385:2
2246:5	guest	2413:9,16	handed	2410:13
2247:23	2247:21	2414:2,4,2	2356:11	2416:6
2256:19	guests	1	handout	2426:1,18
2257:13		2415:1,17,	2300:9	2428:11
grid 2292:8		25 2416:3	happen	
		2417:6,13		
		2418:9,20		

2435:3	2197:13	2290:3	2240:13	2273:18
having	2202:7	2307:17	2243:23	2281:17
2174:15,18	2203:12	2316:25	2244:1	2305:1
2175:9,16	2225:1	2341:21	2250:8	2307:15
2183:9	2286:12	2366:7	2253:19	2339:3
2189:16	2298:19	2371:22	2254:15	2389:18
2195:13	2317:5	2374:17,19	2255:5	2394:4
2199:8	2377:24	helping	2258:5,17	2424:4
2202:11	2389:7,8	2429:12,24	2264:25	hopefully
2212:12	2399:3	2433:3	2275:13	2252:12
2225:21	hearings	helps	2295:5	2280:1
2246:7	2192:13	2307:15	2310:11	2281:20
2288:8	heart 2321:2	2394:4	2315:22	2295:3
2302:21	heavily	2397:25	2406:15	2298:9
2316:19	2242:23	2417:16	2430:8	2318:4
2364:14	2243:2,11	2424:2	2431:1,3,1	hoping
2368:21	hedge	here's	9 2432:10	2178:23
2369:25	2219:12	2229:22	higher	2196:7
2373:22	hedges	2430:20	2181:13	2208:14
2377:10	2219:9	he's 2366:17	2232:20	2212:22
2399:17	heightened	2397:16	2234:16,17	2289:21
2423:18,24	2371:25	2437:13	2235:17	horizon
,25 2428:2	held 2164:20	hesitate	2255:1	2236:18
2430:14	2335:8	2206:14	2259:12	2240:7,19
2431:17	2351:4	heyday	2274:24	2251:11
2432:10	help 2191:5	2253:13,21	2303:22	hour 2177:23
hazards	2217:18	hiding	2315:25	2231:22
2251:12	2229:10	2366:17	2345:16	2235:10,22
head 2196:21	2262:24	Higgins	2425:24	2237:3,5,1
2284:3	2308:13	2307:18	2427:17	1,14,24
2407:20	2335:13	high 2180:3	highest	2238:8,12,
heading	2375:9	2202:17	2180:7	19
2390:11,12	2397:7	2205:2,24	2323:4	2289:16,19
2391:1	2401:22	2206:12,15	highly	2310:20
headings	2420:18	2208:6	2250:4	2344:11,12
2359:2	2429:24	2213:13,24	historically	hours 2237:6
hear 2192:13	helped	2215:7,16	2205:17	2241:6
2227:16	2274:13	2216:1	history	2296:15,19
2245:7	2397:7	2219:19	2306:1	2432:22
2345:9	helpful	2222:9,12	ho 2178:1	House
2374:2	2196:15	2223:15	hold 2230:19	2253:25
2403:13	2198:4	2231:15	2376:14	housekeeping
2404:12	2202:3	2232:3,9,1	2438:8	2437:4
heard 2226:3	2232:24	2,13	Hombach	huge
2261:24	2260:12	2233:1,13,	2165:3	2428:5,9
2282:4	2263:24	23 2234:3	2169:7,8	Hugh 2164:17
2378:17	2277:24	2236:21	hope 2169:5	2173:10,25
2413:11	2279:11	2237:9	2178:2	2174:5
hearing	2287:25	2238:11,14	2179:16	humble
2179:8		,15,16,20	2253:20	

2262:4,8	17	2396:6	Hyvaa	2438:3
hun 2280:2	2278:6,15	2403:3	2176:19	ideal
hundred	2280:13	2412:11		2304:18
2269:10,13	2281:4	2414:6	<hr/>	
,15 2361:3	2282:17	2417:18	<hr/> I <hr/>	identify
2371:12	2285:1,17,	2428:6,24	i.e 2382:1	2282:10
2382:2	18	2429:3,10,	IAN 2166:15	2416:7
2407:11,14	2286:2,24	13,25	2170:20	IEC 2165:21
2411:15	2287:12	2430:6	2356:23	2177:14
2418:12	2288:3,13,	2432:2	2357:4,12,	ill 2266:19
2425:5,8	14	2434:7	19,24	
2434:21	2289:1,3	2436:23	2358:3,6,1	I'll 2177:22
2435:6	2290:2	2439:1	3,16,25	2181:18
	2291:2,10	hydroelectri	2359:5,12,	2188:16
hunters	2293:15	c 2392:9	22	2192:9
2200:24	2294:4,14,	Hydro-I	2360:3,8,1	2194:14
hydraulic	16,20	2301:8	5,22	2195:3,12
2430:7	2295:16	hydro-plant	2361:5,12,	2200:3
hydro 2164:7	2297:12,21	2404:21	15	2203:25
2165:5	,23 2298:5	Hydro-Quebec	2362:4,10,	2204:19
2166:6	2299:2,9	2226:4	16,21,25	2210:10,11
2167:9	2307:25	Hydro's	2363:5,14,	2218:1
2168:3,4	2309:6	2164:9	17,21	2233:6
2169:13	2311:5,24	2178:13	2364:1	2236:22
2170:11	2312:11,14	2187:16	2365:24	2238:4
2178:2,7	2314:9,16,	2188:10	2380:17,20	2279:11,14
2181:22	25 2315:5	2213:9	2381:20	2285:6,12
2185:23	2317:4	2219:1	2382:4,24	2300:8,11
2186:24	2318:14	2222:10	2383:3,7	2301:14
2188:4	2321:14	2225:3	I'd 2196:22	2314:23
2191:22	2340:22	2278:13	2203:3	2316:2
2193:17	2342:12	2280:8,19	2207:19	2317:20
2194:18	2343:5	2281:9	2225:11	2321:24
2202:10	2344:5	2323:2	2234:10	2323:1
2203:6,23	2346:21	2350:23	2242:4	2326:20
2212:17,24	2347:20	2369:13	2271:5	2328:15
,25	2350:13	2372:20	2305:2	2332:19
2219:4,9,1	2352:14	2388:2	2334:1	2343:9
1	2354:23	2389:5	2339:3,15	2349:24
2220:3,9,1	2356:19	2390:21	2375:12	2353:7,22
1	2361:10,20	2402:18	2410:11	2358:25
2221:6,13	2364:6	2421:21	2416:7	2362:21
2222:18	2366:18,24	2427:6	2433:18	2386:25
2223:4,16	2367:9,20	2436:12,19	idea 2221:24	2388:10
2224:4,19	2368:11	hypothetical	2264:1	2397:1
2230:21	2369:25	2270:14	2269:21,25	2409:20,21
2231:11	2370:3	2366:25	2274:25	,24
2233:3,8	2373:7,12	2368:19	2293:16	2438:10
2240:1	2376:25	2369:7	2307:6	Illinois
2274:13	2377:9	2371:1	2405:3	2190:1
2275:25	2380:15	2372:15,19	2406:12,19	illustrate
2276:24	2386:20		2415:22	2270:14,16
2277:2,13,	2389:9			
	2392:9			

2321:2	2267:2	2404:21,23	2327:6	2173:4
illustrated	2268:18	,24	implicit	improvements
2266:19	2269:8,13,	2407:15,19	2227:3,7	2375:25
illustrative	15 2270:15	2409:14	2415:19	inaccuracies
2186:2	2273:23	2421:23	implicitly	2192:16
2265:23	2275:22,23	2426:6,8	2226:11	inadvertentl
2318:2	2285:11	2428:13,15	implied	y 2351:23
I'm 2169:12	2289:21	,16,22	2254:8	incen
2173:10	2290:7,13,	2429:22	implies	2296:16
2174:9	20,22	2437:6,23	2219:21	incentive
2176:17	2291:3,5,6	2438:8	imply 2235:1	2296:2,3
2178:9	2305:22	immaterial	import	2377:15
2179:17,18	2307:21	2241:4	2293:1	2378:3
2181:20	2308:11	impact	2374:4,13,	incl 2372:23
2182:16	2310:23,24	2205:2	21	include
2183:8	2311:4	2321:18	2375:3,24	2232:8
2184:20	2312:3	2326:22	2426:13	2235:17
2187:21	2314:23,24	2337:1,4	important	2263:9
2189:4,8,1	2318:1,5,2	2338:18	2188:21	2286:15
5,19	2	2343:19	2199:21	2290:17
2190:6	2324:21,22	impacts	2241:7	2292:12
2191:21	2328:3,14	2178:17	2261:5	2332:23
2192:25	2329:10	2196:8	2316:11	2375:4
2196:22	2330:15	imperative	2368:8	included
2197:8	2331:12,13	2245:12	2377:1	2171:9
2198:5	,14	imperialism	2387:13,14	2184:22,23
2199:17	2334:18,22	2245:3	importer	2232:21
2203:3	2336:18	imple 2337:1	2206:6	2259:12
2208:11,13	2341:3	implement	import-	2260:20
,14	2342:10	2248:10	export	2287:17
2209:21	2346:19	implementati	2391:6	2295:4
2210:9	2352:16	on 2251:2	importing	2330:16
2212:21	2356:7	implemented	2292:1	2341:25
2213:1,2	2358:7	2224:20	impose	2342:2
2216:9	2366:22,23	2243:20	2263:17	2344:8
2217:19,24	2367:8,11	2248:9	imposing	2355:7
2218:15	2369:6	2249:16	2227:17	2376:12
2220:21	2371:9,12,	2250:9	impression	2400:5
2224:13	20	implication	2230:2	2403:17
2227:23	2372:22,24	2262:5	improve	2426:4
2229:20	2374:24	implications	2262:14	includes
2230:18,19	2375:15	2179:3	2269:24	2171:8
2231:13	2378:1	2212:23	2338:13	2258:16
2236:9	2379:1	2216:21	improved	2286:8
2238:11	2381:22	2246:5	2372:23	2291:14
2239:1	2383:1	2253:8	2374:4	2343:25
2244:16	2388:22	2255:19	improvement	2386:10
2245:19,22	2389:7,8	2258:21		2390:14
2250:14,15	2392:7	2314:24		2391:7
2262:3,17	2399:3			
2263:12	2400:14			
2266:21	2401:13			
	2402:2			
	2403:12			

including	2171:16	individually	2404:3,6	2421:17
2195:8	2291:25	2300:7	2412:3	insight
2202:19	2292:22	indulge	2416:2	2241:14
2204:21	2299:8	2383:11	2417:14,15	2310:16
2211:16	2323:5	industrializ	informed	2370:15
2241:13	2330:1	ed	2198:9	inspections
2242:22	2347:10	2243:3,11	informing	2286:20
2245:13,15	2376:8	industry	2203:12	installed
2312:21	indeed	2227:25	infrastru	2261:11
2319:14,20	2244:11	2230:12	2309:5	instance
2345:16	2359:24	inelegantly	infrastructu	2250:22
2356:20	indefinitely	2270:15	re 2309:5	instead
2408:24	2382:10	inferred	initial	2226:8
inclusion	Indiana	2264:2	2377:25	2266:7,8
2182:8	2244:12	inflation	2381:24	2269:20
incorporated	indicate	2235:16,17	initially	2406:16
2433:20	2304:16	influence	2280:3	2408:9,11
incorporates	indicated	2202:23	initiated	integrate
2291:24	2228:24	infor 2416:3	2375:25	2304:20
incorrect	2280:24	information	2376:1,4	integrated
2306:15	2289:18	2177:7,16	Initiative	2209:8
increase	2384:25	2178:10,16	2256:19	2252:22,25
2335:14	2386:5	,21 2179:2	initiatives	integrative
2338:10	2401:5	2188:21	2250:24	2228:1
2344:12	2414:4	2194:18	input	intellectual
2348:3	2417:21	2229:1	2228:15	s 2244:25
2387:20	2422:4	2239:7	2320:19	2245:7
2411:7	2434:12,14	2267:21	2326:13	2249:22
2429:6	indicates	2300:21	in-service	intend
2433:5	2365:3	2304:1	2283:21	2389:20
2434:19	2417:1	2308:16,17	2311:18	intended
increased	indicating	,23	2321:25	2171:18
2233:8	2170:9	2310:18	2336:12	2279:17
2292:24	2375:20	2311:16	2392:15,18	2281:15
2313:1	indication	2334:17	,20	2380:5
2347:14	2195:24	2344:13	2393:3,4	2389:15
2370:10	2282:5	2345:11	2394:8	intending
2385:18	2435:9	2348:11,12	2395:9,13,	2280:5
2434:22	indications	,25 2349:3	21 2396:1	2435:10
increases	2374:10	2363:25	2397:19	intensive
2187:6	2434:18	2364:3,5,2	2399:5	2413:2
increasing	indicators	3 2365:19	2400:15,16	intent
2227:5	2358:1	2369:23	,24,25	2191:1
2235:12	indirect	2373:22	2403:17,19	2277:12
increasingly	2228:10	2376:11	2406:10	2397:8,10,
2371:9,15	2246:6	2387:16,19	2408:10,11	18
increment	indirectly	2388:13	2412:4	intention
2323:4	2243:13	2396:22	2417:20	
incremental		2399:13,16	2420:4	
		2403:16		

2398:3	2295:3	2337:12	involve	2298:6
inter	interesting	2379:4,19	2297:14	2385:14
2282:20	2265:5	investment	2388:5	2389:16
2309:13	interject	2184:23	involved	2401:19
interconnect	2389:1	2267:1	2200:14	it'd 2237:4
2354:4	international	2271:5	2372:18	2407:15
2355:1,2	lly 2228:7	2278:17	Iowa 2190:1	item 2336:8
2373:17	interrogator	2280:9,13	IR 2304:5	2386:2
interconnect	y 2301:7	2281:13	2306:21	items 2400:7
ion	2302:2,3	2286:6,8,1	2371:19,22	it'll 2298:2
2174:21	2385:5,25	8 2287:11	2372:1	2316:15
2175:2,9,1	interrupt	2290:12,18	2386:4,13	2323:1
4 2276:15	2279:14	,24 2291:7	2410:21	it's
2278:1	interrupting	2292:21,22	IR/PUB-	2171:1,13
2282:21	2310:24	2294:2	MH-1-238(c)	2173:4,10
2296:24	Intervenors	2295:12,14	2410:16	2174:7,8,2
2308:21	2177:13	2296:1	IRP 2261:7	0 2182:9
2309:5,14,	intimately	2297:20,24	IRs 2303:14	2184:4
22 2310:8	2197:8	2330:18,25	isn't 2170:2	2185:7,17
2319:6,12,	intrinsic	2332:15	2226:6,13	2186:14,15
19 2324:13	2316:19	2334:21	2301:6	2187:8,25
2325:14	introduced	2335:16	2364:17	2193:11,22
2338:13	2393:13	2336:10,11	2382:18	2196:17,21
2347:6,10	introductory	,21	2396:8	2199:19
2348:1,2,7	2360:17	2337:6,11,	2422:18	2201:2,6,7
,13	2387:9	18	isolate	,14
2353:24	inve 2330:17	2338:12,22	2333:12	2202:6,21
2354:14	inverse	2341:4,6,1	issue	2203:3
2367:5	2365:3	2,18,24	2199:10,11	2210:5
2372:17	invest	2351:2,6,1	2204:21	2213:11
2373:18	2264:13	1,15,19	2245:19	2214:9,10
2384:18	2268:4	2374:3	2268:21	2219:16
2385:12	2280:25	2379:9	2285:15	2220:2,16,
2390:18	2284:24	2391:7	2297:23,24	22 2221:3
2391:6	2295:25	2408:3	2298:1	2227:6
2394:2	2429:10	2417:19	2361:14,15	2229:21,23
2397:9	2432:20	2420:16	2381:4	2233:18
interconnect	investigate	2427:1,5	2388:9,23	2234:22
ions	2191:7	2435:2	2415:13	2235:15
2434:7	investigatin	investments	2419:14	2236:9,12
interest	g 2374:8	2264:18	2430:25	2240:6,18,
2179:9	investing	investor	issued	20
2216:3	2286:14	2378:19,25	2198:12,18	2241:1,6
2283:6,17	2293:14	2379:3,7,1	2383:15	2242:4
2365:2	2295:20	3,24	issues	2243:18
2381:1,10	2332:12	2380:8	2204:20	2244:2,24
2382:9,12,		2430:16	2205:1	2249:7,20
22		2431:17	2252:11	2250:4
interested		2432:7	2297:15	2251:25
2201:11		investors		2252:16
2288:20		2379:18		2257:3,16
				2258:25

2260:3	2394:25		3,16,24	,17,20
2263:14,25	2395:22	<u>J</u>	2215:5,9,1	2338:3,25
2268:18,19	2398:4,17	Jacobson	4,20	2340:1,13,
,20,21	2399:1,7	2166:13	2216:10,20	17,20,24
2269:9,20	2401:11	2170:18	2217:6,9	2341:2,6,1
2271:2	2402:14	2282:4	2276:4	5
2273:3	2404:12	2284:9,11,	2278:3,11,	2342:3,9,2
2274:6	2405:10	12,15	21	4 2343:3
2277:17	2406:1,11	2366:17	2279:1,22,	2345:8,12,
2283:5	2407:11	2374:1,6	25 2281:24	17,23
2284:16	2410:15	2375:1,6,1	2282:2,19	2346:6,17
2290:3	2414:17	2,22	2284:8,18,	2347:3
2291:18	2416:22	2376:1,6	22	2349:17
2292:5	2417:6	2383:11,12	2285:4,8	2350:17
2299:2,12	2418:11,23	2418:18	2288:11,19	2351:3,17,
2300:8,11,	2419:17,20	2419:20	2311:10,14	24
12 2302:1	2421:21,22	2420:25	,21	2352:3,6
2303:9	2422:8,13,	2424:16,18	2312:9,14,	2353:16,19
2305:2,17,	19	,24	22	2354:1,6,1
23 2315:19	2423:1,10	2425:2,13	2317:8,13,	1,16,19,24
2316:2,3,1	2428:1,9	2426:8	18,25	2355:5,8,1
6,17	2429:20,23	January	2318:8,15,	3,16,22
2322:10	2430:15,23	2194:18	20	2356:1
2325:17	2431:24	2369:10	2319:1,9,1	2422:2
2326:16	2432:6	jeopardy	4,20	job 2177:6
2329:20	2433:7,11,	2228:13	2320:4,9,1	2304:18
2333:16	19	2229:24	3,17,23	join 2208:12
2335:21	2435:5,9	Jessica	2321:4,9,1	joined
2340:5	2438:20	2165:18	7 2322:3	2372:9
2344:16,17	IV 2386:24	JOANNE	2323:7,12,	judgment
2347:7	I've 2188:14	2166:10	16,21,25	2349:4
2349:10	2215:7	2170:15,23	2324:4,7,1	July
2355:6,18	2232:9	2173:18	1,20	2199:5,14
2359:13	2242:2	2180:10,15	2325:2,8,2	2203:9
2361:17,22	2273:7	,22	5	2379:15
2364:19	2275:24	2181:1,15,	2326:5,9,1	2383:15
2365:24,25	2289:15	24	6,25	2412:2
2366:1	2318:4,6	2182:9,15,	2327:9,16,	jump 2269:25
2369:14,15	2319:5	20 2183:2	24	2420:25
2372:2	2320:25	2184:1,7,1	2328:5,9,1	jumped
2379:16,17	2354:8,9	0,14,19,25	2,17	2176:2
2380:7,22	2358:13	2185:3,8,1	2329:7,10,	June 2194:24
2381:3,16	2359:20	2,17,25	15,18,23	2195:5
2382:10	2360:22	2186:7,11,	2330:7,10,	2196:17
2385:7,19,	2383:12	16,21	14,19,23	2198:7,10,
20	2384:12	2187:1,6,1	2331:1,6,9	12,16,25
2386:4,7,9	2399:25	9,23	,18	2199:3,19
2387:1	2404:9,23,	2188:2,7,1	2332:3,6,1	2308:11,18
2388:13,23	24 2413:10	2 2209:4	0,21	2383:14
2389:19	2426:2	2212:19	2333:11,24	2411:14
2390:7	2438:19	2213:6,15	2334:19	
2391:13,22		2214:1,9,1	2335:7,12	
2392:3			2336:7,22	
2393:16,21			2337:2,5,9	

jurisdiction s 2190:19	2326:24 2335:1,15 2336:20,23 2338:19 2339:22 2341:17 2342:8 2347:13,16 2348:2 2349:16 2350:22 2353:23 2354:3,13 2355:2 2364:14 2379:11,20 2390:14 2391:4 2392:12 2393:21 2394:1 2395:10,24 2397:9,21 2402:7,9 2419:6	2412:12 knocked 2247:18 knowledge 2177:12 2244:4 known 2253:25 2262:11,12 Koenig 2434:4 Kristina 2434:4 Kuczek 2326:11 2343:8,15 Kurt 2182:2 2438:4,5,2 3 kV 2282:11 2296:24 2425:2,6,7 10,18 Kyoto 2227:24	2423:16,17 19,25 largely 2252:9 larger 2292:22 2368:23 2419:7,15 2428:1 2434:8 Larry 2164:15 2282:9 last 2168:12 2169:6 2174:14 2176:25 2178:25 2179:6 2188:21 2229:15 2276:13 2278:5 2288:18 2289:12 2290:2 2298:12 2300:2,4,1 0 2308:5 2330:2,6 2343:6,7,1 5 2350:25 2351:4,5,1 0,18 2352:3 2356:16 2359:6 2368:2,13 2370:19 2371:2 2372:8,23 2375:15 2377:13 2378:16 2383:14,17 2385:15 2391:16 2414:22 2426:20 2433:22 2434:1 late 2174:14	2369:10 2375:4 2376:2 2383:25 lately 2383:6 later 2177:16 2188:16 2195:10 2199:20 2202:8 2227:16 2252:12,13 2255:14 2272:25 2301:17 2303:6 2313:14 2331:17 2391:5 2396:4 2402:14 2403:23 2408:13 2413:4 latest 2364:3 latter 2240:19 Lavigne 2439:21 laws 2239:14 lawyer 2249:25 2317:22 LC469 (c 2386:14 LCA/MH-I-037 2385:6 LCA469 (a 2386:7 LCA69 2386:7 lead 2333:19 leading 2201:16 2247:16 2414:8
<hr/> K <hr/> K19/Gas25 2326:4 2329:5 K19/Gas31 2326:8 2329:5 K22/Gas 2323:4,11, 14 2324:6 Kansas 2190:2 Kapitany 2164:14 2260:14,18 22 2261:2,13 Kee 2351:1 keenly 2295:2 Keeyask 2174:25 2175:18 2193:19 2196:8 2220:17 2276:14 2277:19,21 2303:4,5 2308:10,11 21 2310:7 2315:4 2319:12 2320:7 2324:13	Keeyask/ Conawapa 2315:11,19 23 2320:15 2333:5 Keeyask/Gas 2277:18,22 2310:5 2315:1,15 2316:5 2322:17 2325:13 2347:25 2348:6,24 Keeyask/ Minnesota 2324:9 Keeyask19 2401:23 key 2199:21 2347:12 killed 2373:17,22 kinds 2241:18	<hr/> L <hr/> La 2177:14 label 2200:12 labelled 2300:12 2359:20 labelling 2300:3,4 2437:25 language 2428:15 large 2174:20 2175:2,8 2206:6 2264:17 2296:6 2308:16 2316:4,16 2403:23	late 2174:14	

leaning 2179:24	2185:22 2250:2 2285:16 2313:12	2315:24 2326:15 2332:24 2349:9 2378:19,25 2408:14 2420:20	2196:10 licensing 2197:3 2200:19	2221:15 2224:12,16 2232:1,21 2236:25 2237:1
learn 2274:17,21 2300:24 2301:2,4,2 0 2303:11 2305:22,24 2306:2,9,1 9,23	led 2317:21 2318:23 left-hand 2204:19 2206:24 2213:10 2282:22 2321:22 2345:5 2353:21 2361:7	lesser 2172:23 let's 2196:16 2200:11,12 2213:6 2232:2 2242:6 2254:11 2270:23 2316:10 2336:19 2351:9 2406:10	life 2286:10 light 2258:8 2382:9 likelihood 2247:24 2248:4 2253:15 2308:23 2309:21	2238:25 2239:2 2240:7,20 2259:7 2280:9,22 2281:1,2,3 ,13 2282:6,7,1 1,13,18 2283:16 2284:24
learning 2265:16,24 2270:17 2274:17 2275:3,4,1 5 2300:16,22 2301:10 2302:21 2303:7,9 2305:21 2306:5 2307:9 2308:9 2394:21	leg 2273:5 legal 2195:24 2331:15,19 2337:13 2437:17 legislation 2196:11 2226:16 2232:15 2243:21,24 2244:10 2247:14 2248:7,21, 22 2252:2 2253:15	level 2202:17 2222:9 2231:15 2243:15 2253:17 2259:8 2264:25 2303:22 2315:23 2320:21,24 2321:20 2345:13 2346:10 2388:13 2396:17,21 2413:24	likely 2224:21 2225:5 2243:10,12 2248:7,23 2255:12 2367:1 2370:10 2374:14 2376:11 2384:23 2385:21 2423:10 2435:5	2285:21 2286:21 2288:21 2289:5 2291:5,14, 19 2292:1,9,1 0,11,19,22 2293:10,12 ,20 2294:5,7,1 8,21 2295:25 2296:6,7,1 7 2297:8 2298:22 2315:10 2330:2
learnt 2301:5			limit 2258:17 2374:21	2332:12 2337:12 2356:16 2366:12,25 2368:3,4,7 ,11,17,23 2370:1,10 2373:6 2375:3
least 2177:13,23 2181:6,21 2192:10 2211:4 2241:22 2259:7 2290:4 2303:1 2317:22 2345:10 2358:10 2385:2 2389:18	legislative 2243:16 lengthy 2246:24 less 2179:24 2206:19 2207:21 2218:6 2237:23 2238:4 2248:5 2260:10 2261:8 2262:20 2289:19 2294:16,18 2296:6 2305:17 2310:20,24	levels 2232:19 2315:25 2342:20 2348:9,19, 24 2352:18 2364:13 leverage 2380:4 licence 2203:11 licences	limited 2211:16 2251:14 2338:4 2423:6 2425:3 limits 2241:9 line 2168:6 2173:11 2174:17 2175:17,20 2182:24 2184:18 2186:3,4 2206:25 2207:8 2209:13 2214:21 2215:12	2376:20 2377:8,9,1 1,15,19,25 2378:25 2384:23 2390:13 2392:6 2395:2,4,5 2396:11 2418:11,13 ,17

2424:14,22 ,23 2425:3,10, 18 2426:14 2430:14,16 2432:24 2433:6 linear 2381:6,15 lines 2213:17 2231:17 2232:5 2236:13 2247:22 2263:22 2274:5 2292:6 2305:4 2306:4 2329:9 2390:13,17 2392:6 2425:6,7 lining 2438:20 list 2166:3,4 2167:1 2168:1 2246:25 2426:3,7 listed 2410:22 literally 2335:14 little 2179:24 2180:5 2181:13 2209:6 2212:23 2222:24 2224:11 2241:6 2253:2 2257:20 2258:5 2261:7 2262:7,14, 18 2269:20	2279:4,10 2285:13 2303:9 2306:14 2336:19 2339:14 2353:8 2358:8,12 2385:9 2391:2 2408:16 2419:23 load 2178:15 2220:12,22 2240:15,22 2241:2,5,1 2 2253:8 2277:19,21 2304:9,15 2313:1 2316:9,13, 17,21 2320:20,24 2325:15 2343:2,9,1 6,19 2344:12 2346:14 2387:15 2393:5,6 2397:11,13 2404:19 2411:19 2413:13,25 loads 2220:25 2240:24 lock 2219:7,19 lon 2391:23 long 2197:13,18 2199:9 2211:18 2218:13 2219:6 2321:14 2331:10 2364:7 2397:22 2414:7 2417:11	2428:6 2431:10 longer 2191:12 2199:16 2220:4 2330:25 2339:15 2365:11 2372:8 2392:21 2394:10 2398:11 2409:20 2419:23 long-run 2211:5 long-term 2358:2,22 2360:5 2361:4,18 2362:9 2381:23 2422:7 lose 2337:23 2409:13 2410:2 lost 2181:18 2306:25 2307:2,5 2308:5 2309:21 2327:19 2372:19 2428:22 lot 2177:11 2178:13 2182:17 2218:15 2225:25 2245:8 2247:9 2260:6 2305:12,17 ,18,22 2317:5 2353:2 2364:23 2372:19 2418:4 2431:4	2434:16 loves 2208:20 low 2215:2,8,1 7 2216:1 2222:11,17 ,18,24 2226:13,23 2236:10,20 2237:2,23 2238:2,4,1 9 2254:15 2258:3 2259:13,14 ,15,17 2260:4,19, 25 2261:4,11 2310:11 2322:10 2347:22 2380:3 2406:17 2428:25 2430:8 2431:4,19 low-carbon 2211:9 low-cost 2293:1 lower 2255:14 2274:24 2291:20 2294:6 2296:10 2298:10,11 2316:17 2322:19 2338:12 2364:19 2413:8 2432:11 lower-end 2345:21 lowest 2365:24 lunch 2177:23	2179:25 2183:16 2225:19 2228:13 2268:17 2300:22 lunches 2229:24 <hr/> M <hr/> Madison 2427:9 magnifying 2212:4 magnitude 2211:22 2216:17 2228:20 2241:23 2252:11 2255:1 2405:4 main 2264:1 maintain 2411:24 2415:23 maintaining 2286:9 2337:11 maintenance 2280:19,21 ,22 2282:25 2286:19 2290:25 major 2205:24 2211:4,8,2 2 2216:10 2408:3 2419:15 majority 2375:17 man 2208:19,22 2210:19 2347:11 2429:9
---	--	--	--	---

managed	2282:17,20	3,25	markets	2201:18
2411:19	,23	2432:2	2205:21	2212:13
management	2285:1,18	2436:12,19	Markey	2218:4,12
2390:5	2286:2,24	,23 2439:1	2254:1,7	2220:24
manager	2287:11	Manitobans	M-A-R-K-E-Y	2221:3
2197:4,7	2288:3,13	2347:12	2254:1	2231:8
manifest	2289:1	manner	marking	2261:24
2250:11	2290:2	2420:16	2437:8	2272:24
2251:8,9	2291:2,9	2422:24	Marla 2165:6	2273:17,19
manifesting	2293:15	March	match 2239:7	2276:19,20
2251:19	2294:4,14,	2164:24	2344:16	2278:12
manifests	16,20	2208:19	material	2300:6
2244:1	2295:16	2340:11	2177:11,14	2306:25
Manitoba	2297:12,20	2386:3,9	2178:5,15	2317:21
2164:3,7,9	,22 2298:5	2436:21	2179:2,5	2326:19
,23 2165:5	2299:2,9	margarine	2229:11	2349:23
2166:6	2307:25	2262:21	2259:8	2350:5
2167:9	2309:6	margin	materialize	2371:10
2168:3	2311:5	2262:21	2398:20	2394:3
2169:12	2312:14	Marilyn	materially	2398:4,8,9
2170:11	2314:9,16	2164:14	2177:8	2402:9
2177:4,25	2315:5	2260:14,18	materials	2410:15
2178:2,7	2325:15	,22	2389:5	2424:11
2181:22	2347:11	2261:2,13	2400:18	2427:25
2188:9	2352:14	marked	math 2288:9	maybe
2190:3	2356:19	2203:24	2360:13	2179:24
2191:22	2361:10,20	2204:1,11	Matt	2229:7
2193:17	2364:6	2358:18	2268:12,20	2254:24
2194:18	2367:9,19	2361:7	matter	2255:13
2202:10	2368:10	2387:1	2371:18	2266:6
2203:6,23	2369:13,25	2437:19	2386:23	2290:6
2204:7	2370:2	market	2432:6	2293:8
2212:25	2372:20	2205:17	matters	2301:4
2213:9	2373:6,12	2259:9	2384:14	2305:3
2219:1,9,1	2376:25	2309:10	2404:24	2309:2
1	2377:9	2379:2	2437:4	2335:13
2220:9,12,	2380:15	2398:14	maximum	2363:23
15,25	2386:20	2414:12	2416:15	2366:8
2221:13	2388:2	2426:21	may	2400:22
2224:4,19	2389:5,9	2427:6,8	2177:1,16,	2412:20
2231:11	2390:21	2428:1,2	23	mea 2229:24
2233:8	2392:8	2429:1	2179:3,13,	mean
2240:1	2396:6	market-based	25 2181:17	2252:4,6
2274:13	2402:13,18	2256:23	2188:15	2284:18
2275:25	2403:3	marketing	2193:12	2295:13
2276:24	2404:1	2414:13	2194:24	2367:8
2277:2	2412:11	2427:16	marketplace	meaning
2278:6,14	2414:6,10	2210:13,14	2199:2	2324:22
2280:8,13,	2417:18			meaningful
18	2419:16			2368:9
2281:4,9	2421:21			means 2227:4
	2425:14,24			
	,25 2427:6			
	2428:6,24			
	2429:2,9,1			

2228:10	2326:4,8	2299:20	2167:3	2165:11
2244:1	2333:5	2387:10	2170:5	2233:4
2276:22	2348:2	2402:20	MH-108	million
2319:5	2349:16	2405:8	2167:7	2180:20,25
2419:11	2353:24	memorize	2436:16	2185:7
2436:7	2354:4,14	2221:12	MH-109	2186:15,19
meant	2355:1	memorized	2167:8	2215:13,19
2238:1,15	2366:25	2328:22	2437:1	2266:3
2280:17	2367:5	memory	MH-92-3	2271:19
measures	2368:3,4,1	2182:17	2167:9	2272:14
2190:13	1,16	2189:20	2439:1	2280:11,20
2241:18	2369:21,25	2234:4	M-hm 2272:9	2281:17
mechanism	2373:6,18	mention	Michael	2282:14,24
2227:19	2374:5,8,2	2227:23	2165:16,22	,25
2257:17	0,21	2434:24	Michigan	2283:1,5,8
2382:15	2375:3,24	mentioned	2190:2	,19,21
mechanisms	2376:9	2197:11,12	microphone	2284:6,19,
2229:2	2377:8	2256:18	2169:6,14	23
medium	2385:12,19	2294:17,25	2176:11	2296:15,18
2216:1	2391:6	2364:7,24	mid-Atlantic	2315:6,12,
2223:3	2416:19	2366:1	2256:24	16 2329:20
2254:15	2418:11,17	2371:10	2257:3	2330:4,13
meet	2419:4	2418:21	middle	2346:9
2258:6,7	2423:11,12	2425:15	2207:7	2347:16
2277:20	2424:14,22	2434:25	2240:4	2374:3
2286:13	,23	mentioning	midhouse	2376:21
2392:8	2425:3,12	2434:2	2189:21	2388:14
2413:19	2426:14	mentions	mid-July	2396:15,21
2418:18	2432:22,24	2365:1	2197:22	2406:2,5,8
meeting	megawatts	Menzies	midpoint	,18,24
2286:13	2280:1,4,6	2188:16	2284:6	2408:7,16
2383:14	2281:8,9	2323:19	midwest	2409:9,16
2404:7	2296:17	2326:20	2189:12,21	2411:1,2,3
meetings	2322:7	merely	2190:3	,13
2200:22	2339:22	2437:25	2242:21	2432:22
2202:11,12	2374:9	message	2245:3	2435:6
,19	2376:10	2275:8	2257:7,10	
megawatt	2416:9,14,	Messr 2169:7	2261:10	min 2278:21
2175:6	20,22	messy 2352:7	Miles	mind 2221:15
2231:22	2418:15,16	met 2197:21	2166:12	2228:5
2235:9,22	2425:23	2277:18,21	2170:17	2259:24
2237:3,5,1	2428:20	methodology	2313:3,4,6	2302:17
1,14,17,24	2430:17	2308:13	,10,15,17,	2306:10
2238:7,12,	2432:20,25	2388:2	22 2314:1	2379:6
19 2276:9	Member	MGGRA	2384:13	2414:22
2278:1	2164:14,15	2190:7,11	2386:1	2421:1
2280:2	,16,17	MH-104-2	Miller	mindful
2296:15,19	members			2366:23
2319:12,18	2169:9			minimum
2324:9,13	2176:16			2432:19
	2178:12			Minis 2196:5
	2191:2			Minister

2195:19	2366:8	mitigate	2218:4	move 2207:23
2196:6	2383:25	2424:2	2256:17	2208:12
2198:11,20	2384:1	mitigation	2265:12	2239:20
,23	2418:22	2434:22	2275:22	2253:2
2199:7,11	MIPUG	mix	2326:22	2260:15
ministerial	2165:13	2320:7,15	2344:5	2274:25
2199:14	2167:6	mixed	2377:13,19	2316:13,15
Minnesota	2178:1	2320:11	2378:18	2326:17
2190:2	2387:4	mixing	2425:15	2335:9
2278:19	2398:25	2430:21	money	2339:15
2282:23	2437:5	MKO 2165:15	2263:10	2351:5,12
2284:4	MIPUG-20-4	2310:21	2282:13	2396:2
2285:17,25	2167:6	MMF 2165:18	2295:15,22	2397:24
2286:3,5,1	2387:4	2408:24	2430:13	2402:10
7	MIPUG's	MMF/MH-II-14	monitored	2410:23
2287:1,11,	2387:12	2374:20	2414:18	2424:13
12	misinform	mocking	monitoring	2425:9,11
2294:9,15,	2221:23	2261:24	2414:10	moved
19 2295:19	2351:23	model	Monnin	2222:17
2296:23	misinterpret	2257:10	2165:21	2372:14,15
2297:4,12	ed 2273:23	modelling	2310:18,21	2393:8
2299:1,7	MISO 2233:9	2422:5	months	2394:18
2309:2,14	2241:7	models	2305:25	2400:15,16
2319:15	2242:22	2434:16	2368:2	movement
2354:5	2244:5,6	modest	2388:9	2228:20
2368:1,9	2261:5	2241:22	2421:5	2365:1
2369:3,15,	2297:4	2257:24	morning	moving
22 2370:9	2375:5,7,1	2350:6	2169:3,5,9	2207:8
2372:17	0 2376:4	moment	,17,19,21	2222:24
2373:4,19	M-I-S-O	2197:24	2170:1,2	2223:7
2376:19,25	2375:5	2201:21	2176:2,15	2235:10
2377:10,14	mispronounce	2214:4	2180:2	2261:21
,24	2192:14	2224:3	2300:16,23	2274:11
2378:11	missed	2233:16	2303:19	2317:6
2383:20	2224:14	2264:18	2305:3	2394:19
2427:7	2276:7,20	2288:2	2356:11	MP 2277:18
2432:18	missing	2307:20	2401:24,25	2280:2
minor 2173:6	2318:5	2314:24	2404:8	2281:7
minus	2426:7	2319:24	2439:7	2394:2
2220:23	misstating	2328:24	Morrison	2397:9
2315:19	2214:19	2337:24	2220:21	MRO 2231:16
minute	mistaken	moments	2363:7	multiple
2242:2,3	2437:6	2218:2	motion	2256:3
2278:22	Mister	Monday	2389:1,8,1	2424:1
2353:15	2359:11	2178:17	0,15	multi-sector
minutes	misunderstood 2278:13	2208:19	motions	2191:4
2228:12		2209:2	2389:13	multitude
2230:19			MOU 2419:4	2338:6
2253:4			MOUs 2414:8	Mur 2230:25
2254:24				
2289:17				

Murphy	6,18	2205:21,24	2373:20	2365:11
2166:14	2249:1,10,	2206:2,6	2412:21	2380:8
2170:19	14	2209:16	2413:1	normally
2201:20	2250:6,20,	2306:2	2418:24	2298:2,3
2204:6,8,1	25 2252:24	2333:6	net	North 2206:3
4,16,24	2253:10,19	near-term	2267:3,10,	2225:23
2205:5,12,	2254:4,17,	2247:23	15 2268:4	northeast
20	21	2248:4	2270:24	2256:24
2206:2,14,	2255:5,10,	necessarily	2271:18	2257:2
21	24	2235:1	2317:16	northern
2207:3,11,	2256:13,16	2301:15	2322:18	2168:5
19	,21	2416:25	2338:11	2175:5
2208:8,10	2257:2,9,1	necessary	2349:8	2284:23
2209:5,11,	6	2258:6	2396:14	2288:21
20	2258:1,25	2292:7,10	net-present	2289:4
2210:3,7,8	2259:11,25	2307:12	2345:20	2292:5,9,1
,16,23	2260:21,24	necessitate	NFAT 2197:5	1
2211:1,7,1	2261:3	2178:22,25	2217:1	note
1,15,20,25	2436:2	need-date	2279:2,4	2177:10,24
2225:12	myself	2311:7	2311:16	2178:20
2227:16	2276:2	2312:25	2313:1	2179:14
2229:6,7	2404:20	2313:13,14	nice 2423:18	2289:15,17
2230:16		,20	nicely	2350:4
2231:5,7,1		negative	2188:25	noted 2300:2
0,19,24		2271:6	2364:25	nothing
2232:6,7,1	na 2406:13	negatively	2438:21	2243:21
1	namely	2338:9	night 2169:6	2268:7
2233:12,17	2308:10	neglected	2229:15	notice
,20	narrow	2203:18	2300:2	2229:10
2234:3,10,	2331:3	negotiate	2428:25	2260:18
13,16,24	2393:20	2368:21	2430:2,18	2299:22
2235:4,14,	narrowed	2369:1,20	nine 2269:14	notional
23	2325:9	2370:4	2368:2	2431:9
2236:2,6,1	narrower	2373:23	2439:7	notionally
2,17	2365:12	negotiated	nineteen	2430:1
2237:4,13,	narrowing	2373:9	2283:23	2431:13
19	2399:13	negotiating	nobody	now's
2238:1,6,9	nat 2205:2	2368:6	2303:15	2219:10
,13,16,22	national	2373:12	2396:6	np 2165:16
2239:4,11,	2205:2	2397:16	nominal	NPV
18,24	2226:6	2408:22	2216:14	2264:12,14
2240:6,12,	2227:25	negotiation	2283:2	2272:8,19
18	2247:22	2368:22	2374:13,14	2305:12
2241:1,16	nationally	2373:16	none 2173:3	2307:14
2242:20,24	2228:7	negotiations	2189:6	2315:16,20
2243:4,17,	Nations	2301:21	non-linear	,24
25	2379:11,19	2368:9	2381:9	2329:13
2244:8,16,	2408:23	2370:9	normal	2346:10
19	natural			
2245:5,20				
2246:2,9,1				
9				
2247:2,12				
2248:1,6,1				

2373:2	2422:19	,24 2230:1	2357:14	2282:24
2378:18	occurring	2232:10	2360:11,24	2286:18
2402:16	2419:5	2233:14	2361:6,25	2288:6,17
2403:21	o'clock	2234:12,20	2362:13	2289:10
2407:8	2299:14	2235:3,24	2363:14,16	2290:24
2411:9	2436:3	2236:8	2366:6	2297:25
2435:12	2439:7	2237:16	2367:16	2385:16
NPVs 2323:5	Oct 2356:20	2238:24	2372:6	online
2403:11	October	2241:10	2374:25	2375:13
NSP	2356:20	2242:1,6	2377:12	on-peak
2422:19,20	OEB 2362:14	2245:17	2378:15	2430:11
2423:5,12	offer 2219:9	2252:19	2379:10	2433:12
2424:5	2310:16	2257:11,18	2385:10	Ontario
numerical	offhand	2258:20	2386:1	2360:20
2300:3	2407:14	2260:11	2389:2	2361:1
numerous	office	2264:6,8	2392:4	2363:2
2366:3	2176:2	2266:5,9,1	2394:14,24	2380:21
<hr/>	off-peak	1	2401:20	onto 2251:3
O	2240:24	2267:5,13,	2402:11	2356:17
O&M 2168:10	2241:3	18,20,24,2	2403:1,6	2400:16
2281:16	2430:11	5	2406:20	opening
2288:6,17	2431:2	2268:9,12	2407:10,18	2391:11,16
2289:10	2433:12	2272:1	2409:8	openness
Obama	off-takers	2275:19	2411:22	2300:20
2250:17	2427:2	2276:6	2412:10	operating
objections	oh 2217:11	2279:23,25	2417:6	2213:9
2203:24	2229:20	2284:10	2418:20	2278:8,16,
objective	2230:1	2285:10	2421:6,11	19 2279:9
2191:7	2269:11	2286:25	2425:1	2280:19,20
2228:21	2270:5	2287:20	2428:13	,22
2423:18	2295:8	2290:9	2437:9	2281:3,14,
obligations	2349:24	2299:5	2438:16,22	16 2282:25
2298:8	2350:6	2302:6	old 2261:9	2286:19
obscured	2352:3	2311:23	OM&A	2290:24
2240:20	2370:19	2316:24	2285:17,20	operation
obtained	2385:9	2318:6,7,9	2286:3	2430:9
2373:19	2430:22	,17	2287:5	opinion
obtaining	okay 2173:17	2320:18,25	2290:13	2246:13
2197:21	2182:22	2322:4	ones 2211:4	opportunitie
2385:13	2185:1,5,2	2323:20,21	2292:14	s 2309:13
obviously	1 2187:23	2325:19	2316:20	opportunity
2178:12	2212:3	2327:17	2340:3	2191:8
2273:2	2213:8	2328:3,13,	2352:1	2247:10
2382:13	2215:15,21	17	2434:17	2262:10
occur	2216:9,22	2331:2,20	one's	2266:21
2175:18	2222:8	2334:7,22	2216:19	2274:4
2221:25	2224:17	2335:10,24	ongoing	2309:4,22
	2229:19,20	2337:22	2168:10	2358:15
		2341:20	2278:7,16,	2379:9
		2344:19	18	
		2351:8,20	2280:19,20	
		2352:5,11	2281:16	
		2353:5		
		2356:4,25		

2423:5,6	orally	2434:14	2298:7	2252:20
opposed	2195:6,10	ourselves	owns 2366:11	2255:18
2221:6	order	2265:9		2256:16
2377:10	2185:19	outcome	<hr/> P <hr/>	2261:21
2424:14	2258:6	2267:23	p.m	2265:5,22
option	2282:12	2294:22	2299:16,17	2266:18
2173:16	2362:14	outcomes	2384:4,5	2271:3
2276:24	2368:8	2231:17	2439:12	2272:3
2294:11,23	2382:8	2249:7	pace 2179:8	2276:1,13
2305:7	2390:6,8,2	2256:3	2211:22	2278:5
2308:24	0	outdate	2228:19	2279:15
2315:19	2398:6,24	2341:13	2412:24	2283:11
2369:21	2405:3	outlet	package	2300:4,5,9
2374:5,9	2420:3	2425:21	2169:22,24	,10
2377:9	2421:3	outlined	2296:22,23	2302:1,2,3
2384:24	2435:9	2410:17	2297:6	,4 2304:17
2385:19	orders	outlook	2315:24	2307:20
2402:4	2362:12	2239:8	page	2308:3
2404:2	organizer	output	2166:2,15	2311:24
2405:19	2402:12	2266:25	2167:2	2314:16
2406:23	original	outside	2168:2	2317:2
2407:7	2171:23	2321:6	2170:20	2322:16
2408:8	2172:1	outstanding	2171:3,5	2323:3,18
2415:23	2182:13	2384:14	2173:11	2326:18,20
2418:19	2183:4	overall	2174:16	2331:21
2426:20,24	2186:18	2172:24	2180:5,13,	2339:16
optionality	2188:4	2173:1,6	18 2181:13	2342:1,11,
2273:24	2303:25	2187:10	2182:1,3,1	12,17
2302:22	2316:22	2291:23	3,18	2343:5,6
2303:1,7	originally	overview	2185:14	2344:25
2305:6	2370:20	2393:23	2187:22,23	2349:19
2309:19	originate	owned 2298:2	2188:19,22	2351:22
2321:16	2291:1	owner	2204:11,12	2356:6,10,
2393:24	Orle 2165:15	2294:13,14	2205:8	12,13,14,1
2394:22	2289:20	,17 2295:2	2207:6	5,17,23
2395:22	2310:19	2297:19,21	2208:16	2357:1,3,4
2405:9	others	2298:12	2209:6,13,	,11,12,15,
2411:13	2202:15	2299:3	24	19,21,22,2
2415:18,21	2209:21	ownership	2210:5,18	4
2417:8,10	2220:3	2279:6	2212:7,11	2358:1,3,6
2424:13	2228:5	2286:1,2	2214:3	,7,12,13,1
2425:11	2229:6	2297:23	2215:1	5,16,25
2426:13	2397:17	2298:1,24,	2216:23	2359:5,9,1
2427:21	otherwise	25 2299:8	2224:2,10	1,12,19,22
2428:4,5	2291:20	owning	2229:13,14	2360:3,8,1
options	2388:21	2294:21	,18,19	5,22
2255:22	2393:16		2230:21	2361:5,7,1
2297:14	2413:3		2233:15	2,15
2305:11	Ouranous		2245:23	2362:4,10,
2387:24			2246:1,11,	16,21,25
2388:5,17			24 2248:14	2363:5,14,
2411:18				17,21
				2364:1
				2365:24

2366:7	2359:10	n 2433:6	2425:17	2179:20
2380:17,19	2380:15	particular	path 2297:10	2181:10
,20	2386:19	2204:10	pathway	2183:6,11,
2381:18,20	2387:11,12	2205:21		18 2191:16
2382:4,20,	2388:7,22	2212:24	2175:15	2198:1
24	2389:20	2213:20,21	2274:20	2200:5
2383:3,7	2402:21	2232:8	2301:12	2201:24
2385:8,9	2405:8	2251:2	2302:24	2207:13
2386:4	2415:3	2254:5	2303:3,5	2210:1
2390:6	2433:25	2264:18	2384:19	2212:9
2391:1	2434:1	2285:15	2385:7,12	2216:7
2392:7	2436:12	2332:25	2391:21	2225:9
2394:25	2438:13,14	2379:6	2399:4,18	2226:19
2395:1,2	,21 2439:2	2418:10	2400:2,4	2230:23
2402:19	panellists	particularly	2403:11	2231:3
2405:9,10,	2289:24	2210:14	2405:25	2243:7
13	panels	2244:20	2406:12,21	2245:25
2410:23,24	2192:9	2250:21	2408:1,4,7	2273:11
2437:24	panel's	2251:1	2415:19	2278:24
pages	2389:16	2275:13	2416:12	2283:25
2164:25	PANELS	2303:18	2417:7	2287:23
2171:22	2439:10	parties	2422:1,18,	2298:14
2172:6,11	paper	2291:5	22	2302:11
2212:5	2204:15	partner	2426:5,16	2311:1
2247:6	2246:23	2200:13	pathways	2312:1
2356:12	2270:15	2201:9	2301:10,12	2313:24
paid 2274:16	2340:6	2295:11	,23	2314:19
2287:11	paragraph	partners	2302:23	2322:22
2297:8	2188:22	2200:19	2310:13	2324:18
2299:9	2204:18	2203:7	2393:14	2327:1,22
2303:17	2206:10,24	partnership	2407:25	2328:19
paivaa	2207:7	2379:20	2408:1	2333:1,9,2
2176:19	2247:21	party	2421:7	2 2335:5
panel 2166:6	2257:21	2227:20	Patti 2165:5	2336:5
2167:9	2357:7	2250:18	2169:19	2338:1
2169:9,16	paragraphs	2298:10,22	2170:8	2339:11,18
2170:1,11	2385:11	2404:25	2174:11	2341:9
2174:1	paraphrasing	pass 2285:5	2176:19	2342:15
2176:9,16	2402:2	passed	2334:4,8	2343:12
2177:10,11	pardon	2232:18	2339:9	2344:22
2178:12	2411:10	2247:15	2367:7,14	2345:2
2196:25	Park 2363:7	2248:7	2384:11	2346:4
2203:21	participate	2253:15,25	2388:25	2347:1
2216:25	2433:1	2254:9	2389:3	2349:21
2217:5	participatin	passes	2435:20,24	2350:1
2221:23	g 2190:18	2390:24	2436:18	2359:17
2231:1	2191:12	past 2185:10	2437:3,9	2363:12
2242:4	participatio	2242:2	2438:12,18	2367:23
2298:19		2322:1	,24	2373:25
2299:20			PAUSE	2376:16
2310:25			2173:8,21	2377:4
2350:24			2174:3	2378:5
			2176:4,13	2386:17
				2392:24

2396:25	2372:3,4	2381:24	2394:24	2331:9
2397:4	per	2382:1,14,	2395:17	Peter
2399:10,22	2222:19,25	17,18	2403:7	2165:11
2400:12	2223:8,13,	2434:17,18	2405:7	Peters
2404:15	17,21,24	percentage	period	2165:2
2405:16	2226:11	2280:9	2196:18	2177:5
2413:21	2231:22	percentile	2199:6	2193:6,8
2414:25	2234:5,19,	2185:7	2205:22	2261:24
2420:10	25	2186:5,14,	2218:13	2276:20
2433:15	2235:9,21,	19	2219:11	petroleum
2435:14,22	23	2187:4,15,	2220:4,5	2205:22
pay 2219:10	2237:3,5,1	17,25	2236:16	phases
2287:7	1,14,17,24	2188:4,6,9	2239:16	2375:15
2290:15	2238:7,11,	perfect	2267:2,4,1	phenomenal
2294:8	19 2257:24	2204:13	0,23	2177:6
2296:4	2384:21	2248:15	2270:7,25	phrases
2298:3	percent	2350:7	2271:6,10,	2209:21
2373:6	2184:4,6	2438:25	12,19	physical
2377:11	2220:23	perform	2272:7	2431:9
2427:24	2234:22,25	2237:8	permission	2432:14
2432:5	2235:12,15	2315:24	2289:21,25	physically
paying	,18,25	performance	permitted	2208:13
2286:10,24	2236:6	2255:25	2202:2	2432:14
2429:21	2271:4	performed	perpetuity	pick 2281:15
peak 2240:24	2272:11	2343:1	2293:24	2409:24
2241:2,4,7	2278:9,15,	performing	persistent	picked
,9	18	2330:3	2251:16	2281:3
2313:12,13	2279:7,8,9	perhaps	person	pictures
,20 2314:4	2280:3,6,1	2196:25	2390:5	2318:11,12
peak/off-	0,13	2203:19	personally	piece
peak	2281:2,8,1	2207:9	2245:18	2196:10
2430:4	1,12,22	2225:14	persons	2246:13
peanuts	2282:1	2229:6	2247:7	2248:16
2384:12	2284:17	2232:3	perspective	2249:2
peekers	2285:2,19,	2245:14,20	2219:2	2306:6
2404:18	20	2251:16	2221:7	2308:22
penalty	2286:1,2,4	2252:12	2323:8	pieces
2364:16	,6	2259:14	2347:8	2285:13
pending	2287:2,5,8	2276:2	2384:21	2307:12
2178:4	,10	2288:3	2388:24	2308:17
people	2295:20,21	2290:5	2423:21	2336:19
2192:18	2296:8	2307:3	persuade	2388:19
2196:24	2297:22	2310:24	2328:11	pillar
2225:25	2298:23	2316:16	2391:13	2366:17
2244:25	2299:2,3,4	2317:23	persuaded	pipeline
2263:19,20	,7 2361:24	2328:15	2331:8	2313:1
2306:13	2363:8	2331:16	2381:8	2343:2,20
2317:1	2364:22	2371:7	persuasion	
2364:4	2365:13	2383:17		
	2366:5	2390:4		
	2371:12			
	2373:5			
	2377:11			

2344:6,11, 12 2413:25 pla 2211:23 places 2226:1 2400:23 plan 2164:10 2172:22 2173:15,19 2177:17 2178:18 2180:7,23, 25 2184:17 2185:6,23 2186:13,23 ,24 2187:16,17 2188:5,10, 24 2203:14 2209:9 2228:1 2252:25 2253:11 2277:22 2291:13,15 ,23,24 2292:3,12, 17,18,19 2308:5 2310:4 2314:25 2315:1 2319:25 2320:4,5,8 ,24 2321:23 2322:11,12 ,17,18 2323:4,15, 20 2324:2,5,1 0 2325:15,16 2326:3,7 2327:19,25 2328:2,4,6 ,8 2329:4,5,1 3,16 2330:3,13, 16,22 2331:22	2332:2,4,1 1,13,14,16 ,19,22,25 2333:7 2334:24 2336:2,13 2337:1,4 2338:8,9 2339:23,24 2340:19,22 ,23 2341:1 2342:21 2345:7,11, 13,15,21,2 2,24 2346:2,9,1 4,21,23 2347:20,22 ,25 2348:10,18 ,20,23 2349:7,8 2351:10 2354:4,15, 17,20 2355:2,10, 17 2367:20 2372:23,24 2373:1,2,1 8 2378:19 2386:8,12 2388:11 2390:2,10, 11,14,22 2391:2,10, 11,13,19,2 2 2392:10,11 ,16,19,22 2393:17,18 ,19,21 2394:1,7,1 1 2395:7,8,1 1,12,20,24 ,25 2396:9,12, 15,21 2397:8,21 2398:3,5,1 3,17,21 2399:2,4 2400:2,6,1 0 2401:24	2402:3,6,9 ,17 2403:3,11 2406:22 2410:12 2412:11 2414:23 2415:2,5 2416:3,4,6 ,12 2422:4 2423:2 2425:19 2427:12 planet 2249:20 planning 2175:25 2252:23 2274:12 2275:6 2286:1 2312:19,20 2415:9,14 2435:1 plans 2171:17 2172:21 2173:3,14 2178:19 2181:5,6,2 1,23 2185:24 2187:8,9 2277:17 2278:6 2279:20 2280:12 2301:13,14 2303:10 2307:22,25 2308:16 2312:21 2317:17 2318:24 2319:3 2320:20 2321:19 2322:16 2323:14,24 2324:9,15, 25 2325:18 2326:23	2327:10 2329:2,3 2331:5,22 2332:8 2337:8,16 2338:16 2340:16 2341:7,12, 13,17 2346:20 2347:9 2349:5,16 2350:13,14 2353:23 2368:5 2369:18 2374:12 2398:4,9 2399:25 2421:17,25 2434:6 plant 2211:23 2212:1 2259:17,18 2261:11 2421:20 plants 2226:22 2259:19 2260:7,19, 20,25 2261:4,9 2335:16 2423:23 play 2178:6 2330:25 played 2209:10 please 2197:24 2242:16 2279:24 2287:21 2299:14 2308:6 2311:24 2356:12 2384:16 2386:21 2395:2	2405:12 pleasure 2217:13 plunged 2381:2 plus 2190:2 2220:22 2257:3 2271:5,6 2281:11 2286:18 2356:2 2382:1 2408:23 pockets 2287:5 point 2173:11 2179:12 2184:8 2187:14 2203:13 2206:9,19 2212:20 2220:2 2225:3 2229:9 2235:21 2237:19 2242:5 2244:4 2246:12,22 2247:13 2253:13,20 2254:23 2255:9,11 2256:7,11 2257:20,21 2259:13 2260:1,15 2271:8,17 2276:19 2278:13 2297:20 2298:20 2302:17 2308:4 2325:6,16 2330:17 2333:4 2334:12 2336:1
--	---	--	--	--

2338:21	2250:7,9	positive	2233:18	2373:4,19
2339:7	2251:2,23	2198:24	2246:4	2376:20,25
2342:6,18	2258:11	2264:13	2247:9	2377:10,14
2347:9	political	2268:4	2257:10	2378:11
2361:20	2244:21	positively	2274:9	2414:14
2364:17,18	2245:15	2338:7	2280:25	2416:15,20
2365:8	2249:16,19	possibilitie	2343:8,15	,21
2372:13	2250:5,13,	s 2304:19	2344:7	2417:22
2376:7	19 2255:13	2412:13,14	2375:2	2419:5,7,1
2382:8,10	Politically	possibility	2418:10	0
2385:18	2228:7	2243:19	2422:10,15	2427:10,14
2387:21	politics	2274:16	2425:24	,23
2391:25	2249:13	2374:8	2426:12	2432:1,3
2399:1	pooper	possible	potentially	Power/250
2408:13	2404:25	2175:11	2201:10	2324:9
2414:22	pop 2333:17	2203:11	2346:22	PowerPoint
2423:3	Portage	2251:25	2413:15	2265:9,10
pointed	2164:22	2290:19	2418:6	2275:21
2264:20	portfolio	2374:10	Pow 2275:25	Power's
2279:16	2423:16	2394:8	power	2287:1
2314:2	2424:1	2397:14,19	2175:5,11	2299:7
2365:25	portfolios	,23	2211:13	2309:14
points	2255:21	2400:16	2219:4	2377:24
2187:10	portion	2401:2	2241:4,19	2383:20
2199:18	2168:6	2416:8	2255:21	2432:18
2205:8	2278:7	2418:11	2276:9	pra 2410:1
2207:24	2280:18	possibly	2278:19	practising
2218:17	2281:7,10,	2392:2	2284:4	2229:12
2236:21	13 2282:20	2435:6	2285:17,25	pre 2182:25
2275:11	2288:21	post 2284:13	2286:4,5,1	2184:13
2300:25	2289:5	post-	7	2206:20
2301:25	2293:11	consultati	2287:11,12	pre-asks
2302:15	2298:23	on 2193:24	2291:20	2177:25
2361:3	2389:21	posted	2292:1,8,2	2178:8
2382:2	portions	2194:2,10	5 2293:15	precent
2410:12	2388:6	2195:18	2294:10,15	2365:14
2414:23	pose	posting	,19	predict
2415:2	2192:9,10	2195:6	2295:13,19	2250:21
2426:6	position	2196:16	2296:23	2430:23
Poj 2325:5	2242:15	postpone	2297:4,12	predictable
polarity	2279:7	2307:9	2299:1	2430:10
2245:15	2280:3	postponed	2309:2	predicting
policies	2333:18	2307:11	2319:15	2249:7,8
2191:5	2338:14	potential	2321:1	2250:4
2211:6	2366:25	2187:3	2326:12,14	prediction
policy	2369:1	2199:17,25	,15	2249:15
2190:13	2377:25	2222:10	2327:15	
2224:20	2413:4	2231:17	2342:21	
2225:5			2354:5	
2228:20			2368:1,9	
2248:21			2369:3,15,	
			22 2370:9	
				2294:6

preferences	premium	2402:22,23	2211:19	2213:13
2173:2	2219:10	2403:22	2213:24	2214:7
preferred	2221:19	presenting	2215:7	2215:2
2164:10	2222:12,13	2370:7	2220:8,9	2218:20
2172:22	2360:12	2403:2	2221:7	2219:19,22
2178:18	2361:10	preserve	2222:5,11	2221:25
2187:17	2365:21,22	2369:3	2224:5	2224:6
2188:10,24	premiums	preserved	2225:21	2231:16
2333:7	2224:5	2370:4	2226:7,9,1	2232:17
2336:13	2300:8	president	1,12	2235:11
2338:8,9	2358:19	2176:7	2227:3	2241:4,19
2340:22	2361:8	2391:10	2228:15	2248:8
2346:21	2437:11	presume	2229:9	2253:7
2347:20	prepared	2381:11	2232:9,12,	2255:4
2377:25	2201:7	pretty	14,21	2256:4
2378:18	2292:14	2200:2	2234:4,17,	2257:22
2388:10	2304:25	2242:3	24	2258:16,17
2390:2,22	2351:21	2250:19	2235:1,5,6	2259:9,12,
2391:1,9,1	preparing	2262:16	2236:2,5,1	17 2260:5
9	2408:21	2269:11	8 2237:2	2269:12
2392:16,19	present	2270:5	2239:25	2301:20,21
,22	2267:15	2394:6	2241:24,25	2302:16,17
2393:21	2268:4	2425:3,5	2243:20	2304:13,14
2394:1,6,1	2270:14,24	previous	2244:1,10	2310:10
1	2271:18	2186:9	2251:6,8,1	2406:15
2395:8,12,	2272:7	2205:10,16	0,11,19,21	2422:2
20,23	2317:16	2206:12,16	,24	pricing
2396:9	2322:18	2247:6	2252:2,15	2227:19
2397:8	2338:11	2249:2	2254:5,7,1	2228:17
2399:2,3,1	2349:8	2271:3	5,16,22	2229:2
8	2359:15	2342:1	2255:7,15,	2236:15
2400:6,10	2407:1,2	2362:15	20 2256:14	2243:12,14
2401:23	presentation	previously	2258:2,14,	2244:7,13
2402:3,6,9	2275:8,21	2166:7,8,9	15,16,18	2245:2,12
,17	2343:6	,10,11,12,	2259:14,15	2246:6
2406:22	2363:7,24	13,14,15,1	,20	2262:7,9
2416:12	2425:15	6	2260:1,4	primarily
2425:18	presented	2170:12,13	2262:11	2243:23
pre-hearing	2182:25	,14,15,16,	2263:14,19	primary
2371:11	2184:13,21	17,18,19,2	,20,21	2243:14
prejudge	2228:25	0,21	2264:1,7	prior 2367:6
2424:22	2233:18,19	2206:20	2309:10,11	private
preliminary	2246:13	2334:15	2343:25	2378:19,25
2412:15	2265:10,22	2345:20	2344:8,14,	2379:3,13,
2413:6	2317:11,15	pri 2231:16	17 2406:17	24 2380:8
2435:9	2326:21	2423:1	2421:21	probabilisti
premise	2340:11	price	2422:7,12	c 2171:2
2275:12	2344:5		2424:7	2181:4
2363:23	2359:25		2427:18	2182:11
premised	2360:5		2428:25	2185:15
2221:24	2364:2		priced	2327:10,12
			2423:1	
			prices	

2328:25	2203:9	ions	proposals	2399:13,16
2335:8,22	2217:1	2250:19	2247:17	2402:18
2336:9	2275:16	program	propose	2403:11,16
2422:9	2304:6	2190:12,19	2435:17	2404:1,3
probabilitie	2308:20	2256:23	proposed	2432:21
s 2304:20	2368:11	2257:4,13	2246:25	provides
probability	2387:13	2284:5	proposition	2171:5
2171:4	2428:24	progress	2430:20	2281:18
2184:4	proceedings	2202:13	proprietary	2304:1
2224:5	2169:4	project	2231:9	2347:10
2267:23	2242:15	2193:19	prot 2255:2	providing
2272:11	2299:14	2196:2	protect	2177:16
probably	2384:8	2197:4	2406:2,6,8	2196:9
2211:15	2439:6	2198:22	,14,23	2316:7
2216:23	proceeds	2199:3	2408:8	2365:18
2222:5	2436:4	2200:14	2414:19	2432:11
2228:6	process	2201:10	2415:4	Province
2245:18	2179:10	2262:10	2420:3	2190:3
2250:10	2193:3	2282:23	protecting	provision
2253:1	2195:7,12,	2378:12	2405:1	2436:20
2275:20	16	projected	2408:10,11	proviso
2303:6	2197:2,5,1	2213:21,23	2419:2	2396:1
2309:1	4,19	projecting	prov 2301:8	proxy
2349:11	2198:19	2222:19	provide	2356:19
2350:9,21	2199:10	2255:2,6,1	2168:3	PUB 2177:4
2356:6	2201:3	9	2215:22	2308:19
2393:9	2202:7	projection	2288:4,9,1	2399:14
2409:25	2203:2,12	2213:9	5 2289:1	PUB/Manitoba
2412:19	2255:13	2239:16	2296:9,11	2301:8
2419:22	2296:25	projections	2300:15	PUB/MH
2425:7,19	2297:5	2222:10	2310:16	2405:8
2437:18	2347:4	2251:6	2345:13	PUB-1 2302:6
problem	2372:18	2254:25	2381:2	PUB-1-279
2183:9	2375:8	projects	2392:20	2301:23
problems	2409:3,4	2197:3,5	2416:2	public
2189:16	2410:1	2364:14	2418:7	2164:3,21
proceed	2414:7	2393:15	2431:21	2179:9
2174:24	procuring	2415:12	2432:10	2194:3,8,1
2196:1,9	2411:6	promise	provided	0,11
2198:20	product	2169:10	2170:25	2195:17
2276:25	2219:9	proper	2178:16	2196:16,18
2279:24	2318:14	2233:6	2284:9	2197:17
2289:22	2423:7,9,1	2389:4,11,	2299:23	2198:13
2297:9	3	12	2300:7	2199:5
2301:1,6	2427:17,19	properly	2301:8,9	2369:14,16
2308:11,12	production	2359:20	2327:25	2373:22
2368:4	2291:22	proportion	2352:9	2426:18
2373:15	profile	2429:15	2361:1	2427:9,11,
2408:14	2323:10		2379:25	
2409:17	prognosticat			
proceeding				

15	2438:19	2402:2	2248:9	2318:12
publicly	puzzled	2403:9,14	2251:25	2339:3
2195:21	2372:22	2424:12,19	2254:24	ran 2383:14
pur 2191:7	<hr/>	2426:9	2260:5,7	range
purchase	<u>Q</u>	2433:23	2279:3	2215:18,20
2263:11	quantified	2437:17	2305:8	2218:5
2291:19	2428:9	questions	2318:18	2219:15,21
2427:14	quantities	2176:10	2338:15	2222:7
2432:3	2206:7	2177:22	2344:16	2234:15
purchases	quarter	2179:8,25	2351:17	2256:5
2292:25	2296:14	2189:5	2361:22	2315:5
purely	2384:2	2191:19	2364:8	2407:17
2295:12	2432:22	2192:10	2371:15	2412:13
2372:15	quarters	2193:4	2430:23	2420:19
purple	2244:9	2201:19	2438:20	ranging
2236:10	2296:18	2217:25	quote	2222:11
2237:1	quasi 2380:6	2225:15	2218:18	rank 2381:6
purport	quasi-	2230:20	quoting	rate 2213:12
2361:9	commercial	2253:3	2209:21	2214:10
purpose	2379:17	2289:23	2392:7	2235:2,17
2364:4	que 2217:15	2311:5	<hr/>	2271:5,9
2365:18	Quebec-	2314:23	<u>R</u>	2272:11
purposes	California	2366:9	rails	2286:12
2325:22	2226:4	2377:13	2247:19	2361:21,23
2334:19	question	2378:16	raise 2334:5	2364:8
2341:25	2181:18	2386:20	raising	2365:4
2346:1	2190:25	queue	2430:25	2381:12
pursue	2191:20	2421:2,3	Ramage	2382:16
2191:7	2228:4,5	quick 2180:4	2165:5	2387:20
2410:16	2241:18	2268:12	2169:12,14	ratepayer
pursuing	2256:9	quicker	,18,19	2378:11
2191:12	2260:15	2253:2	2170:8	ratepayers
push 2303:22	2261:1	quickly	2174:11	2405:4
2402:1	2282:10	2239:20	2176:16,19	rates 2214:6
2412:4,16	2294:13	2248:9	2201:22	2216:4
puts 2370:2	2300:16	2269:25	2333:17	2360:5,19
putting	2304:7	2338:5	2334:4,8	2361:18,19
2220:18	2314:8,23	2356:7,13	2339:8,9	2362:9
2226:11	2316:3	2412:20	2359:14	2365:2
2263:19	2331:23	2419:19	2367:7,14	2380:23,24
2301:6	2336:1	quilt	2384:11	2381:2,10
2346:7,21	2337:14	2171:6,25	2388:25	2382:10,12
2347:19	2341:22	2292:16	2389:3,17	,22 2383:8
2348:18,20	2346:12	2396:16	2404:10	rate's
2353:2	2348:16	quilts	2435:20,24	2365:8
2357:25	2360:17	2387:18,22	2436:18	rather
2395:21	2379:20	,23 2388:1	2437:3,9,1	2246:17
2400:1	2383:17	quite	7	2312:12,15
	2394:5	2205:22	2438:12,18	2431:17
		2218:13	,24	
			Ramage's	

2432:9,13	2188:15	2190:14	recognizing	2258:9
ratify	2206:18	2193:7	2228:13	2291:21
2227:24	2215:12	2209:2	2242:1	2292:25
re 2164:7	2240:16	2218:3,7,2	2271:12	2296:5
2208:2	2241:16	3 2246:2	2272:18	2304:8
2251:10	2247:4,6	2251:3	recollection	2346:14
2371:5	2249:8	2256:17,20	2196:21	reduces
2381:22	2253:13	2261:24	recommend/	2294:24
2425:22	2265:5	2265:18	government	2338:11
2437:24	2269:1,3,1	2343:7,14	2308:19	reducing
rea 2201:6	9 2281:6	2362:4,10,	recommendati	2316:21
reach	2290:2	22 2366:13	on 2415:10	reduction
2189:20	2297:18	2379:21	recommendati	2189:13
2207:24	2303:1	receive	ons 2399:2	2190:4,19
2367:4	2304:18	2296:23	reconcile	2258:5
2370:8	2305:24	2432:1	2283:8	2282:6
reached	2306:3,5	received	reconciled	reductions
2189:13,22	2307:13	2178:7	2283:4	2191:3
2369:8	2317:25	2194:17	reconciliati	2257:13
2372:8	2352:7	2300:6	on 2283:12	2258:8
reader	2364:15	recent	record	REE 2381:24
2414:22	2404:10	2354:22	2174:14,16	reenforce
reading	2428:19	2356:24	2175:12,21	2179:7
2174:12	2435:3	2360:19,25	2369:16,23	ref 2329:21
2212:5	2437:16	2384:22	2374:23	ref/high/ref
2229:15	reason	recently	2385:1	2214:17
2395:18	2172:19	2258:3,25	2426:18	ref/ref/ref
2424:5	2256:7	2370:13	2437:15	2172:16
ready 2169:4	2258:4	2397:15	2438:13	2329:9
2177:18,19	2313:5	recess	red	2388:11
2198:15	2325:9	2384:1	2233:19,21	2399:14
2290:7	2332:10,22	2435:17	2235:20	2411:20
2384:8	,24	recessing	2240:7	refer
real 2201:6	2369:14	2242:11	2390:12	2193:11,13
2216:13,19	2411:4	2299:16	redo 2337:15	2366:16
2235:15	2412:17	2384:4	2338:22	2393:2
2236:7	reasonable	recession	2409:25	reference
2249:23	2369:15	2247:18	reduce	2213:12,13
2262:12	reasonablene	2258:8	2172:20	2214:7,8
2303:10	ss 2356:18	recognition	2190:11	2215:2,3
2309:4	reasons	2285:25	2241:7	2221:15,18
2364:17	2220:3	recognize	2256:24	2233:16
2393:15,25	2325:4	2363:8	2316:9	2235:20
reality	2401:12	2378:13	2412:24	2239:2,6,8
2250:3	2402:7	recognized	2422:14	2323:8
really	rebuttal	2368:21	reduced	2325:16
2172:13	2178:13	2401:10	2177:8	2386:25
2175:13	2317:4	recognizes	2185:24	2415:7
2177:6	rebuy	2364:24		
	2427:23			
	recall			

referred	2168:4	2372:9,17	2240:13	2201:2
2388:14	2175:14	2384:21	2241:22	2203:4
2389:19	2219:3,25	2401:11	2247:15	2217:4,14,
2395:4	2288:13	2402:7	2251:14	16
2405:8	2289:2	2409:3	2257:23	2225:1,2,1
2435:2	2349:11	rejoin	2258:3,4	7 2246:7
referring	2379:10	2334:13	2259:13,15	2262:1
2244:17	Regina	relate	2261:7	2301:11
2245:6	2419:22	2176:24	2322:10	2316:5
2314:16	region	2205:16	2417:19	2362:11
2379:1	2242:21	2216:3	2419:19	2378:24
2381:7	2244:6,15	2275:21	release	2434:13
2391:16	regional	related	2198:15	remind
2392:11	2189:12,21	2178:14	relevant	2187:10
2393:11	2190:3,12	2192:3	2177:11	2188:17
re-file	2191:2	2200:15	2178:9	2265:8
2351:22	2256:18	2211:9	2274:3	2402:21
2437:20	2257:13	2291:2	2297:18	2436:1
2438:1	regions	2295:14	2333:17	reminding
refined	2243:11	2314:9	reliability	2249:18,20
2171:19,21	Regis	2372:1	2293:3	removal
2381:25	2164:13	2375:24	reliable	2334:20
refinement	regularly	2424:11	2271:24	2335:16
2172:13	2202:13	relates	reliant	remove
2173:4	regulation	2211:13	2242:23	2351:6
2335:19	2218:22	relating	2243:10	removed
reflect	2229:13	2200:1	relief	2336:9,10
2252:1	2247:23	2224:4	2356:9	2341:7,19
2262:12	regulations	relation	relieve	Removing
2282:1	2200:2	2295:12	2298:8	2337:17
2308:3	2226:10	relationship	reluctant	renew
2334:23	2239:14	2284:3,16	2220:4	2337:15
2338:21	regulator	2297:13	rely	renewal
2339:4	2297:6	2365:3	2362:21	2422:21
2380:10	regulators	2381:9,14	remain	rental
reflected	2357:8	relative	2239:15	2174:8
2179:5	2360:18	2172:14	2282:16	reorientate
2185:4	2362:8	2187:11	remainder	2308:6
2282:7	2412:23	2247:13	2251:9	rep
2283:15	regulatory	2251:17	remaining	2227:25
reflective	2193:2	2252:10	2289:17	2229:25
2336:16	2198:6	2253:20	remains	repeat
reflects	2200:19	2260:6,8	2175:2	2181:18
2387:22	2297:5,15	2261:4,11	2378:10	2189:16
refocus	2298:6	2291:10	2398:17	2410:7
2390:3	2368:13	2330:22	2401:8	2424:19
refusal	2370:21,23	2348:7	remember	2426:9
2294:10	2371:5,8,1	2420:16	2193:1	rephrase
regard	4,25	relatively	2194:13	2190:24,25
		2173:6		

replace 2437:24	2332:15,16 2359:23	2339:1	2233:2 2273:22 2300:15 2301:8 2402:15 2436:11,16 ,19 2437:1	2169:4 2242:15 2299:13
replacement 2300:10	Representati ves 2253:25	res 2205:15		resuming 2242:12 2299:17 2384:5
replicate 2340:9	represents 2271:8 2280:12 2282:19 2353:23	reservations 2426:22		
report 2193:18,21 2194:2,7,1 0,17,24 2196:16 2198:10 2199:19 2213:2 2229:12,14 ,19,25 2233:5 2251:12 2252:21 2331:17 2350:4 2356:21 2357:2 2359:23 2360:10,20 ,25 2364:25 2365:14 2366:1 2380:21 2381:7 2382:6 2383:15,19	reproduce 2358:20	reservoirs 2430:19		
	reproduced 2357:2	reset 2381:1,25	responses 2304:6	retired 2261:8
	reproducing 2360:1,6	resistance 2244:8	responsibili ties 2197:6,8	retirements 2211:23 2212:1
	request 2290:10,17 2388:7	resistence 2244:5	responsible 2195:19 2196:24 2197:2 2210:25 2278:15 2285:2,19 2287:2	RETIRES 2439:10
	requests 2421:1	resolved 2208:3		return 2271:10,12 2286:17 2287:18 2290:7 2296:1 2356:19 2361:2 2365:17 2379:24,25 2381:2,12 2429:1 2430:2,19
	require 2211:23 2277:2 2338:24 2339:1	resource 2209:9 2220:14,24 2252:22,25 2253:11 2255:24 2256:1 2274:11 2275:6	rest 2280:17,23 2281:13 2388:16	
	required 2170:3 2197:17 2277:3 2406:8 2425:14,16 ,22	resources 2175:1 2277:20 2312:6 2316:20 2413:15	restricted 2344:6	
	requirement 2286:7,8,2 3,24 2287:10 2314:3,4	respect 2295:10,18 2308:8 2387:19 2402:16 2436:9	restricting 2226:12	returns 2271:7 2357:8,17, 22 2364:5 2365:16 2381:5
	requirements 2211:24 2286:13,14 2287:7 2297:25 2299:9	respective 2387:12	restrictions 2225:24 2227:9	
	requires 2276:23	respects 2205:13,15	result 2337:10 2426:23 2431:12	revenue 2214:21 2215:12 2286:7,8,1 2,13,23,24 2287:7,10 2291:9,18 2293:17 2295:12,14 ,17 2299:8 2336:14 2423:6 2434:8,20, 23
	rerunning 2338:24	respond 2179:2 2316:12,17 2389:6	results 2170:24 2238:23 2250:21 2325:12 2337:10 2358:10,20 2360:7 2362:7 2363:7 2373:2	revenue- neutral 2246:16
representati on 2398:13		response 2167:7,8	resume	
representati ve				

revenues	2245:8	2384:19,20	2411:1	2319:15
2212:24	Richard	2385:12	Round 2233:3	2332:23
2213:17,23	2164:16	2388:5,20	2283:4	2333:13
,24	2293:6	2408:14	2405:9,10	2334:17
2214:22	2295:8	2422:3,10,	route	2351:7
2219:15,21	2298:20	14 2424:2	2379:12	2354:5
2267:3,10	2299:5,10	2431:22	row 2179:16	2391:7
2290:12,14	ride 2207:18	2434:22	2217:8	2397:9,10
,18,21,23	right-hand	risk-aware	2284:12	2401:6,7
2291:14,24	2204:11	2229:12	2313:5	2408:2
,25	2239:20	risks 2188:9	2315:2	2413:12,19
2292:11	2248:20	2230:11	2329:9	2416:8,15
review	2265:22	2380:1	2353:22	2418:10
2164:9	2325:21	risky	2354:9,10,	2419:6,7,1
2177:23	2357:6	2368:17	14 2362:1	5 2421:8
2180:4	rights	2372:14,18	Roy 2434:15	2422:6,18,
2358:15	2231:9,11	River 2175:8	rule	20
2363:2	ring	2397:17	2264:12,14	2423:11,12
2380:21	2189:14,23	2414:15	,17 2265:1	2426:22
2410:1	2190:20	2416:14,16	2268:3,8	2428:18
reviewed	2366:19	,23	2269:5,20,	2429:20,23
2362:2	2377:16	2417:17	21 2272:19	sales
reviewing	2378:21	2423:4	2305:12	2174:25
2300:2	rise 2382:12	riverine	2329:20	2175:18
revised	2383:8	2192:3	run 2208:20	2277:18,21
2185:14	rises	River's	2211:19	2292:24
2186:4,14,	2258:18	2418:19	2219:6	2309:1,9
24	rising	road 2227:5	2423:9,10	2319:21
2187:16,24	2382:9	2391:22	2431:10	2324:14
2188:10	risk	ROE 2300:7	running	2351:2
2284:4	2172:21,22	2358:18,21	2206:4,7	2353:24
2314:9,16	2181:6,7,2	2359:25	2339:1	2394:2
2376:24	1,22	2361:8	rush 2173:19	2398:7,8,2
2377:2,6	2185:23	2381:25	2265:6	0
2436:20	2186:25	2437:11	2275:12	2421:12,14
2437:13	2187:2,3,7	role 2209:10	<hr/>	2423:9
revision	2188:23	roll 2328:4	<hr/> S <hr/>	Saskatchewan
2172:4	2219:8	roller-	sacrifice	2175:8
2185:4	2221:8	coaster	2262:12	2414:15
2283:7,23	2274:24	2207:18	sake 2195:12	2419:8,14,
revisions	2298:11	rolling	2196:17	16 2421:2
2317:15	2322:19	2175:5	sale	2423:5
2436:21	2323:10	room 2436:10	2175:6,8	SaskPower
revolution	2345:21	roughly	2269:12	2397:16
2209:3	2349:9	2220:5	2276:9,25	2418:22
RGGI 2256:19	2368:13	2329:21	2278:6	2421:14
2257:10,12	2370:21,23	2375:13,18	2291:17	2424:4
,22	4,25		2296:13	satisfactory
2258:15	2372:9		2307:4	2242:4
rhetoric				Saturday
				2404:7

Saunders	2399:18	scratch	2319:10	seems
2165:18	2412:6	2201:13	2328:16	2210:20
2201:18	scenarios	screen	2342:11	seen 2358:13
2289:17	2212:25	2251:4	2349:2	2360:22
2310:19,20	2222:11	2385:8	2351:4,10,	2388:9
save 2323:1	2236:11	2392:7	18 2354:3	selected
saving	2239:22,25	screening	2357:6	2254:6
2296:8	2241:13	2297:16	2361:11	2321:18
savings	2243:23	scroll	2365:24	selection
2320:21	2251:5,7,8	2209:6	2376:14	2332:13
2326:14,15	,9,15,16,1	2224:10	2390:13	self 2227:23
saw 2171:6	8 2252:1	2248:14	2396:7	sell
2228:7	2253:23	2257:19	2409:2	2293:11,22
2316:22	2256:3,12	2271:3	2410:23,24	2294:1
2320:11	2293:5	2276:1	2433:22	2309:10
2372:13	2304:9	2356:14	2434:24	2430:11
2399:13	2310:3,6	scrolling	2436:18	2431:11,12
2415:10,15	2312:21,25	2356:17	2437:10	seller
2422:19	2313:13	S-curve	second-last	2219:3
scale 2296:5	2314:25	2172:1	2168:9	selling
2304:16	2317:11	2182:7	2288:16	2221:3
scenario	2321:8	2183:23,24	2289:9	2291:3,4
2183:24	2325:23	S-curves	second-most	2427:25
2213:25	2340:15	2171:8	2365:23	senator
2214:22	2345:16	2172:17,23	section	2250:18
2222:5,17,	2346:15	2182:24	2195:16	send 2372:3
18,24	2349:14	se 2226:11	2198:15,16	2426:13
2223:4,16	2386:11	seahun	2199:1	sending
2232:4,13	scenas	2180:19	2200:1	2286:19
2233:1,13,	2347:21	searching	2230:17	sens 2312:18
23 2235:8	schedule	2371:23	sector	sense 2232:1
2236:21	2194:13,23	season	2239:15	2305:12
2237:2,9,2	2195:2	2307:5	2343:20	2417:14
2,23	2196:23	seasonal	sectors	2420:6
2238:2,4,1	2197:11,21	2417:2	2228:3	2433:7
5,19,20	2198:6	second	security	sensitivity
2240:3,8,1	2202:4,5,1	2171:5	2205:2	2321:10,12
5,23	0,21	2201:8	seeing	sent 2350:4
2251:13	2390:7,8	2207:8	2238:11	sentence
2256:9,14	2412:25	2210:11	2325:11	2188:22
2313:9,12,	scheduled	2211:8	seek 2319:18	2395:6
19	2398:4,15	2217:24	seeking	sentiments
2315:4,11,	2401:16	2233:3,6	2319:12	2245:4
15,16	2420:4	2271:12	2415:5	separate
2322:17	scheme	2273:7	seem 2353:2	2292:4
2323:11,14	2226:7	2278:4	2404:1	2300:6
2324:2,3,6	scientific	2287:21	seemed	
2325:24	2230:5	2305:19,21		
2342:21,22	scientists			
2346:15,16	2252:8,9			
2347:21				

Sept 2385:4	2424:14	sheets	2180:11	2432:7
September	2425:19	2414:8	2291:18,20	simple-cycle
2367:6	seven-fifty	Shefman	2396:14	2322:6,9,1
2371:10	2428:21	2165:19	sic 2421:13	1
2385:4,23	seventh	she's	2424:4	simpler
sequestratio	2259:6	2179:15	sides 2245:9	2280:1
n 2226:25	seventy-	shifted	sigh 2356:9	simplified
series	seven	2240:24	sign 2420:14	2265:23
2232:2	2283:14	2241:3	signed	2272:12,18
serious	several	shifting	2190:3	simply
2388:8	2248:23	2240:15,23	2332:23	2216:18
2404:23	2254:8	2241:12	2398:2,16	2281:6
serve	2256:1	shop 2405:22	2414:6	2360:1,6
2175:17	2297:14	short 2221:4	significant	single
2220:15	shadow	2249:2	2179:6	2300:9
2423:4	2262:7,9	2275:20	2196:8	2423:17,25
served	2263:14,20	2424:24	2303:2	2437:21
2179:10	,21	2428:14	2305:7,11	sir
serves	2264:1,7	short-	2317:16	2189:14,23
2234:5	shale	circuit	2368:13	2190:14,20
service	2208:21	2358:8	2370:21	2193:8,14
2296:9	2209:2	shorter	2378:10	2199:22
2398:5	shape	2218:12	2409:13	2205:4,11
2412:17	2172:17	shorthand	2417:11	2206:1
2427:11,15	share 2177:1	2191:21	significantl	2207:16
serving	2218:17	shortly	y 2374:4	2208:6
2325:14	2267:11	2297:2	similar	2210:5,15,
sets 2200:12	2278:17	2300:21	2191:19	25 2211:14
2312:18	2287:1	2436:5	2200:21	2217:1
setting	2429:14	shots 2177:5	2215:24	2218:8,24
2357:8	2430:1,4	showed	2216:16,17	2221:9,20
2360:18	2431:21	2219:15	2249:3	2222:2,16,
settle	2433:4	2321:18	2314:2	20 2223:21
2419:24	sharing	2400:1	2380:24	2224:7,23
sev 2248:23	2377:8	showing	2422:23	2227:11
seven	2380:1	2176:20	similarly	2228:13,21
2222:25	sharp	2217:19	2199:12	2231:6
2235:21	2173:23	2361:17	Simonsen	2233:11
2269:9	2242:8	shown	2182:2,4	2234:2,23
2280:2	2299:14	2281:16	2438:4,5,2	2235:13,22
2315:19	2439:8	2293:25	3	2236:11,20
2329:3	sheet	2294:24	simple	2237:3,12,
2365:8	2296:24	2347:5	2264:14,17	18,25
2382:8,10	2297:1	2387:16	20 2270:14	2238:4,17
2388:9	2417:24	2400:17	2272:19	2239:3,19,
2409:24	2418:2	2411:22	2305:12	23
2418:12	2419:25	shows	2342:18	2240:5,11,
	2420:14			17
				2241:11,15
				2242:4
				2244:2

2247:1,11, 25 2248:25 2249:4 2250:1 2252:23 2253:5 2254:3,14 2255:4,8,1 8 2256:10,20 2257:1,25 2259:4,24 2262:1,6,2 4 2265:19 2267:7,11, 17,24 2270:13 2271:3,20 2272:17 2275:8 2276:8,10, 16 2285:22 2315:7,16, 23 2356:22 2359:21 2360:14,16 2361:11,14 ,25 2363:10,23 2369:11 2370:18 2372:22,24 2375:21,25 2377:2 2378:17 2379:13 2382:3,23 2383:6 2395:4 2409:9 2415:19 2420:6 2428:8 sit 2309:15 situation 2175:3 2200:9 2269:24 2274:7 2279:6,18 2314:3 2316:5 2370:3	2427:10 2430:7 situations 2306:23 six 2190:1 2421:4 six-five 2361:20 sixteen 2234:19 sixth 2206:25 2259:6 size 2427:6,7 2428:2 2429:7 sli 2366:18 slide 2168:4 2174:6 2275:25 2277:25 2279:11,17 ,19 2280:11 2281:17 2282:21,22 2288:1,14 2289:2 2293:25 2294:25 2312:5 2326:18 2327:24 2328:22,24 2334:24,25 2349:14 2366:18 slides 2265:16 2275:8 2282:5 2352:10 slightly 2172:18 2305:3 2330:3 slower 2412:24	slowly 2273:24 small 2173:11 2188:18 2241:5 2251:14 2259:20,23 2260:7 2296:7 2340:4 2376:9 2378:7 2403:21 2426:24 smaller 2254:12 2316:20 2413:10 Smart 2321:1 2326:12,14 ,15 2327:15 2342:21 snapper 2428:15 snappers 2275:20 society 2262:11 solar 2211:13 sold 2220:14 2266:25 2293:10 2421:20 2422:6 Soldier 2164:15 2282:9 solved 2183:22 somebody 2379:4 2429:18 somehow 2251:20 2333:19	someone 2173:23 2203:7 2250:8 2269:10 2379:8 2415:2 someone's 2174:12 sometime 2194:24 2253:21 2344:15 2401:25 somewhat 2188:11 2291:3 2326:14 2330:3 2364:19 2412:23 somewhere 2184:5 2195:1 2223:12 2235:9 2237:10 2371:20 2413:18 2426:7 sons 2263:3 sooner 2234:17 2252:12 2255:1 2420:22 sophisticate d 2428:17 sorry 2183:21 2189:15 2224:13 2229:19,20 2273:18 2276:6 2281:7 2291:3 2295:8 2299:20 2308:11	2331:23 2332:16 2346:8 2349:24 2352:8,25 2383:13 2390:7 2402:13 2403:12 2404:23 2407:4 2410:14 2418:24 2426:8 2435:12 sort 2280:17 2303:17 2364:13 2365:10 sound 2208:22 2269:21 sounds 2190:15 2194:12 2201:14 2257:6 source 2290:14 2295:14,17 2320:3 2356:24 2406:13 sources 2209:15 2291:11 2356:20 2366:3 south 2425:17 spaced 2316:6 speak 2169:10,13 2170:1 2230:10 2273:23 2331:16,19 2363:19 2367:15
--	---	--	--	--

2424:17	spoke 2209:2	2304:12	2244:20	stop 2244:23
speaking	spot 2333:25	2314:14		2308:6
2174:19		2384:9	states	2385:10
2219:1	spots 2180:3	2387:9	2175:5	2409:7
2245:19	spread	2406:12	2190:1	2414:13
2290:21	2364:22	2411:5	2191:12	stor 2428:20
2367:4,8	2365:5,12	2427:16	2227:2,12	storage
2391:10	2382:18,19	2430:21,25	2230:12	2296:12,15
2401:5	2430:4	started	2242:22	,19
species	2433:11	2222:16	2243:1,20	2428:18,21
2252:13	spreads	2234:8	2244:6,12	2429:8,20
specific	2365:6,9	2254:22	2256:25	2430:19
2231:13	2381:4	2304:12	2257:3,14	2432:21
2319:25	2382:13	2344:15	2282:12	store 2429:1
2325:5,6	spring	2345:18	2293:23	stores
2391:3	2375:13,16	2368:19	2294:21	2379:5
2394:6	,21	2375:7	2297:22	straight
2426:15	squint	2389:16	2298:3,7	2172:3
2435:4	2215:12	2437:7	2429:19	strategies
specifically	stable	starting	station	2255:25
2348:11	2205:17	2201:13	2286:15	2256:1
2379:8	2206:20	2235:8,20	2292:6,8	strategy
2426:4	staff	2333:13	2392:13,14	2423:25
specificatio	staff	2387:10	2394:7	stream
n 2232:8	2404:11	2388:11	2395:11,14	2319:11,17
2381:15	2405:21	2392:6	2396:13	2434:9,19
spectrum	stake	starts	2400:17	streams
2245:16	2286:1,2	2395:6	stations	2319:4,8
spend	stand 2273:6	state	2390:15	stress
2282:13	2290:6	2172:25	status	2353:14,18
2406:5,24	2336:7	2252:22	2372:16	2354:21
2409:10,16	standards	2253:6	stay 2234:21	2355:15,19
2414:19	2343:25	2255:22	2258:3	,25
2415:14	2344:8,13	2381:6	2353:7	stretch
spending	stands	stated	stayed	2273:9
2364:14	2175:13	2173:11	2298:11	2380:8
2408:16	staring	2208:21	staying	strict
2410:24	2254:19	statement	2334:24	2232:14
2415:3	start 2177:7	2195:22,23	steady	strictly
spent	2197:22	2196:5	2414:7	2367:4,9
2406:17	2203:10,18	2199:14	step 2200:9	stringency
2411:14,22	,25	2210:25	2304:21	2232:19
SPLASH	2220:20	2218:23	2347:4	stroke
2338:24	2221:13	2247:25	steps 2195:7	2350:21
2339:1	2226:11	2249:15	sticky	2351:1
S-P-L-A-S-H	2232:2	2264:11,16	2308:2	strong
2338:24	2233:25	2394:16	stock 2379:4	
split 2197:6	2255:14	statements	stood	
	2267:1	2197:18	2205:10	
	2303:5,23	2213:10		

2229:5	submissions	2186:23	2411:14	2272:22
structure	2200:21	2189:11,19	superceded	2273:23
2298:6	submitted	2191:10	2382:8	2275:22
2299:1	2177:25	2193:17	superior	2295:9
stu 2192:6	subsequent	2194:1	2322:18	2306:7
stuck	2394:17	2213:19	2323:11,15	2311:4
2293:24	substantial	2221:17	2325:15	2312:3
studied	2178:16	2234:21	2345:21,24	2367:8
2426:1	substitution	2236:15	2349:8	2371:9,13,
studies	2259:21	2239:6	2373:2	20 2375:13
2200:15	2260:3	2247:22	supervising	2381:20
2408:21	subtleties	2248:22	2405:23	2386:5
2410:2,5,6	2264:16,21	2309:19	supplement	2388:22
,7 2412:20	successful	2315:3	2202:2	2407:21
2413:1	2175:4	2318:22	supplies	2422:10
2415:9,14	2370:11	2320:1	2206:8	2425:19
stuff	2411:18	2323:10,23	supply	2436:8
2404:24	successfully	2324:24	2316:8	surplus
sturgeon	2368:21	2329:12	2430:25	2291:17,18
2192:6	2369:1,20	2335:2	2431:23	2309:8
su 2382:7	sudden	2338:23	support	2417:10
sub-bullet	2197:20	2345:5	2208:16	2422:5,13,
2276:13	suffered	2346:19	2217:21	25 2428:6
2278:5	2186:24	2347:18	2290:12	surprise
subject	suggest	2348:17	2293:14	2317:20,24
2182:19	2169:13	2372:24	2295:15	2414:7
2196:10	2200:3	2425:10	2383:20	surprised
2212:14,18	2204:19	suggestion	supported	2244:17
2214:21	2234:8	2224:12	2290:13	2245:7
2215:18	2242:5,7	2244:13	2291:9	surprises
2235:22	2290:6	2259:5	2370:24	2199:6,10
2276:14	2299:13	2346:24	suppose	surprisingly
2323:3	2308:1	suggests	2191:24	2245:14
2326:11	2317:20	2267:22	2206:4	survived
2362:24	2321:15,24	2272:19	suppression	2174:7
2375:19	2323:2	2276:13	2241:2,5	suspect
2406:7	2332:19	suited	sure 2179:18	2314:12
2418:23	2350:25	2229:8	2190:9,21	2385:22
2422:21	2352:4	sum	2202:17	suspended
2438:1	2372:23	2406:8,11	2203:3	2191:11
submission	2383:25	summarized	2220:21	Sven 2165:3
2279:2,4	2389:4	2410:21	2244:16	2169:8
2303:25	2437:23	summary	2250:14,15	swish 2193:1
2316:22	suggested	2178:11	2262:3	switch
2393:7	2262:9	2247:3	2263:13	2350:7
2394:13	2425:4	summer	2265:14	switching
2415:8,16	suggesting	2368:13	2266:10	2259:16
2434:3	2181:20	2375:14	2267:18,19	2260:2
		2376:2	2269:14,15	
		sunk 2283:19		

Sworn	2358:18	2198:5	tech 2317:1	2183:23
2166:7,8,9	2359:1	2225:20	technical	2186:25
,10,11,12,	2361:7	2227:8	2183:22	2187:1,2,7
13,14,15,1	2363:24	2257:7	2208:15	,15 2188:8
6	2365:21	2258:21	2317:1	2193:2
2170:12,13	2373:13,15	2259:4	technologies	2194:16,22
,14,15,16,	2378:14	2263:2	2211:10	2196:15
17,18,19,2	2395:7	2298:21,23	Ted 2250:17	2197:19
0,21	2399:15	2308:5	ten 2218:5,6	2205:14
synergy	2405:14	2356:3	2220:5,22	2206:2,22
2375:5,10	2414:16,17	2379:18	2223:8,17	2210:4
2376:4,7,1	2436:20,22	2381:4	2242:7	2211:5
2 2383:13	tables	2385:15	2309:7	2216:13,19
system	2219:14	2399:25	2366:8	2220:4
2191:4	2352:8	2401:22	2406:4	2222:9
2241:8	tabs 2300:1	2403:13	2418:22	2225:21
2244:21	Tacs 2208:20	2416:4	tenants	2227:17
2248:11	taking	2428:18	2427:1	2232:25
2249:19	2208:14	talks	tend 2218:5	2235:11,15
2250:5,13	2235:16	2277:25	2243:2	2236:4,7
2276:9	2280:2,3	Tanner	2315:24	2241:11
2312:15	2296:6	2268:12	2331:3	2243:12
2429:3	2310:21	tantamount	2343:19,24	2248:3
systems	2325:17	2322:11,12	2348:8	2250:4
2192:3	2329:19	target	2365:5	2252:10
	2337:16	2191:3	tends 2227:8	2255:3
	2338:22	targeted	term	2258:21
ta 2331:21	2360:18	2258:8	2218:10,12	2262:8
tab 2182:1	2378:12	targeting	2247:15	2280:1
2208:16	2388:3	2198:8,9	2255:13	2281:5
2209:24	2418:1	targets	2262:20	2284:15
2212:6,11	talk 2203:7	2191:3,5	2263:14,20	2285:18
2229:10	2262:6	tax 2174:9	2296:24	2287:1
2245:23	2265:9	2225:22	2297:1	2291:7
2248:13	2282:4	2226:3	2315:3	2296:7
2261:21	2286:12	2228:6	2364:8	2312:5
2356:12	talked	2297:14	2365:11	2313:11
table 2166:1	2211:18	2298:6	2414:8	2315:24
2171:7	2220:21	taxes	2417:24	2320:19
2180:16	2228:14	2286:16	2418:2	2321:6
2182:17,21	2265:15	2298:4	2419:25	2322:18
2185:2	2268:5	taxing	2420:14	2323:9
2221:16	2305:4	2227:20	terminates	2328:1
2231:12	2308:8	Tea 2227:20	2240:15	2331:4
2233:19	2309:3	2250:17,18	terms 2173:2	2334:14,17
2254:12	2374:20	teasing	2177:17	,23
2256:7	2400:23	2268:18	2178:17	2335:20
2300:7	2416:6,8	2383:1	2180:1,3,6	2337:23
2312:18	2421:12		,8 2182:24	2339:22
2318:22	talking			2340:10
2321:22	2187:20,21			2344:25
				2345:6,11,
				15,20
				2346:14,20

2349:8	2204:8,13	that's	2275:3	2379:8
2350:14	2213:20,22	2169:25	2277:22,23	2380:6
2354:25	2215:21	2172:10	2279:22	2382:4
2355:9	2216:22	2178:6	2283:14	2389:21
2356:18	2227:10	2180:10,17	2284:8,16	2390:8
2358:21	2242:9,17	2182:21,24	2287:25	2391:17
2359:25	2248:19	2184:14,17	2288:22	2392:5,7,1
2360:4	2260:12	,21,25	2290:17	1 2393:3
2362:1,8	2261:13,18	2185:3,8	2292:2	2394:10,23
2363:6	2263:1	2188:12	2293:2,25	2395:24,25
2364:5	2268:12	2190:15,24	2294:16	2399:16
2365:15,21	2273:20	2191:14	2297:18	2400:21
2366:11	2275:9	2192:4	2299:10	2401:15,17
2369:6	2277:5	2194:4,20	2305:15	2402:8
2370:9	2279:23	2197:8	2306:20	2407:1,8
2371:24	2288:24	2199:1	2307:3	2408:3
2373:1	2290:2	2201:1	2310:13	2411:4,5,7
2375:2,23	2299:10,11	2202:5	2311:14	2413:6
2376:19	,14	2203:4	2313:3,10,	2416:21,24
2410:15,20	2302:14	2204:16,24	17 2314:10	2417:3,25
2415:7	2304:2,4	2205:5,20	2316:18,19	2419:22
terrified	2307:16,18	2207:19	,25 2319:7	2421:20
2219:6	2310:14	2208:8	2321:9	2423:7,10,
territory	2314:7,21	2209:11	2322:3	20 2425:4
2333:14	2316:24	2211:7	2325:2	2427:20
TERRY	2319:17	2213:21	2327:18	2429:17
2166:12	2321:21	2217:22	2331:1	2431:9
2170:17	2322:14	2219:5,16	2332:3,6	2433:3,5,1
2313:3,6,1	2335:24	2222:21	2333:25	2
0,17,22	2344:19	2227:14	2334:18	2435:2,10,
2314:1	2346:11	2228:24	2338:25	12 2436:12
2386:1	2347:17	2229:20,24	2341:21	2437:16
test 2354:21	2350:7,8	2231:6,19	2342:9	2438:2
2355:15,19	2353:6	2232:4,12,	2343:5,6	theme
testified	2356:4	21,23	2349:1	2389:25
2377:14	2366:6	2233:12,13	2350:7	2410:11
testify	2369:5	2235:10,14	2352:11,20	2414:22
2374:2,6	2374:17,25	,16	2354:24	themselves
2378:17	2380:10,15	2238:9,13,	2355:8,16,	2335:20
tests	2383:9,16,	22 2239:11	22	2401:13
2353:14,18	23 2389:14	2243:4,17	2356:11,23	2426:25
2355:25	2392:4	2246:19	2357:12,13	theoreticall
Texas	2404:13	2254:21	2358:3,25	y 2304:23
2250:18	2410:10	2258:1	2359:22	theory
thank 2169:8	2414:2	2260:12	2360:9	2249:21
2176:8	2437:9	2262:16	2361:21	there'd
2177:4,9	2438:3	2263:13,19	2364:2,8	2225:15
2199:16	2439:8	,24 2264:5	2365:11,18	2410:8
2201:17	Thanks	2268:12	2369:23	therefore
2203:16	2189:1	2269:16,25	2372:13,21	2171:17
	That'll	2270:10,12	2374:16	there's
	2173:25	2271:6	2375:22	
		2272:23	2376:6	
		2274:19	2377:23	

2171:25	2433:5	2408:25	tie 2376:9	tonne
2174:19	2434:16,21			2222:19,25
2177:11	2435:11,16	thirteen	tight	2223:8,13,
2178:5	,18 2439:4	2223:12	2197:11	17,21,24
2192:24		thirty	2200:2,8	2234:5,19
2201:15	thermal	2198:12	2201:14	2235:23
2202:20	2241:8	2237:3,5	2202:6,10	2257:24
2224:3	they'd	2238:18	tightened	2258:22
2230:14	2199:13	2358:5	2258:12,14	2259:5
2245:8	they'll	Thomson	tightest	top 2170:3
2249:16,17	2178:2	2191:20	2197:14	2182:18
2251:12	2309:16	2193:4		2196:20
2263:16			till 2231:1	2213:10
2269:11,12	they're	thoughtful	2364:13	2407:20
,22	2201:7	2204:14	timelines	2410:23
2270:2,5	2203:7	2218:16	2197:17	
2271:13	2226:22	thousand	timely	topic 2174:6
2283:17,19	2243:25	2209:9	2310:23	total 2241:6
2286:7	2282:2	2303:14	2420:16	2262:22
2292:4	2295:13	2304:19		2284:23
2293:4	2296:14	2407:2	tinge	2406:8,11
2295:21	2310:11		2302:13	
2296:8,22	2316:7	three-o-	tired	totally
2300:1	2318:13	eight	2192:12	2347:8
2301:3	2329:23	2421:9		2355:24
2305:16,18	2351:10	three-	tires 2263:9	touches
2317:5	2380:3	quarters	title 2233:6	2346:7
2338:6	2410:21	2395:5		
2347:5	2411:18	throughout	to-date	towards
2350:6	2415:5	2170:2	2411:14	2185:10
2352:6	2424:5	2236:18	today	2228:20
2353:1	2427:10	2239:16	2177:16,22	2233:4
2384:10	2429:12,16		2179:15	2236:9
2389:1	2434:17	thrown	2188:16	2274:11
2390:12		2409:10	2203:20	2282:22
2391:1	they've		2218:15	2328:13
2394:22	2380:25	thumb	2219:7	2337:8,16
2396:20	2417:21	2329:20	2220:9,17	
2401:10	2432:23		2227:9	track
2405:11,14		ti 2181:6	2308:23	2430:23
2406:3	third	Tic 2208:20	2394:21	
2407:24	2179:15		2395:19,20	trade
2411:1	2180:18	ticket	2401:25	2190:12
2414:4,7	2210:18	2268:22,25	2437:4	2191:4
2416:5	2224:12	2269:4,5,6		2225:22
2417:10	2257:21	,9,19		2227:3,12
2418:21	2280:5	2274:2	today's	2228:16
2419:4,11	2296:6	2306:24	2210:13	2232:15,18
2420:24	2298:9		2439:5	2246:25
2422:10,17	2306:6	tickets		2247:17
,20 2423:3	2315:2	2268:23	tolerance	2257:4
2425:13,24	2354:8,9	2274:11	2192:15	2263:16
2430:3	2407:7	2275:6	tomorrow	
2431:5	thirdly	ticket's	2436:3,4	tradeoff
		2270:10	2439:7	2221:8

trading 2226:8	2378:8,9 2390:16,18 2406:1	2246:20 2258:1 2265:3	2378:1 2409:14 2418:1	2406:14,17 Twa 2413:23
traditional 2264:11 2265:1 2268:3	2418:15 2419:15 2420:13 2426:11,22 2427:1,4,1	2272:23 2273:3 2275:17 2326:16 2338:25 2347:7	Tuesday 2246:3 2250:14 2256:17	twelve 2223:12 2228:19 2324:15 2384:1 2421:4
train 2247:19	3,14 2429:7,10, 16 2430:14 2431:18 2432:18,20 2435:1	trust 2212:15 2326:12	tumultuous 2205:9,15	twenty 2194:18 2209:9 2220:13 2223:24 2234:5,14 2235:9 2237:17 2289:16 2383:24 2410:4 2432:2
trajectories 2254:5	transpired 2247:17	try 2179:2,23 2183:8 2190:24 2192:25 2252:13 2262:18 2274:20 2279:12 2284:3 2285:11,12 2293:16 2301:24 2310:23 2316:2 2318:2,8 2319:2 2338:5 2358:8 2390:3 2391:12 2398:22 2402:4 2406:3	turbine 2322:7,9	
trajectory 2235:11	trappers 2200:24		turbines 2316:6,11, 12,18 2352:19 2406:13	
transaction 2295:18 2427:4	Treasury 2358:5		turn 2169:6,14, 15 2176:10 2204:10 2212:6 2216:23 2224:2 2225:11 2245:22 2246:22 2248:13 2252:20 2254:10 2256:15 2258:2 2265:5 2311:17,24 2328:23 2342:12 2343:5 2349:18 2356:7,10 2357:1 2395:1	
transactions 2432:4	treated 2185:20			twenty-five 2220:13 2234:8,15 2235:10
transcript 2166:23 2385:4 2386:3 2424:5	treatment 2171:12,14 ,20 2172:4,7,1 0,15,16 2173:5 2182:6,10 2185:19 2341:24			twenty-seven 2310:3,5 2386:10
transfer 2425:4				twenty-two 2218:11
transform 2209:17				twice 2350:4
transformati ve 2209:3				two-fifty 2369:2
transmission 2168:6 2184:24 2282:11,13 ,18,23 2284:24 2288:21 2289:4 2291:1,4 2293:11 2294:14 2295:2 2296:5,9 2297:21 2298:22 2307:3 2330:18 2334:16 2338:23 2366:12 2376:20	trends 2255:20 TRG 2383:13 tried 2239:12 2306:21 2316:1 trip 2263:4 trivial 2361:16 trouble 2212:12 2288:8 truck 2262:5 true 2211:7 2227:17,18 2228:24	trying 2171:16 2179:10 2188:22 2228:14 2250:21 2251:1 2270:13,15 2290:14,22 2294:17,23 2296:25 2298:5 2314:24 2324:22 2333:4 2334:18		type 2257:17 types 2408:15 typical 2379:7 typically 2208:1 2263:15 2312:15 2379:1 typo 2174:6 2339:20 typos 2340:4
			turned 2258:2 turning 2317:2 2323:18 turnip 2262:4 turns 2252:15 2269:9	

ultimately 2249:20 2254:9 2274:23 2295:5 2384:22 2414:8	2211:19 und 2402:15 underlying 2291:8 underneath 2283:16 understand 2182:4 2190:18 2203:23 2212:23 2233:10 2235:8,19 2239:1 2241:17 2256:23 2259:4,7,2 3 2262:8 2264:1 2274:21 2288:19,23 2289:19 2290:10,11 ,14,23,25 2293:7 2295:10 2314:24 2317:20 2318:13,15 2334:18 2335:25 2348:15 2362:7 2370:7 2371:24 2372:7 2374:17 2375:1 2378:1 2382:21 2389:18 2395:17,18 2398:24,25 2400:3 2402:15 2406:21 2413:10 2428:17,19 understandin g 2243:5 2285:12	2318:3 2333:16 2363:17 understands 2411:12 understood 2385:20 2392:17 2415:17 undertake 2216:16 2288:9 2351:21 undertaken 2182:5 2311:7 2346:13 2360:12 undertaking 2167:7,8 2195:7 2288:4,13, 14 2289:1 2331:14 2346:8 2352:17 2372:2 2393:15 2402:16 2436:11,16 ,19 2437:1 Undertakings 2166:4 2168:1 undertook 2279:21 2307:25 underway 2195:17 2328:8 undue 2303:17 Unfortunate 2192:8 uniquely 2309:12 unit 2379:12 United	2227:2,12 2230:12 2242:22 2257:14 2293:23 2294:21 2297:21 2298:3,7 2429:19 units 2379:19 university 2189:6 unless 2175:14 2199:6 2226:24 2435:16 2439:4 unlikely 2263:9 unnecessary 2202:18 unprecedente d 2207:2,9,1 7 unsold 2417:10 unusual 2206:11 unwind 2435:1 update 2167:3 2169:22 2170:5 2171:12 2202:21 2310:15 2311:12 2323:24 2324:24,25 2325:9 2332:1,2,8 ,13,18 2340:10 2341:12,13 ,15,16	2370:16 2388:13 2410:1,7 updated 2171:1 2181:5 2326:22,23 2327:5,10 2335:1 2336:20 2341:17 2342:6,7,1 9 2344:4,5 2348:25 2350:20 2351:12 2353:13 2355:7,11, 12,19,20 2372:13,25 2376:19 2396:22 updates 2327:6 2350:11 upgrade 2378:3 2424:23 upon 2169:1 2176:23 2178:18 2179:5 2216:2 2225:4 2242:11,12 2253:24 2255:20 2270:20 2272:10 2299:16,17 2320:20 2323:3,14 2334:23 2338:21 2339:4 2343:1 2361:2 2362:7,19 2380:10 2384:4,5 2439:12 Upper
--	---	---	--	--

2242:21	2172:1,24	2329:21	2368:2	2397:12,22
upside	2180:8,18	2422:11	viable	,24
2175:18	2187:11,12	variabilitie	2367:1,6,1	wasn't
2187:3	2219:12	s 2430:25	3,21	2302:25
2380:2	2226:14	variability	2369:21	2303:1
2422:10,15	2265:16,24	2434:4,9	2372:8	2321:19
2434:11,21	2267:15	variable	2385:21	2339:24
upsized	2268:4	2414:16	view 2229:5	2342:1
2296:17	2270:2,17,	variant	2230:13	2344:14
2368:7	24 2271:18	2395:11	2232:3	2379:7
2377:15,19	2272:12	2396:5	2387:12	2386:5
upsizing	2273:24	variation	2409:9	2389:15
2433:6	2274:24	2405:2	visited	2393:7
upwards	2275:2,14	varies	2248:13	2394:13
2343:20	2283:13	2400:19	vocabulary	2398:3
2363:9	2292:16	variety	2169:20	2404:6
urgency	2293:5	2312:20	2176:17	2415:15
2417:22	2305:7,11	various	volatile	2426:10
useful	2306:12,20	2195:24	2205:22,23	2438:24
2170:9	2307:13	2202:12,13	volatility	water 2174:8
2253:16	2317:16	2226:2	2206:11	2429:1
2304:1	2322:19	2228:2	2431:5,23	2430:25
2392:5	2330:8,12,	2231:15,17	Volume	2431:1,3,4
2410:6	22 2331:4	2251:5	2386:24	,19,23
usual	2333:12	2300:25		2432:10,11
2210:21	2338:12	2324:14	wait 2192:9	Waxman
usually	2345:21	2349:4	2197:23	2254:1,7
2306:16	2346:8,9	2400:23	2219:22	W-A-X-M-A-N
ute 2379:12	2347:5	2411:18	2231:1	2254:1
utilities	2349:8	2415:12	2270:2	ways 2207:20
2164:3,21	2368:10	2416:4	2308:22	2262:19
2381:5	2370:4	Ver 2366:20	2364:13	wear 2263:9
2426:24	2373:13,14	verbally	waiting	we'd 2289:24
2427:8	,19	2208:14	2177:19	2301:19,20
utility	2378:13,14	version	2193:23	2302:17
2380:24	2407:1,2	2171:22	2268:18	2303:13
2393:16	2409:12,15	2193:23	2270:2,9,1	2308:19
	,17,19,23	2194:8	7 2309:15	2339:6
	2410:2	2195:18	walk 2273:6	2408:25
	2413:7	2246:23	2297:23	2409:2
	2427:18	2339:21	2358:9	2413:19
	2428:4,12	2340:6	walked	2415:14
	2429:13,15	2350:5	2188:25	week
	2430:20	versus	2423:23	2177:8,19
	2432:4	2236:21	wall 2244:25	2193:5
	2433:11	2271:14	warrant	2202:9,20
	2435:4	2308:11	2396:2	2256:18
valued	values	viability		2269:12
2410:8	2172:13,14			2343:7,15
2423:2	2180:7			2345:10
value 2171:7				

2370:20	2358:9	2398:11,18	2416:4	2432:12
2371:3	2380:9	2399:24	2421:8,12	whom 2252:8
2372:8,23	2394:3	2400:1,3	2426:11,12	who's
2378:18	2396:19	2401:1,18	,16 2428:1	2294:18
2380:10	2411:23	2402:4	2432:12,13	whose
2391:16	2413:17	2405:2,4,1	whatever	2266:24
weeks	2417:14	2,13	2200:22	wide 2219:20
2176:25	2423:11	2406:3	2244:1	2364:6
2179:7	2429:11	2407:8,25	2266:15	wildly
2196:21	2430:10,11	2409:14,15	2290:8	2411:18
2200:3,8	,18	2411:12	2293:15	William
2201:14	2431:11,12	2412:9	2371:11	2165:10
2305:25	2439:6	2420:2	2406:15	Williams
2317:5	we're 2169:4	2423:8,9,2	2412:17	2165:8
2398:16	2172:2	4 2428:21	whereas	2166:19
2402:24	2174:5	2429:10,14	2188:3	2176:11,15
2434:1	2178:22	2430:4	2201:13	,20,22
weighed	2179:1	2432:9,11	2316:14	2179:22,23
2275:5	2193:22	2433:4	whether	2180:12,17
weighted	2196:6	2434:20	2179:9	,24
2364:11,16	2198:8	2435:1,10	2196:1	2181:3,12,
Weinstein	2202:5	west 2231:16	2198:21	17,25
2165:22	2208:14,17	2245:1	2202:24	2182:3,12,
welcome	2213:22	2424:4	2203:8	16,22
2204:7	2214:14	we've	2220:13	2183:3,8,1
we'll	2244:23	2171:14,19	2227:5,6	6,20,21
2179:23	2261:20	2211:17	2241:2	2184:2,8,1
2180:13	2267:3,14	2220:14	2267:15,22	1,16,20
2184:3	2288:8,23	2228:14,24	2300:25	2185:1,5,9
2212:15	2289:23	2268:4	2305:17	,13,21
2213:11	2293:12,16	2292:14	2309:15	2186:1,8,1
2215:1	,24	2296:11,17	2327:4	2,17,22
2227:16	2294:17,23	2309:25	2333:4	2187:5,13,
2230:15,25	2297:11	2310:1,18	2339:6	21,24
2231:21	2301:16	2317:10,14	2368:3	2188:3,8,1
2232:24	2302:4,23	2325:15	2393:16	4,19,25
2233:15	2303:12	2348:11	2394:6	2189:1,10,
2252:19	2308:5,20	2358:19	2401:11	18,25
2253:1	2310:16,17	2360:12	2408:13	2190:6,10,
2264:21	2318:21	2363:8	2409:15	17,23
2297:25	2340:2,3	2365:11	2415:3,11,	2191:9,18,
2305:22	2346:6	2366:10	21,22	25
2308:6	2350:11	2367:25	2424:11	2192:5,8,2
2309:9	2356:13	2368:25	2431:18	0,25
2317:1	2360:1,6	2371:8,14,	2432:1	2193:10,16
2318:8	2364:7	22 2385:14	2433:11	,25
2325:20	2365:10,17	2388:18	whole	2194:5,15,
2326:20	2368:25	2396:17	2229:25	22 2195:4
2334:3,12	2374:7	2400:15,16	2294:7	2196:14
2350:9	2379:18	2401:9,22	2301:25	2197:1
2353:14	2384:7	2406:5	2302:9	2199:15,24
	2390:4	2411:17,22	2414:4	
	2391:12,20	2412:21,22		

2201:17	21	23	24	20
2202:3	2238:3,7,1	2272:2,6,1	2323:9,13,	2354:2,7,1
2203:16	0,14,17,24	0,14,17,24	17,19,22	2,17,20,25
2204:5,6,9	2239:5,13,	2273:4,13,	2324:1,5,8	2355:6,9,1
,17,25	19	14,20	,12,21	4,17,23
2205:6,14,	2240:2,8,1	2275:7,10,	2325:3,19	2356:4,25
23	4,22	19	2326:1,6,1	2357:5,14,
2206:9,18,	2241:10	2276:5,6,1	0,17	20,25
22	2242:1,16,	2,18	2327:3,14,	2358:4,7,1
2207:5,15	17,19,20,2	2277:5,9,2	17	4,17
2208:5,10	5	3	2328:3,7,1	2359:4,8,1
2209:1,5,1	2243:9,22	2278:4,12,	0,13,21	4,19,24
2,23	2244:2,11,	22	2329:8,11,	2360:4,11,
2210:3,8,1	18,22	2279:13,23	16,19,25	16,24
7,24	2245:17,21	2281:19,25	2330:9,11,	2361:6,13,
2211:2,8,1	2246:1,10,	2284:1,2,1	15,20,24	25
2,17,21	21	0,14,20	2331:2,7,1	2362:6,13,
2212:3,11,	2247:4,20	2285:1,6,1	2,20	18,23
21	2248:3,12,	0,24	2332:4,7,1	2363:1,6,1
2213:8,16	19	2286:25	7	6,19,22
2214:2,11,	2249:4,12,	2287:4,9,1	2333:3,11,	2365:20
14,18,25	24	4,17,20,25	15	2366:6,15,
2215:6,10,	2250:12,23	2288:12,20	2334:3,7,1	22
15,21	2252:19	,22	0,11,22	2367:3,11,
2216:9,15,	2253:1,12,	2289:14	2335:10,24	16,18,19
22	22	2290:11	2336:18,25	2368:1
2217:3,7,1	2254:10,18	2299:19,25	2337:3,7,1	2369:5,10,
1,14,17,23	,23	2300:14,15	3,19,22	12
2218:14	2255:8,17	2302:5	2338:3,20	2370:6,14,
2220:1	2256:6,15,	2304:3	2339:2,13,	18
2221:5,11,	22	2307:16	14,20	2371:2,17,
22	2257:6,11,	2310:14	2340:5,14,	21
2222:8,15,	18 2258:20	2311:3,4,1	18,21,25	2372:6,21
23	2259:3,22	1,15,23	2341:3,11,	2373:8,16
2223:3,7,1	2260:11,14	2312:3,10,	20	2374:1,16,
1,15,20,23	,17	17,23	2342:5,10,	18,25
2224:1,9,1	2261:15,16	2313:4,7,1	17,25	2375:9,19,
5,18,25	,20	1,18	2343:4,14,	23
2225:11,16	2262:3,17	2314:6,15,	18,23	2376:3,13,
2227:10,15	2263:2,7,2	21	2344:3,19,	18,23
2228:11	4	2315:9,14,	24	2377:12,18
2229:16,22	2264:6,9,2	18,22	2345:4,9,1	,22
2230:15,25	0,24	2316:24	4,19,25	2378:15
2231:5,8,1	2265:4,8,1	2317:10,14	2346:11,19	2379:10
2,20,25	2,15,18,21	,19	2347:3,15	2380:9,14,
2232:10,23	2266:1,6,1	2318:1,9,1	2348:14	17,19
2233:14,22	2,17,24	7,21	2349:6,13,	2381:18,21
2234:7,12,	2267:6,9,1	2319:2,10,	18,23	2382:20
14,20	4,20	16,22	2350:3,18	2383:1,5,9
2235:3,7,1	2268:2,9,1	2320:6,10,	2351:3,8,1	,16,23
9,24	4,17	14,18,25	8,20	2387:15
2236:4,8,1	2270:1,12,	2321:5,13,	2352:1,5,1	2388:3
4,19	19,23	21	0,20,24	2399:14
2237:7,16,	2271:2,16,	2322:4,13,	2353:5,17,	2400:1

2437:10,16	2363:3	2266:3,13,	2405:21	2318:4
2438:4,8	2389:10	15	2406:7,25	2418:13
Williams's	2439:6	2277:7,10,	2407:6,13,	2419:18
2169:15	wishful	24	19,22	working
2242:8	2339:25	2300:13,19	2408:5,9,1	2202:5
2300:20	withstand	2302:6,13	8 2409:18	2253:23
2428:15	2434:9	2304:4,11	2410:19	2297:11
willing	witness	2307:19	2411:11	2420:2
2368:3	2216:25	2308:15	2412:1,10	works
2391:8	2217:5	2310:16	2413:14,23	2219:25
2427:24	2275:23	2314:11,13	2414:9	2266:15,16
2429:10,14	2367:10	,22	2415:6,24	2401:14
,16,25	witnesses	2315:8,13,	2416:1	2428:19
2430:4	2367:15	17,21	2433:21	workshop
2433:4	2397:2	2316:1	Wojczynski's	2371:12
willingness	Wojczynski	2322:5,14	2232:3	2379:15
2417:1	2166:16	2340:2	2325:6	2385:4,23
wind 2211:13	2170:21	2342:18	2329:20	world
2296:12,15	2173:23	2343:17,22	2438:9	2204:21
,19	2188:18	2344:2,10	wonder	2207:25
2320:11	2189:2	2347:23	2195:6	2208:21
2324:25	2192:12,17	2348:15,21	2290:16	2226:2
2375:5,10	,23	2349:7,10	2299:23	2232:3,8
2376:4,7,1	2193:1,9,1	2352:16,21	2342:11	2250:16
2 2383:13	1,15,20	,22	2384:10	2251:17
2428:18,20	2194:4,6,1	2353:1,6	wondering	2303:10
2429:18	2,20	2366:16,19	2291:6	2393:15
2430:18	2195:1,4,9	,20 2367:2	2300:14	worldwide
2432:21	2196:19,20	2371:7,18,	2437:13	2225:23
window	2198:3	21,24	work 2172:1	worry
2270:6	2199:23	2372:5	2178:21,22	2307:21
2309:4	2200:7	2374:18	2192:17,22	2431:18
Winnipeg	2202:1	2378:16,22	2194:16	worse
2164:23	2217:12,15	,23	2213:4	2249:19,20
winter	,16,18,22,	2379:14	2219:16	2422:1
2313:12,13	24	2380:10,12	2228:1	worsened
,20 2314:4	2221:12,21	2384:12,13	2251:17	2188:11
2430:10	2222:3,14,	,15,17	2262:13	worth 2269:3
Wisconsin	21	2388:14	2266:13	2434:2
2174:25	2223:2,6,1	2390:23	2274:19	worthwhile
2190:2	0,14,19,22	2391:15	2288:9	2172:20
2426:21,25	,25	2393:1	2301:9,22,	Woz 2224:16
2427:6,9,1	2224:8,13,	2394:9,12,	23	WPS 2184:23
1,13,15	16,17,24	15 2395:23	2328:6,7	2218:10
2428:3	2225:7,14,	2396:18,23	2331:11	2276:9,24
wise	18 2226:21	2397:6	2345:18	2277:12,18
2208:19,22	2227:14,22	2399:8,20	2348:12	2278:6
2210:19	2228:12,23	2400:8,21	2375:17	2280:5,24
wish 2218:18	2229:17,18	2401:21	2418:1	
	,23	2402:23	2431:2	
	2230:1,20	2403:5,7,1	2432:17	
	2246:2	2,18	worked	
		2404:5,12,		
		18,20		

2281:7,15	2174:7	2340:8		
2330:18	2178:9	2343:7,14		
2332:12,15	2314:10	2349:15		
,23	2352:17	2350:18		
2333:6,13	yet 2177:12	2352:13		
2334:14	2178:6	2353:21		
2335:16	2210:5,10	2354:14		
2336:9,10,	2302:4	2356:17		
21 2337:11	2331:8	2357:2		
2338:22	2386:6,15	2358:19		
2341:4,6,1	2398:19	2359:25		
1,18,24	2404:6	2360:5,24		
2351:2	yield 2358:2	2361:9		
2391:7	2361:4	2362:6		
2394:2	2365:7	2363:1		
2397:9	2381:23	2372:3		
2398:2,10	yields	yourself		
2401:6,12	2357:10	2293:20		
2408:2	2358:5,22	2367:4,9		
2413:12,19	2360:18	you've		
2421:8	2365:2,5	2175:19		
2426:21	York 2245:1	2181:5		
2427:4	you'll	2182:5		
2428:18	2180:15	2185:14,22		
written	2187:2	2221:12		
2389:5	2192:13	2239:21		
wrong	2209:2,7	2242:20		
2272:20	2212:18	2256:18		
2275:24	2214:4,21	2301:5		
2285:14	2215:11	2304:7		
2318:6	2217:19	2316:5		
wrote	2224:7	2327:19		
2205:18	2228:18	2334:5		
2271:22	2233:17	2358:14		
Wusk 2216:25	2244:4,23	2360:13		
Wuskwatim	2246:2	2362:2,14		
2216:25	2252:20	2373:9		
2217:5,21	2256:8,16,	2379:3,4		
2221:14,18	17 2264:24	2409:11		
	2267:11	2414:4		
	2275:23	2421:7		
<hr/> X <hr/>	2283:5	<hr/> Z <hr/>		
X-axis	2285:13	zero 2221:16		
2236:24	2291:3	2236:17		
2256:2	2306:1	2256:14		
	2312:4	2387:20		
<hr/> Y <hr/>	2317:3	zeroes		
Y-axis	2323:2,18	2266:4		
2231:21	2326:13			
2256:5	2328:15			
	2329:2			
yesterday	2330:12			