



“When You Talk - We Listen!”



MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA HYDRO
GENERAL RATE APPLICATION
2012/13 AND 2013/14

Before Board Panel:

Regis Gosselin	- Board Chairman
Raymond Lafond	- Board Member
Larry Soldier	- Board Member

HELD AT:

Public Utilities Board
400, 330 Portage Avenue
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Pages 3864 to 4115

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1	TABLE OF CONTENTS	
2		Page No.
3	List of Exhibits	3867
4	List of Undertakings	3868
5		
6	GAC PANEL 1:	
7	PAUL CHERNICK, Affirmed	
8		
9	Examination-in-chief by Mr. William Gange	3879
10	Cross-examination by Mr. Byron Williams	3912
11	Cross-examination by Ms. Patti Ramage	3918
12	Cross-examination by Ms. Anita Southall	3949
13	Re-cross-examination by Ms. Patti Ramage	4058
14		
15	MANITOBA HYDRO PANEL 2 - REVENUE REQUIREMENT, RESUMED:	
16	VINCE WARDEN, Resumed	
17	DARREN RAINKIE, Resumed	
18	TERRY MILES, Resumed	
19	DAVID CORMIE, Resumed	
20	MANFRED SCHULZ, Resumed	
21		
22	Continued Cross-examination by Mr. Byron Williams	4069
23		
24	Certificate of Transcript	4115
25		

1	LIST OF EXHIBITS		
2	Exhibit No.	Description	Page No.
3	GAC-6	Spreadsheet that allows the user	
4		to select the number of kilowatt	
5		hours in the first block, the price	
6		in the second block, the monthly	
7		customer charge, and then computes	
8		the first block price that would	
9		result in the same residential	
10		revenues that would have been	
11		received under Hydro's rates for 3879	
12		September of 2012	
13	MH-74	Response to Undertaking 48	4065
14	MH-75	Response to Undertaking 59	4065
15	MH-76	Response to Undertaking 60	4065
16	MH-77	Response to Undertaking 74	4066
17	MH-18 (ADDITION)	Three (3) Tabs: 21, 22, and 23	4066
18	MH-22 (ADDITION)	Tab 9, with CAC Pre-ask 9	
19		behind it	4066
20	MH-78	Response to Undertaking 44	4067
21	MH-79	Response to Undertaking 55	4067
22	MH-80	Response to Undertaking 69	4068
23	MH-81	Response to Undertaking 76	4068
24			
25			

1		LIST OF UNDERTAKINGS	
2	No.	Description	Page No.
3	83	GAC to provide the spreadsheet	
4		underlying GAC-6	3912
5	84	GAC to confirm email with the live	
6		spreadsheets was received	3920
7	85	GAC to provide two (2) or three (3)	
8		samples of proof of revenue	
9		described in other jurisdictions	3961
10	86	GAC to provide details on the energy	
11		conservation programs; and indicate	
12		any better approaches	4022
13	87	Manitoba Hydro to estimate the	
14		incremental EFTs per year associated	
15		with the preparation of the	
16		distribution asset report	4073
17			
18			
19			
20			
21			
22			
23			
24			
25			

1 --- Upon commencing at 9:05 a.m.

2

3 THE CHAIRPERSON: Good morning. I
4 believe we're ready to start. We have somebody in the
5 normal shoes of legal counsel, Mr. Peters. And
6 welcome, Ms. Southall.

7 MS. ANITA SOUTHALL: Thank you very
8 much, Mr. Chairman. I'm going to be counsel for the
9 Board for a couple of days for the evidence of Mr.
10 Chernick and Mr. Dunsky. So good morning to everyone.
11 Mr. Gange, you appear to be ready with your witness.
12 So I think without further ado, Mr. Chairman, the
13 direct evidence of Mr. Chernick could proceed. Thank
14 you.

15 THE CHAIRPERSON: Thank you, Ms.
16 Southall. Now, I just want to -- before we start, I
17 wonder if I could make sure that we all pronounce your
18 name correctly, Mr. Gange. So I want to make sure I --
19 so would you mind.

20 MR. WILLIAM GANGE: I say my name,
21 "Gange".

22 THE CHAIRPERSON: Gange.

23 MR. WILLIAM GANGE: Yes.

24 THE CHAIRPERSON: Okay, as in the
25 Gange's River, or the Gange --

1 MR. WILLIAM GANGE: Well, without the
2 'E'.

3 THE CHAIRPERSON: -- without -- yes,
4 yes.

5 MR. WILLIAM GANGE: Without the 'E'.

6 THE CHAIRPERSON: Okay.

7 MR. WILLIAM GANGE: But -- but, yes,
8 Gange.

9 THE CHAIRPERSON: That should be
10 relatively easy to remember.

11 MR. WILLIAM GANGE: Sort of like --

12 THE CHAIRPERSON: Okay.

13 MR. WILLIAM GANGE: Sort of like banjo
14 without the 'O'.

15 THE CHAIRPERSON: Okay. Okay. So I
16 want to make sure I say it properly: Gange?

17 MR. WILLIAM GANGE: That's correct,
18 sir.

19 THE CHAIRPERSON: Okay. Welcome.

20 MR. WILLIAM GANGE: Thank you, Mr.
21 Chair. This morning we have the evidence of -- on
22 behalf of the Green Action Centre, Mr. Paul Chernick.
23 And Mr. Chernick is -- is being presented to provide
24 expert testimony to the Board to assist in the Board's
25 review of this General Rate Application.

1 I will very briefly review Mr.
2 Chernick's qualifications for the Board and then ask
3 the other counsel whether they have any objections to
4 having Mr. Chernick sworn as -- as an expert and
5 present expert testimony. And -- and then it's up to
6 you to accept Mr. Chernick's expertise. And then once
7 that's been done, we either go home for the day or --
8 or Mr. Chernick presents his evidence. So, Mr.
9 Chernick --

10 MS. PATTI RAMAGE: Mr. Gange, if it is
11 of at all assistance, Manitoba Hydri -- oh -- Manitoba
12 Hydro will have no objections, if -- if that's of any
13 assistance before. Mr. Chernick has been before this
14 Board before.

15 MR. BYRON WILLIAMS: Certainly, CAC
16 (Manitoba) accepts Mr. Chernick's expertise, although
17 we certainly wouldn't mind hearing a reminder of it.

18 MR. WILLIAM GANGE: What -- what I --
19 well, then -- then with that -- thank you, Ms. Ramage
20 and -- and Mr. Williams. Mr. Chair, I would ask that
21 you accept Mr. Chernick's qualifications as an expert.
22 He will -- I will start with a brief review of -- of
23 his background and his expertise in this area.

24 But seeing that there will be no
25 objection, I don't think that it's difficult for you to

1 make a ruling to accept him as an expert witness.

2 THE CHAIRPERSON: Nonetheless, I will
3 just check with my co-panel members. Thank you.

4 MR. WILLIAM GANGE: Thank you. Mr.
5 Chernick, we -- therefore, if we can, we'll go briefly
6 over your expertise.

7 Mr. Chair, you should have in front of
8 you the direct testimony of -- of Mr. Chernick that was
9 filed as -- as GAC Exhibit number 3.

10 MR. RAYMOND LAFOND: Is this dated
11 November 16th?

12 MR. WILLIAM GANGE: November 16th,
13 2012, yes, that's correct, Mr. Lafond. And you'll see
14 at Tab 1 of Exhibit 3, Mr. Chernick's curriculum vitae.

15 And so, Mr. Chernick, perhaps you could
16 briefly review your educational experience and your
17 work experience, and your experience in terms of
18 preparing evidence for and testifying before regulatory
19 bodies.

20 MR. PAUL CHERNICK: All right. I'll
21 try and keep this very brief. I have a master's in
22 technology and policy from the Massachusetts Institute
23 of Technology. I have been working in the field of
24 utility planning and regulation since 1977. I've
25 testified in about two hundred and seventy (270)

1 proceedings in roughly thirty-five (35) jurisdictions
2 across North America.

3 My work, basically from the beginning of
4 my -- of my career in utility regulation, has involved,
5 among other things, rate design, marginal cost,
6 pricing, resource planning, the choices between
7 efficiency and new construction, and, more recently,
8 the operation of power markets in several parts of the
9 country.

10 MR. WILLIAM GANGE: You have appeared
11 before this Board previously, sir?

12 MR. PAUL CHERNICK: Yes, I have, in, I
13 believe, three (3) proceedings.

14 MR. WILLIAM GANGE: And, sir, you have
15 prepared, and we have filed, Exhibit 3, which is your
16 pre-filed direct testimony.

17 Is that correct?

18 MR. PAUL CHERNICK: Yes.

19 MR. WILLIAM GANGE: And are there any
20 corrections that you wish to make with respect to that
21 direct testimony, or can the Board accept it as it was
22 submitted?

23 MR. PAUL CHERNICK: I don't have any
24 corrections.

25 MR. WILLIAM GANGE: Okay. I understand

1 today -- I do not intend, Mr. Chair, to go through Mr.
2 Chernick's testimony question by question. You've got
3 it. I -- I'm satisfied, given the level of questioning
4 that the Board has provided to the Hydro panel, that
5 you've reviewed it. And -- but Mr. Chernick is going
6 to comment on a couple of issues that have arisen and -
7 - and expand testimony and -- and provide some insight,
8 in terms of -- from -- from his perspective, in terms
9 of what's happened in this hearing to date.

10 So there are a couple of issues that
11 you'd like to discuss, including residential inclining
12 block rates and the challenges and opportunities facing
13 Hydro with respect to issues of fuel choice.

14 Is that correct, Mr. Chernick?

15 MR. PAUL CHERNICK: Yes.

16 MR. WILLIAM GANGE: Okay. Let's --
17 well, I'll turn it over to you with respect to
18 residential rate design.

19 MR. PAUL CHERNICK: Okay. I -- I'd
20 like to start by --

21 MR. KURT SIMONSEN: Mr. Chair, sorry.
22 Should we swear the witness in first?

23 MR. WILLIAM GANGE: I apologize, Mr.
24 Simonsen. Yes, of course we should.

25

1 GAC PANEL 1:

2 PAUL CHERNICK, Affirmed

3

4 THE CHAIRPERSON: The first order of
5 business for the panel is to welcome you to Winnipeg.
6 I -- I know you've been here before, but you probably
7 haven't been here when it's minus 20, or have you?

8 MR. PAUL CHERNICK: Well, actually, my
9 previous visit in December of 2011, I believe Mr. Gange
10 called me up to warn me that it was going to be minus
11 40 with the wind chill. So I -- I have -- I've been
12 impressed by Winnipeg a couple of times. My father was
13 born in Winnipeg. My -- my grandfather lived here for
14 about ten (10) years, until he got his Canadian
15 citizenship. And then the first December after that,
16 he moved to Los Angeles. So my family has a long
17 history of familiarity with Winnipeg winters. I've
18 done nothing to avoid them, personally.

19 In -- in terms of residential rate
20 design, I wanted to make it clear that while the -- the
21 Board has decided to bifurcate this proceeding. And so
22 rate design, along with cost of service, will be dealt
23 with in the springtime. And -- and that's quite a -- a
24 usual process in many jurisdictions, especially where
25 the -- the core rate level issues are complicated.

1 Regulators often split of the rate design for a -- a
2 second phase of the case or a separate proceeding.

3 So, therefore, the design of the rates
4 is not an issue in this proceeding. But the scope of
5 that spring proceeding has arisen as an issue. The
6 spring proceeding had -- was created by a Board order
7 in this case, and the -- the nature of that and the
8 scope of that proceeding came up in part when Hydro's
9 rebuttal testimony questioned whether residential rate
10 design should be included in the spring case, even
11 though that, as I read it, was clearly the intention of
12 the Board order, that all parties rate design proce --
13 proposals be dealt with in the spring.

14 And it's not clear to me exactly why
15 Hydro wanted to avoid dealing with residential rate
16 design and the inclining block rate that my clients
17 have proposed pursuing. But it may be that -- that
18 Hydro is under the impression that designing such rate
19 would be very complicated and re -- would require
20 extensive analysis and consultation. But Hydro has
21 also rejected the Board's suggestion that it work with
22 the parties to develop rate design proposals for the
23 spring proceeding, which leaves us in a situation where
24 it's -- it's really very puzzling as to what the -- the
25 issue is.

1 Now, we've been advocating -- that is,
2 the GAC has been advocating for an inclining block rate
3 for residential customers and perhaps eventually other
4 customers as well. And maybe I ought to explain what I
5 mean by that. With an inclining block rate, each
6 customer can use up to a fixed amount each month at a
7 low price, and additional con -- consumption is then
8 priced at some higher value. Some rate designs use
9 several blocks. For simplicity in this discussion,
10 I'll only discuss two (2) block designs, with a monthly
11 customer charge and two (2) energy blocks: a low
12 initial block and then a higher tail block.

13 And in -- inclining block rates are used
14 fairly widely to give customers increased incentives
15 for conservation. Customers whose use falls in that
16 higher block save that higher rate for each kilowatt
17 hour they conserve and pay the higher rate for every
18 kilowatt hour wasted. While the smallest customers pay
19 a lower marginal price, they generally have fewer
20 conservation opportunities, since they don't use much
21 power anyway.

22 The average price faced by consumers,
23 weighted by the kilowatt hours subject to those two (2)
24 prices, goes up with an inclining block rate compared
25 to a flat rate, because there are many kilowatt hours

1 billed in the lower rate for customers whose final
2 kilowatt hours are in the higher rate.

3 And it's -- it's fairly clear that
4 customers do respond to higher tail block prices,
5 especially if they're educated about the effect of the
6 rate design on their bills. They don't necessarily
7 intuit what's going on just from getting a piece of
8 paper with numbers on it every month. But if they're -
9 - if it's explained to them that increased consumption
10 will cost them more than it did before, decreased
11 consumption will cost them less, that they basically
12 are getting a reward if they use less and are -- are
13 paying a higher price if they use more, they do
14 respond.

15 And those higher conservation incentives
16 encourage customers to participate in Power Smart
17 programs and to do things that -- that Power Smart
18 would encourage perhaps even outside the program, but
19 also to take actions that are difficult to encourage
20 through any DSM program, such as turning off lights,
21 computers, stereo, and TV when that's not in use;
22 putting that kind of equipment on power strips so that
23 they can be turned really off instead of cons --
24 continuing to consume energy when nobody's around to
25 use them; minimizing hot water run times and volumes;

1 you know, not letting the -- the shower run while
2 you're doing something else; waiting to run full loads
3 of laundry and dishes; and otherwise reducing usage
4 through behaviour rather than installing additional
5 equipment or improving the efficiency of the equipment
6 that's there.

7 And the -- the design of an inclining
8 block rate is not technically difficult. My staff and
9 I developed a simple spreadsheet that allows the user
10 to select the number of kilowatt hours in the first
11 block, the price in the second block, the monthly
12 customer charge, and then computes the first block
13 price that would result in the same re -- residential
14 revenues that Hydro -- that would -- would have been
15 received by -- under Hydro's rates for September of
16 2012.

17

18 EXAMINATION-IN-CHIEF BY MR. WILLIAM GANGE:

19 MR. WILLIAM GANGE: And -- and, Mr.
20 Chernick, you -- you indicated that you've prepared
21 that. I'm going to introduce that as -- as an exhibit,
22 GAC number 6, which I've provided to Mr. Simonsen.
23 And, Ms. Ramage, I'll provide you with a bunch.

24

25 --- EXHIBIT NO. GAC-6: Spreadsheet that allows the

1 user to select the number
2 of kilowatt hours in the
3 first block, the price in
4 the second block, the
5 monthly customer charge,
6 and then computes the first
7 block price that would
8 result in the same
9 residential revenues that
10 would have been received
11 under Hydro's rates for
12 September of 2012

13

14 MR. PAUL CHERNICK: Now, to do this
15 kind of analysis you need bill frequency data, which is
16 information on the number of -- of bills in each block
17 of the -- of usage and the kilowatt hours used in -- in
18 various load levels.

19 And Hydro provided some residential bill
20 frequency data in response to our question in set 1.
21 Question 4A they provided as a PDF. We converted it to
22 a spreadsheet. And then we used that distribution of -
23 - of bill frequency.

24 That's not, I'm sure, exactly the bill
25 frequency analysis -- bill frequency distribution that

1 Hydro would project for 2014, for example. And so,
2 therefore, any actual rate design would -- would --
3 should be cued off of a slightly different set of data.
4 And I'm not proposing any specific rates here. I'm
5 just pointing -- explaining the process so that the
6 Board has a better idea of what we're asking for in the
7 follow-up proceeding.

8 Now, with respect to the -- the handout,
9 I -- I ran through four (4) examples of blocked rates
10 that produce the same revenues as Hydro's rate.
11 Hydro's rate is a flat six point nine-four (6.94)
12 cents. And I used three (3) examples where the first
13 block is 900 kilowatt hours, one (1) with a smaller 500
14 kilowatt hour first block. You could do other
15 examples.

16 The 900 kilowatt hours covers 52 percent
17 of the bills but only about 19 percent of kilowatt
18 hours. That means 81 percent of residential kilowatt
19 hours would be billed in bills at -- that would be at
20 the higher second block rate. Five hundred (500)
21 kilowatt hours covers about 27 percent of bills and
22 only 6 percent of the energy.

23 So in -- in eith -- with either block
24 design, the vast majority of kilowatt hours are in
25 bills that are charged some of that second-block

1 energy. And for simplicity, I kept the customer charge
2 at the six eighty-five (6.85) per month that Hydro had
3 proposed.

4 And in the 900 kilowatt hour cases, I
5 used three (3) different second-block rates: eight (8)
6 cents, seven and a half (7 1/2) cents, seven and a
7 quarter (7 1/4) cents. And you can compute usage for
8 any level that you want. I picked four (4)
9 representative sizes, just to keep the -- the size of
10 this chart down to a -- a reasonable level: five
11 hundred (500), twelve hundred (1,200), twenty-five
12 hundred (2,500), and 4,000 kilowatt hours

13 And just to put that in perspective,
14 Hydro estimates that the average non-heating customer
15 uses about 800 kilowatt hours a month, and the average
16 heating customer about 2,000 kilowatt hours.

17 MS. PATTI RAMAGE: Mr. Chair, if I
18 could just interject. I'm a little concerned, because
19 we're going into a fair amount of detail on the
20 inclining block rate structure, which is a matter
21 that's been put off to the next hearing. And I'm just
22 concerned it's not a proposal before the Board.

23 And it's -- in fact, the Board has said
24 it's going -- it's to be dealt with at the next
25 hearing. It's certainly not something I was expecting

1 to deal with today, in terms of -- I don't have the
2 appropriate people to advise me, for example, on -- on
3 the consistency of this, if it's in any way
4 controversial or not.

5 MR. WILLIAM GANGE: And -- and, Mr.
6 Chair, the -- as -- as Mr. Chernick said, this is not
7 something that's being presented to the Board for the
8 purposes of the Board setting rates. It's -- it's
9 really an educational process to say, This is how an
10 inclining block rate design can work and why it's
11 something that the Board, at the next hearing, ought to
12 be considering.

13 So -- so it's not -- it's not meant to
14 ambush, to say this is something that -- that the Board
15 should be deciding in this hearing, that there should
16 be a rate design implemented now. But it's -- it's
17 really just for background informational purpose so
18 that the scope of the second hearing, the second part
19 of this hearing, that you will understand from our
20 perspective why it is that -- that an inclining block
21 rate should be considered fully at that point.

22 You'll recall that when I was examining
23 Mr. Wiens dur -- during his testimony, that I put to
24 him the fact that there had been a number of Board
25 initiatives -- Board directives, including in 05/12,

1 which had directed Hydro -- Manitoba Hydro to present -
2 - to -- to complete a study on inclining block rates
3 and to present that to the Board.

4 And -- and you'll recall that Mr.
5 Wiens's answer was, We haven't done that yet. And this
6 is -- this is not meant -- and I -- and I hope -- well,
7 I -- I want to take that off the table. It's not meant
8 to be an ambush, and it's -- it's meant really to be
9 for educational purposes for the Board to say, Okay,
10 that's something that's of interest to us.

11 You may reiterate the Board directive
12 from 05/12 to say, as a result of Mr. Chernick's
13 evidence, we want Manitoba Hydro to present the -- the
14 study that's been requested by previous orders. And --
15 and we're certainly -- that -- that will be one (1) of
16 the things that I say in my closing statement.

17 But the only way that you're going to
18 know that -- of -- of whether you have any interest in
19 it, is if you have Mr. Chernick's explanation now as to
20 why you should be considering it.

21 MS. ANITA SOUTHALL: Mr. Chairman, I
22 think -- I think, with Mr. Gange's explanation of this,
23 perhaps Mr. Chernick is actually coming to the
24 conclusion of the explanation. I'm not entirely sure.
25 But it sound -- it looks from his indication like he's

1 close to that.

2 And on the understanding that this is
3 not a proposal but a -- a basic education of the
4 concept or -- or a theoretical example of the concept
5 of inverted rates or inclining rates, we could just
6 proceed and he'll conclude that part, I take it.

7 MR. WILLIAM GANGE: That's correct. I
8 believe that Mr. Chernick's evidence is almost complete
9 on this chart. And he will have a few other comments
10 about what the -- the -- the advantages of an inclining
11 block rate are, which will probably be quite consistent
12 with what Mr. Wiens testified during -- during my
13 cross-examination of him, where Mr. Wiens had a number
14 of things where he said, Yeah, those -- those things
15 are -- are positive.

16 And you'll also recall that Mr. Warden,
17 in his -- in -- in his opening statement, had said that
18 -- that one (1) of the issues that Manitoba Hydro
19 wanted to move back to was the concept of an inclining
20 block rate.

21 THE CHAIRPERSON: Ms. Ramage -- do --
22 do you have anything else you want to add?

23 MS. PATTI RAMAGE: No, I think my point
24 was simply, I think this is more appropriately dealt
25 with perhaps at the pre-hearing conference for the next

1 hearing. But if we're winding up it's -- it's -- I
2 think the Board understands the concept of inclining
3 rates. I was just concerned with the level of detail
4 we might be going into.

5 THE CHAIRPERSON: I'm sorry. I think
6 the panel would like to hear the rest of the commentary
7 from Mr. -- Mr. Chernick, simply from a learning
8 perspective. I think it's very interesting -- at least
9 for me it's very interesting, so I'd like to learn some
10 more.

11 MR. PAUL CHERNICK: Okay, I am pretty
12 close to wrapping up. The -- the other things I want
13 to say about these examples are -- are, first, that
14 these are relatively modest inclining blocks, that the
15 tail block here is -- is between 9 and 34 percent
16 higher than the first block. In California, it has not
17 been uncommon to have tail blocks that are twice as
18 high as the first block rate. So you certainly could
19 have much broader spreads than this, although you
20 wouldn't want to go to that in the -- the first year,
21 in terms of giving people a chance to react to it over
22 time.

23 Anyway, as you can see under the columns
24 that -- labelled, "Difference for Manitoba Hydro
25 proposal," customers, actually, under about 16 or 1700

1 kilowatt hours would have lower bills, and larger
2 customers would have higher bills with these various
3 inclining block rates. The bills for the largest
4 customers I've looked at, which represent something
5 like the 95th percentile of residential bills at 4,000
6 kilowatt hours, their bills would go up somewhere
7 between 2 and 8 percent, depending upon which of these
8 options were implemented. Again, these are just
9 examples, and the actual numbers may vary somewhat.

10 And presented with this kind of
11 information and other information that the parties
12 would bring forward, the Board would have to make a
13 decision about how fast the rate could be changed,
14 considering the effects on larger customers; the need
15 for -- for education; the opportunity for response, in
16 terms of participating in Power Smart programs and so.
17 And all that ought to be dealt with in -- in the
18 spring.

19 So there are complicated judgments here.
20 But those are ultimately for the Board to make and for
21 the parties to inform.

22 Finally, I calculated, in the -- the
23 last couple columns of the table, the average marginal
24 price that customers would face. That is taking the
25 customers who are in the tail block rate level and

1 weighting their total usage by the tail block rate and
2 the -- and those who are below the -- the break point
3 and only use in the first block, times the first block
4 rate.

5 And compared to the Hydro flat rate, the
6 average marginal rate goes up 3 to 10 percent without
7 average bills going up at all. And depending upon
8 price elasticity, those would -- those kinds of prices,
9 increase in marginal price, might encourage a 1 or a 2
10 or maybe even a 5 percent reduction in customer usage
11 over a period of several years.

12 And I'd be happy to share this
13 spreadsheet with -- with Manitoba Hydro, with the --
14 the Board, or other parties. And I don't think it's
15 useful to force every party to reproduce the other
16 party's calculations as I've had to reproduce some of
17 Hydro's, because they are not willing to provide most
18 of their data in spreadsheets.

19

20 CONTINUED BY MR. WILLIAM GANGE:

21 MR. WILLIAM GANGE: Mr. Chernick, I'm
22 going to interrupt you on that point. You said that
23 the information that you used to produce GAC number 6
24 arises out of the response to GAC/Manitoba Hydro First
25 Round 4A?

1 MR. PAUL CHERNICK: Yes.

2 MR. WILLIAM GANGE: And that question
3 had re -- had read:

4 "Please provide, in Excel, a bill
5 frequency table for the residential
6 class."

7 Did you receive the bill frequency table
8 in an Excel format?

9 MR. PAUL CHERNICK: No, it was a PDF
10 file.

11 MR. WILLIAM GANGE: And -- and what --
12 what -- are there any difficulties that -- that you
13 encounter because you received that in a PDF format
14 rather than an Excel format?

15 MR. PAUL CHERNICK: With that simple
16 input data, it's relatively -- it's straightforward.
17 It's tedious. But you can copy the columns of data and
18 paste them into a spreadsheet, and then check to make
19 sure that there weren't any spaces introduced in the
20 PDF process that have fouled up the numbers, and make
21 sure that all the columns line up properly. It's --
22 it's an annoying process, but it can be done. It just
23 takes -- it's just a waste of time.

24 In terms of the spreadsheet that I
25 developed to produce this example, if Hydro wanted to

1 reproduce it, I'm sure it could do so. But it would
2 require thinking through what I've said about the
3 numbers and trying to figure out what formula would get
4 that result, and seeing whether their understanding of
5 what I was saying was in fact what I was saying and
6 what I did, and whether the formula reproduced the
7 values that I -- I present here.

8 And that would be a big waste of Hydro's
9 time. And I have no interest in wasting the time of
10 their staff. And if they would like the spreadsheet,
11 I'm happy to give it to them. And I wish that they
12 would provide the same courtesy to the parties.

13 MR. WILLIAM GANGE: That concludes your
14 -- your discussion with respect to the -- the inclining
15 block rate. Is that correct?

16 MR. PAUL CHERNICK: Yes.

17 MR. WILLIAM GANGE: And -- and I don't
18 I know -- Mr. Lafond, I -- I see that you -- you have a
19 question.

20 MR. RAYMOND LAFOND: Yes, I do have a
21 question before we leave that worksheet. The very last
22 column, "Average marginal rate," and -- and the
23 percentages, you do indicate there being the income
24 increased fo -- for Manitoba Hydro.

25 That's assuming no change in behaviour

1 by the consumers, correct?

2 MR. PAUL CHERNICK: That would be
3 assuming that the -- that -- right, that does not take
4 into account any customers who have bills in the second
5 block who reduce their usage enough to fall into the
6 first block. And -- and there might be a few of those.
7 And that would be one (1) of the -- the benefits of the
8 -- of the rate design, that it would give people that
9 signal.

10 There -- I think in addition to the
11 dollars and cents, there's also sort of a psychological
12 incentive, that if you see that you're in the higher
13 block and you may feel that you're not doing your part,
14 and you may try a little harder.

15 My gas company sends out a monthly
16 statement of -- of my gas usage and how it compares to
17 my neighbours and my efficient neighbours -- t doesn't
18 name any of them -- and sort of needles me to do a
19 better job or cheers me on when -- when I'm at the --
20 the head of the pack.

21 And a rate design like this could have
22 the same kind of -- of effect, in terms of -- of
23 stimulating people to pay attention to usage.

24 MR. RAYMOND LAFOND: Yeah, I understand
25 that. But that's not -- that change of behaviour is

1 not built in these percentages?

2 You haven't allowed for a certain amount
3 of -- of change of behaviour?

4 MR. PAUL CHERNICK: No, and that would
5 -- that -- if you have a -- people reducing their use
6 by a few percent --

7 MR. RAYMOND LAFOND: Yes?

8 MR. PAUL CHERNICK: -- there are really
9 very few customers who would be -- or very few bills
10 that would be falling just barely in the second block
11 but, with that small reduction in usage, would fall
12 into the first block. There would be some, but it
13 would be a small number. I don't think this would
14 change a whole lot after you reran the numbers.

15 MR. RAYMOND LAFOND: I hear you.
16 However, those who are consuming more would have an
17 increased bill and, therefore, would possibly look at
18 changing their behaviour in reducing their total bill.
19 Even though -- even without switching from one block to
20 the other, just --

21 MR. PAUL CHERNICK: Oh, well, that
22 would then would not really -- that would not -- again,
23 that would not change this very -- very much. I mean,
24 you're -- you're correct to the extent that -- boy,
25 you've thought this through in some detail very

1 quickly.

2 MR. RAYMOND LAFOND: Well...

3 MR. PAUL CHERNICK: To the extent that
4 the -- the bills that fall into the higher block
5 shrink, that's going to change the weightings a little
6 between the -- the higher and lower block. Whether
7 that would be enough to show up rounded off to the
8 nearest percent, I don't know.

9 MR. RAYMOND LAFOND: Okay.

10 MR. PAUL CHERNICK: But you're --
11 you're right that there would be those kinds of effects
12 on the percentage.

13 MR. RAYMOND LAFOND: But -- but the
14 purpose, again, of inclining rates is really to
15 encourage people to conserve energy or not waste
16 energy?

17 MR. PAUL CHERNICK: And to pass along
18 the -- a -- a price signal rep --

19 MR. RAYMOND LAFOND: Yes.

20 MR. PAUL CHERNICK: -- representing the
21 value, yes.

22 MR. RAYMOND LAFOND: So, therefore, if
23 the higher tail rate -- tail -- tail block is at a much
24 higher rate, then I'm really compensated for reducing
25 my consumption. I'm -- I mean, I get more compensation

1 for reducing my consumption?

2 MR. PAUL CHERNICK: Right.

3 MR. RAYMOND LAFOND: So I'm saying that
4 should have some impact in terms of behaviour?

5 MR. PAUL CHERNICK: Oh, yes. And I'm -
6 - I'm quite sure it would.

7 MR. RAYMOND LAFOND: And -- and that's
8 not built in these increased income for Manitoba Hydro
9 percentages?

10 MR. PAUL CHERNICK: Oh, I'm -- I'm
11 sorry. This is not income. This is increase. This is
12 just the -- the increase in the average marginal rate
13 from the Manitoba Hydro base case. It does -- the --
14 the "INC" is -- indicates increase, not income.

15 Yes, the -- all -- all of these
16 proposals would be revenue neutral, at least until
17 people started changing their behaviour --

18 MR. RAYMOND LAFOND: Changing their
19 behaviour.

20 MR. PAUL CHERNICK: -- and -- and
21 reducing their usage somewhat. I -- I'm sorry that I
22 confused you.

23 MR. RAYMOND LAFOND: That's fine.
24 Thank you.

25 THE CHAIRPERSON: The selection of

1 break points in respect of the price points, how did
2 you select them? You know, how did you decide five
3 hundred (500), twelve hundred (1,200)?

4 MR. PAUL CHERNICK: Well, okay. So,
5 first of all, the five hundred (500), twelve hundred
6 (1,200), twenty-five hundred (2,500), and four thousand
7 (4,000), those are just representative bills to show
8 the -- the price effect.

9 THE CHAIRPERSON: Okay.

10 MR. PAUL CHERNICK: The break points
11 for -- between the two (2) blocks are either the five
12 hundred (500) or the nine hundred (900) listed in the
13 first column. And then for each of those rate designs
14 for a given break point and a given second block rate,
15 I calculate the -- the change in the bill at each of
16 those consumption levels, at five hundred (500), twelve
17 hundred (1,200), twenty-five hundred (2,500), and four
18 thousand (4,000). Was the question how I picked those
19 four (4)?

20 THE CHAIRPERSON: The question was in
21 relation to -- perhaps I should put it more generally -
22 - deciding where -- where to cut off the -- you know,
23 what rate should be -- should be set for this second
24 block and so on, versus the first block.

25 How did you dec -- how -- how,

1 typically, is that decision made?

2 MR. PAUL CHERNICK: My -- again, these
3 are just examples. And I was just trying to convey to
4 the Board the -- the simplicity of the -- the mechanics
5 here. I selected some values that would move the tail
6 block towards the estimate of -- of marginal cost and
7 would not show very large differences in the bills for
8 -- for the larger customers. I didn't really -- again,
9 since it's not a proposal for -- for actually
10 implementing a rate, I wasn't concerned about whether
11 these were the best break points, but rather ones that
12 would illustrate the point.

13 But if I were actually coming up with a
14 proposal, I would look at: How much do we want to
15 raise the -- are we willing to raise -- how much would
16 I -- do I want to ask the Board to raise the bills for
17 a customer at 4,000 kilowatt hours? How low a first
18 block is appropriate? Because you don't want to give
19 away 500 kilowatt hours of electricity. You have to
20 charge some reasonable amount for it. And then trying
21 to have a first block that covers most of the bills but
22 not a lot of energy. And those are qualitative
23 considerations that you can -- you then have to turn
24 into specific numbers.

25 Was that helpful?

1 THE CHAIRPERSON: Yes, it is. Yeah.

2 MR. RAYMOND LAFOND: On your worksheet,
3 your first block is 900 kilo -- kilowatt hours, right?

4 MR. PAUL CHERNICK: The -- in the first
5 -- the first option that I present there is 500
6 kilowatt hours at five point nine-five (5.95) cents and
7 the remainder at eight (8) cents. The second option,
8 there -- there are three (3) with 900 kilowatt hour
9 first blocks at different combinations of first and
10 second block prices, and then one (1) with a 500
11 kilowatt hour span.

12 MR. RAYMOND LAFOND: Sorry, I had cha -
13 - noticed the change between the nine hundred (900) and
14 the five hundred (500), the -- the last two (2) numbers
15 in the first column. Thank you.

16 MR. PAUL CHERNICK: M-hm.

17 THE CHAIRPERSON: Now, do you -- do you
18 -- are -- are any -- in any other jurisdictions, are
19 there seasonal inclined rates? In other words, for
20 example, higher rates, or at least different rates,
21 than would be available during the summer because of
22 the winter heating season?

23 MR. PAUL CHERNICK: Yes, there are
24 jurisdictions that have, for example, one (1) rate for
25 all usage in the off season, which in most

1 jurisdictions in North America is the winter, and then
2 an inclining block in the summer to give the customers
3 who are using a lot in the summer and contributing to
4 high-cost resource requirements a better incentive to -
5 - to conserve at those times.

6 So you can combine inclining block rates
7 with -- with seasonal rates. And there are also
8 jurisdictions that have different inclining block rates
9 in different seasons. That is perhaps a different
10 break point or the same break point but the -- both the
11 first block and the second block change from summer to
12 winter.

13 MR. RAYMOND LAFOND: The example you
14 gave was for Southern US versus Manitoba. And
15 inclining rates have more impact here in the winter
16 rather than the summer. The highest usage is winter.

17 MR. PAUL CHERNICK: That's -- that's
18 correct. And whether you would want to have a higher
19 winter rate or not is a complicated issue and one (1)
20 that I certainly would be happy to -- to talk about in
21 the -- in -- in the spring proceeding. And it -- it is
22 complicated by -- well, I guess I can't stop myself
23 from talking about it right now a little bit.

24 It's complicated by the fact that, yes,
25 your loads are higher here in the winter, so you're

1 likely to be putting more of a stress on distribution
2 and transmission equipment. And so the -- the cost, in
3 terms of -- of T&D almost certainly higher in the
4 winter but -- at least in most parts -- on most parts
5 of the system.

6 But on the other hand, the market price
7 for electricity is high in the -- the summer in
8 addition to -- to being high in the -- the winter. So
9 in terms of the lost value of off-system sales, that's
10 -- that kind of splits both ways. And figuring out
11 whether -- what would really be a -- an appropriate
12 seasonal breakdown of -- of the -- of a rate design
13 would -- would require more information than I've been
14 able to get out of -- of Hydro on its marginal costs.

15 MR. RAYMOND LAFOND: That is going to
16 be my last question. But you would need different
17 inclining rates or make some allowance for those, for
18 instance, who use electricity for space and water
19 heating and everything essentially, versus those who
20 use -- do not use electricity for space heating and
21 those who do not use electricity for both space heating
22 and water heating, correct?

23 MR. PAUL CHERNICK: Many jurisdictions
24 do have special allowances for space and/or water
25 heating. In some cases those are -- those are

1 grandfathered, that customers who had elected to use
2 electric heat at some earlier date, when conditions
3 were different, are on a rate that protects them,
4 perhaps has a much larger first block, especially in
5 the -- the wintertime. And new customers face the full
6 marginal cost decision.

7 Manitoba has a situation where you have
8 the customers who don't have access to gas, and I
9 understand that there are -- there are some legal
10 problems with allowing them onto a special rate. And
11 there -- it would be nice if those legal problems were
12 -- could be removed.

13 But short of that, you have to figure
14 out what the -- the second best is to not give an
15 incentive to use electric heating for new op --
16 situations and not -- and -- and not yet unreasonably
17 burden people who either have no option because there -
18 - there isn't any gas or have no practical option
19 because the house was built with electric heating
20 thirty (30) years ago.

21 MR. WILLIAM GANGE: Thank you. I'm
22 sorry, Mr. Soldier.

23 MR. LARRY SOLDIER: I guess the -- the
24 biggest concern I have when -- when you start talking
25 about the inverted rates is the low-income families

1 tend to have a larger number of people in their
2 household. And so by the mere fact that there's more
3 people in the house, more energy gets used.

4 And as the -- the homeowner is trying
5 to, I guess, get out of the det -- situation they're in
6 and trying to better themselves, they're spending more
7 of their disposable income on energy as opposed to
8 trying to do something with their -- and I think, to a
9 certain degree, I think there's a penalty for having
10 that large family. And -- and it's not really, I guess
11 what you say, inconvenienced, but sometimes those
12 people have no choice in the fact that they do have
13 large families.

14 I know even myself, in a perfect world,
15 it would be just my wife and I, but now we have -- I
16 have brother in-law that lives with us because he has
17 really no place else to live. Then we inherited a
18 couple of our niece's daughters, so now we have two
19 people. And of course, I have a grandson that, all of
20 sudden, he's involved with a girlfriend, and then they
21 produce a child.

22 All of a sudden from my perfect world,
23 where my wife would be living in the community, I'd be
24 living in Winnipeg by myself, now we have eight (8)
25 people. I know I can afford it, but I know there's a

1 lot of people that can't. And I guess that's the
2 concern that we -- I have as -- sitting here.

3 The community that I'm from, it is large
4 families, large uses of energy. And how do you get out
5 of that cycle to -- I guess, to better yourself? And
6 that's where -- as you were speaking about inverted
7 rates I -- it didn't really resonate with me at all.

8 MR. PAUL CHERNICK: First of all -- I'm
9 sorry. With respect to low-income customers, that --
10 that's a -- a real concern that a lot of -- of
11 jurisdictions have dealt with by having lower rates for
12 low-income customers and using some external
13 verification -- eligibility for certain kinds of
14 government assistance, for example -- as a
15 qualification for getting onto a low-income rate that
16 simply charges less because we know people are going to
17 have less ability to pay for it.

18 The -- my -- my recollection's a little
19 fuzzy, but I believe the last time we talked about this
20 in any detail, the indication was that -- in terms of
21 the data, was that low-income households tended to have
22 lower usage on average. Now, there's obviously
23 exceptions to that. There -- there's some with -- with
24 higher usage.

25 I think low-income customers in -- as a

1 whole are better off with an inverted block rate,
2 although there may be some low-income customers who are
3 at -- who are in the higher end. And you want to think
4 through how you protect those customers. And I would
5 say that's true. What -- even if you have flat rates -
6 - many jurisdictions have flat rates also have
7 discounted rates for low-income customers.

8 So it's -- I think it would be a mistake
9 to say we don't want to do something that has
10 significant efficiency benefits because it could hurt
11 some poor people. We -- we want to try and figure out:
12 How do we help out those poor people so that they
13 aren't hurt overall, so that they're better off, and --
14 and also get the efficiency benefits?

15 MR. RAYMOND LAFOND: I'd like to
16 piggyback on the last question. Forgetting for an
17 instant the issue of low income --

18 MR. PAUL CHERNICK: M-hm.

19 MR. RAYMOND LAFOND: -- a family, two
20 (2) professionals with a good income, no children,
21 leaving home at eight o'clock in the morning, coming
22 back home at 6:00 or 7:00 at night, taking three (3)
23 weeks off during that winter, in the cold months to go
24 down south, as opposed to the -- and -- and the other
25 family with one (1) income instead of two (2) incomes,

1 with three (3) children, and, therefore, using a lot
2 more energy, a young baby, et cetera. Like again, this
3 is based on usage by a home rather than based on usage
4 per person.

5 So which is the most valid and the --
6 and the fairest, in terms of usage?

7 MR. PAUL CHERNICK: Well, first of all,
8 I -- I don't know that number of people in a household
9 actually has a very large effect on -- on energy usage.
10 I mean, it undoubtedly has some effect. But it -- I
11 think it's swamped by other factors, by the way that --
12 that people use energy. But there certainly are more
13 dishes to wash and more people to wash and more clothes
14 to wash. And -- and there are -- there are -- so there
15 -- there will be some relationship.

16 If you wanted to get very fancy, you
17 could have a rate where the initial block is -- varies
18 with a bunch of factors, including the size of the
19 household and the heating source. It might take a
20 while to develop the necessary data.

21 I believe that Pacific Gas and Electric
22 has a system in which they basically have a baseline
23 use for each customer based upon a historical period
24 and use that to determine the first block. So whatever
25 that household was doing, whatever that building was

1 doing five (5) years ago, whether that's because of the
2 size of the family, the construction of the building,
3 the climate, or whatever, that establishes the -- the
4 number of kilowatt hours in the first block.

5 They have a lot more customers to keep
6 track of than Hydro does. I'm sure if PG&E can do it,
7 Manitoba Hydro can do it.

8 I don't know that you necessarily want
9 to have a system as complication as California's. I
10 think they overdo it in a number of -- of -- of ways.
11 But if that's a major concern for -- for the Board and
12 Hydro will cooperate with the necessary data-gathering,
13 I'm sure that's something that can be done.

14

15 CONTINUED BY MR. WILLIAM GANGE:

16 MR. WILLIAM GANGE: Thank you, Mr.
17 Chernick. I'd like you now to move on to your comments
18 with respect to fuel switching.

19 MR. PAUL CHERNICK: Yes. First of all,
20 I'm very pleased that Hydro has finally provided the
21 Board with an analysis of fuel choices for residential
22 space and water heating, although it was four (4) years
23 after it was first ordered. And Hydro still has
24 refused to provide any of the work papers for that
25 analysis, so I can't really review the calculations in

1 any detail.

2 But the results are consistent with what
3 I've seen elsewhere, in terms of financial costs to
4 Manitoba energy users and in environmental terms,
5 heating buildings with -- and -- and heating water with
6 natural gas is superior to heating with electricity.

7 Nonetheless, Hydro also reports that
8 customers are choosing to switch from gas to
9 electricity for these uses and that developers are
10 overwhelmingly installing electricity for water heating
11 and are to some extent also installing electricity for
12 space heating where gas would be available.

13 So customers and developers are moving
14 in the wrong direction. And developers are leaving
15 customers with no choice but to use the more expensive,
16 more polluting energy source. So Hydro has identified
17 a serious problem which warrants a prompt and effective
18 result -- response to -- to change that result.

19 And after these four (4) years thinking
20 about fuel switching issues, I would have expected that
21 Hydro would have been ready with a set of rate design
22 proposals, Power Smart measures and programs, perhaps
23 proposals for hook-up fees to charge more for hooking
24 up electrically heated buildings and water heaters, or
25 some combination of those -- those tools to fend off

1 what looks like a -- a serious problem.

2 But Hydro has -- has really proposed
3 nothing concrete in this proceeding other than an
4 educational program; has indicated it doesn't even want
5 to think about inclining blocks in the spring
6 proceeding; has not proposed anything having to do with
7 rate design; hasn't proposed any changes to Power Smart
8 Program to encourage fuel choice in appropriate ways;
9 or oth -- otherwise -- or even set out a schedule for
10 slowing, or stopping, or, better still, reversing the
11 undesirable trend away from gas to electricity.

12 And Hydro has pointed out that it -- it
13 has -- I -- I guess in the -- the rebuttal that it has
14 financing programs which can assist customers who
15 choose to replace or upgrade their water heating
16 systems. But unfortunately, the evidence that -- that
17 Hydro has produced is that customers are choosing to
18 replace them in the wrong direction. And it's not
19 clear how providing financing is going to reverse that
20 direction.

21 And the -- and in the fuel switching
22 report, Hydro forecasts that these trends will raise
23 total sales in 2030 by 3 percent, compared to, I -- I
24 guess, the -- the existing situation. And since
25 there's electric heat in situations where it could be

1 switched to gas, there's a more than 3 percent
2 opportunity for reducing usage.

3 So Hydro really ought to be doing
4 something concrete along these lines, moving forward,
5 to try to plug the hole in the -- in the dike before
6 too much water leaks through and, in particular, try to
7 find a way, perhaps with hook-up fees, to give
8 developers incentives to select the energy source
9 that's best for energy consumers in -- in Manitoba as a
10 whole to -- to limit the number of electrically heated
11 hou -- homes and -- and homes with electric water
12 heaters that the province will be stuck with for many
13 decades to come.

14 MR. WILLIAM GANGE: That concludes your
15 direct testimony. Is that correct, sir?

16 MR. PAUL CHERNICK: It does.

17 MR. WILLIAM GANGE: Thank you, Mr.
18 Chair.

19 MR. RAYMOND LAFOND: Did -- did I hear
20 that -- and correct me if I'm wrong -- your first few
21 sentences that use of gas for space and water heating
22 was less polluting than using electricity produced by
23 Hydro?

24 Can you devi -- can you explain that to
25 me, because I've heard the opposite?

1 MR. PAUL CHERNICK: Yes. It's a good
2 thing I usually start with a -- a little grace word to
3 give myself a chance to -- to think and other people a
4 chance to remind me to turn on my mic.

5 The -- at the -- the end use, at the
6 house, burning gas obviously releases carbon dioxide.
7 Now, using electricity doesn't. But if we ask, as
8 Hydro asks, apparently correctly, in -- in their study:
9 Well, what's -- what's the total effect of using gas
10 versus electricity?

11 If you use the gas, then the electricity
12 is freed up to reduce usage somewhere else.
13 Occasionally, that's a -- a reduction in generation
14 from a fossil generator in Manitoba. But much more
15 often, it's an increase in exports that re -- that
16 backs down the gas- or oil- or coal-fired generator in
17 the United States or possibly another province.

18 And even if the marginal supply of
19 electricity in those places was coming from a very
20 efficient gas-burning unit, which might be 50 percent
21 efficient -- or by the time you get through putting
22 electricity through the lines and getting it to the
23 customers, may be 40 percent efficient -- if you're
24 burning the gas at eighty-five (85) or 90 percent
25 efficiency in the home, then you're burning a lot less

1 gas as a result of using gas heat than you would if you
2 used the electric heat and leave Ontario or Wisconsin
3 to run, even a very efficient gas-fired unit, more.
4 And sometimes in the States they'd be burning coal.

5 MR. RAYMOND LAFOND: Thank you.

6 THE CHAIRPERSON: But to the extent
7 that, I guess, using gas in Manitoba displaces gas-
8 generated electricity in the United States, I mean,
9 there's no savings there. And I understood that --
10 that in many cases they're -- they're using Manitoba
11 electricity and -- to displace gas-generated
12 electricity during peak hours?

13 MR. PAUL CHERNICK: Well, as I was
14 trying to explain, the efficiency of burning gas in
15 even a very high-efficiency gas combined cycle unit and
16 delivering it to customers is maybe 40 percent, so you
17 need two and a half (2 1/2) units of gas to get a unit
18 of heat into the house.

19 If you burn gas in -- in Manitoba for
20 home heating and free up the electricity to go to
21 Wisconsin, or Ontario or wherever, then you'd be
22 getting about an 80 percent, 90 percent efficiency on
23 the gas use and -- and burning ov -- a little over one
24 (1) -- one and a quarter (1 1/4) units of heat -- of
25 gas for every unit of heat that's actually delivered

1 into the house.

2 So, on the -- if you use electricity for
3 heating in Manitoba, you're leaving Wisconsin burning
4 two and a half (2 1/2) units of gas in a combined
5 cycle, whereas if you use gas in Manitoba you're using
6 one (1) to one and a quarter (1 1/4) units of gas.

7 So, at the -- at best, with resistance
8 heating you're way behind in terms of carbon emissions,
9 for example. And it's worse, of course, if the unit in
10 Wisconsin is a coal-fired plant or an oil-fired peaker,
11 or even a gas-fired peaker, which is less efficient
12 than a combined cycle. Although, with a very high
13 efficiency ground-source heat pump you might get closer
14 to -- to parity between the -- the two (2) sources.

15 MR. RAYMOND LAFOND: So if my house is
16 -- has a furnace of 94 or 96 percent efficiency I would
17 be -- it would be -- or I would be operating at 94 or
18 96 percent and not the 85 percent you indicated
19 earlier, or are they --

20 MR. PAUL CHERNICK: Oh right, yeah, you
21 -- you'd be -- you'd be converting gas into a usable
22 product at a -- at -- in this case heat, at 94 or 95
23 percent efficiency, as opposed to Wisconsin or
24 Minnesota doing it at -- at best, maybe 40 percent.

25 MR. RAYMOND LAFOND: Thank you.

1 THE CHAIRPERSON: Mr. Gange, you've
2 finished direct?

3 MR. WILLIAM GANGE: Yes, I have, Mr.
4 Chair.

5 THE CHAIRPERSON: Okay. So I guess,
6 Mr. Williams, do you have any questions you'd like to
7 ask the Witness?

8

9 CROSS-EXAMINATION BY MR. BYRON WILLIAMS:

10 MR. BYRON WILLIAMS: Just a few, Mr.
11 Chernick. And my client will be reserving a number of
12 questions for the rate design pro -- proceeding. But
13 certainly they'd like to take you up on your generous
14 offer of access to -- to the spreadsheet underlying GA-
15 6 (sic).

16 And we wonder if you would undertake to
17 provide that information to CAC (Manitoba)?

18 MR. PAUL CHERNICK: Certainly.

19

20 --- UNDERTAKING NO. 83: GAC to provide the
21 spreadsheet underlying GAC-
22 6

23

24 CONTINUED BY MR. BYRON WILLIAMS:

25 MR. BYRON WILLIAMS: And then just in

1 terms, Mr. Chernick, of your discussion of -- of fuel
2 switching and the env -- environmental effects
3 associated with the consumption of -- of different
4 sources of energy, would I be correct in suggesting to
5 you that your analysis is -- in terms of the relative
6 environmental effect, is -- is based primarily on GHGs?

7 MR. PAUL CHERNICK: Well, basically,
8 natural gas has very little -- at least the -- the
9 consumption of natural gas has very little
10 environmental effect, other than the carbon dioxide
11 emissions. So that's the primary thing there.

12 In addition to the greenhouse gas
13 effects, of course, to the extent that using
14 electricity unnecessarily in Manitoba results in
15 somebody else running a coal plant, or an oil plant,
16 more or, for that matter, even an older gas plant that
17 produces a fair amount of NOx, there would be other
18 environmental costs. But the greenhouse gases are the
19 ones that are the easiest to talk about and vary the
20 least from -- from one (1) generator to the next.

21 MR. BYRON WILLIAMS: And so recognizing
22 -- so in your -- in your answers, I'm hearing both
23 greenhouse gases as well as Nox. Those are kind of the
24 --

25 MR PAUL CHERNICK: Well, and for -- for

1 coal plants, there's sulphur; and for coal and oil,
2 there are particulates.

3 MR. BYRON WILLIAMS: Now, what I'm
4 trying to understand is when -- when we look at the
5 relative environmental friendliness of
6 hydroelectricity, does your discussion take into
7 account the environmental costs associated with the
8 construction and maintenance of transmission lines as -
9 - as it may result in habitat frag -- fragmentation or
10 effect upon endangered species and traditional resource
11 users?

12 MR. PAUL CHERNICK: No, I -- I did not
13 look at hydro -- new hydro supplies as being a marginal
14 resource in -- in anything that I testified on. I
15 accepted, for my purposes -- because I -- I can't get
16 the information out of them necessary to form a
17 separate opinion, I accepted Hydro's assertion that the
18 Hydro expansion pattern was essentially fixed and that
19 additional usage of electricity in Manitoba would
20 simply result in lower exports.

21 If you're looking at building hydro
22 facilities and their attendant transmission
23 infrastructure, you wind up having to do a -- a
24 balancing of environmental effects that are much more -
25 - which -- which are a very -- very different kinds.

1 And in the -- the case of the hydro effects are very
2 location specific -- nothing could be less location
3 specific than emissions of carbon dioxide, in terms of
4 their importance, -- very location specific and, in
5 general, difficult to value.

6 And I've done some work along those
7 lines in the past, and it -- it is a lot of work. And
8 it remain -- it's a very contentious issue.

9 MR. BYRON WILLIAMS: And I thank you
10 for the -- the candour. And we -- we've spoke of
11 transmission lines. And -- and recognizing the limits
12 of the information to you and the complexity of the
13 task, the comparison of the relative environmental
14 impact of electricity versus other energy sources also,
15 to your knowledge, doesn't take into eff -- into
16 account the environmental effect on local communities,
17 including First Nations, and river systems of -- of
18 large dams?

19 MR. PAUL CHERNICK: That's -- that's
20 correct. I -- I did not -- as I said, I didn't look at
21 the -- the dams or the transmission or anything about
22 them as being avoidable for any of the discussion in my
23 testimony.

24 MR. BYRON WILLIAMS: And without trying
25 to belabour the point too much, you also would not have

1 taken into account the social impact and the cultural
2 impact on traditional resource users, including
3 Aboriginal persons, whether the impact of large dams or
4 of transmission lines, agreed?

5 MR. PAUL CHERNICK: Absolutely not.

6 MR. BYRON WILLIAMS: I have no further
7 questions, Mr. Chair.

8 THE CHAIRPERSON: Thank you, Mr.
9 Williams. I'll turn it over to Maitre Ramage --
10 Ramage.

11 MS. PATTI RAMAGE: Mr. Chair, this is -
12 - the first thing I'll ask for is a quick break, if I
13 could just consult with some of our witnesses to -- to
14 see if anything has been raised.

15 Something that I'd like to raise with
16 the Board is in terms of the order of cross -- and this
17 is the traditional order -- but Mr. Chernick has raised
18 a number of things that we hadn't heard before in his
19 direct.

20 And the one (1) thing I'd like the
21 parties to consider, and I'm not asking for at this
22 point, is if, during Ms. Southall's cross, more
23 information comes up that Manitoba Hydro might wish to
24 clarify, if we'd be allowed a chance to come back on
25 the mic, because we're hearing a lot of information

1 that, quite frankly, as counsel, I don't necessarily
2 pick up that something's different, but my witness
3 does.

4 And -- and I think in fairness, in terms
5 of the information to the Board, it might be of
6 assistance if I had that opportunity at the end, if
7 required.

8 MR. WILLIAM GANGE: Mr. Chair, I can --
9 if I can jump in here. I don't have any objection to
10 that. I think that that's a fair comment by Ms.
11 Ramage, and -- and I don't see any difficulty in that.

12 THE CHAIRPERSON: Panel agrees. So
13 five (5) minutes will do it? Would you like, say, ten
14 (10) minutes and that will be our break?

15 MR. WILLIAM GANGE: Why don't we take
16 our morning break? Our real break? I mean,
17 yesterday's five (5) minutes turned into a little bit
18 longer, so...

19 THE CHAIRPERSON: Agreed.

20

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

22 --- Upon resuming at 10:36 a.m.

23

24 THE CHAIRPERSON: I believe we are ready
25 to resume the proceedings.

1 MS. PATTI RAMAGE: Yes, thank you, Mr.

2 Chair, and good morning, Mr. Chernick. Welcome to

3 Winnipeg. Dr. Miller, Mr. Gange.

4 Mr. Gange, I would just like to add for
5 the record, I've always known how to say "Gange",
6 because Mr. Gange went to the same high school as I did
7 but many, many years before me. But he comes from a
8 very prolific family, and I don't know anyone who
9 didn't go to school with a Gange, so...

10

11 CROSS-EXAMINATION BY MS. PATTI RAMAGE:

12 MS. PATTI RAMAGE: Mr. Chernick, just
13 to clarify something from this morning. If I heard you
14 correctly in your direct with Mr. Gange, you indicated
15 that you did not receive the Excel documents necessary
16 -- or that were requested in response to GAC/Manitoba
17 Hydro 4A? That was your evidence this morning?

18 MR. PAUL CHERNICK: That's correct. As
19 I recall, we received that information in a PDF.

20 MS. PATTI RAMAGE: Mr. Gange, if --
21 Manitoba Hydro -- I'd ask you to maybe look, subject to
22 check, on February 20 -- February -- September 21st in
23 res -- when First Round IRs were filed, an email was
24 also sent out containing several Excel spreadsheets.

25 And I understood you to have confirmed

1 in your IR response to Manitoba Hydro, if I can find
2 it, that you had in fact received the Excel spreadsheet
3 necessary to respond to First Round 4A.

4 MR. WILLIAM GANGE: Well, if I got that
5 confused, I'm wrong. I'm sorry and my apologies.

6 MS. PATTI RAMAGE: Okay. And if I
7 could also get you to confirm that on September 21st,
8 Manitoba Hydro sent -- if you would check -- or agree,
9 subject to check, sent a number of Excel spreadsheets
10 in response to CAC-3B, GAC First Round 4A, and GAC-8F.
11 So there were Excel spreadsheets forwarded.

12 MR. WILLIAM GANGE: Ms. Ramage, what we
13 will do is we'll check to find out if -- if -- if those
14 matters did come in by Excel spreadsheets, and we'll
15 provide a response by the way of --

16 MR. RAYMOND LAFOND: Can -- can there
17 be some clarity -- Excel worksheets, because I read the
18 document -- I -- in PDF format, or with all the
19 formulas, I think that is the issue, right?

20 MS. PATTI RAMAGE: The Excel
21 spreadsheet is live and -- and I'm not very computer
22 literate, but you can bounce numbers around in it.
23 It's a -- PDF, I understand, the number is on the page.
24 Mr. Chernick could perhaps confirm that.

25 MR. RAYMOND LAFOND: A PDF format, the

1 number is on the page, but not the calculations of how
2 you get to the number, the formulas?

3 MS. PATTI RAMAGE: That's correct. And
4 Mr. Chernick's evidence this morning was he did not
5 receive the live spreadsheets. And Manitoba Hydro's
6 requesting he check his records, because I have a -- if
7 the parties would like an email that went to all
8 parties with the live spreadsheets. And I -- and I
9 believe Mr. Gange has given an undertaking to confirm
10 that.

11 MR. WILLIAM GANGE: That's correct. I
12 will do so.

13

14 --- UNDERTAKING NO. 84: GAC to confirm email with
15 the live spreadsheets was
16 received

17

18 CONTINUED BY MS. PATTI RAMAGE:

19 MS. PATTI RAMAGE: If the parties could
20 turn to page 10 of Mr. Chernick's evidence. And also
21 if you could have in front of you Manitoba Hydro/GAC
22 First Round -- or, there was one (1) round -- Manitoba
23 Hydro/GAC-4.

24 MR. RAYMOND LAFOND: That's GAC Exhibit
25 4?

1 MS. PATTI RAMAGE: No, not exhibit.
2 Information Request 4.

3

4 (BRIEF PAUSE)

5

6 MR. WILLIAM GANGE: And Ms. -- Ms.
7 Ramage, just to make sure, you're talking about GAC/MH-
8 1-4, subject "Bill Frequency"?

9 MS. PATTI RAMAGE: No, MH --

10 MR. WILLIAM GANGE: Oh, the other way
11 around? I -- I'm sorry.

12 MS. PATTI RAMAGE: MH/GAC-4.

13 MR. WILLIAM GANGE: Okay. Thank you.

14

15 (BRIEF PAUSE)

16

17 MR. WILLIAM GANGE: Thank you. I -- we
18 have that.

19

20 CONTINUED BY MS. PATTI RAMAGE:

21 MS. PATTI RAMAGE: In your evidence you
22 discuss your participation in a regional avoided cost
23 calculation derived in a collaborative process. And
24 I'm just interested in the collaborative process

25 You indicated that the purpose of this

1 collaborative process was to determine the cost
2 effectiveness of energy efficiency programs. Is that
3 correct?

4 MR. PAUL CHERNICK: That's correct.

5 MS. PATTI RAMAGE: And if I understood
6 correctly, and I -- here I'm looking at your response
7 to four (4) -- it's Manitoba Hydro/GAC-4B. There were
8 nine (9) gas distribution companies and five (5)
9 electric distribution companies, as well as three (3)
10 energy efficiency service providers involved in that
11 study?

12 MR. PAUL CHERNICK: Yes, a couple of
13 the -- the companies are holding companies, so there
14 are multiple utilities underneath them, but I think
15 your count is correct.

16 MS. PATTI RAMAGE: And would all of
17 these utilities be involved in -- I'm going to call
18 them "local distribution services, monopoly services,"
19 as opposed to bidding into competitive markets?

20 MR. PAUL CHERNICK: All of the
21 utilities, other than the Vermont Energy Efficiency
22 Utility, provide distribution services. I'm not sure
23 what you mean by "bidding into competitive markets."

24 MS. PATTI RAMAGE: Do they have gen --
25 do they sell their generation into markets outside of

1 their own monopoly franchise?

2 MR. PAUL CHERNICK: The -- most of the
3 electric utilities do not own generation any more, with
4 the exception of Public Service of New Hampshire, which
5 does make some -- some sales; and the -- the remainder
6 of them purchase power in the wholesale market.

7 MS. PATTI RAMAGE: Now, at -- at your
8 (d) response to question 4, you've referred to several
9 of the utilities providing data on marginal
10 transmission and distribution investments.

11 How many would be several?

12

13 (BRIEF PAUSE)

14

15 MR. PAUL CHERNICK: Let's see.
16 National Grid; Enstar -- that's E-N-S-T-A-R -- two (2)
17 of the Northeast utility subsidiaries, Connecticut
18 Light and Power and Western Mass. Electric Company,
19 provided separate data and calculations; and ul --
20 United Luminating.

21 MS. PATTI RAMAGE: So those would be
22 the electric. You -- they'd all be on the electric
23 side, none of the gas distribution companies --

24 MR. PAUL CHERNICK: Yes, we didn't look
25 at -- at gas --

1 MS. PATTI RAMAGE: Okay.

2 MR. PAUL CHERNICK: -- marginal
3 distribution costs.

4 MS. PATTI RAMAGE: You at, also 'E',
5 indicate some of those utilities considered their T&D
6 data to be confidential. Can you identify -- I -- I
7 don't need names, anything -- just how many of the -- I
8 think you listed around five (5) provided data.

9 How many of them requested
10 confidentiality agreements with you?

11

12 (BRIEF PAUSE)

13

14 MR. PAUL CHERNICK: I believe it was
15 three (3) out of the five (5).

16 MS. PATTI RAMAGE: And if you could
17 maybe tell me, it wasn't clear to me, what your -- who
18 your client was in this and what your role was?

19 MR. PAUL CHERNICK: Our client in this
20 process was a coalition of the gas and electric
21 utilities and -- and other entities involved in energy
22 conservation, with regulators, consumer advocates,
23 representatives of industrial customers, that form the
24 Avoided Energy Supply Cost Study Group.

25 This is a collaboration of all of those

1 entities to produce consistent avoided costs. It
2 started, I believe, just with Massachusetts to have
3 consistent assumptions for all the Massachusetts
4 utilities. But then because Massachusetts utilities
5 have affiliates in other states, it gradually drew --
6 drew in other states. And eventually, essentially, the
7 entire six (6) state region participates.

8 So those are the -- that's the -- the
9 client group. And what we're doing is producing an
10 analysis that will be the basis for avoided costs and
11 program and measure screening for all of the -- the six
12 (6) states. And our role, the role of the entire group
13 of which I'm just a part, is to work with the -- the
14 various sponsors to identify their issues, get input on
15 -- on specific data, come up with forecasts of gas
16 prices of the operation of the electric market, both
17 for energy and capacity.

18 So that requires projections of
19 additions in retirements of transmission construction
20 within the region, because that affects the extent to
21 which there is congestion that raises kinetic prices
22 and reduces main prices, for example. And also
23 transmission from outside, such as Hydro Quebec, into
24 the region.

25 And then to prepare a report forecasting

1 of weighted gas and -- and electric prices that will be
2 used in the utilities -- not prices, but the avoided
3 costs that will be used in the utilities' evaluation of
4 their conservation programs.

5 MS. PATTI RAMAGE: And would that
6 report then be provided to all of the sponsors?

7 MR. PAUL CHERNICK: Yes, and it's a
8 public document that's available quite widely.

9 MS. PATTI RAMAGE: And I don't recall,
10 was a regulator part of your sponsored group? Or does
11 this get given to a regulator in their -- with the
12 application?

13 MR. PAUL CHERNICK: Well, both. There
14 are representatives from -- from some regulators, and
15 there also -- then these -- the report is -- is
16 presented to the regulators as part of the utilities'
17 conservation program filings. And for example, I've --
18 I've testified in -- in Massachusetts before the
19 Department of Public Utilities on some of the decisions
20 that we made and how we treated various issues in the -
21 - in the report.

22 MS. PATTI RAMAGE: Do each of the
23 sponsors then get to see the confidential information
24 you're provided because of their membership in the
25 group or --

1 MR. PAUL CHERNICK: No.

2 MS. PATTI RAMAGE: -- or is that --

3 MR. PAUL CHERNICK: No, any

4 confidential information is between the -- the

5 consultants and the -- and the provider of the

6 information.

7 MS. PATTI RAMAGE: So would it be fair

8 -- is it fair to describe the process as your -- as

9 these various sponsors treat you as an independent

10 consultant and -- to verify the information?

11 MR. PAUL CHERNICK: I -- are you

12 talking here in -- solely about the transmission and --

13 and distribution portion or the generation as well?

14 MS. PATTI RAMAGE: Well, the only part

15 I saw in your evidence was the avoided cost study. And

16 it just -- it caught my eye, in terms of a -- of a

17 process for dealing with confidential information. So

18 I was trying to get an understanding of what your role

19 was there.

20 MR. PAUL CHERNICK: Our -- okay. Our

21 role with respect to the transmission and distribution,

22 the avoided transmission and distribution cost review,

23 is -- is as a reviewer. In -- in general, the

24 utilities provide their own estimates to the -- to the

25 regulators and -- and use those in their -- in their

1 DSM evaluations in contrast to the -- the generation-
2 level costs that are primarily the responsibility of
3 the consultant group.

4 MS. PATTI RAMAGE: But for the avoided
5 cost study, when you say they provide their numbers,
6 would the number that they provide their regulator be
7 the avoided cost number that -- that the group has come
8 up with, with your assistance?

9 MR. PAUL CHERNICK: For generation,
10 yes. It -- the study is called the Avoided Energy
11 Supply Component Study Group. We're a study -- it's a
12 study of the avoided generation cost, primarily.
13 There's a relatively small task within it of reviewing
14 the transmission and -- avoided transmission and dis --
15 what you call your marginal transmission and
16 distribution costs. And -- so a typical filing with
17 the regulators would show the cost-effectiveness of the
18 measures and programs based on -- and, for that matter,
19 the design process would use the cost-effectiveness
20 based on our estimate of the avoided costs at the
21 generation level, plus line losses and transmission and
22 distribution avoided cost estimated by the utility.

23 With respect to the T&D costs as part of
24 this regional study, we reviewed the methodologies; we
25 reviewed and critiqued the methodologies of the study

1 participants who provided the information.

2 MS. PATTI RAMAGE: And -- if I'm not
3 going backwards here -- but at the end of it, do you
4 come up with a number that is the avoided cost number
5 for that region? Does that -- what this study does?
6 That all of these participants use?

7 MR. PAUL CHERNICK: We come up with a
8 generation value for -- on -- on peak, off peak,
9 summer, winter, year by year, and by region. We come
10 up with a -- essentially, an elasticity value as well,
11 which estimates how much prices go down in the region
12 as a result of the -- of conservation. That's also a
13 generation-level issue.

14 And then we -- we also have a -- but --
15 and that's all produced by the study team, by the
16 consultants. In addition, each utility or program
17 administrator is left with the responsibility of filing
18 their own data on line losses and marginal T&D costs.
19 And we do a review of the T&D methodologies, but we do
20 not produce the numbers that are filed with the
21 regulators.

22 I -- I seem to be confusing you. And --
23 and there's something -- there's something that I'm
24 understanding here that's -- that's probably very
25 simple that I'm not conveying properly.

1 MS. PATTI RAMAGE: And I'll tell you,
2 quite frankly, why I'm -- I'm interested because I want
3 -- it was a means of dealing with confidential
4 information --

5 MR. PAUL CHERNICK: M-hm.

6 MS. PATTI RAMAGE: -- that I saw that I
7 was trying to get a real perspective on to understand
8 whether other -- whether other parties were using you
9 as an independent consultant, and then you were
10 confirming these T&D numbers back -- back to them, and
11 then they were able to move forward as a region.

12 But it doesn't sound like that was the
13 case.

14 MR. PAUL CHERNICK: The T&D numbers are
15 -- that vary by -- among the utilities. The
16 generation-level avoided costs are uniform across the
17 region, except for the effects of congestion and -- and
18 that kind of thing. But they're all completely
19 consistent, and we develop that consistent set.

20 And the sponsors have -- have a role in
21 critiquing our draft work and suggesting changes to it.
22 And we work together with them to -- to put together a
23 document that people are -- are comfortable with and
24 respond to their questions about gas price forecasts,
25 and what they've seen other places, and how the various

1 forecasts compare, and why an article they read in
2 Business Week may or may not apply in this situation,
3 and so on.

4 That's all on the generation side.
5 That's the consultant's task, primarily, with input
6 from the -- input and review from the -- from the
7 sponsors, including the DSM administrators.

8 On the T&D avoided costs, that's
9 primarily the responsibility of the individual
10 utilities or program administrators. And we had a -- a
11 more narrowly defined task of reviewing some of those -
12 - some of those methodologies and making
13 recommendations for appr -- improving them.

14

15 (BRIEF PAUSE)

16

17 THE CHAIRPERSON: I have some questions
18 I'd like to ask, Ms. Ramage, if that's okay. I -- I
19 think you should listen to them as well, because they
20 may be germane to what you want to know.

21 MS. PATTI RAMAGE: Sure.

22 THE CHAIRPERSON: So as a consultant
23 working on behalf of the study group, you did see all
24 of the confidential information from the parties that -
25 - that chose to give you the -- the information for

1 your study. Obviously, not all of them provided
2 detailed information.

3 And so the five (5) that -- that did,
4 and the others that didn't, did you select the five
5 (5)? Or did -- how did they -- why wouldn't you --

6 MR. PAUL CHERNICK: No, we asked -- we
7 asked all of the electric utilities to participate.
8 And some of them just did not respond.

9 THE CHAIRPERSON: Okay.

10 MR. PAUL CHERNICK: Which may have
11 something to do with the internal communications
12 between the --

13 THE CHAIRPERSON: Okay.

14 MR. PAUL CHERNICK: -- the conservation
15 part, the DSM portion of -- of --

16 THE CHAIRPERSON: Right.

17 MR. PAUL CHERNICK: -- the company, and
18 the T&D portion.

19 THE CHAIRPERSON: Okay. So but -- but
20 in essence though, you -- you were able to access the -
21 - the information from the five (5) companies, and
22 three (3) of which required you to sign a confident --
23 confidentiality agreement as part of that arrangement.

24 And -- and can you talk a little bit
25 about that? What -- what's in that confidential --

1 confidentiality agreement with them? Do you -- I
2 realize you don't have them in front of you, but --

3 MR. PAUL CHERNICK: Yes, I -- I don't
4 know whether we provided those specific confidentiality
5 agreements, but we have provided a -- a considerable
6 number of them.

7 MR. WILLIAM GANGE: I -- I can tell
8 you, Mr. Chair, that -- that in response to PUB/GA-7-1,
9 so it was -- it was this filing, as at Tab 1, there's a
10 lot of paperwork that was put in to providing to the
11 Board various confidentiality agreements that Mr.
12 Chernick was able to provide to us.

13 THE CHAIRPERSON: Okay.

14 MR. WILLIAM GANGE: So there -- there
15 are many examples in there.

16 THE CHAIRPERSON: In respect of the --
17 of the review of methodologies on the T&D costs for
18 applicants before the ut -- the regulators, did you
19 have to sign confidential -- confidentiality agreements
20 with respect to the review of those methodologies?

21 You would -- you would have looked at
22 the data in addition to the methodologies, right? You
23 would have --

24 MR. PAUL CHERNICK: Yes.

25 THE CHAIRPERSON: Yes.

1 MR. PAUL CHERNICK: I was -- I was
2 looking at how they derived the -- the numbers. So it
3 -- it had their -- their inputs and the projects that
4 they included and excluded and -- and then what they
5 did with the numbers when they've -- they've --

6 THE CHAIRPERSON: So you had access to
7 confidential information related to that particular
8 utility?

9 MR. PAUL CHERNICK: Yes.

10 THE CHAIRPERSON: And did you sign
11 confidentially -- confidentiality agreements with
12 respect to accessing that particular data?

13 MR. PAUL CHERNICK: Yes, I -- I think
14 the -- it probably had -- they -- the confidentiality
15 agreement was probably of the form that whatever
16 information they gave to me labelled "confidential" for
17 the purposes of this study was not to be released to
18 anyone else and so on.

19 THE CHAIRPERSON: Now, you were -- in
20 that case, you were acting on behalf of which entity
21 when you appeared before the regulator? Or did you?

22 MR. PAUL CHERNICK: I was acting on
23 behalf of the -- well, I guess I was acting on behalf
24 of the -- the Massachusetts utilities and the Cape
25 Light Compact, which provides DSM services, since they

1 were the ones who were filing their DSM plans and they
2 were being reviewed by the regulator.

3 THE CHAIRPERSON: So -- so you were
4 acting on behalf of the applicant?

5 MR. PAUL CHERNICK: Yes. In -- in the
6 -- once -- in that later phase, when we went before the
7 regulator. At the time that I was reviewing the -- the
8 documents, I was acting on behalf of the -- the study
9 group as a whole.

10

11 CONTINUED BY MS. PATTI RAMAGE:

12 MS. PATTI RAMAGE: I just have one (1)
13 further question, and -- and I'm hoping it's of
14 assistance to the Board.

15 But did any of the confidential
16 information that re -- you reviewed from one (1)
17 utility, ultimately, your review, did it benefit
18 another utility, in terms of they were able to work off
19 -- be satisfied that you had reviewed that?

20 Or was the confidential information for
21 the T&D solely for the benefit -- any results you gave
22 really solely for the use of that utility?

23

24 (BRIEF PAUSE)

25

1 MR. PAUL CHERNICK: It should be darker
2 when it's off. My review was available to everyone. I
3 can't really get inside the heads of the utilities to
4 tell you how it affected their changes in -- in their
5 methodology over the last couple of years or how it'll
6 affect them in the next round.

7 It certainly could, in that I said that
8 this utility interpreted the methodology this way and
9 used what I thought was the wrong value, and this one
10 (1) did it the right way and the -- they were using --
11 in terms of discount rates or inflation rates or
12 whatever they were -- however they were applying
13 various parameters.

14 And so pointing out to them that -- that
15 their peers at other utilities were doing something
16 different may have been helpful to them in -- in
17 guiding and encouraging them to -- to act in particular
18 ways. But I -- I really -- I -- I haven't talked to
19 the people who actually did most of these calculations,
20 so I don't know.

21 MS. PATTI RAMAGE: I guess what I was
22 getting at is, unlike the generation number, where they
23 -- I -- I think they're all power purchasers and they
24 don't -- they don't generate. They're all power
25 purchasers. They're all able to rely on that same

1 number.

2 The T&D that you ultimately came up with
3 was something that they would not be relying on in
4 their own rate case. How's that?

5 MR. PAUL CHERNICK: Well, that's --
6 it's true that a Connecticut utility would not be using
7 a Maine utility's tra -- transmission distribution
8 number and vice versa. But to the -- they could learn
9 from one another's methodologies and the differences in
10 their approach so that -- the answer to your -- to the
11 first part of your question was, well, they certainly
12 could have learned something, and I hope that they did.
13 But, no, they wouldn't simply take the other one's
14 number. That would be inappropriate.

15 For some follow-up work for the State of
16 Vermont on avoided T&D, one (1) of the things we looked
17 at was whether they should be borrowing numbers from
18 other utilities in New England. And I was able to
19 provide them with some information about why the
20 avoided T&D numbers for some of the other utilities
21 were low, and why I thought that that was incorrect,
22 and why Vermont should not adopt one (1) of those
23 individual values or an average of several values.

24 So I think it -- it helped Vermont.
25 Whether it's helped the other jurisdictions or not, I

1 don't know.

2 MS. PATTI RAMAGE: Okay. And this
3 really will be the last one (1). But to reiterate,
4 when you're doing those type of consultations, the fact
5 that you're part of the group would not allow -- you're
6 confident that you would maintain confidentiality over
7 all of any information that was given in confidence?

8 You received it in confidence, and being
9 part of the group would have not in any way allowed
10 anyone access to that information?

11 MR. PAUL CHERNICK: That's correct. I
12 -- that's what I agreed to do; in the best -- to the
13 best of my knowledge, I have done. I've not released
14 any of the -- the data. I reviewed the methodologies
15 and qualitatively described the approaches but didn't
16 release any of the -- the numbers that they were
17 concerned about.

18

19 (BRIEF PAUSE)

20

21 MS. PATTI RAMAGE: Apparently I'm not
22 entirely accurate in my question count, it was
23 suggested.

24 Are you aware, were there liquidated
25 damages in the confidentiality agreements if there was

1 a breach?

2 MR. PAUL CHERNICK: No, there weren't.

3 MS. PATTI RAMAGE: Were there -- are
4 you aware today or can you give us what the
5 consequences for breach would be?

6 MR. PAUL CHERNICK: Generally, they're
7 pretty -- it's -- it's pretty much open. I mean -- the
8 -- the provider of the confidential information has --
9 generally has the right to go to court or to the
10 regulator to take whatever action is appropriate to
11 protect their information.

12 In -- in the case of -- that I described
13 in discovery on -- regarding Ontario, where there was
14 an accidental release of information, I believe the --
15 the lawyer who was responsible for that was fined ten
16 thousand dollars (\$10,000) by the Ontario Energy Board.
17 That amount was not specified anywhere, but the
18 confidentiality agreement gave the Board the right to
19 take appropriate actions and gave the utility the right
20 to seek appropriate sanctions. So they -- the language
21 is generally broad and allows the offended party to --
22 to act in ways that would discourage future offences.

23 The -- to tell you the truth, the major
24 consideration on -- from my perspective, is that access
25 to confidential information is an important part of

1 doing my job. And if utilities and other parties have
2 a legitimate reason to not share confidential agree --
3 information with me because I violated previous
4 agreements, that would make my job very difficult. So
5 I don't violate them.

6 MS. PATTI RAMAGE: Thank you, Mr.
7 Chernick. That's all of Manitoba Hydro's questions.

8

9 (BRIEF PAUSE)

10

11 THE CHAIRPERSON: I'm sorry, thank you,
12 Maitre Ramage. Over to you, Ms. Southall.

13

14 CROSS-EXAMINATION BY MS. ANITA SOUTHALL:

15 MS. ANITA SOUTHALL: Thank you, and
16 good morning. I'm going to pick up where Ms. Ramage
17 left off and just follow up with a few general
18 questions on the concept of confidential information,
19 Mr. Chernick.

20 I gather from your evidence that it is
21 common practice for you to receive confidential
22 information in various jurisdictions where you prepare
23 reports and testify.

24 Is that correct?

25 MR. PAUL CHERNICK: That's correct.

1 MS. ANITA SOUTHALL: You have, as your
2 counsel's indicated, provided a sampling of the non-
3 disclosure agreements that you, yourself, have been
4 involved with or signed in other jurisdictions.

5 That -- those were included, as Mr.
6 Gange indicated, as part of the response to PUB/GAC-1,
7 correct?

8 MR. PAUL CHERNICK: I'll -- I'll take
9 your word on the number. I remember we provided a lot,
10 yes.

11 MS. ANITA SOUTHALL: Thank you. And
12 I'm not intending to go through any of those contracts.
13 I see they -- they're available before you.

14 I take it that you have found that these
15 agreements are quite commonly used in your industry?

16 MR. PAUL CHERNICK: Oh, very common.
17 There -- there are place -- for example, in Nova
18 Scotia, Nova Scotia Power will file a case. And as
19 part of its filing, it will enclose a non-disclosure
20 agreement that the utility and review board then
21 approves, and parties can -- can sign to get access to
22 the confidential data which is kept on a -- a separate
23 website with multiple passwords to access it.

24 So that's -- it's just assumed that
25 there will -- will be -- I mean, in many cases when

1 dealing with contracts, for example, or a fuel cost
2 filing where there's confidential information, the
3 filing will be redacted, indicating what sections have
4 been left out. And parties who want to can sign the
5 non-con -- non-disclosure agreement and get access to
6 the remainder.

7 MS. ANITA SOUTHALL: And can you give
8 an example then, Mr. Chernick, of what your role would
9 be in a matter before the Nova Scotia regulator?

10 What would be your involvement in that
11 situation that you're describing?

12 MR. PAUL CHERNICK: Well, I think the
13 latest non-disclosure agreement that I signed was in a
14 -- a filing for approval of Nova Scotia Power's
15 investment in a wind farm. And the confidential
16 information included the actual price that would be
17 paid for -- by Nova Scotia customers for the Nova
18 Scotia Power portion of the fac -- the facility and the
19 remainder of the facility which was being built by a --
20 a non-utility party.

21 It included the bids that the -- that
22 the -- the sponsors had gotten for the wind turbines
23 and other equipment that they didn't want to release
24 publicly or perhaps their -- their bidders didn't want
25 released publicly. It included the economic analysis

1 that NSPI, Nova Scotia Power Incorporated, had
2 performed on the economics of the -- the project and
3 probably some other related documents, contractual
4 matters.

5 And my role has been primarily in
6 reviewing that confidential economic analysis and
7 asking about how it was done, some of the inputs into
8 it. And I think that's -- that -- that's my role
9 there.

10 In other cases, I've looked at the
11 contract and the contract pricing, pro -- var --
12 various provisions in a contract for excusing the
13 parties from their responsibilities and so on, all --
14 all the things that make contracts interesting to
15 lawyers. I try to leave the -- the part that the
16 lawyers like most to them and to concentrate on the
17 part that -- that involves the real value of the
18 contract to the -- to the ratepayers in this case. So
19 those are the sorts of things that -- that I do with
20 confidential data.

21 THE CHAIRPERSON: I'm sorry. Your
22 client in this case was whom?

23 MR. PAUL CHERNICK: This is -- I worked
24 for the consumer advocate in -- in Nova Scotia. The
25 consumer advocate is appointed by the regulatory board

1 to represent the consumers.

2 THE CHAIRPERSON: Now, the -- in terms
3 of when you generated your report, you would have
4 submitted it to your client. In that case, the client
5 would have seen aggregated data.

6 MR. PAUL CHERNICK: The -- the
7 attorneys, I believe, also sign the -- the
8 confidentiality agreements. And any -- and I when I
9 file testimony -- or discovery responses, for that
10 matter -- with the board, I either discuss the issues
11 qualitatively -- you know, they -- they put the number
12 in this column when they should have put it in that
13 column, and that's -- that completely reverses the
14 economics of the project, for example. And again, I
15 don't have to mention the number at all perhaps. Or
16 you say, And it's millions of dollars, which is obvious
17 from the -- the scale of the program, the project.

18 Or I discuss relative magnitudes that,
19 you know, this is a bigger factor than that and
20 therefore it's important that this be done right. Or I
21 file a redacted version of the testimony that just has
22 a -- a grey block where the sensitive information would
23 be and then a confidential version, which is provided
24 to the board and to parties that have signed the non-
25 disclosure agreement.

1 CONTINUED BY MS. ANITA SOUTHALL:

2 MS. ANITA SOUTHALL: Sir, in Nova
3 Scotia, have you particip -- participated in any
4 hearings that had a protocol for in-camera testimony?
5 So akin to what you're doing here today before this
6 Board, but, of course, today we're not in camera.

7

8 So where you may want to share
9 confidential information in terms of oral questioning,
10 was -- was that part of the process?

11 MR. PAUL CHERNICK: I'm trying to
12 remember whether we've actually done that in any
13 proceeding that I've been a part of in Manitoba --
14 excuse me, in -- in Nova Scotia. I believe so, but I'm
15 not -- I can't remember which one it was. It's fairly
16 common in -- in other proceedings.

17 For example, I represent the Consumers
18 Council in Connecticut in the periodic procurements of
19 power by the utilities for their customers. And we
20 have a -- and in the hearings, there is a very brief
21 public session in which the appropriate people, mostly
22 from the utilities, report that the -- the procurement
23 was successful and that it was carried out according to
24 the regulations. And I say that I was there and I
25 followed the process and everything was done according

1 to the rules.

2 And then we go into a confidential
3 session and the connections to the -- matter of fact,
4 they -- they turn off the sound system completely.
5 They cut off the -- the internet coverage of the -- and
6 throw anybody out who hasn't signed the non-disclosure
7 agreement. And then we tell the regulators what went
8 on, what the bids were, how many bidders there were,
9 how they compared to our estimates of what the bids
10 should have come in at. All the information that would
11 be sensitive to the -- in terms of the competitive
12 situation to either the -- the bidders or the ability
13 of the utility to get the best deal.

14 So I've been in a lot of in-camera
15 sessions. And I think there was at least one (1) brief
16 section in -- in Nova Scotia that was confidential.
17 But I really can't -- I've been in a lot of hearings,
18 and they get murky together sometimes.

19 MS. ANITA SOUTHALL: Thank you, sir.
20 Actually, that was -- that last piece that you
21 expounded on, it occurred to me as you were talking how
22 many hearings you must have been involved in. So I
23 wasn't really trying to test your memory of Nova Scotia
24 in particular. But that's -- that's helpful. Thank
25 you.

1 (BRIEF PAUSE)

2

3 MS. ANITA SOUTHALL: Sir, sorry. Just
4 in that last example you gave in Connecticut, is a --
5 is a confidential transcript prepared? In other words,
6 is there still a transcript of the proceedings, but
7 it's kept aside?

8 Do you know anything about that?

9 MR. PAUL CHERNICK: Yes. Yeah, there
10 is. And in Connecticut the court reporter is -- is
11 also sworn to secrecy. The -- it's a continuing
12 docket, so the -- the witnesses are sworn every year or
13 so, and then we have several proceedings in between.
14 The court reporter gets sworn every time, and I've
15 never quite understood why the higher -- higher level
16 of -- of assurance for the court reporters than the --
17 than the witnesses. But, yes, it is a -- a separate
18 transcript. And I have never tried to access a
19 confidential transcript in Connecticut, but it -- they
20 apparently exist.

21 MS. ANITA SOUTHALL: Sir, you -- you
22 take the position that a non-disclosure agreement would
23 assist in making the regulatory process here more
24 efficient.

25 Is that correct?

1 MR. PAUL CHERNICK: Well, yes, if
2 there's information that Hydro believes is -- would be
3 damaging to the interests of -- of ratepayers to
4 release or that they're contractually bound to keep
5 confidential, then a confidentiality would allow the
6 parties to -- and the Board to see that information and
7 allow decisions and recommendations to be better
8 informed.

9 MS. ANITA SOUTHALL: You also contend,
10 sir -- and -- and I draw this from your -- from your
11 written evidence -- that Manitoba Hydro, in your
12 opinion, has not provided adequate documentation of
13 various aspects of their design of the -- I heard this
14 morning, I believe -- the methodology or supporting
15 data for the fuel switching report and various aspects
16 of their DSM methodologies.

17 Is -- is that --

18 MR. PAUL CHERNICK: Yes.

19 MS. ANITA SOUTHALL: -- is that fair?

20 MR. PAUL CHERNICK: Among other things,
21 and -- and all -- almost anything having to do with the
22 -- the estimates of marginal unavoided costs.

23 MS. ANITA SOUTHALL: Sir, you've also
24 made the point in your report that several key pieces
25 of data were not provided on a timely basis to allow

1 for full discovery in the process. Is that so?

2 And maybe just on that point, as opposed
3 to a yes or no, if -- if something has hampered your
4 ability to specifically provide your evidence today
5 before the Board, perhaps you could explain that piece?

6

7 (BRIEF PAUSE)

8

9 MS. ANITA SOUTHALL: I'm going to jump
10 in on my own question, sir --

11 MR. PAUL CHERNICK: Thank you.

12 MS. ANITA SOUTHALL: -- and just give
13 you a moment to do that, but also to not forget that
14 Ms. Ramage indicated certain spreadsheets were provided
15 in September. I understand that that's subject to an
16 undertaking. So I suppose that's a caveat that you'll
17 want to take into account, in terms of what you had
18 access to or not.

19 I don't know if that changes what you
20 say you had access to in your written evidence.

21 MR. PAUL CHERNICK: I -- I don't
22 believe so, no. I -- I haven't tabulated the specific
23 times that various pieces of information came in. But
24 the -- there was -- I -- I think, as a general matter,
25 there was one (1) round of -- of discovery. And on a

1 number of topics, we had to ask the initial question:

2 Well, give us the study, give us the analysis.

3 And we got either a response or a non-
4 response at that point and didn't have an opportunity
5 to follow up with, Okay, well, now that you've given us
6 some background, now tell us how you got those
7 individual pieces that are in that report.

8 I think in my -- my testimony, I just
9 make the -- the point that a lot of -- that, firstly,
10 there was one (1) round of discovery, and the -- the --
11 and, secondly, that the responses in many cases came in
12 very late so that it was -- there was little time to
13 work with them. And even if there had been an
14 opportunity for yet another round of discovery, it was
15 too late to -- to get anything really done with them.

16

17 (BRIEF PAUSE)

18

19 MR. PAUL CHERNICK: Mr. Gange reminds
20 me that -- that of course there were two (2) rounds of
21 discovery, but that the -- the parts I was talking
22 about were the parts where we wound up with only one
23 (1) round of discovery because, for example, the fuel
24 switching report came in so late.

25 So there was -- if the filing provides

1 the fundamental studies and discovery provides the
2 spreadsheets, or for the things where obviously people
3 are going to want to see the spreadsheets, like a cost
4 of service study, those are provided as part of the
5 work papers for the initial filing.

6 Then you have a chance to say, Okay,
7 now, why on this line did you did this with it? What's
8 the purpose of that calculation, and what's your basis
9 for making that -- deciding it was 50/50 rather than
10 some other split?

11 And all of this is more complicated
12 without the comprehensive filing in the first place and
13 without the provision of the spreadsheets, which often
14 will answer a lot of the questions about how you got a
15 particular number, because you can look at a cell and
16 say, Oh, that's the sum of the following things and
17 it's multiplied by something from another sheet. And
18 then you can ask about why, if that's necessary.

19

20 (BRIEF PAUSE)

21

22 MS. ANITA SOUTHALL: Mr. Chernick, I'm
23 -- I'm just going to turn to that issue of -- that you
24 were just speaking about a moment ago on the
25 electronically readable documents. You referred to

1 them as "spreadsheets".

2 I take it the Excel format is a pretty
3 standard format, correct?

4 MR. PAUL CHERNICK: Yes, they pretty
5 much seem to have monopolized that part of the
6 information industry.

7 MS. ANITA SOUTHALL: Like our Google
8 searches, I guess, on the internet. Is the -- is the
9 accessibility to electronically readable spreadsheets,
10 again, a fairly common procedure in other
11 jurisdictions?

12 MR. PAUL CHERNICK: Oh, yes, very much
13 so.

14 MS. ANITA SOUTHALL: You identified,
15 sir, I believe, in your study a number of documents
16 that would be useful. In fact, I think just a moment
17 ago you were giving the example of a cost of service
18 spreadsheet. Proof of revenue data, I think, is in
19 your report. Bill comparisons; cost of services, I
20 just mentioned; and the marginal cost studies.

21 Would those all have variability, in
22 terms of the underlying methodology and data that would
23 be valuable for your review?

24 MR. PAUL CHERNICK: Oh, yes. And the
25 same thing is true for the -- for the fuel switching

1 report.

2 MS. ANITA SOUTHALL: So, sir, in terms
3 of assisting the regulatory process, I -- I think
4 you've -- you've started down that path in your
5 previous answer a couple of moments ago.

6 The kinds of things that you do with the
7 data include verification that the information being
8 provided initially is accurate, correct?

9 MR. PAUL CHERNICK: Yes. In -- in some
10 cases it's a matter of comparing values in a
11 calculation to, externally, that available information,
12 such as a projection of the price of gas or inflation
13 rate or something like that. And in some cases, it's a
14 matter of looking for -- at the consistency among the,
15 and between, the utility's assumptions.

16 For example, are they using one (1) cost
17 for meter in a rate design calculation, a different
18 cost for meter in a cost allocation calculation? And
19 there may be a good reason for that, or maybe it's a
20 mistake and something didn't get updated. But it's
21 much easier to explore if you actually have the numbers
22 in front of you and you can see what was being used,
23 where.

24 MS. ANITA SOUTHALL: Beyond that, the -
25 - as -- as I mentioned a couple moments ago, the -- the

1 live spreadsheet with the assumptions would allow you
2 to explore the variability of the various inputs to
3 generate other hypothetical outcomes. Is that one (1)
4 aspect of it?

5 I take it, for the rate design process,
6 that becomes an important feature.

7 MR. PAUL CHERNICK: Yes, for rate design
8 and cost allocation, it's very helpful to know what
9 would happen if I changed this particular input where
10 those are -- are decisions -- as I did with my rate
11 design spreadsheet; what happens to the first block if
12 I make the second block eight (8) cents or nine (9)
13 cents, or seven (7) cents?

14 So that's a -- a very important use of -
15 - of some spreadsheets. Even where you're not going to
16 do that, however, a spreadsheet is often -- well, it's
17 -- it's sometimes the only practical way, but it's
18 often by far the easiest way to find out how a
19 calculation was done. Because any verbal explanation
20 of how a -- a complicated analysis was performed is
21 going to be very hard to put together clearly and very
22 hard to follow.

23 And it's so much easier to just look at
24 the calculation and see what was being done and be able
25 to say, Oh, that makes sense; or, I don't understand

1 it, I need to ask some questions; or, Oh, I see a
2 mistake, an error or a conceptual problem that I want
3 to comment on. And you can focus on -- then on -- you,
4 as a -- a party, or for that matter the Board, you can
5 focus on the -- the things that -- that matter, and
6 where there's a real question or disagreement, as
7 opposed to spending your time going through the -- the
8 chaff looking for the wheat.

9 MS. ANITA SOUTHALL: Sir, I -- I want
10 to look at a specific example of a document that's
11 before the Board in this proceeding. And so if I could
12 refer everyone, please, to the Volume IV Board
13 counsel's book of documents which was circulated
14 earlier this morning. It's Volume IV now of PUB
15 Exhibit number 14, for the record.

16 And it happens to be no coincidence that
17 it's the first tab in this new volume. It's Tab 44.
18 And we continue with the sequential numbering of the
19 pages in this volume, so the upper right-hand corner it
20 ident -- it's identified on the reco -- or for the
21 record as page 428.

22 And, sir, do you have that document in
23 front of you?

24 MR. PAUL CHERNICK: I do.

25 MS. ANITA SOUTHALL: Does the Board

1 have available that book of documents?

2 Thank you. So I have inserted here,
3 sir, Appendix 10.12 of Manitoba Hydro's GRA
4 application. It's a document identified as "Proof of
5 Revenue," correct?

6 MR. PAUL CHERNICK: Yes.

7 MS. ANITA SOUTHALL: And in your
8 evidence you identified the fact that:

9 "The inability to have access to the
10 calculations associated with the
11 proof of revenue is a shortcoming."

12 Is that true?

13 MR. PAUL CHERNICK: Yes. It's -- it's
14 a problem that we don't have it in a spreadsheet form.
15 It's also a problem that there isn't really a proof of
16 revenues here; there's an assertion of revenues. For
17 example, the -- the calculated revenue 2013 rates for
18 basic residential service, \$565 million and some
19 change. That -- that's not proved in any way.

20 A proof of revenues, as I've seen it --
21 I -- I believe, in every other situation other than
22 Manitoba Hydro, would have a customer number, number of
23 bills rendered during the year, number of kilowatt
24 hours billed, any surcharges or discounts that are
25 applied., and the number -- and then the -- the rates.

1 And even if it were all printout -- and
2 remember that when I started in this business we didn't
3 have spreadsheets. Even if it were a printout, you
4 could look at it and see: Okay, they're -- they're
5 saying that these are going to be their sales, and in
6 fact that matches their forecast reasonably well. And
7 this is the rate they're asking for. And these are the
8 revenues.

9 And you can go through line-by-line and
10 look at the -- especially as you get into the non-
11 residential rates, the general services rates, you --
12 you get various adjustments for owning transformers or
13 metering at different levels and so on. And you can
14 see each of those lines laid out and you understand
15 where their assertion that their total revenue would be
16 -- would -- you know, would be the \$1.4 billion, how
17 they got that. There is no proof in this proof of
18 revenues, and so it's deficient sort of -- this
19 particular calculation is deficient at two (2) levels.

20 MS. ANITA SOUTHALL: Sir, just staying
21 on that document for a moment. Your access to
22 spreadsheets associated with the proof of revenue
23 would, I take it, provide you with the ability to
24 consider alternative rate designs just with respect to
25 this particular example. Could you just -- if that's

1 correct and -- and I've misstated it, please explain
2 it.

3 But -- but I -- but I took it that --
4 that this has a -- or the -- the background to this
5 document --

6 MR. PAUL CHERNICK: Yes.

7 MS. ANITA SOUTHALL: -- if I can put it
8 that way in general --

9 MR. PAUL CHERNICK: Yes.

10 MS. ANITA SOUTHALL: -- impacts
11 ultimately rate design --

12 MR. PAUL CHERNICK: Yes.

13 MS. ANITA SOUTHALL: -- which I know is
14 not what we're here for in this proceeding, but whi --
15 which is pending?

16 MR. PAUL CHERNICK: It -- it would
17 affect rate design. It would also affect -- it would
18 also be important if, for example, a party thought that
19 the company had overestimated sales to a particular
20 class, or maybe to all classes, or overestimated some
21 and underestimated others. The proof of revenue would
22 usually allow you to say, Okay, if we take out the
23 number that they've assumed for sales to residential
24 basic and put in this other number which we think is
25 better, then that leaves you with a shortfall of this

1 many million dollars, which can be made up for by
2 increasing this rate by 1 percent and that one by 3
3 percent and that makes everything balance out.

4 So it's important for rate design. It's
5 important for any adjustment in -- in the forecast.
6 And also in the -- the proof of revenues is a very
7 useful reference for a lot of purposes it -- in a
8 normal filing, because it has the number of customers,
9 the number of bills rendered, the number of -- of
10 kilowatt hours expected to be sold in whatever detail
11 the utility bills by. So you can look in the proof of
12 revenues and see what percentage of customers they say
13 are of a particular class are -- are billed at -- at
14 primary voltage, as opposed to secondary voltage, and -
15 - and that may be significant in terms of understanding
16 loss factors or evaluating DSM potential.

17 It's got a wealth of information that's
18 useful in all kinds of -- of ways, and this document
19 just does not provide that kind of detail.

20 MS. ANITA SOUTHALL: I -- I take it,
21 sir, that that -- that that higher level detail proof
22 of revenue that you're describing is a public document
23 in other jurisdictions where rate-setting is occurring
24 for utilities?

25 MR. PAUL CHERNICK: Oh, absolutely.

1 The -- the only part of that that would ever be
2 redacted would be perhaps some special contracts that
3 would be merged together into a single line and just
4 reported as special contracts without any detail,
5 because the nature of the -- the sales to those large
6 industrial customers is confidential.

7 But all of this information about --
8 obviously you can go on Hydro's website and find out
9 what their rates are for the various classes of
10 customers; that's not confidential. And I don't think
11 they're arguing that their sales forecasts for the next
12 couple of years are -- are confidential either, and
13 I've never seen a utility that made that kind of --
14 kind of argument.

15 So, yes, it's -- that's all public
16 information. And, you know, in the United -- United
17 States, that level of information or -- or at least
18 sales by class, average rate by class, revenue by
19 class, number of customers by class, is required in an
20 annual filing with the Federal Energy Regulatory
21 Commission.

22 And while I have my misgivings sometimes
23 about the FERC, there are -- there are also times, like
24 dealing with Manitoba Hydro, when I regret the fact
25 that their jurisdiction is limited to the United States

1 on -- in terms of reporting requirements.

2 MS. PATTI RAMAGE: So, I'm just
3 wondering if you would -- similar to what you did in
4 the response to the Boards request on confidential --
5 or, sorry, non-disclosure agreements --

6 MR. PAUL CHERNICK: M-hm.

7 MS. ANITA SOUTHALL: Would you be able
8 to provide -- take an undertaking to provide two (2) or
9 three (3) samples, if -- if there is any variation
10 between them, of the kind of proof of revenue that
11 you're describing from other jurisdictions.

12 MR. PAUL CHERNICK: I can certainly do
13 that.

14

15 --- UNDERTAKING NO. 85: GAC to provide two (2) or
16 three (3) samples of proof
17 of revenue described in
18 other jurisdictions

19

20 CONTINUED BY MS. ANITA SOUTHALL

21 MS. ANITA SOUTHALL: Thank you, sir.
22 I'd like now to turn to the -- to a discussion of
23 marginal costs and your work on the concept of marginal
24 cost in your report, sir.

25 So, if all following, and Mr. Chernick,

1 yourself, if you could turn to your written evidence,
2 your direct testimony of November 16, 2012 --

3 MR. PAUL CHERNICK: M-hm.

4 MS. ANITA SOUTHALL: -- and
5 specifically, sir, starting on page 12.

6

7 (BRIEF PAUSE)

8

9 MS. ANITA SOUTHALL: You have that
10 available, sir?

11 MR. PAUL CHERNICK: I do.

12 MS. ANITA SOUTHALL: So, I'm going to
13 be asking you some questions and referring you to some
14 information associated, sir, with the question that
15 starts at line 5 on that page, and the evaluation of
16 DSM, and your understanding of Hydro's estimates for
17 the long run marginal cost, which, on line 6 of your
18 evidence on that page, you indicate to be eight point
19 five-two (8.52) cents per kilowatt hour in 2011
20 dollars.

21 Correct?

22 MR. PAUL CHERNICK: Yes.

23 MS. ANITA SOUTHALL: And, just as a
24 resource in the event that it -- that you need it or
25 that others wish to have access to it, in Volume IV of

1 the book of documents at Tab 45, we have included in a
2 few different IR responses where Manitoba Hydro has
3 verified the assumptions that you include in your
4 evidence on page 12.

5 So, if you look at Tab 45, sir, with
6 reference to -- I'll just give you a moment to get
7 there.

8 MR. PAUL CHERNICK: Yes.

9 MS. ANITA SOUTHALL: With reference to
10 the response to CAC-GAC/MH-1-4 on avoided costs. On
11 the backside of that page, on the two (2) sided page,
12 there is a reference to GAC/MH-2-23 and the response,
13 and then that goes on to the next page, sir. Is that -
14 - does your book look the same as mine?

15 MR. PAUL CHERNICK: Yes.

16 MS. ANITA SOUTHALL: And then finally
17 on the last page in this tab, which in the sequential
18 page numbering is page 433, CAC/MH-2-27 and the
19 reference in the answer to the components of generation
20 transmission and distribution about three quarters
21 (3/4s) of the way down the page.

22 Do you see that, sir?

23 MR. PAUL CHERNICK: Yes.

24 MS. ANITA SOUTHALL: So, just -- just
25 back on that point and -- and tying the two (2)

1 documents together, you took Mani -- Manitoba Hydro's
2 three (3) components of marginal cost to be valued at a
3 thirty (30) year levelized generation cost of seven
4 point one one (7.11) cents per kilowatt hour.

5 Is that correct?

6 MR. PAUL CHERNICK: Yes.

7 MS. ANITA SOUTHALL: That assumption
8 Manitoba Hydro makes, you concluded, was that
9 transmission cost -- pardon me, marginal transmission
10 cost was valued at point six (.6) cents a kilowatt
11 hour.

12 Correct?

13 MR. PAUL CHERNICK: Yes. Point six-nine
14 (.69), yeah.

15 MS. ANITA SOUTHALL: Pardon me. Point
16 six-nine (.69).

17 MR. PAUL CHERNICK: M-hm.

18 MS. ANITA SOUTHALL: Thank you for the
19 correction. And that Manitoba Hydro assumes marginal
20 distribution cost of zero point seven-three (0.73)
21 cents per kilowatt hour.

22 Correct?

23 MR. PAUL CHERNICK: Yes.

24 MS. ANITA SOUTHALL: Now, I take it,
25 Mr. Chernick, from your report, that you believe the

1 estimate for transmission and distribution -- sorry,
2 that we're aware that the estimate for transmission and
3 distribution is based on a 2004 methodology by Manitoba
4 Hydro and that it's flawed.

5 Is that so?

6 MR. PAUL CHERNICK: Yes.

7 MS. ANITA SOUTHALL: I am aware, sir,
8 and I'm not sure you are, but I've included at Tab 46,
9 and I don't need -- think you need necessarily to find
10 it, but if you -- if you wish to read it, I wanted to
11 make it available to you, some evidence from Mr. Miles,
12 one (1) of Manitoba Hydro's witnesses, that they're --
13 they're looking at changes to the methodology.

14 Are you aware of that?

15 MR. PAUL CHERNICK: Yes, I -- read that
16 transcript. And I believe that there was some mention
17 of it in the rebuttal, as well.

18 MS. ANITA SOUTHALL: Yes, I think
19 you're right, there was mention in the rebuttal, too.
20 If I could ask you to take a moment, and this can be
21 tough on -- you know, not knowing that this is coming,
22 but what particular methodology issues should Manitoba
23 Hydro be concerned with when they're -- when they're
24 reviewing this?

25 And I know you've outlined those flaws,

1 I believe that you identified in your report if -- and
2 I don't mean to have you read those into the record,
3 sir. But if there's anything beyond what you
4 identified as to your criticisms on that in the report,
5 I'd like to give you the opportunity to -- to comment
6 on that now.

7 Sorry, page 14 is where I think you've
8 identified --

9 MR. PAUL CHERNICK: Yes, at the top of
10 the --

11 MS. ANITA SOUTHALL: -- the concerns
12 you had with the 2004 methodology.

13 MR. PAUL CHERNICK: Yes. And -- and
14 I'd just like to point out it's -- it's not clear how
15 the 2004 methodology resulted in the current estimate
16 of avoided T&D. But I -- I think some of these are --
17 the -- the points that I make on page 14 are indicative
18 of -- of generic issues that Hydro should be bearing in
19 mind and prepared to explain when it presents its
20 marginal cost studies.

21 The first is the problem of matching
22 time periods; that if you include the cost of the --
23 all the load growth in a ten (10) year period, but you
24 don't include some of the additions in that ten (10)
25 year period, you -- which are driven by the load

1 growth, because you've already started the process of -
2 - of building them -- in some cases, a transmission
3 line may take several years to build -- you're going to
4 be leaving out some of the investments that are driven
5 by that level of load growth, and you've got a mismatch
6 between the -- the growth and the -- and -- and the
7 costs that you're matching up to the growth. And --
8 and what you're doing here is -- is -- basic
9 methodology is to say, well, how much money do we have
10 to invest if we have a hundred megawatts of load
11 growth? And that's very complicated for T&D, because
12 there are so many different places that could be and
13 different pieces to it, as opposed to generation, where
14 you basically need energy in the summer and the winter
15 and you need to be able to meet your peak load.
16 Transmission and distribution has -- has many levels
17 and many components that interact.

18 So the usual methodology is to say, how
19 much did we spend in the past, or how much are we
20 projecting to spend in the future, and how much load
21 growth drove that. And whether you're looking
22 historically or into the future, you want to -- to
23 match up the -- the growth and the associated
24 additions.

25 And a related issue is, in some cases,

1 you have projects that are being driven in part by
2 factors other than load growth. For example, a
3 transmission just has -- has big structural problems,
4 and so while you're replacing it you're also upgrading
5 it, which will allow you to avoid having to build a
6 second transmission line.

7 Well, you've met a lot of load growth in
8 that project -- and, yes, the project was necessary --
9 but without the load growth you would have built a less
10 expensive replacement line.

11 And you want to try and capture those
12 kinds of effects, as well. You can't necessarily do it
13 for every project, but where you have big ones and
14 you're thinking about treating them as being not
15 related to the load growth, you have to think carefully
16 about, Well, but are they really, or are they, like
17 some of them, cost related, or are they -- is this
18 project meeting some of the load growth and, therefore,
19 understating the typical relationship of -- of
20 investment to load?

21 And, more generally, you want to think
22 carefully about, you know, what is load related. I
23 called out the specific issue of overhead transformers
24 being treated as entirely customer related and not load
25 related at all. And both the size of transformers that

1 you install and the -- the number of transformers, is
2 related to load; that -- in an area served with
3 overhead, if you add another house you may need to add
4 another transformer, not because you're too far from an
5 -- any existing transformer, but because the load on
6 the existing transformer would -- would be too high
7 with that additional load. And, therefore, you put in
8 a new transformer and take some of the homes that are
9 served by the existing one and reconfigure to -- to
10 serve the houses off of two (2) transformers instead of
11 one (1).

12 So just waving your hand and saying, Oh,
13 overhead transformers have nothing to do with -- with
14 load is -- is a gross oversimplification.

15 Operation and maintenance costs, while
16 they're not a -- a big factor in -- in T&D, to the
17 extent that you have more lines, more transformers,
18 more poles to -- to check and maintain, you have --
19 have higher opera -- operation and maintenance costs.
20 And I think that sort of covers the -- the issue.

21 As I -- as I point out, the
22 documentation in the 2004 study was not clear enough to
23 allow me to -- to determine whether additional kinds of
24 projects might, in fact, have been load related or have
25 load-related implications, because the descriptions

1 were so broad.

2 MS. ANITA SOUTHALL: Thank you, sir.
3 Just going back -- well, staying on that subject, but
4 going back to your report, please, at page 12 now. And
5 -- and then -- and then you carry -- you carry forward
6 with, I believe, your estimate of transmission and
7 distribution marginal costs.

8 But, first of all, you don't accept
9 Manitoba Hydro's estimate, correct?

10 MR. PAUL CHERNICK: Well, I don't think
11 I really have anything else to work from.

12 MS. ANITA SOUTHALL: Maybe I'll
13 clarify. You accept the base estimate --

14 MR. PAUL CHERNICK: Well --

15 MS. ANITA SOUTHALL: -- but in footnote
16 3 on page 12, you reference the fact that Manitoba
17 Hydro's value assumes a hundred percent load factor and
18 that a lower assumed load factor should be used, for
19 example?

20 MR. PAUL CHERNICK: Yes, and un --
21 unfortunately, I -- I don't really know how Hydro uses
22 the marginal cost for -- for DSM evaluation, so I -- I
23 don't know exactly how it applies, the -- what values
24 it applies or how it applies them. In terms of
25 discussion -- discussing marginal costs to inform rate

1 design, or for the fuel switching, if you're going to
2 put everything in cent per kilowatt hour terms, you'd
3 want to use a realistic load factor, as I do in
4 footnote 3.

5 MS. ANITA SOUTHALL: And just -- just
6 following that up, sir, and -- and with reference now
7 to Tab 47, Volume IV of the Board's book of documents,
8 you provided -- sorry, let me just locate the
9 reference.

10 Right. So this would be at Tab 47,
11 starting at the bottom of page 440, but then on to 441,
12 the Board posed the question and you responded to
13 PUB/GAC-3D. So that's on page 441, sir.

14 "Please provide supporting
15 calculations for the avoided cost
16 reference in footnote 3."

17 So we're -- we're talking about the
18 adjustment to the load factor that you were mentioning
19 from a hundred percent assumption to a 62 percent load
20 factor. And at question -- or, pardon me, Response 3D,
21 you show the math, sir, on page 441, is that correct?

22 MR. PAUL CHERNICK: Yes.

23 MS. ANITA SOUTHALL: And so that takes
24 you to one point one (1.1) cents per kilowatt hour for
25 transmission and point o-seven-three (.073) cents per

1 kilowatt hour for distribution. I'm sorry, I've got
2 that wrong.

3 For transmission, it would be -- the new
4 number would be one point one-one (1.11) cents per
5 kilowatt hour, and for distribution the number goes up
6 to one point one-eight (1.18) cents per kilowatt hour.

7 Is that right?

8 MR. PAUL CHERNICK: Yes.

9 MS. ANITA SOUTHALL: Is it your
10 position that these revised numbers better represent
11 the marginal cost of transmission and distribution on
12 the basis of the starting point being the assumed
13 numbers for Manitoba Hydro?

14 MR. PAUL CHERNICK: Yes, starting with
15 their dollar per kW year value this is a -- it's
16 somewhat simplified, but it's a much better starting
17 point than assuming a hundred percent load factor.

18 MS. ANITA SOUTHALL: I'm just going to
19 pause and ask, Mr. Chairman: I just see it's noon. I
20 -- I just would like your direction. I've got a fair
21 bit of cross-examination left for this witness, so I --
22 I'm nowhere near sort of coming to an end.

23 THE CHAIRPERSON: Okay. Let's -- let's
24 adjourn then -- or, let's -- pardon me, let's recess
25 and resume the proceedings at one o'clock.

1 MS. ANITA SOUTHALL: Thank you. Thank
2 you, Mr. Chernick. We'll see you back here at 1:00.

3 MR. PAUL CHERNICK: Okay. Thank you.

4

5 --- Upon recessing at 12:00 p.m.

6 --- Upon resuming at 1:07 p.m.

7

8 THE CHAIRPERSON: I believe we are
9 ready to resume proceedings.

10

11 CONTINUED BY MS. ANITA SOUTHALL:

12 MS. ANITA SOUTHALL: Thank you, Mr.
13 Chairman. I'm just going to pick up where I left off
14 this morning with Mr. Chernick. And, Mr. Chernick,
15 just as a reminder, we had been talking a bit about the
16 marginal cost of transmission and distribution.

17 Do you remember that?

18 MR. PAUL CHERNICK: Yes, I do.

19 MS. ANITA SOUTHALL: Since this is not
20 my expertise, I hope this is a question that makes
21 sense without clarification.

22 MR. PAUL CHERNICK: I -- I'll try to
23 work with you.

24 MS. ANITA SOUTHALL: Thank you. The --
25 the question is: Should line losses be determined at

1 the transmission and distribution level, in your
2 opinion?

3 And perhaps maybe the best way to answer
4 that would be to explain, without my help, what line
5 losses are.

6 MR. PAUL CHERNICK: Okay. The -- the
7 amount of heat lost in the -- the wires of distribution
8 and transmission lines and in transformer windings, the
9 amount of heat lost in a wire as current flows through
10 it, is proportional to the square of the current. And
11 so as you increase load, you increase the line losses.

12 And for any non-trivial amount of power
13 flowing through a utility T&D system, there's going to
14 be a significant measurable difference between the
15 amount of energy you put in at the generator and the
16 amount you get out at the customer's meter, or
17 certainly at the end use, because their loss is even
18 beyond the meter.

19 Is that enough of an explanation of line
20 losses? Okay.

21 MS. ANITA SOUTHALL: Yes. And you --
22 you believe that those should be included?

23 MR. PAUL CHERNICK: Well, yes. So when
24 you say: What does it cost to use one (1) more
25 kilowatt hour of electricity, in terms of your

1 generation cost, for example? If -- if you use one (1)
2 -- if a customer uses an additional kilowatt hour of
3 electricity and a hundred watt hours, a tenth of a
4 kilowatt hour, is lost between the generator and the
5 customer, then the generator has to produce another 1.1
6 kilowatt hour, which could otherwise be saved behind
7 the dam or sold or whatever.

8 And so, therefore, if you -- you have a
9 value of energy per kilowatt hour generated, you need
10 to add to that the losses to get a value of generation,
11 a cost of generation per kilowatt hour delivered to the
12 customer. And for transmission and distribution
13 marginal costs, the question gets a little more
14 complicated, because it depends on exactly how those
15 costs were estimated in the first place.

16 But typically, utilities have load data
17 at the generation level, at the total system level.
18 And when they're looking at the -- they're trying to
19 estimate the marginal cost, they're looking at: We had
20 a hundred megawatt increase of load at the -- at the
21 generation level, and that caused us to spend so many
22 millions of dollars on transmission investments, for
23 example. Well, that hundred megawatt increase in load
24 at the generator, that was probably between 80 and 90
25 megawatts of additional load at the customer meter.

1 So when you take the margin -- the costs
2 and millions of dollars and divide them by load growth,
3 you either have to first reduce the -- the load growth
4 by the loss factor or, once you've done the calculation
5 you say, oh, but that's conceptually per kilowatt at
6 the generation level; the real cost per kW of load at
7 the customer meter, that's going to be 10 or 20 percent
8 higher.

9 MS. ANITA SOUTHALL: So that's going to
10 increase the marginal cost?

11 MR. PAUL CHERNICK: That -- those are -
12 - those are components of the marginal cost, yes.

13 MS. ANITA SOUTHALL: Could I just ask
14 you to turn to the issue of the cost of generation?
15 Manitoba Hydro uses a cost of generation estimate that
16 is a combination of what Manito -- Manitoba Hydro plans
17 to obtain in the export market, so export price
18 related, and dependent on Hydro's forecast of future
19 export sales.

20 Are you aware of that, those being sort
21 of the high-level components of their generation
22 estimate analysis currently?

23 MR. PAUL CHERNICK: Well, I assume that
24 the total amount of sales that they expect to be able
25 to make goes into the -- their estimation of what the -

1 - the value would be for the sales. I assume that they
2 have some kind of forecast in dollars per megawatt hour
3 of what they can sell power for, going out at various
4 periods of years. But I don't really know, because
5 they have never provided any detail.

6 MS. ANITA SOUTHALL: Perhaps then, if I
7 could ask you to, I'll -- I'll take a step back from
8 that and -- and say: What do you understand to be the
9 basis of the generation estimate value of marginal
10 cost? For Manitoba Hydro, that is?

11 MR. PAUL CHERNICK: I believe that the
12 -- the most important input is an -- an estimate of the
13 market price of power and that there is a -- that Hydro
14 performs some kind of calculation which estimates the
15 percentage of time or the probability that it won't be
16 able to export the power that -- the excess power and
17 will have to spill water, and the percentage of time
18 when it will be a net importer of power or have to
19 operate its thermal plants.

20 So it's primarily sales, with a little
21 reduction for the excess water that -- that just gets -
22 - gets trapped and has to be thrown away and an adder
23 for purchases and thermal generation in drought sit --
24 situations.

25 MS. ANITA SOUTHALL: I take it, Mr.

1 Chernick, that you don't have an independent estimate
2 of the marginal cost of generation?

3 MR. PAUL CHERNICK: I haven't tried to
4 develop that, no.

5 MR. RAYMOND LAFOND: Ca -- can I pursue
6 that? On page -- on page 441 of this book of
7 documents, Volume IV, Exhibit 14, at the top of the
8 page, "Response A," we talk about seven eleven (7.11) -
9 - seven point eleven (7.11) cents per kilowatt hour,
10 marginal costs of generation as provided by Hydro.

11 MR. PAUL CHERNICK: M-hm.

12 MR. RAYMOND LAFOND: Because you're
13 moving it to -- essentially, the way I read it, you're
14 moving that to transmission and distribution.

15 So, therefore, your revised calculation
16 based on their seven point eleven (7.11) cents would be
17 more like six point two (6.2) cents, correct?

18

19 (BRIEF PAUSE)

20

21 MR. PAUL CHERNICK: Well, it's not a
22 correction. It's just restating it to a different
23 place.

24 MR. RAYMOND LAFOND: It's --

25 MR. PAUL CHERNICK: It's like saying it

1 in US dollars versus Canadian dollars, 2005 dollars
2 versus 2011 dollars. There's no disagreement there.
3 I'm -- I think I was talking about their assumed cost
4 of generation, roughly speaking, the market price at
5 generation, and saying, well, since they -- they say
6 that delivered with losses it's seven point one-one
7 (7.11) cents, then presumably, they mean that it's six
8 point two (6.2) cents at the generator.

9 MR. RAYMOND LAFOND: Okay. So six
10 point two (6.2) cents at gen -- at the generator,
11 somehow, early in the hearings -- and I'm not sure how
12 this all came about -- but taking in the operation and
13 maintenance, the depreciation, and ,of course, the
14 interest expense factor, the financing factor, it was
15 closer to nine (9) cents, based on the revised costs
16 now in hand.

17 Does that make any sense to you?

18 MR. PAUL CHERNICK: Well, let me see
19 what that -- the way that I would interpret those --
20 those facts the way you've stated them, I -- I take it
21 what you're referring to there is an estimate of the
22 cost of a new generator?

23 MR. RAYMOND LAFOND: Yes.

24 MR. PAUL CHERNICK: And if that cost is
25 higher than the market value for the power, then

1 Manitoba Hydro's customers would be better off avoiding
2 the generator and not making the sale. And
3 conceivably, that nine point (9.) whatever cent value
4 would be appropriate instead of the six point two (6.2)
5 cent value. And then, of course, the marginal cost at
6 the -- of -- at the customer's meter would be higher
7 still.

8 MR. RAYMOND LAFOND: Agreed. Now, from
9 your experience, building a new hydro generation
10 station, assuming constant water flows and not -- and
11 not spilling and -- and no droughts -- and that's a big
12 assumption -- but at what rate of efficiency does a
13 plant normally operate? Because there's got to be some
14 shut downs once and a while.

15 Are we talking of 90 percent, 85
16 percent, 95 percent?

17 MR. PAUL CHERNICK: There --

18 MR. RAYMOND LAFOND: Assuming no
19 drought.

20 MR. PAUL CHERNICK: The reliability of
21 hydro, not necessarily Manitoba Hydro facilities, but
22 just --

23 MR. RAYMOND LAFOND: Yes.

24 MR. PAUL CHERNICK: -- hydroelectric
25 generators in general --

1 MR. RAYMOND LAFOND: That's my
2 question.

3 MR. PAUL CHERNICK: -- are very
4 reliable. And if they're not limited by -- by the
5 amount of water available, if they've got enough water
6 to keep running eight thousand, seven hundred and sixty
7 (8,760) hours a year and they -- and their power is
8 always needed, there's some market for it, then they
9 can run well up in the -- the high ninety (90), in
10 terms of percentages of -- of time -- of -- well, of
11 capacity factor, that is - actual output divided by
12 potential output.

13 Now, there is some requirement for
14 maintenance. And depending upon the -- the specific
15 facility and -- and the equipment necessary to prevent
16 trash and protec -- from getting into the mechanism and
17 to protect fish and so on, that may take out a few
18 percentage points of the -- of potential output, just
19 as op -- because you need an opportunity to shut down
20 periodically and -- and clean and realign, repair
21 equipment.

22 MR. RAYMOND LAFOND: Thank you.

23

24 CONTINUED BY MS. ANITA SOUTHALL

25 MS. ANITA SOUTHALL: I actually had a

1 couple of follow-up questions from member Lafond's line
2 of questions, Mr. Chernick.

3 Do you have a position or a view on
4 whether or not the proxy for marginal cost should be
5 the cost of new generation rather than the export price
6 basis that Manitoba Hydro's currently using?

7 MR. PAUL CHERNICK: The marginal cost
8 should reflect the -- the marginal decision. If
9 customers use more electricity, will you build a new
10 dam sooner, or will you sell less power off system?

11 And I've interpreted Manitoba Hydro's
12 position as being one of -- that the off-system sales
13 are profitable, and that the schedule for building new
14 facilities is essentially fixed and independent of
15 domestic load, and that higher domestic load would just
16 eat into export sales. And that's the assumption I've
17 been operating under, for lack of any other
18 information.

19 But if the situation is as member Lafond
20 has posited in his question to me and it's, in fact,
21 not economic to make those off-system sales, then the
22 decision should be that the -- the decision that drives
23 the marginal cost is: When do we bring in each new
24 hydro plant? And you'd want to bring it in only when -
25 - when need was -- the domestic need required it. And

1 so it would be the cost of accelerating the
2 construction of the plants that would determine the
3 marginal cost.

4 MS. ANITA SOUTHALL: And just one (1)
5 other question. The number that the Board member used
6 in his question to you with the number nine (9) cents,
7 do you have any current experience in other
8 jurisdictions as to whether or not that's a reasonable
9 marginal cost for new generation - currently,
10 obviously?

11 MR. PAUL CHERNICK: I -- I don't have
12 any idea what -- I -- I haven't tried to estimate what
13 the -- the cost of this facility would be. It's higher
14 than the cost of wind energy in the -- in the plains
15 and many other parts of North America. So if -- if you
16 are energy short but not capacity short, then it might
17 make better sense to build more wind and use that to
18 reduce the rate at which the water has to flow through
19 the existing dams, rather than building a new dam.

20 MS. ANITA SOUTHALL: Sorry, I just want
21 -- I didn't mean to take you off course there into that
22 foray, but --

23 MR. PAUL CHERNICK: Okay.

24 MS. ANITA SOUTHALL: -- I just wondered
25 if you -- if you knew if that type of pricing.

1 MR. PAUL CHERNICK: Well, I'm just --

2 MS. ANITA SOUTHALL: But if -- if
3 you're not able to comment on that, that's just fine.

4 MR. PAUL CHERNICK: It is -- the -- the
5 -- my problem with -- with giving you a meaningful
6 answer on whether that's a reasonable estimate for the
7 cost of -- of a new dam is that hydro costs vary so
8 widely and -- by the size and the location of the --
9 the projects, whether they need transmission and so on,
10 that I can't really give you a useful answer on that.
11 I'm sorry.

12 MS. ANITA SOUTHALL: Sir, turning back
13 to your report, at the bottom of page 11 of your pre-
14 filed evidence, which is GAC Exhibit 3, specifically
15 looking at the question and answer starting at line 20
16 on page 11.

17 MR. PAUL CHERNICK: Yes.

18 MS. ANITA SOUTHALL: Your position,
19 sir, as I take it, is that:

20 "MISO spot prices are for
21 opportunity, or interruptible energy
22 only. Opportunity cost does not
23 generally cover the cost of
24 generation plant investment, let
25 alone transmission, distribution, and

1 environmental costs."

2 And this was a response to the question
3 in your report:

4 "Would marginal generation cost
5 estimates based on projected MISO
6 spot markets be a reasonable basis
7 for planning and rate making?"

8 Did I capture that correctly, sir?

9 MR. PAUL CHERNICK: Yes.

10 MS. ANITA SOUTHALL: Why -- why is that
11 question and answer in your report? What -- what are
12 you getting at there? That -- are you making the
13 statement without knowing whether or not that's the
14 basis upon which Manitoba Hydro prepares its generation
15 cost estimates? I'm just under -- trying to understand
16 the rationale for that inclusion.

17 Sorry, and just to help you out, sir, as
18 another point of reference, Manitoba Hydro has rebuttal
19 evidence filed that you're aware of, I believe. They
20 do make the point on page 38 of their rebuttal evidence
21 that they used separate values for capacity and energy.
22 So I -- I think that that was their intention to join
23 issue on that point in their rebuttal, just as another
24 point of reference for you.

25 MR. PAUL CHERNICK: That's interesting.

1 I didn't read that part of their rebuttal as -- as
2 really addressing that point.

3 You know, you're asking me a historical
4 question about how that question and answer wound up in
5 my testimony. And to tell you the truth, I do not
6 recall.

7 Hydro uses MISO spot prices as a guide
8 for some rate design considerations, such as in the --
9 the time-of-use rates proposal and in the surplus
10 energy rate. And I -- that -- that may be how this
11 issue arose, just to -- to make it clear that whatever
12 -- while those are useful for certain limited purposes,
13 they're not useful for -- for predicting long-run
14 marginal cost.

15 But to tell you the truth, I don't
16 really remember why it came up. And I was not
17 suggesting that Hydro was inappropriately using MISO's
18 spot prices.

19 MS. ANITA SOUTHALL: I -- I take it,
20 sir, that you haven't been provided with the -- the
21 values that Hydro uses to -- or the specific
22 methodology to create the generation marginal cost
23 value?

24 MR. PAUL CHERNICK: No, I -- I only
25 know what's in the record in this case and -- and some

1 previous cases.

2 MS. ANITA SOUTHALL: Okay. And if you
3 were provided with that information in confidence, for
4 instance, you'd be in a better position to comment on
5 the reasonableness of the marginal cost of generation?

6 MR. PAUL CHERNICK: Yes.

7 MS. ANITA SOUTHALL: Again wading into
8 the deep end very quickly here, in terms of my own
9 depth of knowledge, in estimating marginal cost, how
10 would you incorporate capacity in your cost
11 determination? And maybe you could just take a moment
12 and -- and distinguish between capacity and generation
13 when you're doing that.

14 Is that possible?

15

16 (BRIEF PAUSE)

17

18 MR. PAUL CHERNICK: The -- the problem
19 is that the -- the meaning of the term "capacity"
20 varies considerably, depending upon what market you're
21 operating in and -- and exactly how it's structured.

22 But the -- and it's also used to refer
23 sometimes to all of the fixed costs of a power plant,
24 for example, which is not what we mean here, because,
25 clearly, most of the fixed costs of a hydro facility,

1 for example, are to produce lots of energy.

2 But in -- in many regions, there are
3 distinct energy prices and capacity prices. And
4 utilities or load-serving entities are required to have
5 entitlements in a certain amount of capacity, which
6 means the ability to produce power. And some of those
7 plants will almost never run, or the capacity might be
8 a load management -- a demand management opportunity.
9 And very rarely would you -- would those customers be
10 interrupted, would that load be reduced, but it's
11 available in case the system needs it.

12 So capacity is oriented towards what can
13 you get when you need it, whereas energy is hour after
14 hour after hour, what's the cost -- or what is the
15 market -- what will the market bear, in the case of
16 many of the -- the organized markets, of generating the
17 next kilowatt hour and providing it to -- to customers.
18

19 So the energy costs go through the whole
20 year. Capacity is tied to meeting a relatively small
21 number of high loads or other contingencies, where you
22 need to have resources available.

23 In general, in -- in the areas where
24 there's a clear distinction between energy and
25 capacity, most of the cost of generation services is

1 energy. Capacity is -- costs or -- or pri -- prices
2 are driven by basically costs of peaking capacity. And
3 it's often in excess, because there's -- there's often
4 an excess of capacity, because plants are added for
5 other reasons, such as providing low-cost energy or
6 meeting renewable energy requirements.

7 So energy prices can be very high, as
8 they were, say, in 2008, before the -- the gas prices
9 collapsed. But capacity prices can be very low, or
10 energy prices can be low and capacity prices could be
11 high if the system is -- is short on supply for a
12 fairly small number of hours.

13 But again, exactly how capacity is
14 defined depends upon where you are and how the market's
15 structured. And exactly what Hydro means by "capacity"
16 in this context, I'm not sure.

17 MS. ANITA SOUTHALL: Sorry, sir, and
18 you haven't seen any distinct data that addresses the
19 capacity issue --

20 MR. PAUL CHERNICK: I don't believe --

21 MS. ANITA SOUTHALL: -- to your
22 knowledge?

23 MR. PAUL CHERNICK: -- I've seen a
24 breakout of what they consider to be energy costs and
25 what they consider to be demand co -- capacity costs,

1 yeah.

2 MS. ANITA SOUTHALL: Okay, thank you.

3 Sir, I'm going to refer you to the tables on page 16

4 and 17 of your report next, please. And here, we're

5 turning to your own calculations, Mr. Chernick, of the

6 marginal cost by customer rate class for Manitoba

7 Hydro.

8 Do you have that available?

9 MR. PAUL CHERNICK: Yes.

10 MS. ANITA SOUTHALL: You've provided,

11 as I understand it, sir, in -- on page 17 in Table 2,

12 the marginal cost in cents per kilowatt hour by rate

13 schedule for the distinct classes served by Manitoba

14 Hydro for electricity purposes, correct?

15 MR. PAUL CHERNICK: Yes. And again,

16 this is working entirely from the numbers that Hydro

17 has given us and simply correcting for losses to

18 various levels of service.

19 MS. ANITA SOUTHALL: And so Table 1 on

20 page 16 of your evidence is the -- just taking up your

21 last point, show the varying degrees of line losses

22 from Hydro's cost of service study 2013.

23 Is that fair?

24 MR. PAUL CHERNICK: Yes.

25 MS. ANITA SOUTHALL: And so those are

1 built in to create the marginal cost for -- is it all
2 of -- do those impact all of generation, transmission,
3 or distribution, or only transmission and distribution,
4 sir, in tra -- Table 2?

5 MR. PAUL CHERNICK: They affect all of
6 them.

7 MS. ANITA SOUTHALL: So turning for a
8 moment now to the preferred approach to DSM program
9 design, would -- would the preferred approach be to use
10 differentiated marginal cost in designing programs for
11 residential, commercial, and industrial customers?

12 MR. PAUL CHERNICK: Yes.

13 MS. ANITA SOUTHALL: Can you just
14 explain that, please?

15 MR. PAUL CHERNICK: Well, the cost of -
16 - of providing service to residential or small general
17 service customers differs from -- well, from one
18 another to some extent, but from, say, the large
19 general service class in that -- in a couple of ways.
20 First of all, the -- they may have different load
21 shapes, different load factors to spread transmission
22 costs over, for example, or the capacity-related
23 portion of -- of the generation cost, which I couldn't
24 break out for this analysis.

25 Line losses are higher, because you have

1 to go through -- to -- for the residential and small
2 commercial because you have to go through more levels
3 of -- of transmission and distribution, more
4 transformers and so on.

5 And as you get into the higher-voltage
6 customers, they just don't use as much distribution
7 equipment. And so by the time you get to the 100 kV
8 subclass, they're not using distribution at all.

9 So, in general, the lower-voltage
10 customers will be more expensive to serve on a marginal
11 cost basis than -- than the high-voltage customers.
12 And then if we have the necessary information, you can
13 also take load shape into account.

14 MS. ANITA SOUTHALL: And so if I could
15 maybe just then ask you to extend that into how that
16 affects the offering of various kinds of DSM programs,
17 just perhaps make that leap from the differential
18 marginal costs to how that would impact the planning.

19 MR. PAUL CHERNICK: Well, if you have
20 your -- you generation cost broken down by season, for
21 example, saving a kilowatt hour of space heating use or
22 a kilowatt hour of space cooling use, for that matter,
23 both of those occur at high-price times for the -- in -
24 - in terms of the market value of power. The wholesale
25 market price is high in the winter because gas prices

1 are higher, and it's high in the summer because demand
2 -- not here, but in -- in the broader market area, is
3 higher in the summer.

4 And so a -- a measure -- saving a
5 kilowatt hour of water heating energy use is less
6 valuable than saving a kilowatt hour of air
7 conditioning use or a kilowatt hour of space heating
8 use. And depending upon the factors driving
9 transmission and distribution, again, the -- the things
10 that hit the peak more -- whichever peak is relevant --
11 will be more expensive to serve and the benefits of
12 reducing that kind of load will be greater than those
13 that are spread out during the year or just off peak.

14 I mean, perhaps the most off peak of
15 uses is -- is outdoor lighting, where a lot of the
16 energy is being used in the -- the spring and fall: low
17 energy price times, heavily off peak, not contributing
18 to -- to peak loads. They -- outdoor lighting is on at
19 probably at the peak hours on the distribution system
20 in the winter, but by comparison with some other uses,
21 probably pretty much -- you know, relatively off peak
22 for that purpose as well, considering that it's going
23 all night long then.

24 So the amount that Hydro should be
25 willing to pay through the Power Smart Program to get a

1 kilowatt hour of savings will be different depending
2 upon the nature of the savings -- the nature of the end
3 use. Was -- was that about the right level of detail
4 for your question?

5 MS. ANITA SOUTHALL: Yes.

6 MR. PAUL CHERNICK: Asking me open-
7 ended questions can be dangerous, because I think I
8 always wanted to be a professor. So if I go on too
9 long, feel free to tell me that -- save that for the
10 classroom someday.

11 MS. ANITA SOUTHALL: No -- no, thank
12 you for actually -- I was a little worried, I have to
13 tell you, until right to the end that it was coming
14 back to the DSM programs. But you did tie it off, so,
15 thank you, sir.

16 I do want to explore something you
17 mentioned a few -- few minutes ago, that Hydro's
18 calculations for marginal cost include losses to the
19 meter, as you describe it, and not beyond the meter,
20 correct?

21 Is that your understanding?

22 MR. PAUL CHERNICK: Yes.

23 MS. ANITA SOUTHALL: And I believe you
24 make the point, sir, that the marginal cost may be
25 understated because there is a failure to measure

1 losses beyond the meter, correct?

2 MR. PAUL CHERNICK: Or to account for
3 them, yes. I mean, you may not be able to measure them
4 exactly, but you can -- you can estimate them.

5 And the fact that a customer takes
6 service that -- that the -- the meter is at a primary
7 voltage level, for example, it doesn't mean that there
8 aren't the same line losses getting to their -- their
9 building lighting as there would be for a customer that
10 took service at secondary. It's just that the customer
11 is paying for the losses in the -- in the transformer,
12 rather than those losses occurring before it gets to
13 the transformer.

14 So it's -- it's a relatively small
15 point, but it's one that I wanted to -- to mention.
16 It's not the first thing that I think that needs to be
17 addressed.

18 But, conceptually, pretty much, a -- a
19 kilowatt hour of -- of lighting savings in a particular
20 hour in an industrial facility, in a residential
21 facility, in a commercial facility, will all have about
22 the same amount of losses. It's just that some of them
23 will be on -- for some of those customers, some of
24 those losses will be -- or more of those losses will be
25 on the -- on the customer side of the meter instead of

1 Hydro's side of the meter.

2 MS. ANITA SOUTHALL: So that's
3 differentiated by class, as well, because of the point
4 you mentioned earlier about the level of voltage that's
5 supplied to residential versus the industrial
6 customers?

7 MR. PAUL CHERNICK: Yes, or you can
8 think of it as -- as being differentiated by class in
9 that if you were going to use the numbers in Table 2
10 for screening DSM, you'd be understating the value of
11 savings for the large GS customers, because you'd be
12 understating the -- the losses to the equipment where
13 you're actually doing the savings. You're understating
14 everybody's losses a little bit, but especially theirs.

15 Another way of looking at it is that the
16 real losses to the equipment don't vary much between
17 classes. And, therefore, you can come up with a value
18 for -- for screening purposes, an avoided cost value
19 per kilowatt hour at the end use, which is independent
20 of class, which may depend upon time period, but really
21 is not affected by the class.

22 MS. ANITA SOUTHALL: And that leads to
23 my question as -- as to whether or not you've -- aware
24 of or generated, yourself, any studies that have
25 identified a proxy for that estimate. In other words,

1 that loss after -- or -- or at the end use, but...

2 MR. PAUL CHERNICK: M-hm. The -- the
3 simplest proxy is to treat all losses as being at
4 secondary. So, therefore -- not for rate design
5 purposes, but for DSM purposes -- treating all of the -
6 - the energy as if it were being delivered to
7 residential or small commercial customers.

8 MS. ANITA SOUTHALL: And is there -- is
9 there a value? Is it a -- a portion of one (1) cent a
10 kilowatt hour? Is -- is it possible to convert it that
11 way, in terms of adding to --

12 MR. PAUL CHERNICK: Well, it's -- it's
13 on --

14 MS. ANITA SOUTHALL: -- the marginal
15 cost?

16 MR. PAUL CHERNICK: Yes, if -- it would
17 be a 5 or 6 percent increase in the -- the marginal
18 cost for the large GS customers.

19 MS. ANITA SOUTHALL: Is -- is the 5 to
20 6 percent sort of typically used elsewhere in other
21 jurisdictions, Mr. Chernick, just as a point of
22 reference?

23 MR. PAUL CHERNICK: The -- the avoided
24 costs that I've worked with have generally assumed line
25 lo -- losses to secondary at the end use and,

1 therefore, have -- have used residential-level losses.
2 Different utilities do their system planning in
3 different ways and -- and have different design
4 standards and have different methodologies for
5 estimating line losses. So they have different numbers
6 to work with.

7 The 5 to 6 percent I was getting from
8 looking at Table 1 and looking at the difference
9 between, say, the large GS 30 to 100 kW (sic) loss
10 factors, and those at residential or small commercial.
11 And that's why I said the 5 or 6 percent. I -- I
12 assumed you were just looking for a general ballpark --

13 MS. ANITA SOUTHALL: Yes.

14 MR. PAUL CHERNICK: -- of how much it
15 might matter.

16 MS. ANITA SOUTHALL: That's right. Un
17 -- unless you'd actually done studies where you've been
18 able to verify it -- pardon me -- to the extent it had
19 actually been used as a factor in marginal cost
20 elsewhere.

21 MR. PAUL CHERNICK: I don't know of
22 anybody who's done more than to just make the
23 simplifying assumption that the -- the inside of a big
24 building is a lot like the outside of small buildings.

25 THE CHAIRPERSON: Can -- Can I --

1 MR. WILLIAM GANGE: Sorry, would it be
2 possible for us to have just a -- just a short break,
3 five (5) minutes? And this time I -- a short, a short
4 five (5) break, Mr. Chair?

5 THE CHAIRPERSON: Let's adjourn for
6 five (5) minutes.

7 MR. WILLIAM GANGE: Okay, thank you.

8

9 --- Upon recessing at 1:48 p.m.

10 --- Upon resuming at 1:43 p.m.

11

12 THE CHAIRPERSON: I believe we are
13 ready to resume the proceedings.

14 MS. ANITA SOUTHALL: Thank you, Mr.
15 Chairman. I'm just going to take a moment and locate
16 where I was at here.

17 MR. RAYMOND LAFOND: While you do this,
18 the -- the last explanation I heard, and at the risk of
19 trying to oversimplify this, can I conclude that
20 there's generally a 5 to 6 percent energy loss beyond
21 the meter?

22 MR. PAUL CHERNICK: Well, I was not
23 saying that, and I -- I don't think it would be that --
24 that large. What I was saying was that for customers
25 served off the transmission system or off the very

1 high-voltage distribution system, they have to then run
2 that power through transformers around their facilities
3 and that that's very much like the power that's
4 transformed down at a distribution substation and then
5 run through the community to distribution substat --
6 excuse me -- transformers and then into service lines
7 into homes.

8 What I was saying was that that system
9 is basically wrapped up into a large factory, because
10 for the most part, except for a very limited number of
11 industrial end uses, the electricity is actually being
12 used at secondary voltage below 600 volts.

13 MR. RAYMOND LAFOND: So -- but then in
14 a residential home, in -- in a place like the City of
15 Winnipeg, it would be very minimal?

16 MR. PAUL CHERNICK: It might be a
17 percent or so.

18 MR. RAYMOND LAFOND: Thank you.

19

20 CONTINUED BY MS. ANITA SOUTHALL

21 MS. ANITA SOUTHALL: And thank you,
22 member Lafond.

23 I just -- my last question on this, sir,
24 was that Table 2 on page 17, your calculations, Mr.
25 Chernick, those don't include any of those past-the-

1 meter losses?

2 MR. PAUL CHERNICK: No. These are
3 marginal costs for rate design purposes where you're
4 charging at the meter, and the customer then absorbs
5 any losses beyond that. For DSM purposes, of course,
6 you want to look at the total savings.

7 MS. ANITA SOUTHALL: Okay. And, sir,
8 Manitoba Hydro, in its testimony in this proceeding,
9 has made the point -- and this is a -- a new issue, by
10 the way, par -- pardon me, not related to Table 2 or
11 Table 1.

12 But turning to this issue, Manitoba
13 Hydro has taken the position that other jurisdictions
14 which were used as comparators for Mr. Dunsky in his
15 report, have higher marginal costs and that, as a
16 result, greater opportunities for DSM programs being
17 economic in those jurisdictions exist and -- and that
18 that's an important distinction between Manitoba and
19 those jurisdictions.

20 Could you just -- do you have a view on
21 that position? I know that's not part of your actual
22 testimony.

23 MR. PAUL CHERNICK: That's in a
24 transcript that -- that's flagged at your Tab 48, I
25 believe.

1 MS. ANITA SOUTHALL: Yes, there is a
2 reference at Tab 48. It -- it's come up in a couple of
3 spots, but that's one (1) point of reference, you're
4 right.

5 MR. PAUL CHERNICK: And it's true that
6 marginal costs are higher in Vermont or Nova Scotia
7 than they are in -- in Manitoba. Although, I -- I have
8 to say, if -- if the marginal source of supply is
9 really a dam at nine point one (9.1) cents a kilowatt
10 hour, then perhaps we're -- the differences are not
11 really material.

12 As for British Columbia, which is a
13 third jurisdiction that's listed on page 2,887 of the
14 transcript, I'm -- I'm not sure why British Columbia
15 would be expected to have higher marginal costs than
16 Manitoba. They both have a lot of hydro potential.
17 There's also other renewable resources in -- in British
18 Columbia that are, I believe, competitively priced.

19 So I'm -- I'm not really sure why
20 Manitoba would think that there was a reason that it
21 would have different marginal costs than British
22 Columbia or -- or substantially different costs,
23 although they, again, may have different methodologies
24 which cause them to estimate the cost differently. I -
25 - I haven't really done that comparison side by side.

1 But that -- it's true that -- that most
2 places would have -- you would be -- you would expect
3 it to have higher marginal costs than Manitoba,
4 although they also have higher rates and therefore you
5 would think people would have leaned more heavily to
6 energy conservation over the years, and therefore there
7 would be less potential because of that factor and the
8 -- the two (2) would push in opposite directions.

9 MR. RAYMOND LAFOND: The -- the
10 marginal cost concept, it can vary substantially
11 between, I guess -- I was going to say one (1) plant --
12 but one (1) circumstance and another. For instance if,
13 at a point in time, a cost of a new generation --
14 assuming that the cost of a new generation station
15 would be the same between one (1) and -- and another,
16 at a point in time you have to, for instance, build a
17 new transmission line, which can be over a thousand
18 kilometres long.

19 So in that case, when you get your
20 second generation plant, your marginal costs would have
21 increased substantially for that particular plant. Am
22 I correct? Or are you averaging all the time?

23 MR. PAUL CHERNICK: No, you'd want to
24 be looking at load growth in the relevant period for
25 which we're doing this analysis. What's that going to

1 do, in terms of requiring more expensive resource --
2 more -- additional resources? And if those resources
3 included a transmission line, then you'd want to take
4 that into account.

5 So, yes, you could have a system where
6 the marginal cost of generation is four (4) or five (5)
7 cents for some decades until you've used up the
8 inexpensive resources, and then hits a wall and goes up
9 to nine (9) cents or ten (10) cents.

10 And, you know, if you're in that -- if
11 you're in the plain, if you're on the prairie looking
12 at the mountain there, I think you'd want to take into
13 account the fact that conservation now, even though it
14 has small benefits in the short term, will help push
15 out the -- that cliff and keep you from running into it
16 for a longer period of time.

17 And figuring out how you balance the
18 short-term marginal cost and the longer-term marginal
19 cost, which is uncertain as to magnitude and timing,
20 that requires some very case-specific thought.

21 MR. RAYMOND LAFOND: I understand. I
22 guess a related question -- and a while earlier you did
23 indicate this afternoon at a point in time, or alluded
24 to, the concept of the cost of the -- the -- the cost -
25 - energy cost versus capacity costs.

1 Do most utilities have that number, and
2 do they follow a certain set of assumptions to
3 determine what is energy cost and what is capacity
4 cost?

5 MR. PAUL CHERNICK: Yes. And the --
6 the reason for doing that is that there are -- well,
7 let's -- let's first step back a little bit and say
8 that most utility systems in North America are capacity
9 constrained. That is that they need to add resources
10 not because they can't produce enough energy around the
11 year, but because there are a few hours when they would
12 be short on -- on the ability to pump out enough
13 electricity to meet load.

14 Hydro-based systems, including Manitoba
15 Hydro, may be energy constrained, meaning that you need
16 to add a resource for -- for energy, rather than for
17 capacity. That you could serve any hour out of the
18 year. You could serve eight thousand (8,000) hours out
19 of the year. But you can't serve all of the load in
20 all of the hours, because there just isn't enough water
21 behind the dams. That's an energy constraint.

22 For capacity-constrained systems, in
23 particular or for a utility like Manitoba Hydro that
24 can sell services to a larger system that's capacity
25 constrained, the -- there are times when load

1 contributes very heavily to the need for that capacity.
2 And your peak loads or many high loads during the year
3 or times when major generators or transmission lines
4 are out of service, and it's loads in those hours that
5 drive the capacity-related part.

6 And in general, for a capacity-
7 constrained system the -- that -- that needs to add
8 resources, the marginal cost of capacity would be a --
9 the cost of a peaking unit, one that you operate very
10 little but it would be available in those hours when
11 something goes wrong and the loads are very high and
12 you need it. And any additional investment that you
13 make in generation would be justified by its energy
14 savings.

15 So in some cases, the -- all but the
16 peaking-related part of the -- the peaker-related part
17 of the cost -- that is, all the cost beyond the cost of
18 -- of building just a peaking unit -- is treated as
19 being energy related for estimating marginal costs.
20 And so the calculation involves -- you're building a
21 plant for three thousand dollars (\$3,000) a kilowatt; a
22 thousand dollars a kilowatt maybe is the cost of the
23 peaker, and the other two thousand (2,000) is energy
24 related. And it's divided over an amount of energy
25 that it would provide, and that's treated as being an

1 avoided cost.

2 MR. RAYMOND LAFOND: Thank you.

3 THE CHAIRPERSON: I just want to make
4 sure, before we move on to marginal cost -- the off
5 marginal costing, a couple of questions. I guess one
6 (1) question I had is: I realize that you were -- you
7 have used a number of approximations in the absence of
8 data --

9 MR. PAUL CHERNICK: M-hm.

10 THE CHAIRPERSON: -- to -- to do your
11 work in respect of this particular report. But if you
12 were looking at a particular generation project -- say
13 a hydro dam -- you obviously would have a higher level
14 of rigour, generally speaking, than you would for a DSM
15 test?

16 Or -- or are we -- are we talking the
17 same -- the same level of rigour, whether it's DSM or a
18 very specific large investment, like a hydro dam?

19 MR. PAUL CHERNICK: Now, if you're
20 spending a billion dollars on a project, I would hope
21 that everybody involved would be spending a lot more
22 effort on reviewing its -- its economics than a
23 decision about whether to spend fifty thousand dollars
24 (\$50,000) on a -- a big efficiency project for an
25 industrial company or a million dollars for a -- a

1 conservation program. It really wouldn't -- you may
2 spend much more on the evaluation of a major generation
3 plant or project than you're spending on the entire
4 conservation effort. And that may be a wise use of the
5 money, given the -- the import.

6 THE CHAIRPERSON: Could you clarify one
7 (1) point for me? I'm -- I'm having my -- trouble
8 understanding the reference to the forecast of future
9 export sales in relation to -- to determining marginal
10 cost.

11 Now, is it so much -- it's not, when
12 you're talking about sales, you're not talking about
13 the -- the revenue from those sales? You're talking
14 about when the sales are required.

15 Is that -- that -- I'm trying to find a
16 link between sales versus marginal costs, and I -- I
17 don't understand that part.

18 MR. PAUL CHERNICK: Right. Well, what
19 I would assume would -- is that -- and, again, I -- I
20 have to kind of guess what -- what Hydro might be
21 actually doing here. But what I would assume is that
22 Hydro is looking at the contract it has in hand and
23 what it thinks it can negotiate in the future.

24 And it has an estimate of the value of
25 selling additional energy to -- into the MISO market --

1 basically, to Minnesota or Wisconsin utilities -- and
2 that it's really the price projection that's the
3 important factor, rather than the -- than when the
4 particular sales are contracted for.

5 The -- given Hydro's description of its
6 analysis, it's also likely that the calculation
7 includes having to buy power or generate thermal power
8 in drought years. And when that occurs would be driven
9 by -- or how often that occurs would be driven by the
10 size of commitments to sell firm power out of the
11 province and the terms of the commitments. I'm -- I'm
12 not sure how firm the requirements are and whether
13 Manitoba Hydro would be excused under some of these
14 contracts in the event of a drought.

15 But certainly, anything that would push
16 Hydro from a selling position into a buying position
17 and force it to run its hydro -- excuse me -- its non-
18 hydro, its fossil facilities, would affect the marginal
19 cost calculation the way that the Company has described
20 it.

21 But I -- as I understand it, the major
22 effect of the projection of sales is the projection of
23 the price that's available for additional sales off
24 system, which would be based on what you've already
25 negotiated and -- and other forecasting. But, again, I

1 am not privy to any information that you don't have.

2 MR. RAYMOND LAFOND: I'm -- I'm again
3 trying to connect the dots with the previous comment.
4 I think I heard -- when -- when I asked the questions
5 in terms of whether or not it would be possible to get
6 a cost for energy versus capacity, I think in your
7 response, you indicated to a certain extent -- I -- I -
8 - at least, I presume, that MISO is a capacity market.

9 So when Manitoba sells to MISO in a
10 capacity market, that means that that market really
11 needs to pay a good price -- I guess, if I can call it
12 as such -- versus the spot price, maybe forty (40),
13 sixty (60) days a year. And therefore, hydro is
14 really, in my mind, more economical as an energy source
15 rather than a capacity source when compared to gas.

16 Am I right in assuming that? In other
17 words, having a big dam for forty (40) days a year is
18 probably less economical than having a gas plant for
19 forty (40) days a year.

20 MR. PAUL CHERNICK: Yes. Building a
21 hydro facility that was really only going to run forty
22 (40) days a year would -- would not be very attractive.
23 And if your con -- only problem is peaking, your only
24 problem is backing up the system when a couple of large
25 generators go offline in -- in real cold weather or

1 real hot weather, I don't know of anybody who would
2 say, Oh, the solution to that is to build a hydro
3 facility.

4 The value of the hydro facility is that
5 it produces a lot of energy. That's most of its value.
6 But it may be pre -- able to produce more energy in
7 some hours and less in other hours. And to the extent
8 that you can do that, then you can buy from the States
9 when the wind is blowing and the loads are low and then
10 sell to them when the reverse is true and get a lot of
11 capacity value.

12 You want to think carefully about how
13 much more you're willing to pay to get the additional
14 capacity from a different design of the -- of a dam.
15 But there are situations where it would make sense to
16 spend somewhat more to increase your capacity even
17 though the amount of energy you can generate is
18 limited, because you can then generate that energy at
19 the most valuable times. But you probably don't want
20 to do it for just few days out of the year.

21

22 CONTINUED BY MS. ANITA SOUTHALL

23 MS. ANITA SOUTHALL: Mr. Chernick, I'm
24 going to turn to several questions associated with the
25 environmental impact cost of domestic consumption of

1 electricity. And this goes back to one (1) of, I
2 think, your earliest comments today, the concept that
3 energy savings here can be used to displace thermal
4 generation elsewhere when electricity is exported.

5 Is that a fair comment?

6 MR. PAUL CHERNICK: That's correct.

7 MS. ANITA SOUTHALL: Your report on --
8 unless you feel the need to, there's no need to turn
9 there. But I've got a note that on page 18, you've
10 identified that greenhouse gas costs are not
11 internalized in the United States at present.

12 Is that fair?

13 MR. PAUL CHERNICK: That's true in --
14 yeah, for most of the country, yes.

15 MS. ANITA SOUTHALL: There's no cap and
16 trade system for GHGs that are factored into export
17 prices for Manitoba Hydro's electricity when they're
18 selling into the US market, no formal cap and trade
19 system?

20 MR. PAUL CHERNICK: No, noth -- nothing
21 in -- in the Upper Midwest. There's -- there's some in
22 the Northeast, and California has a system.

23 MS. ANITA SOUTHALL: And on page 18 of
24 your report, if you -- if you or anyone else following
25 wants to reference it, it's lines 9 and 10.

1 You take the position that the total
2 social cost of domestic consumption on electricity is
3 greater than the direct costs that you'd identified on
4 -- in Table 2, for example.

5 MR. PAUL CHERNICK: M-hm.

6 MS. ANITA SOUTHALL: Is -- is that a
7 fair statement from your report, sir?

8 MR. PAUL CHERNICK: Yes.

9 MS. ANITA SOUTHALL: And would that
10 include the need to add the cost of greenhouse gases
11 into domestic marginal costing?

12 MR. PAUL CHERNICK: Yes, if you want to
13 take the total social cost, yes.

14 MS. ANITA SOUTHALL: Yeah, sorry, I
15 was, of course, wanting to link my question to DSM
16 screening.

17 MR. PAUL CHERNICK: Yeah. So if you
18 save a kilowatt hour or a megawatt hour in Manitoba,
19 you make money by selling that energy to, say,
20 Minnesota. And you also help reduce the environmental
21 damage from the power plants that Minnesota otherwise
22 would have used to produce the ele -- the electricity.

23 MS. ANITA SOUTHALL: And, sir, I take
24 it from responses you've given to the Board -- I've
25 included them at Tab 49 if you want to reference them.

1 They're responses to PUB/GAC-7 and 8.

2 MR. PAUL CHERNICK: M-hm.

3 MS. ANITA SOUTHALL: You were unable to
4 determine what consideration was given to carbon adders
5 and -- pardon me, carbon adder expectations in the
6 negotiated export contract prices for Manitoba Hydro.

7 Is that true?

8 MR. PAUL CHERNICK: That's true.

9 MS. ANITA SOUTHALL: Manitoba Hydro, in
10 its rebuttal evidence, indicated that in negotiating
11 with the counterpart -- their counterparties over the
12 life of contracts, it would include expectations of
13 GHGs costs.

14 Do you have a view on that? I know you
15 haven't, obviously, seen them.

16 MR. PAUL CHERNICK: The -- so if the
17 counterparty didn't believe that they were going to be
18 subject to any carbon limits for another ten (10) or
19 fifteen (15) years, then that price would be zero.

20 I think the -- the idea that the -- the
21 price that was negotiated must have reflected the
22 anticipated -- well, it must be lower than the
23 anticipated value to -- to the buyers of the power, or
24 else they wouldn't have entered into the contract. And
25 one (1) of those values would be the -- the estimated

1 future cost of -- of carbon. So to the extent that
2 they believe something, the value may be reflected in
3 the -- in that sales price.

4 MS. ANITA SOUTHALL: Sir, on page 19 of
5 your report -- and it would be, starting on this same
6 subject, starting on line 13, the question and answer:

7 "Is it reasonable to assume that the
8 sales prices for Hydro's exports
9 reflect the value of carbon
10 emissions?"

11 You make a note that Hydro refers to a
12 2010 report of the Western Climate Initiative
13 projecting carbon market abatement costs to reach
14 thirty-three dollars (\$33) a tonne of CO2e. I'm not
15 sure if that's --

16 MR. PAUL CHERNICK: That's equivalent.
17 Equivalent --

18 MS. ANITA SOUTHALL: Equivalent?

19 MR. PAUL CHERNICK: Yes.

20 MS. ANITA SOUTHALL: By 2020. And you
21 go on, sir, to make the comment that you don't believe
22 Hydro's major export customers are covered by the
23 Western Climate Initiative.

24 Is that true?

25 MR. PAUL CHERNICK: That's correct.

1 MS. ANITA SOUTHALL: So it's not
2 reasonable to assume that the projected WCI price is
3 embedded in the prices paid by utilities in the Eastern
4 Interconnection.

5 That's your position?

6 MR. PAUL CHERNICK: Yes.

7 MS. ANITA SOUTHALL: I take it, it's
8 not clear to you, sir, whether Manitoba Hydro has
9 included a value for the environmental factor or value
10 of reduced emissions in its current or pending contract
11 prices.

12 You're not aware of that?

13 MR. PAUL CHERNICK: I'm -- I'm thinking
14 about the -- the question. I don't know that the con -
15 - well, I suppose you could have a contract which
16 specifically says if there's a market price for carbon,
17 it will be added, or half of it will be added to the --
18 in the following way to the -- to this price. I have
19 no info -- information that there's any such provision.

20 When you negotiate a price, in general,
21 you're just negotiating a price. And as I said, the --
22 the Wisconsin utilities may have had in their mind the
23 possibility they would pay something for carbon at some
24 point in the future, probably not by tve -- 2020, and
25 almost certainly not thirty-three dollars (\$33) a tonne

1 by 2020. But they may have had something in their
2 minds that they took into account in -- in agreeing to
3 this particular price, but it would be only one (1) of
4 many factors that they would have had in mind.

5 MS. ANITA SOUTHALL: Fair enough, sir.
6 To your knowledge, this additional environmental value
7 is not explicitly used by Hydro to value marginal cost
8 for DSM?

9 Is that correct?

10 MR. PAUL CHERNICK: That's correct.

11 MS. ANITA SOUTHALL: If environmental
12 costs are not built into the export contract prices
13 they would have to be added to the benefits of energy
14 efficiency and the costs of energy consumption, and --
15 and, therefore, the marginal cost.

16 Is that -- is that valid?

17 MR. PAUL CHERNICK: Yes, if you're
18 reducing -- actually reducing carbon emissions, as
19 opposed to simply allowing the MISO utilities to trade
20 carbon allowances and have the same amount of -- of
21 carbon emitted in the US. If you're actually reducing
22 carbon emissions and it's not explicitly valued, then
23 you would -- for a societal analysis, you'd want to
24 include that valuation.

25 MS. ANITA SOUTHALL: And what other

1 societal costs would be added? I understand there's a
2 position advanced, and -- and I -- you may be under
3 this banner: health benefits, customer comfort, those
4 kinds of things in terms of the societal benefits in
5 the -- in the DSM ratio?

6 MR. PAUL CHERNICK: Well, I think there
7 -- there are a couple of pieces to that. One (1) is
8 the -- in terms of the -- the externalities, the
9 effects really outside the Man -- the relationship
10 between Manitoba Hydro and its customers, its domestic
11 customers. Those externalities would include other
12 environmental effects from the power plant sort of
13 being turned down, like reduced emissions of -- of
14 sulfur and particulates and NOx. I think that came up
15 earlier.

16 In addition, for DSM there are other
17 non-energy benefits, in some cases, reductions in
18 replacement of equipment because you've now put in
19 something new in the case of many new lighting systems,
20 something much more durable than -- than what used to
21 be there, and it can be a better quality of light,
22 reduced glare and so on.

23 Increased comfort -- increased comfort
24 is a big issue for low-income programs, because when
25 you super insulate a very poor person's home they may

1 turn up the thermostat from just barely warm enough to
2 keep the pipes from freezing to something that stops
3 the kids teeth from rattling. And some -- some people
4 would say, Well, that's not really energy savings
5 because they're -- they're taking back some of those
6 energy savings to get more comfort.

7 My position would be, well, you save the
8 energy, and then having done that, you've made these
9 people want a little wealthier. And 2) you've lowered
10 the cost of greater comfort for them, and they're
11 taking that back in terms of greater comfort.

12 And you should be including the -- the
13 full benefits before they started to take anything
14 back. And you might even want to include the -- the
15 additional comfort, although that would be a hard thing
16 to value.

17 For some commercial applications with
18 lighting and temperature controls and so on, it's --
19 it's easier to -- to value, to come up with some sense
20 of -- if you can increase the productivity of workers
21 by even a few percent, it would cover the whole cost of
22 replacing the -- the lighting or improving the -- the
23 control over temperature in their workspace. And --
24 and people have -- have done that for various kinds of
25 systems.

1 That's -- these things tend to be case
2 specific and can -- and the analysis can be very detail
3 oriented. And they -- they are sometimes more useful
4 as a -- a -- in general, as a way of thinking about an
5 -- an overlay on top of what we can easily measure in
6 terms of the benefits of the energy efficiency. There
7 are these other things, as well. Trying to figure out,
8 for a commercial lighting program, exactly what
9 productivity benefit you'll get out of, that can be a
10 very difficult and contentious process.

11 MS. ANITA SOUTHALL: Could I just ask
12 you, in terms of health benefits, is that as a result
13 of less pollutants in the air directly --

14 MR. PAUL CHERNICK: Oh --

15 MS. ANITA SOUTHALL: -- or is it
16 something else?

17 MR. PAUL CHERNICK: You can get health
18 benefits from less pollution. You can also get health
19 benefits from improving a -- a building envelope so
20 that you don't have condensation inside the walls and -
21 - resulting in mould, from improving the -- the duct
22 work.

23 You read in the literature about ducting
24 in -- in houses where sometimes there would just be --
25 be a gap where it just kind of exhausts into the attic

1 and then sucks air out of the attic, along with the
2 fibreglass and the dust and the spiders and everything
3 else. So sealing that up saves a lot of energy,
4 because you're not heating and cooling the attic, but
5 it also improves indoor air quality and -- and health.

6 So there can be a number of -- of
7 ramifications from energy conservation programs. And,
8 again, sometimes putting these things into dollar terms
9 is -- is hard to do, but there have been studies that
10 have attempted to do that.

11 MS. ANITA SOUTHALL: Right. And -- and
12 you anticipated my question. Have -- have values been
13 placed on that elsewhere?

14 MR. PAUL CHERNICK: I have seen values.
15 I suspect that Mr. Dunsky will be able to provide you
16 with more detail on that. And I -- either one of us
17 could undoubtedly bring -- pull together some examples
18 for you if you wanted in an undertaking. But, yes,
19 it's -- it's been done to some extent for at least,
20 sort of snapshots of a particular program or a
21 particular measure.

22 MS. ANITA SOUTHALL: Yes, please. We
23 will take that undertaking from you to provide us with
24 whatever literature you can locate on that. It's
25 hopefully not too much of a -- a research project we're

1 asking GAC's consultant to undertake.

2 MR. PAUL CHERNICK: I'm sure it'll be
3 fine.

4

5 --- UNDERTAKING NO. 86: GAC to provide details on
6 the energy conservation
7 programs; and indicate any
8 better approaches

9

10 CONTINUED BY MS. ANITA SOUTHALL:

11 MS. ANITA SOUTHALL: And, sir, you may
12 be aware that Manitoba Hydro's testimony -- and I've
13 got reference to it at Tab 50 of Volume IV of the
14 Board's book that was circulated earlier today -- that
15 they appear to employ a 10 percent adder for societal
16 cost in their program evaluation.

17 Did you come across that reference
18 yourself?

19 MR. PAUL CHERNICK: I see that in the
20 transcript.

21 MS. ANITA SOUTHALL: Is this consistent
22 with your knowledge of this kind of societal cost
23 adder, or the way it may be reflected or taken into
24 account by utilities in assessing marginal cost for
25 DSM?

1 MR. PAUL CHERNICK: Well, it's
2 something I've seen other places. The Vermont Public
3 Service Board, initially, back in the late 1980s, set a
4 default 5 percent adder for environmental benefits.

5

6 (BRIEF PAUSE)

7

8 MR. PAUL CHERNICK: And the way I -- I
9 read this as sort of an admission that, well, we know
10 that there are other benefits, some of which are hard
11 to quantify, and we think they're probably smaller than
12 what we've quantified, but we don't want it to be a
13 trivial amount, like 1 percent, so we'll say 10
14 percent, and we'll look at it that way. And then maybe
15 we'll do something with it, maybe we won't.

16 I -- I have to say that's better than
17 ignoring the other benefits. But those other benefits
18 vary a lot depending upon what you're doing and where
19 you're doing it, and saying it's 10 percent is probably
20 not a -- it's not a good approximation; it may be the
21 best that -- that you can do off the cuff, but I think
22 there are better approaches than that.

23 MS. ANITA SOUTHALL: And it would vary
24 by program, if -- am I reading too much --

25 MR. PAUL CHERNICK: It would vary --

1 MS. ANITA SOUTHALL: -- into it?

2 MR. PAUL CHERNICK: It would vary by
3 program and it would vary by measure. And, again,
4 something like duct repair and ceiling, I think you
5 might have a much higher adder than you would, for
6 example, wrapping a water heater or, you know, wrapping
7 the hot water pipes to keep -- to keep down the energy
8 losses. It's hard to see where there's a lot of
9 ancillary benefits within the home from those latter
10 measures, but for something like the duct ceiling or
11 substantial improvements in -- in the building shell,
12 the kinds of things we were talking about earlier, that
13 could be very important. The -- the health benefits,
14 the comfort benefits could be very important.

15 So, ideally, you'd like to have a tool
16 that guided you to where the big benefits are rather
17 than -- you know -- and in -- or in commercial uses.
18 Improving the efficiency of -- of elevator motors and
19 drives is -- is wonderful and it can save a lot of
20 energy, but it's hard to see what else it really does.
21 Something like lighting, heating controls, have a lot
22 of other benefits that -- that can be substantial.

23 So, you'd like to have a program by
24 program and even measure -- class of measure specific,
25 non-energy benefit adders.

1 MS. ANITA SOUTHALL: When you
2 identified that there would be better approaches a few
3 minutes ago, are you able to provide that to us when
4 you're providing us with the -- the adder information
5 you track down from the other jurisdictions?

6 MR. PAUL CHERNICK: I'll do what I can.

7 MS. ANITA SOUTHALL: Okay. Thank you.
8 I'd like to move on, sir, to a discussion of the
9 screening tests which may or may not be used by
10 Manitoba Hydro.

11 MR. PAUL CHERNICK: M-hm.

12 MS. ANITA SOUTHALL: And specifically,
13 page 23 of your evidence, if I could refer you to that,
14 sir?

15 MR. PAUL CHERNICK: I have that.

16 MS. ANITA SOUTHALL: So I'm not taking
17 you -- I really just want to draw your attention and
18 everyone else's to that portion of your evidence, but I
19 have some specific questions for you.

20 I understand that you recommend that the
21 rate impact measure metric and the levelized utility
22 cost test, if that's the right description for it,
23 should not be used by Manitoba Hydro to screen DSM
24 programs. And maybe "program" is too specific a word.
25 And but -- perhaps what I'll do is invite you --

1 MR. PAUL CHERNICK: I agree with your
2 statement.

3 MS. ANITA SOUTHALL: I invite you into
4 that subject matter and the other thing that I want to
5 do before I ask for your response on that is to draw
6 your attention to Tab 51 in the reference book of
7 documents. And, in the sequential numbering, it's page
8 474 onto 475, the flip-side of that two (2) page
9 document, excerpts from the transcript of Manitoba
10 Hydro's evidence, and specifically, testimony from
11 representative, Ms. Morrison, for Manitoba Hydro,
12 making the point:

13 "We look at both the rate impact
14 measure test and the levelized
15 utility cost test as a gauge by which
16 to assess the level of investment
17 that the Utility should make on
18 behalf of the ratepayer, in terms of
19 affecting the market or investing in,
20 in a change in the marketplace. We -
21 - what those tests will tell us is
22 the extent to which, first, under the
23 rate impact measure test, the extent
24 to which the program investment may
25 or may not affect rates going

1 forward."

2 And then referencing the point
3 articulated by the chief executive officer, Mr.
4 Thomson. And then line 25:

5 "Given our current financial
6 position, any new business case, any
7 new DSM programs that Manitoba Hydro
8 puts forward should have a sound
9 business case and that any of the
10 programs going forward should reduce
11 the upward pressure on rates, not
12 increase the pressure on rates. And
13 so we take that into consideration in
14 our design."

15 So I -- I specifically wanted to draw
16 your attention to those points and ask if you have a
17 view on -- I know you have a view on that from your
18 evidence.

19 But do you have a view that there is a
20 place for use of the RIM metric or the levelized
21 utility cost test in Hydro's DSM programming?

22 MR. PAUL CHERNICK: Not in decision
23 making. And I can't really see what good the -- the
24 RIM test does for -- for any purpose. In terms of
25 reporting the costs of programs, I think everybody

1 finds very interesting how much the utility is -- is
2 paying per kilowatt hour saved. That's a widely
3 reported metric as, I believe, Ms. Morrison put it, but
4 it's not one that should be used as a guide to program
5 design.

6 The way I read that transcript is sort
7 of an elaboration on what I said on my -- in my
8 testimony, which is that Hydro's explanation is
9 basically, Well, we find the programs that we -- or the
10 measures that we think would pass the TRC, but then we
11 cut the guts out of those programs so that they pass
12 the RIM test or do as little damage as possible under
13 the RIM test to -- so that they reduce the amount that
14 the Utility is paying because, as is elaborated here,
15 we don't want anything that will raise rates.

16 So even if you could do something for 95
17 percent of the customers that would lower their --
18 their bills 3 percent, you can't do it because it would
19 increase rates and it would cause the other 5 percent
20 of the customers' bills to go up.

21 And you don't ever look at what
22 percentage of customers you're benefiting, and you
23 don't look at the distribution of customers that you're
24 benefiting. You look at the RIM test and you say, We
25 don't care whether this is the one (1) group of

1 customers who is getting no other services; we're not
2 going to do it because it would raise rates, however
3 infimest -- infinitesimally, for other customers
4 because it fails the RIM.

5 Or, We'll do it -- we'll have the
6 program, but we'll require the customer to do all the
7 work to save us on costs, and we'll give them hardly
8 any incentive at all because we don't want it to
9 increase rates. And that's -- to me, is essentially
10 using the -- the RIM test in program design and program
11 screening, which is what the -- the Company was arguing
12 it didn't really do.

13 I think it's very unfortunate if -- if
14 they're pursuing that approach, because Manitoba will
15 wind up using more energy and either building more dams
16 or having less energy to sell, and everybody's bills
17 will wind up being higher.

18 MS. ANITA SOUTHALL: Sir -- and to the
19 extent that what you've already said is -- is covered,
20 please let -- please let me know.

21 I do want to ask you to review a number
22 of the points that you brought to the Board's
23 attention. It would be found in the resource PUB book
24 of documents Volume IV, this time Tab 52, starting at
25 page 476, and a response and attachment you've provided

1 to PUB/GAC-10.

2 And the attachment is starting at page
3 478 of the reference material. It's a document that's
4 called, "Page 1 of 6: Measuring Rate and Bill Effects,"
5 adapted from your direct testimony before the Kansas
6 Corporation Commission and a particular docket.

7 Do you see that, sir?

8 MR. PAUL CHERNICK: Yes.

9 MS. ANITA SOUTHALL: And really what
10 I'd like to do is, if you could flip to the next page,
11 to go through the -- what you identified in this
12 previous testimony as the limitations of the rate
13 impact measure, or the RIM, metric.

14 MR. PAUL CHERNICK: M-hm. We're on
15 page 479 now?

16 MS. ANITA SOUTHALL: Yes, please, page
17 --

18 MR. PAUL CHERNICK: Okay.

19 MS. ANITA SOUTHALL: -- 479. Thanks
20 for following with me. So in preparation of our
21 questions, we've identified or attempted to paraphrase
22 some of the points that you've made in the testimony,
23 so hopefully have it right.

24 First of all, I know you've identified
25 RIM as a crude metric, that it does not project changes

1 in rates and bills which would be useful for decision-
2 makers. Programs may not pass the RIM with low scores
3 but have minuscule impact on rates. And I think
4 actually you just mentioned that a moment ago when --
5 when you were giving your previous response.

6 Is there something beyond what you've
7 already said, in terms of RIM, that amplifies on this
8 particular point?

9 MR. PAUL CHERNICK: Well, no, just that
10 it doesn't do a good job of looking at magnitude, and
11 it doesn't look at -- at direction, and it doesn't look
12 at timing. It doesn't really help you understand...

13 Now, clearly, you know, if the -- the
14 Company were looking at a energy efficiency program
15 that was going to cause an additional 5 percent rate
16 increase two (2) years out, then that would be a
17 consideration that you might want to take into account.

18 But the RIM test doesn't tell you what
19 percentage or what time period. It doesn't tell you
20 whether rates would creep up very slowly as a tu --
21 very small percentage of what -- of what would happen
22 otherwise. It doesn't say whether it -- you're going
23 to be reducing usage for classes that will be bearing
24 the costs of -- of other existing programs. It's --
25 it's not useful in terms of magnitude, direction, or

1 timing.

2 MS. ANITA SOUTHALL: Mr. Chernick,
3 another point made in your Kansas testimony is that RIM
4 purports to measure the effects of the utility action
5 on rates, and programs passing the utility cost test
6 and TRC, which are other tests, obviously, for DSM
7 screening will generally reduce the present value of
8 total revenue requirement.

9 Is that -- is that a fair statement from
10 your testimony?

11 MR. PAUL CHERNICK: Yes, and the -- the
12 point being that bills can down, even if rates are
13 going up a little bit and that customers pay bills.
14 They don't pay rates.

15 MS. ANITA SOUTHALL: Right.

16 MR. PAUL CHERNICK: And that paying --
17 reducing the bills that customers pay should be the
18 primary consideration.

19 MS. ANITA SOUTHALL: And that theory
20 applies for those individuals that can participate in
21 DSM that -- where there is programs available to them?

22 MR. PAUL CHERNICK: Right. And if
23 properly designed, the -- the portfolio should be able
24 to reach anybody who cares enough about their bill to
25 participate. And there -- there may be some -- some

1 wealthy people who just can't be bothered and will pay
2 their bill because they don't really care, but...

3 MS. ANITA SOUTHALL: Or if rates aren't
4 -- pardon me. Or if -- or if there's no DSM program
5 for a particular --

6 MR. PAUL CHERNICK: Well --

7 MS. ANITA SOUTHALL: -- class, then --

8 MR. PAUL CHERNICK: Well, that's
9 something --

10 MS. ANITA SOUTHALL: -- they -- they
11 bear the greater rates without being able to make any
12 adjustment?

13 MR. PAUL CHERNICK: Ex -- well, yes.
14 And -- and that's the -- at least they don't get any
15 help from the utility in making the adjustment. They -
16 - they still may be able to make adjustments. But you
17 don't want to have a situation where there are
18 opportunities to help customers and you're not
19 providing with -- them that with -- with that
20 assistance.

21 MS. ANITA SOUTHALL: The rate impact
22 measure metric doesn't indicate how the programs affect
23 rate classes. Any losses in revenue from a DSM measure
24 could in fact be isolated to the rate class using the
25 program.

1 I think that's one (1) of your points
2 from the Kansas testimony, correct?

3 MR. PAUL CHERNICK: Yes.

4

5 (BRIEF PAUSE)

6

7 MS. ANITA SOUTHALL: Could -- could you
8 just explain this point, sir, again? I refer you back
9 to that Kansas testimony you've included as an
10 attachment here. You make the point that:

11 "A serious defect of the RIM test is
12 that it disproportionately focusses
13 on the small, near term rate impacts
14 of energy efficiency programs, while
15 entirely ignoring the much larger
16 rate impacts associated with future
17 large capital investments in new
18 generation assets."

19 MR. PAUL CHERNICK: Yes, in -- in
20 general there's a significant rate effect of bringing a
21 new generator online. And I've seen situations where
22 rates have increased 20 or 30 percent to incorporate
23 the cost of a new nuclear power plant or even a coal
24 plant.

25 And utilities generally have taken the

1 position that, Well, that's too bad, because this is
2 the best thing for our customers as a whole in the long
3 term. And they don't say, Oh, we couldn't possibly
4 build a -- a coal plant, because, look at that, we'd
5 have -- have to raise rates 15 percent in the first
6 year to cover it.

7 They would say, Well, look, over the
8 life of the plant, it's going to be cost effective.
9 It's going to be -- be less expensive than the
10 alternatives. And they would support the -- the
11 tradeoff of, yes, some people will pay higher rates in
12 some period of time and have higher bills so that in --
13 somebody else in a different time will have lower
14 bills. And I think that's often a -- a reasonable
15 perspective to take.

16 But to take the perspective that we're -
17 - we're looking at the big picture and all of the --
18 the customers as a single entity over time, when you're
19 looking at choosing generation alternatives but then
20 looking at this -- at things microscopically with the
21 RIM test for DSM and saying, Whoa, no, wait a minute.
22 There's one (1) non-participant out there who might pay
23 a little bit more because of the conservation program.
24 That's just an inconsistent perspective on who you're
25 doing the planning for.

1 MS. ANITA SOUTHALL: Do -- do you have
2 a position, sir, on whether or not this last concept
3 has merit in assessing Manitoba Hydro's DSM programs,
4 given its ongoing investment in major generation and
5 transmission as part of its long-term capital projects?

6 MR. PAUL CHERNICK: Well, certainly, if
7 some of those projects are -- are marginal. If they're
8 -- they're not being built to support profitable
9 exports, then, yes, it would, because as those go
10 online, rates are going to have to go up quite a bit, I
11 would expect, since they're -- they haven't been
12 depreciated and you have to pay the -- the interest
13 cost on the entire project. And it may be a -- a good
14 deal over a hundred years, but it may be a not very
15 good deal for the first twenty (20) years.

16 MS. ANITA SOUTHALL: With a -- with a
17 broader test -- and I know you advocate a broader test,
18 sir, and we've come to that right away -- would
19 potentially allow for more DSM spending, more DSM
20 programs in the near -- with near-term rate impacts,
21 but potentially result in greater savings and the
22 opportunity for deferral of generation investments?
23 Just -- just on the last point you were making.

24 MR. PAUL CHERNICK: Yes, as -- I assume
25 you're talking about a -- a more comprehensive test of

1 -- of rate and bill effects?

2 MS. ANITA SOUTHALL: Yes.

3 MR. PAUL CHERNICK: Yes, I -- I think -
4 - and it's not really just a test, because it's a --
5 it's an -- an analysis and you wind up with a whole
6 table of numbers. Each year a -- a rate effect and --
7 and a rate effect for -- for each class of customer,
8 probably. And -- and that informs your decision about
9 whether you're creating a problem and -- that you need
10 to -- to moderate in some way at the expense of cutting
11 back on the energy savings and ultimately paying more.
12 And if you do that more sophisticated test rather than
13 just avoiding anything that doesn't pass the RIM, you
14 will do more energy efficiency, and it'll be better
15 balanced, and you have better chances of saving -- of
16 avoiding more expensive investments.

17 MS. ANITA SOUTHALL: And, sir, at the
18 bottom of page 23 of your evidence, starting at line
19 21, you make reference to the challenges associated
20 with using the levelized utility cost test. You're no
21 doubt familiar with that, in terms of the points you
22 are making.

23 I'll give you a moment to locate that.

24 MR. PAUL CHERNICK: Yes, I wouldn't --

25 MS. ANITA SOUTHALL: It goes onto page

1 24.

2 MR. PAUL CHERNICK: Yes. I wouldn't
3 say -- not the challenges but the -- perhaps the
4 shortcomings of the levelized utility cost test as a
5 guide to investment.

6 MS. ANITA SOUTHALL: With -- without me
7 going through all of those various points which --
8 which all involved, including the Board, can -- you
9 know, can obviously read and take into account.

10 Could -- could you just take a couple of
11 minutes and explain the -- the methodology of the
12 levelized utility cost test and why -- why the
13 shortcomings occur for the -- for the purpose that
14 might be used in DSM screening?

15 MR. PAUL CHERNICK: Well, sure. The --
16 the utility cost test just looks at what the utility
17 spends. And by levelized, that means you take the --
18 the cost and spread it out over the -- evenly out of
19 the -- the life of the measure or the program savings
20 so that the cost -- it's not -- your not just divided
21 by the number of years but you calculate the value that
22 you would need to have in each year so that when you
23 present value it back, you have your initial
24 investment.

25 So, you have the levelized cost, and you

1 divide it by the number of kilowatt hours that you
2 save, and that gives you a levelized utility cost per
3 kilowatt hour. And it -- it very convenient to say,
4 Oh, we're saving energy at four (4) cents or we're
5 saving energy at two (2) cents, from the utility
6 perspective and it's quite straightforward to know what
7 the utility's spending on -- on the programs. And you
8 can get a pretty good guess at what you're saving.

9 And so those are easy numbers to
10 calculate and -- and easy numbers to understand and
11 think about. And as I've said, tho -- it's fine for --
12 for reporting. That's the sort of thing I would expect
13 the Board and other parties to be interested in seeing.

14 But a lower utility cost test does
15 not mean that you've got a better program. For one (1)
16 thing, it -- it treats anything the customer pays as
17 being free but anything the utility pays as costing
18 dollar for dollar. So an incentive paid to the
19 customer is a cost to the utility. There's cost in the
20 utility cost test. If the customer has to spend two
21 (2) or three (3) dollars to do the same thing the
22 utility could do for a dollar (\$1) in a pro -- through
23 a good program design, the utility cost test would say,
24 Well, have the customer do it, because that reduces the
25 utility cost. You'll save the cus -- the utility one

1 dollar (\$1) even if it costs the customer two (2) or
2 three (3) dollars.

3 It doesn't give you any guidance as to
4 whether the program -- one (1) program is better than
5 other, one (1) design is better than another, whether
6 you're pushing the limits on what you can pay because
7 different kinds of measures have different values, in
8 terms of generation, transmission, and distribution, in
9 terms of mor -- avoiding marginal costs.

10 And so one (1) program at six (6) cents,
11 might be a great deal because it's avoiding energy
12 that's worth twelve (12) cents. And there -- and
13 another one (1) at six (6) cents might be on the verge
14 of being not cost effective because it's avoiding very
15 inexpensive off-peak energy.

16 Obviously, all those non-energy benefits
17 that we talked about before, those don't figure in at -
18 - to the -- to the calculation at all, even the easily
19 quantifiable ones, such as gas and -- and water costs.
20 And, you know, there's no -- no way of -- of doing a
21 societal version of the utility cost test because you -
22 - you're not including anything except the utility's
23 costs and, therefore, you can't take into account the
24 environmental benefits.

25 And the other thing is it doesn't give

1 you any information about scale. You're calculating
2 cents per kilowatt hour. So a program that saves
3 energy at a penny a kilowatt hour looks better than one
4 that saves energy at three (3) cents a kilowatt hour.
5 But if the design that costs three (3) cents a kilowatt
6 hour got you a hundred times more energy savings
7 customers would be much better off with that three (3)
8 cent a kilowatt hour program than the one (1) cent
9 program.

10 The utility cost test, in -- in that
11 way, if you really took it seriously, would encourage
12 what we call cream skimming, where you do very little,
13 pick up the stuff that's very cheap to get, and leave
14 behind all the -- the deeper savings.

15 So those are the -- the things that I
16 identified as being problematic about the utility --
17 levelized utility cost test. As -- as I've said, it's
18 a fine metric for reporting. It's an interesting
19 number to look at. But you don't want to navigate by
20 it.

21 MS. ANITA SOUTHALL: Moving to what you
22 do advocate, sir, on page 24, just below the
23 shortcomings of the LUC test is the total resource
24 cost, or the societal, test.

25 MR. PAUL CHERNICK: M-hm.

1 MS. ANITA SOUTHALL: And you identify a
2 number of net benefits that ought to be included in the
3 DSM screening process that Manitoba Hydro uses,
4 correct?

5 MR. PAUL CHERNICK: Yes.

6 MS. ANITA SOUTHALL: On page 25 -- and
7 we've got them there unless -- sir, I didn't intend to
8 go through them with you. And we have actually talked
9 about many of them, I believe, as I've questioned you.
10 So I'm going to ask you to turn to page 25.

11 At line 14 -- perhaps starting actually
12 at line 12, you make the point with respect to your
13 review of Manitoba Hydro's DSM plans in the 2010/2012
14 rate proceeding. You identified the fact that:

15 "It appeared that Mani -- [or] that
16 Hydro was not pursuing energy-
17 efficient opportunities that it knew
18 met the total resource cost test due
19 to implicit non-TRC screens."

20 Do you see that?

21 MR. PAUL CHERNICK: Yes.

22 MS. ANITA SOUTHALL: Are the implicit
23 screens using the RIM metric or the levelized utility
24 costs tests, or is there some other implicit non-TRC
25 screens that you have in mind?

1 MR. PAUL CHERNICK: The description in
2 the previous case may have been somewhat different, but
3 it -- it's essentially those types of tests. I -- I
4 don't remember exactly how Manitoba Hydro described its
5 process the last time around. And I was summarizing
6 here basically just to set up the -- the quote from the
7 Board order in the next answer.

8 MS. ANITA SOUTHALL: So you're --
9 you're not in a position to comment on the -- the
10 energy efficiency opportunities that Hydro wasn't
11 pursuing?

12 In other words, you hadn't identified or
13 could comment now on what's being left off the table?

14 MR. PAUL CHERNICK: No, I -- I don't
15 believe that we have enough detail about their
16 screening process and the program design process, which
17 then does things to the programs it screened in, for me
18 to be able to comment on that in detail. And if that
19 information is available, Mr. Dunsky would be more
20 likely to be familiar with it, because that was
21 primarily his responsibility.

22

23 (BRIEF PAUSE)

24

25 MS. ANITA SOUTHALL: Sir, in your --

1 I'm going to turn to the -- your comments earlier this
2 morning on Manitoba Hydro's response to the fuel
3 switching report.

4 You've identified on page 30 a number of
5 the initiatives that you think ought to be brought to
6 bear, in terms of the results of that report; in other
7 words, just to summarize, the indication that people
8 are taking up electric heating and the -- the fuel use
9 is going in the wrong direction, I think, to summarize
10 your view, correct?

11 MR. PAUL CHERNICK: Yes.

12 MS. ANITA SOUTHALL: And specifically
13 focussing on DSM programming, is -- is there -- did you
14 have in mind any recommendations, particularly with
15 respect to DSM programming, to deal with the use -- the
16 -- the growing use of electric heating and -- space
17 heating and water heating in Manitoba?

18 MR. PAUL CHERNICK: Well, in terms of
19 the -- of energy conservation programs, one (1) tactic
20 would be to include a program that would be marketed
21 primarily through plumbers and HVAC contractors to
22 provide incentives to stay with gas and move to a high-
23 efficiency gas water heater if you're -- if you have
24 gas, and if you don't but there's gas in the building,
25 to switch over to a gas water heater next time the

1 electric water heater is nearing replacement, or even
2 earlier, if the customer is so inclined.

3 MS. ANITA SOUTHALL: The additional
4 surcharge on electricity connections is intended to
5 drive developers into an -- an economic consideration,
6 in terms of extending gas for house heating as opposed
7 to de -- developing new homes with electric heating?

8 MR. PAUL CHERNICK: Yes, I wouldn't
9 consider that part of an energy efficiency or DSM
10 program. It's a -- it's a different tool. In general,
11 utilities charge developers for extending service and
12 hooking up new buildings. And those hook-up fees have,
13 in some cases, been structured to discourage certain
14 uses of -- of electricity.

15 And if the problem is that the developer
16 is looking to get the job done as cheaply as possible
17 and turn out a house that looks good and feels good to
18 be in and so on, the developer doesn't care whether
19 there's an electric water heater or gas water heater.

20 It's not clear from Hydro's fuel
21 switching report whether the problem is that they're
22 not putting in gas for heating either or whether
23 they're putting in gas for heating but not for water
24 heating. So a -- and -- and you might need slightly
25 different mechanisms for -- for dealing with those two

1 (2) situations.

2 But if you've got gas in the house and
3 the problem is that the -- the developer is trying to
4 avoid a relatively small cost of -- of adding the --
5 the gas water heater, cut down on that -- those -- that
6 expense, save himself a few hundred dollars, that adds
7 to his bottom line when he sells the house.

8 And if Hydro is correct that the -- the
9 houses sell for the same price regardless of whether
10 they have gas or electric water heating, then the
11 developers have a very bad incentive to do what's less
12 expensive for them, even though it's more expensive for
13 everybody else. It's more expensive for the -- the
14 customer who winds up buying the house, more expensive
15 for the gas system as a whole, more expensive for the
16 electric system as a whole, and -- and worse for the
17 environment.

18 So providing them with a reason to -- to
19 not put in the electric water heater would be a fairly
20 straightforward way of addressing that market failure.
21 I mean, by -- by market failure I mean --

22 MS. ANITA SOUTHALL: Have you seen that
23 kind of disincentive program elsewhere, sir?

24 MR. PAUL CHERNICK: Yes. And some
25 places things are -- are, you know, for -- some uses

1 are just prohibited, or special permits have to be re -
2 - be allowed. In other places there are -- are special
3 charges.

4 In the case of -- you know, if the real
5 problem is -- is one of, first, cost you could even
6 just require a deposit from the developer, which is
7 then paid back to him over ten (10) years or something.
8 Because what the developer's worrying about is how much
9 money I need to come up with to build this house. If
10 you say, Well, if you want to do it on the cheap,
11 you're going to have to come up with the money for the
12 deposit for the electric water heater and you'll be
13 paid back over a period of time; then his calculation
14 may be, Well, I have to raise more money to go electric
15 than I do to go gas, so I'll go gas. And you may be
16 able to solve that problem and still allow people who
17 really want to -- to go electric, to go electric and --
18 and just get their money back over time.

19 I -- I -- you know, we're -- we're sort
20 of early to be suggesting any specific solutions. I
21 was very surprised to see no solutions being proposed
22 by Manitoba Hydro. And I discussed what kinds of
23 things might be pursued.

24 MS. ANITA SOUTHALL: So I want to move
25 to your -- to your final comments and conclusions, sir.

1 We've covered the fact that you recommend a total
2 resource cost or form of societal cost test to be
3 implemented by Manitoba Hydro.

4 That's correct?

5 MR. PAUL CHERNICK: Yes.

6 MS. ANITA SOUTHALL: And all programs
7 that pass the screen should be pursued, or required to
8 be pursued, and otherwise Manitoba Hydro should have to
9 justify why it deviated from the test.

10 That's your view?

11 MR. PAUL CHERNICK: Yes. Yes.

12 MS. ANITA SOUTHALL: I'm going to refer
13 you to the top of page 32 of your pre-filed testimony.
14 I -- I've drawn upon that comment near the top of the
15 page.

16 Can you tell me whether you've seen any
17 kind of evaluation reports for DSM in other
18 jurisdictions that would contain the kind of
19 projections based on total resource cost and reporting
20 requirements for variances and results? So, in other
21 words, a -- a fulsome evaluation report. I don't now
22 if it would be on an annual basis or otherwise. And
23 then, some sort of reporting requirement for variances
24 where those results weren't achieved.

25 MR. PAUL CHERNICK: Yes, that's a

1 fairly common practice in the -- in -- in the -- I
2 would say almost a universal practice in the
3 jurisdictions with aggressive energy efficiency
4 programs. And -- and even in those with somewhat tepid
5 programs, at least they generally have to show their --
6 their screening results, their program design, their
7 program targets and then report on what they have
8 achieved. And there's often an outside evaluation of
9 what they've achieved, so you're not depending entirely
10 on the utility to grade themselves.

11 MS. ANITA SOUTHALL: And, sir, do you
12 have a position on whether there should be independent
13 setting of targets for DSM for utilities generally?

14 MR. PAUL CHERNICK: Well, I think
15 policy should be made by the policymakers, such as the
16 -- the regulators. In some cases the legislatures have
17 -- have set targets. And in other -- other situations
18 it's -- in most situations it's a -- a utility rate-
19 regulator, the -- the equivalent of the Board.

20 MS. ANITA SOUTHALL: I'm just circling
21 back to a -- a final question here, sir. In terms of
22 our initial discussions associated with marginal cost
23 for Hydro established at eight (8) point -- roughly
24 eight point five (8.5) cents for the purpose of its DSM
25 screening at present, if you included all of the costs

1 that we have been talking about earlier today, are you
2 able to put a number on what you would identify as the
3 total marginal cost for DSM purposes?

4 Can you go that far?

5 MR. PAUL CHERNICK: Well, some of the
6 factors we've been talking about would vary bet --
7 among programs. So, we -- certainly we would talk
8 about a marginal cost that includes health benefits and
9 comfort benefits inside a building, because that really
10 depends on what you are doing.

11 And, if the -- the marginal cost is --
12 is increased by two (2) or two and a half (2 1/2) cents
13 compared to what Hydro was talking about, at -- the
14 marginal generation cost. Then you would add something
15 in range of two (2) or two and a half (2 1/2) cents to
16 the values in my Table 2, in terms of marginal cost.
17 And the -- the residential result would then be --
18 well, something like eleven (11) or twelve (12) cents,
19 and that would be as a nice round number, a -- a
20 reasonable number to use for -- for DSM screening.

21 Although, again, I would -- I'd like to
22 know more about the numbers and how seasonal they are
23 and -- and whether some capacity value should be split
24 out from the energy. But, roughly speaking, something
25 on that order.

1 MS. ANITA SOUTHALL: And -- and that
2 does include carbon, or what we've been calling "GHG"
3 today, as part of your rough estimate?

4 MR. PAUL CHERNICK: Actually, well that
5 just included the -- the -- the eight and a half (8
6 1/2) cents. But if you're talking about avoiding the
7 dam, then you're not avoiding any carbon.

8 Now, if the dams going to cost eight and
9 a half (8 1/2) cents and it also has one (1) cent worth
10 of environmental affects that I'm -- I suspect Mr.
11 Williams could elaborate on better than I, then that
12 would -- that ought to be added in to your -- to your
13 screening as well.

14 From a -- a societal basis -- and here,
15 in terms of "societal" we mean, basically, the society
16 of -- of Manitoba. If you really believe that there
17 are those additional damages from building the dams and
18 the -- and the necessary transmission, you should
19 include those in what you are willing to pay to avoid
20 having built them.

21 MS. ANITA SOUTHALL: Thank you, sir.
22 Those are my questions for Mr. Chernick. Thank you,
23 Mr. Chairman.

24 MR. RAYMOND LAFOND: I -- I have a
25 question which is very remotely related to what we've

1 just discussed and I -- in the last fifteen (15) days
2 of Hearing, I think I've posed -- I posed it once
3 before to someone else. But I'd like your view on
4 this.

5 One (1) of the issues that does not seem
6 to be considered is the whole issue of obsolescence,
7 and case and point is -- is this: Firstly, a -- a
8 combined cyc -- a new combined cycle gas plant is
9 expected to have a life expectancy of how many years?

10 MR. PAUL CHERNICK: Is often assumed --

11 MR. RAYMOND LAFOND: Just roughly.

12 MR. PAUL CHERNICK: -- to be thirty
13 (30) years.

14 MR. RAYMOND LAFOND: Okay. Now, when
15 we look at hydroelectric generation, we're looking at
16 like seventy-five (75) years life expectancy and in
17 actual fact portion of it is -- like, up to hundred and
18 forty (140) years. And, there's -- I mean this world
19 is moving very fast; there's all kinds of discussions
20 about new possible sources of energy at a very cheap
21 rate. And even that -- if this does not happen within
22 the next decade or so, there'll be much conflict in the
23 world.

24 So -- and -- and whenever I asked a
25 question, we are, for instance, depreciating over a

1 hundred and forty (140) years -- dams. Not allowing --
2 not saying, like, Well, let's just do it sixty (60)
3 years because what if something happens and we don't
4 need them in sixty (60) years from now or thereabouts.
5 But we're -- we're -- it's a very long term and we're
6 financing them and just paying the interest, not paying
7 the principal.

8 So, if this would happen -- and
9 especially after hearing from some large Manitoba
10 industrial users who consume twenty-five (25) to --
11 like, two (2) handfuls consume over 25 percent of the
12 energy here in Manitoba. And of course, if the energy
13 was much cheaper somewheres else they have no choice
14 for competitive reasons to simply pick up their marbles
15 and go somewheres else.

16 How do you react to that, being exposed
17 to a lot of energy exp -- experts and energy
18 discussions all over?

19

20 (BRIEF PAUSE)

21

22 MR. PAUL CHERNICK: Actually, I think
23 there were probably four (4) or five (5) questions in
24 there, but let me see if I can -- if I can pull them
25 apart and answer them one (1) at a time.

1 The first one, I think, was: If we
2 build these dams then how do we know that they're going
3 to last? How do -- how do we know that they're -- that
4 we're going to have any use for them as time goes by?

5 And I think you can imagine worlds in
6 which the hydro plants would not be worth continuing to
7 operate after 2050 or 2100, but I would put those sort
8 of in the -- the science fiction category. It could
9 happen. A lot of things could happen, but it's very
10 hard to see how you'd reached the point where large
11 facilities like that would -- would not be useful,
12 especially in a world that's -- that's using -- that's
13 more dependant upon, for example, wind and -- and
14 solar; the -- the storage capacity and the flexibility
15 of the hydro become much more valuable.

16 Then there's the -- the economics of the
17 project. And there is always the possibility that ten
18 (10) or twenty (20) years into the plant's life you're
19 going to realize that -- or, whoever is sitting there
20 then will realize that -- that it's going to be a long
21 time, if ever, before this -- the accounting costs on
22 the -- the plant are going to be worth -- you're going
23 -- going to be covered by the value of the power
24 because of reduced require -- load requirements, or
25 because something extremely cheap comes along and it

1 just crowds out; not only manages to replace the coal
2 and the -- and the natural gas, but -- but does so at
3 such a low price that the hydro is -- while you
4 continue to use it, it never pays back the investment.
5 That's a more realistic risk and you really have to
6 look at -- at what the -- the cost is.

7 I don't know of any technologies coming
8 down the road that are about to -- to make energy very
9 cheap. There are -- there are certainly technologies
10 that will make various renewable less expensive than
11 they are and maybe get solar to the point where it's a
12 really economically competitive resource in large parts
13 of North America; probably not first up here. And the
14 same is true for -- for other kinds of renewables.

15 But I would say if there's a technology
16 that -- that had a really earthshaking effect on the
17 cost of electric energy, it was the -- the directional
18 drilling and fracking of the -- the shale for -- for
19 gas. And I think we're at a point now where the prices
20 are too low to support new production and they're going
21 to have to go up.

22

23 (BRIEF PAUSE)

24

25 MR. PAUL CHERNICK: And I -- I think a

1 separate question is sort of the -- oh, there must be a
2 fancy Greek word for this, but I can't think of it.
3 But you've got this -- this contradiction going on. We
4 can -- well, we have these industrial loads and,
5 therefore, we need more new resources. But if the new
6 resources are so expensive that they drive away the
7 industrial load, then we won't need the new resources
8 and the rest of the load will have to cover the cost of
9 those resources.

10 And in well-behaved markets, the kinds
11 that en -- economists like to talk about, you have
12 everything moving slowly and incrementally, and you add
13 a little bit of increasingly expensive resource, and
14 some of the industrials drop away and you reach some
15 kind of balance, and you say, Okay, we're fine. But
16 you're facing a problem where you, the province as a
17 whole, will have to make decisions well in advance, and
18 -- and these feedback loops will not be complete until
19 after the damage is already done.

20 And I guess the bottom-line is that's a
21 reasonable consideration, and you want to look at the
22 cost of tha -- that project, or the projects that
23 you're looking at, and what they're going to do to
24 rates and whether these industrial loads are going to
25 remain viable.

1 Some of them, as I understand it, are --
2 are completely locationally independent. They could
3 just be anyplace. They can get their raw materials
4 anywhere. Others are probably here because there are
5 raw materials here or markets here, and they're --
6 they're not likely to -- to move, but -- and then there
7 are probably some sort of in the middle, where there's
8 raw materials here, but if it gets expensive enough you
9 can ship it down to -- you know, ship the wheat to --
10 to Quebec and do whatever you're going to do with it
11 there.

12 So I -- I think that's a reasonable
13 consideration and something that I hope some process in
14 the province can look at and that you -- you don't wind
15 up in a -- stumbling into that situation because
16 there's nobody with the authority and responsibility to
17 -- to do that thinking in advance.

18 And if I missed some parts of that
19 incredibly deep cluster of questions, I apologize.

20 MR. RAYMOND LAFOND: No, no. I thank
21 you very much. I appreciate your reflection and
22 comments. And -- and the issue is that things are not
23 going to be moving very -- in -- in small increments
24 but, you know, tripling the debt load within a short
25 period of time to produce 35 percent more power. So

1 that's the issue. So thank you very much.

2 THE CHAIRPERSON: Now, it's probably
3 appropriate to take a recess now, but I wonder if Hydro
4 would -- does Hydro want to do a cross-examination
5 again?

6 MS. PATTI RAMAGE: I -- I had a couple
7 of very quick questions. I -- I'd prefer to do them
8 before the recess if possible just so that we can do
9 the switch over.

10

11 RE-CROSS-EXAMINATION BY MS. PATTI RAMAGE:

12 MS. PATTI RAMAGE: I wanted to clarify
13 what I hope is just some confusion, or -- before the
14 Board. But you had discussed the use of thirty-three
15 dollars (\$33) a tonne of CO -- for CO2 emissions in use
16 in mar -- in Manitoba Hydro's marginal cost report.
17 And I wanted to clarify that.

18 The reference that you make where
19 Manitoba Hydro uses thirty-three dollars (\$33) a tonne,
20 that's in the fuel-switching report.

21 Is that correct?

22 MR. PAUL CHERNICK: Yes, that's
23 correct.

24 MS. PATTI RAMAGE: Okay. You're aware
25 of Manitoba Hydro's evidence that it purchases export

1 price forecasts for its marginal cost study?

2 MR. PAUL CHERNICK: Yes.

3 MS. PATTI RAMAGE: Okay. And those --

4 it purchases five (5), and then develop its export

5 price forecast based on an average of those five (5)?

6 MR. PAUL CHERNICK: I don't remember

7 the -- the number, but the -- the --

8 MS. PATTI RAMAGE: Will you accept,

9 subject to check?

10 MR. PAUL CHERNICK: -- I remember that

11 there were -- there were at least a few and -- and that

12 Hydro then used those in -- in some way to develop the

13 forecast.

14 MS. PATTI RAMAGE: And the thirty-three

15 dollars (\$33) you referenced, that was something

16 produced by the Western Climate Initiative?

17 Is that -- that's correct?

18 MR. PAUL CHERNICK: Yes.

19 MS. PATTI RAMAGE: And the Western

20 Climate Initiative is not a forecast that --

21 MR. PAUL CHERNICK: No.

22 MS. PATTI RAMAGE: -- that produ --

23 that sells a forecast of electricity price.

24 Is that correct?

25 MR. PAUL CHERNICK: No, that's correct.

1 And -- and I was -- that was in -- in fact my point,
2 that the -- that that number did not reflect a value
3 being -- that was likely to be embedded in any contract
4 price.

5 MS. PATTI RAMAGE: Okay. That's good.
6 As long as we're in agreement that it's a number that's
7 not likely to be embedded. I thought -- I was
8 concerned that the evidence was that it was a number
9 being embedded in the marginal cost, or that it was
10 possible that that number was being...

11 MR. PAUL CHERNICK: No, in my -- in my
12 testimony I quote where Hydro references that number
13 and I say, I don't see how that would be relevant to
14 the export price, and I don't know how it got into the
15 -- the fuel switching report, but I don't think it has
16 any relevance to -- to the analysis. I hope it
17 doesn't.

18 MS. PATTI RAMAGE: Okay. We're --
19 we're in agreement on the relevance to the analysis.
20 If it's of assistance to the Board, if you turn to page
21 26 of the fuel switching report, you will see the
22 reference to the thirty-three dollars (\$33) a tonne in
23 comparison to the levelized cost per tonne GHG
24 reduction in Manitoba for residential homes for
25 different space-heating alternatives and water heating

1 alternatives.

2 Does that make more sense to you in
3 terms of where it's being used?

4 MR. PAUL CHERNICK: Well, certainly
5 it's better than -- than an assertion that it's
6 reflected in the economic analysis of the -- of the
7 switching. I don't know that it's a particularly
8 useful bench -- benchmark, but it's -- it's fine. I
9 don't -- I don't have any problem with the statement
10 that that was the projection by the Western Climate
11 Initiative at that time. I -- my point was, we don't
12 know what, if any, carbon prices are embedded in the --
13 in the forecasted market prices.

14 MS. PATTI RAMAGE: Okay. I -- I can
15 accept that. My concern was that the Board not be
16 leaved -- left with the impression that the thirty-
17 three dollars (\$33) of the Western Climate -- Climate
18 Initiative was being left, or was being incorporated
19 into it.

20 MR. PAUL CHERNICK: No. I -- it was --
21 that certainly was not my intent.

22 MS. PATTI RAMAGE: The other area I
23 just wanted to ask is: This morning, I think in a
24 conversation with Ms. Southall, you indicated that the
25 results of the fuel switching report were consistent

1 with the results produced by other utilities that have
2 produced similar studies?

3 MR. PAUL CHERNICK: The -- the results
4 that I had seen elsewhere for -- for fuel choices,
5 including analyses that I've done, yes.

6 MS. PATTI RAMAGE: And you also
7 testified you would have preferred, however, that
8 Manitoba Hydro provide you with the data underlying its
9 work in that report.

10 Is that correct?

11 MR. PAUL CHERNICK: Yes.

12 MS. PATTI RAMAGE: Would provision of
13 that data have changed your conclusions?

14 MR. PAUL CHERNICK: Well, some of the -
15 - the conclusions in the study are -- I mean, some of
16 them are clear-cut. Some of them, it's just
17 overwhelmingly a bad idea to -- to use the -- use
18 electricity where you could use natural gas. But there
19 are other situations, for example, with the ground
20 source heat pump, where it's not so clear.

21 And if I understood better how those
22 conclusions were being reached and I disagreed with
23 some of them, I might have a stronger opinion that gas
24 is superior to electricity for that end use. Or, I
25 might have a strong opinion that electricity is

1 actually better in that situation, or better if certain
2 conditions are met. But I don't have enough
3 information to be able to pull apart what Hydro has
4 done and look at the -- at the pieces and say, Yes, I
5 agree with this or I dis -- I don't think that's the
6 best estimate, but it's so overwhelming a case it
7 doesn't really matter whether you are off by 20 percent
8 one (1) way or the other. This one (1) on the other
9 hand, it's -- either it's not clear which way it goes,
10 or I think it goes the other way. That certainly could
11 happen if I had more detail.

12

13 (BRIEF PAUSE)

14

15 MS. PATTI RAMAGE: Thank you, Mr.
16 Chernick. That's all of Manitoba Hydro's questions.

17 THE CHAIRPERSON: Now, before we --
18 before we recess then I guess the question is whether
19 we recess for the day -- or I mean, if we adjourn for
20 the day or not but I guess are the members of your --
21 the -- the panel here that we can continue this
22 afternoon.

23 MS. PATTI RAMAGE: They're all in the
24 pen back there --

25 THE CHAIRPERSON: Okay.

1 MS. PATTI RAMAGE: -- ready to go.

2 THE CHAIRPERSON: Okay. But
3 nonetheless, I think we should adjourn -- or I'm sorry,
4 we should recess for about ten (10) minutes before we -
5 - we continue the proceedings. Thank you very much,
6 Mr. Chernick. Whenever you think of you should have
7 been a professor, just think about the hundred and
8 fifty (150) first-year term papers that you have to
9 review.

10 MR. PAUL CHERNICK: You'll notice that
11 I'm not one.

12

13 (PANEL STANDS DOWN)

14

15 --- Upon recessing at 3:31 p.m.

16 --- Upon resuming at 3:46 p.m.

17

18 THE CHAIRPERSON: It's time to -- to
19 resume the proceedings so, I will turn -- I think we
20 have some documents to acknowledge.

21 MS. PATTI RAMAGE: Yes we do. There's
22 a number here. The first of which is the response to
23 Undertaking number 48, dealing with additional
24 information with respect to north/south transmission
25 additions. That we suggest be marked as Exhibit

1 Manitoba Hydro 74.

2

3 --- EXHIBIT NO. MH-74: Response to Undertaking 48

4

5 MS. PATTI RAMAGE: The next page in the
6 bundle you've been provided is the response to Manitoba
7 Hydro Undertaking number 59, indicating the number of
8 customers on the non-utility generation program. And
9 that Undertaking 59, we suggest be marked as Exhibit
10 75.

11

12 --- EXHIBIT NO. MH-75: Response to Undertaking 59

13

14 MS. PATTI RAMAGE: The next undertaking
15 is number 60 and that's Manitoba Hydro's non-utility
16 generation policy. We suggest that be marked as
17 Exhibit number 76.

18

19 --- EXHIBIT NO. MH-76: Response to Undertaking 60

20

21 MS. PATTI RAMAGE: And then we have
22 Undertaking 74, which is details on the provinces
23 geothermal program. That we suggest be marked as
24 Manitoba Hydro number 77.

25

1 --- EXHIBIT NO. MH-77: Response to Undertaking 74

2

3 MS. PATTI RAMAGE: The next document in
4 your bundle is -- is three (3) numbered Tabs, numbers
5 21, 22, and 23. Those three (3) Tabs should be added
6 to Exhibit 18, which is the PUB Pre-ask binder.

7

8 --- EXHIBIT NO. MH-18 (ADDITION):

9 Three (3) Tabs: 21, 22, and 23

10

11 MS. PATTI RAMAGE: Then next would be -
12 - I should probably say that the Tab 21 is, for the
13 record, the response to PUB Pre-ask 21. Tab 22 is Pre-
14 ask 8 through Pre-ask 12 and Pre-ask 17. And Tab 23
15 deals with Pre-ask 23.

16 The next document in the group is -- is
17 a Tab beginning number 9 with CAC Pre-ask number 9
18 behind it; that Tab will go into Exhibit 21 (sic),
19 which is the Intervenor Pre-ask binder.

20

21 --- EXHIBIT NO. MH-22 (ADDITION):

22 Tab 9, with CAC Pre-ask 9 behind it

23

24 MS. PATTI RAMAGE: Sorry. And I got
25 that wrong. Exhibit -- the Intervenor binder is

1 Exhibit 22, if that caused any confusion.

2 Then next in the package is another
3 group of exhibits. I believe they're on a paperclip,
4 the grouping, and that is Manitoba Hydro Undertaking
5 number 44, which we suggest be filed as Manitoba Hydro
6 Exhibit 78. And that's dealing with advice from our
7 external auditors, showing the strong indications made
8 with respect to accounting practices.

9

10 --- EXHIBIT NO. MH-78: Response to Undertaking 44

11

12 MS. PATTI RAMAGE: The next -- the
13 document in this grouping is Manitoba Hydro Undertaking
14 number 55, where Manitoba Hydro was to add addit -- an
15 additional item to Tadoule Lake generation not included
16 in the table provided in response to the CI -- CAC IR.
17 That Undertaking 55 should go in as Manitoba Hydro
18 Exhibit 79.

19

20 --- EXHIBIT NO. MH-79: Response to Undertaking 55

21

22 MS. PATTI RAMAGE: Manitoba Hydro
23 Undertaking 69 is next. And that's a detailed MRC
24 calculation, the RIM test and LUC test, for the Water
25 and Energy Saver Program. That should be marked as

1 Manitoba Hydro Exhibit 80.

2

3 --- EXHIBIT NO. MH-80: Response to Undertaking 69

4

5 MS. PATTI RAMAGE: And then, finally,
6 we have Undertaking number 76, where -- which is
7 Manitoba Hydro's provision of the ASL with net salvage
8 calculations for Wuskwatim. And Undertaking 76 should
9 be marked as Manitoba Hydro Exhibit 81.

10

11 --- EXHIBIT NO. MH-81: Response to Undertaking 76

12

13 MS. PATTI RAMAGE: And hopefully
14 everyone's followed and been able to place those in the
15 correct locations.

16 THE CHAIRPERSON: Thank you. Mr.
17 Williams, are you ready to go?

18 MR. BYRON WILLIAMS: Yes. I've just
19 memorized every document that Manitoba Hydro has filed.

20

21 MANITOBA HYDRO PANEL 2 - REVENUE REQUIREMENT, RESUMED:

22 VINCE WARDEN, Resumed

23 DARREN RAINKIE, Resumed

24 TERRY MILES, Resumed

25 DAVID CORMIE, Resumed

1 MANFRED SCHULZ, Resumed

2

3 CONTINUED CROSS-EXAMINATION BY MR. BYRON WILLIAMS:

4 MR. BYRON WILLIAMS: The -- just for
5 the convenience of the -- the panel and Manitoba Hydro,
6 if we could have both CAC Exhibit 12, which was Part 1
7 of our cross yesterday, as well as CAC 15, which is
8 Part 3. So that's CAC Exhibit 12, which is Part 1 of
9 the January 15th materials, and CAC-15, which is Part
10 3.

11

12 (BRIEF PAUSE)

13

14 MR. BYRON WILLIAMS: And we're -- we're
15 not -- we're not going to start with these documents,
16 but in CAC-15, if Manitoba Hydro and -- and others
17 could turn to page 13. So that's in CAC-15, page 13,
18 which should address some Bipole 3 materials. And in
19 terms of CAC-12, if we could turn to page 3 for just
20 one (1) second.

21

22 (BRIEF PAUSE)

23

24 MR. BYRON WILLIAMS: And, Mr. Warden,
25 are you the -- the capital person? You're capital in

1 my books, Mr. Warden, but are -- are you the one
2 answering those questions?

3 MR. VINCE WARDEN: Yes, for the time
4 being, Mr. Williams. Thank you.

5 MR. BYRON WILLIAMS: Thi -- this is
6 just a very small -- small point, sir. This is --
7 you'll see, is CAC Pre-ask 9. And you'll -- you'll
8 agree that today Manitoba Hydro filed a response to CAC
9 Pre-ask 9 with what -- what I'll suggest to you is one
10 (1) very small correction in terms of the Wuskwatim
11 total project cost.

12 Does that ring a bell, Mr. Warden?

13 MR. VINCE WARDEN: Yes.

14 MR. BYRON WILLIAMS: And so rather than
15 flip between those two (2) documents, if we look at CAC
16 Pre-ask 9 at page 3 of Exhibit 12, and if we went to
17 Wuskwatim total project, how we would amend the figure
18 at the end under CEF12 is, instead of one billion,
19 seven hundred and seventy-two million (1,772,000,000)
20 we would strike out that two (2) and replace it with a
21 one (1).

22 Is that correct, sir?

23 MR. VINCE WARDEN: Yes.

24 MR. BYRON WILLIAMS: And, Mr. Chair,
25 that's just so that we don't have to flip, obviously,

1 between documents.

2 Mr. Warden, I -- I think the next
3 question or two (2) are for you as well. And you'll
4 recall yesterday we had a fairly extensive discussion,
5 in terms of the distribution asset condition report?

6 MR. VINCE WARDEN: Yes, I recall that.

7 MR. BYRON WILLIAMS: A lot of talk
8 about manhole covers and poles and cables, sir. You
9 recall that?

10 MR. VINCE WARDEN: I do.

11 MR. BYRON WILLIAMS: And you'll recall,
12 at the end of that conversation, some questions posed
13 to you, both by Board member Soldier and Board member
14 Lafond, in terms of the staff that -- that was
15 allocated to or spending time on the distribution asset
16 condition report.

17 Do you recall that conversation, sir?

18 MR. VINCE WARDEN: Yes, I do.

19 MR. BYRON WILLIAMS: And we -- we've
20 certainly -- in terms of Mr. Morin's testimony, sir --
21 and we've excused him, quite properly -- but you'll
22 recall that he talked about, in terms of preparing the
23 report, some intense activity by Manitoba Hydro staff
24 members for a -- a year or two (2).

25 MR. VINCE WARDEN: Yes, that work is

1 not yet finished. But, yes, they -- they've been
2 working on it for about a year and a half.

3 MR. BYRON WILLIAMS: And you've noted
4 that that work is -- is not yet finished. And
5 certainly, my understanding from Mr. Morin was that he
6 thinks there's another year or two (2) or -- of intense
7 work associated with that project.

8 MR. VINCE WARDEN: Yes, that's my
9 understanding as well.

10 MR. BYRON WILLIAMS: Going back to the
11 -- the questions posed by Board members Soldier and
12 Lafond, I wonder if it would be possible by way of
13 undertaking for Manitoba Hydro to estimate the
14 incremental EFTs per year associated with the
15 preparation of that distribution report.

16 MR. VINCE WARDEN: Yes. Yes, we can do
17 that.

18 MR. BYRON WILLIAMS: And, sir, moving
19 forward to the subsequent activities, would Hydro be
20 able to estimate, for example, for the 2013/'14 year,
21 the number of incremental EFTs necessitated by follow-
22 up to the distribution asset report?

23 MR. VINCE WARDEN: Just to be clear, in
24 terms of follow-up, there's going to be a lot of -- of
25 actual hands-on-type work that res -- as a result of

1 that report.

2 Are you intending that this undertaking
3 should include that work as well, or are you just
4 looking at the administration part of -- of that -- of
5 preparing those reports?

6 MR. BYRON WILLIAMS: I'm really looking
7 at the administration side of the question, sir.

8 MR. VINCE WARDEN: Okay. Sure, we can
9 do that.

10

11 --- UNDERTAKING NO. 87: Manitoba Hydro to estimate
12 the incremental EFTs per
13 year associated with the
14 preparation of the
15 distribution asset report

16

17 CONTINUED BY MR. BYRON WILLIAMS:

18 MR. BYRON WILLIAMS: Mr. Rainkie, this
19 may go -- go to you. And it's a question we always ask
20 of Manitoba Public Insurance, and for some reason we --
21 I think we've neglected to ask it of Manitoba Hydro.

22 But I'm -- I'm assuming that in the
23 preparation of the annual budgets and expenditure
24 forecasts for Manitoba Hydro, that the Corporation
25 issues an annual budget guideline or instructions.

1 MR. DARREN RAINKIE: Yes, there's
2 typically instructions that go out with our annual
3 forecasting and budgeting process.

4 MR. BYRON WILLIAMS: And would it be
5 possible, sir, for -- to get the guidelines or
6 instructions for the 2011/'12 year and the 2012/'13
7 year?

8 MR. VINCE WARDEN: Perhaps I can answer
9 that, Mr. Williams. As Mr. Rainkie indicated, we -- we
10 do have formal guidelines that are issued, but not
11 consistently. It -- it depends on the circumstances.

12 And for '11/'12 -- for the '11/'12
13 fiscal year or for the budget that was prepared for
14 '11/'12 and subsequent years, the message that was
15 communicated through executive committee, through the
16 respective vice presidents, to the division managers,
17 to the -- to management was that -- to recognize the re
18 -- restraint that we were all subjected to throughout
19 the Corporation, there would be no change.

20 In fact, we would -- we would hold the
21 line. We would not increase our operating -- any of
22 our operating and administrative costs in the upcoming
23 budget, with exc -- with the exception of accounting-
24 related changes. So the only changes that were
25 incorporated in the -- in the budget for '11/'12 and

1 subsequent years were the accounting changes and some
2 provision for -- for pension cost increases.

3 But otherwise, the guideline was as
4 simple as that. There -- there'll be -- there will be
5 no addi -- incremental funding provided for operating
6 and administrative expenses.

7 MR. BYRON WILLIAMS: And, Mr. Warden,
8 just so I'm clear, that -- that was issued with regard
9 to the 2011/'12 year. Was it issued with regard to the
10 '12/'13 year?

11 MR. VINCE WARDEN: Yes, I think I said
12 and -- and sub -- subsequent years.

13 MR. BYRON WILLIAMS: And -- and does
14 subsequent years include 2013/'14?

15 MR. VINCE WARDEN: That -- that's
16 right. In fact, for the whole ten (10) year fina --
17 IFF forecast period.

18 MR. BYRON WILLIAMS: If -- Mr. Warden,
19 you -- and we're going to be talking about Bipole 3 and
20 the capital program justifications, probably for the
21 next twenty (20) minutes to half an hour.

22 And you recall a -- a bit of a
23 discussion yesterday with Board member Lafond, in terms
24 of the capital program justification, sir, or CPJs?

25 MR. VINCE WARDEN: Yes.

1 MR. BYRON WILLIAMS: And in terms of
2 when a capital program justification or CPJ is approved
3 -- and just for the Board, we're -- we're -- those two
4 (2) pages that I had asked you to have open, CAC-15,
5 page 13, and also CAC Exhibit 12, page 3. You'll --
6 you'll want to have them at hand.

7 Mr. Warden, I apologize for interrupting
8 my question. But when a CPJ is approved, it has to be
9 signed off on by the respective di -- division
10 managers, vice presidents, and -- and the executive
11 committee?

12 Is that correct, sir?

13 MR. VINCE WARDEN: Well, the final
14 approval is at executive committee for a CPJ which
15 then, as I think I explained yesterday, gets
16 incorporated into the capital expenditure forecast
17 which is presented to the board. So the approval --
18 the formal approval is at executive committee.

19 MR. BYRON WILLIAMS: Okay. Thank you
20 for that. And -- and after approval, it goes into the
21 capital expenditure forecast, which is presented to the
22 board?

23 MR. VINCE WARDEN: That's right.

24 MR. BYRON WILLIAMS: And assuming
25 approval by the board, that CEF, or capital expenditure

1 forecast, becomes one (1) of the central inputs into
2 the integrated financial forecast, correct?

3 MR. VINCE WARDEN: Correct.

4 MR. BYRON WILLIAMS: So the CEF, as
5 approved, is an essential building block of the IFF?

6 MR. VINCE WARDEN: Yes. In -- in fact,
7 in terms of the timing for purposes of putting the IFF
8 together, there's an assumption made that the CEF will
9 be approved. So they're presented to the Board at --
10 at the same time. So they're companion documents.

11 MR. BYRON WILLIAMS: And the -- the
12 estimates within the CEF will have a material effect
13 upon the Cor -- Corporation's calculation of its debt-
14 equity ratio, agreed?

15 MR. VINCE WARDEN: Agreed.

16 MR. BYRON WILLIAMS: Now, in terms of
17 the Bipole 3 project, Mr. Warden, am I correct in
18 suggesting to you that it -- there are three (3) major
19 elements of it, one (1) being the transmission line,
20 that 1,300 to 1,400 kilometre transmission line from
21 north to south?

22 MR. VINCE WARDEN: That's one (1), yes.

23 MR. BYRON WILLIAMS: And another major
24 element of it are the -- the two (2) converter
25 stations, Riel to the northeast of Winnipeg, and I'm

1 going to brutalize the pronunciation of this, but
2 Keewatinoow, the -- the planned converter station on
3 the Nelson River in the traditional lands of Fox Lake.

4 MR. VINCE WARDEN: Correct.

5 MR. BYRON WILLIAMS: And a third major
6 element of the Bipole 3 project are the collector
7 lines, including the five (5) collector lines feeding
8 into Kewatinow in the north?

9 MR. VINCE WARDEN: Yes.

10 MR. BYRON WILLIAMS: Now, Mr. Warden if
11 we -- we look to -- my apologies to the reporter.

12 Mr. Warden, if we look to CAC Pre-ask 9,
13 which is on page 3 of CAC Exhibit 12, and we go down
14 five (5) lines to Bipole 3, and directing your and the
15 panel's attention to CEF05, am I correct in suggesting
16 to you, Mr. Warden, that it -- it was in CEF05 that --
17 that we first introduced to this capital expenditure
18 forecast the -- the concept of a western-routed Bipole
19 3?

20

21 (BRIEF PAUSE)

22

23 MR. BYRON WILLIAMS: Mr. Warden, if you
24 -- if you need to kind of check the dates, you can go
25 to page 14 of the capital pr -- of the CAC-15, and that

1 might help you. The -- there's a chronology at the
2 bottom of it, sir.

3

4

(BRIEF PAUSE)

5

6

MR. BYRON WILLIAMS: Or to page 15 of
7 that same document, Mr. Warden.

8

9

(BRIEF PAUSE)

10

11

MR. VINCE WARDEN: Yes, Mr. Williams,
12 I'll accept that CEF05 was the first time that the
13 eastern route was introduced.

14

MR. BYRON WILLIAMS: And you meant to
15 say, "western route," Mr. Warden?

16

MR. VINCE WARDEN: I did. I'm sorry.
17 Yes, western route. Yes.

18

MR. BYRON WILLIAMS: And that -- that
19 point as well, 2005, the proposed in-service date for
20 Bipole 3 was revised by five (5) years from 2012 to
21 2017, correct?

22

23

(BRIEF PAUSE)

24

25

MR. VINCE WARDEN: Just to confirm what

1 you've just said, Mr. Williams, the 2005 -- the in-
2 service date was deferred by five (5) years from 2012
3 to 2017? Yes.

4 MR. BYRON WILLIAMS: Thank you. And --
5 and in terms of that in-service date, Mr. Warden, am I
6 correct in suggesting to you that -- that's still the
7 planned in-service date for Bipole 3?

8 MR. VINCE WARDEN: That's right.

9 MR. BYRON WILLIAMS: So if we look at
10 any subsequent estimates for the Bipole 3 project post-
11 2005, they -- they will not be affected by further --
12 the estimates that we see are -- are using the same in-
13 service date as we would see in CEF05, agreed?

14 MR. VINCE WARDEN: Yes.

15 MR. BYRON WILLIAMS: And, Mr. Warden,
16 just directing your attention to the -- again to the
17 CAC Pre-ask 9, that estimate of the cost for Bipole 3
18 stayed in place for both CEF05 and CEF06, correct?

19 MR. VINCE WARDEN: Correct.

20 MR. BYRON WILLIAMS: And then in CEF07
21 there was a revised estimate to the cost of Bipole 3
22 brought in place of \$2.248 billion, agreed?

23 MR. VINCE WARDEN: Ye -- yes.

24 MR. BYRON WILLIAMS: And just for
25 housekeeping purposes at this point in time, Mr.

1 Warden, that was based on CPJ addendum 05? Page 15
2 will help you with that, Mr. Warden.

3

4 (BRIEF PAUSE)

5

6 MR. VINCE WARDEN: Yes, I agree.

7 MR. BYRON WILLIAMS: And that estimate
8 of the Bipole 3 costs of 2.248 billion remained in
9 place for CEF07, CEF08 and CEF09, correct?

10 MR. VINCE WARDEN: Yes.

11 MR. BYRON WILLIAMS: And then in CEF10
12 we see a roughly \$1 billion increase in the estimated
13 costs associated with Bipole 3, correct, sir?

14 MR. VINCE WARDEN: Yes.

15 MR. BYRON WILLIAMS: So in -- in CEF10
16 it's the -- it's the -- the figure of \$3.28 billion is
17 the estimate, correct?

18 MR. VINCE WARDEN: Correct.

19 MR. BYRON WILLIAMS: And, Mr. Warden,
20 subject to check, that \$1 billion increase on a base
21 estimate in CEF09 of \$2.248 billion was roughly a 45 or
22 46 percent increase?

23 MR. VINCE WARDEN: Yes, I agree.

24

25 (BRIEF PAUSE)

1 MR. BYRON WILLIAMS: And, Mr. Warden,
2 that estimate has stayed in place for CEF10 through
3 CEF12, agreed?

4 MR. VINCE WARDEN: Correct.

5 MR. BYRON WILLIAMS: So I think we can
6 put away for -- for the time CAC Pre-ask 9 and just
7 focus on the capital progre -- project justification,
8 which is found in CAC Exhibit 15.

9 And, Mr. Warden, if you could turn to
10 page 13 of CAC Exhibit 15, am I correct in suggesting -
11 - page 15, Mr. Warden.

12 MR. VINCE WARDEN: Sorry --

13 MR. BYRON WILLIAMS: Yeah.

14 MR. VINCE WARDEN: -- did you say 13,
15 page 13?

16 MR. BYRON WILLIAMS: Thir -- thirteen
17 (13). I apologize, Mr. Warden.

18 MR. VINCE WARDEN: Yeah.

19 MR. BYRON WILLIAMS: I -- I said both.

20 MR. VINCE WARDEN: Yeah.

21 MR. BYRON WILLIAMS: But it was not an
22 intent to trick you. If we look at that estimate of
23 \$3.28 billion for Bipole 3, Mr. Warden, I'll suggest to
24 you and ask you to agree that it was comprised of about
25 1.26 mil -- excuse me, 1.26 billion associated with

1 transmission line, 1.83 billion associated with
2 converter stations, and about 191 million associated
3 with collector lines.

4 In broad strokes, is that correct, sir?

5 MR. VINCE WARDEN: It is.

6 MR. BYRON WILLIAMS: Now, Mr. Warden,
7 if I could have you turn to page 17 of CAC Exhibit 12.

8 MR. VINCE WARDEN: Did you mean Exhibit
9 12?

10 MR. BYRON WILLIAMS: Exhibit 15, Mr.
11 Warden. I'm --

12 MR. VINCE WARDEN: Exhibit 15, okay.

13 MR. BYRON WILLIAMS: -- I'm tired, and
14 I apologize for that. We're going to stay in CAC
15 Exhibit 15, so --

16 MR. VINCE WARDEN: Okay.

17 MR. BYRON WILLIAMS: -- just verbally
18 slap me down if I -- if I misspeak, sir.

19 MR. VINCE WARDEN: I would never do
20 that.

21 MR. BYRON WILLIAMS: There may come a
22 time. Mr. Warden, this is essentially -- when -- when
23 the revised estimate for Bipole 3 of 3.28 billion was -
24 - was brought forward, the CPJs in support of it were
25 divided into three (3) pieces: 6A for transmission, 6B

1 for the con -- converter stations, and 6C for the
2 collector lines, agreed?

3 MR. VINCE WARDEN: Yes, that's right.

4 MR. BYRON WILLIAMS: And what we have
5 before us on page 17 is a -- one (1) of the pages with
6 regard to transmission lines, agreed?

7 MR. VINCE WARDEN: Agreed.

8 MR. BYRON WILLIAMS: And what it shows
9 us is that the estimate for transmission line is going
10 from a bit less than \$1.1 billion to about \$1.26
11 billion, agreed?

12 MR. VINCE WARDEN: Yes.

13 MR. BYRON WILLIAMS: A difference, Mr.
14 Warden, of roughly \$178 million?

15 MR. VINCE WARDEN: Yes.

16 MR. BYRON WILLIAMS: And subject to
17 check, a -- a 16 percent increase?

18 MR. VINCE WARDEN: Yes.

19 MR. BYRON WILLIAMS: Now, Mr. Warden, I
20 want to explore the routes of the changes in the
21 estimates for the transmission line. So I -- I'll ask
22 you to turn back to page 15 of the CPJ addendum.

23

24 (BRIEF PAUSE)

25

1 MR. BYRON WILLIAMS: And, Mr. Warden,
2 on page 15, about halfway down, under, "Background,"
3 you'll see a reference to CPJ Addendum 04, submitted in
4 April of 2005.

5 MR. VINCE WARDEN: Yes, I do.

6 MR. BYRON WILLIAMS: And that was the
7 CPJ that underlay the estimate of \$1.88 billion found
8 in capital expenditure forecasts '05 and '06, agreed?

9 MR. VINCE WARDEN: Agreed.

10 MR. BYRON WILLIAMS: And we see that
11 that 2005 estimate was really a preliminary estimate
12 pending completion of studies by system planning,
13 correct?

14 MR. VINCE WARDEN: Yes.

15 MR. BYRON WILLIAMS: And, indeed, it
16 was based on an -- a 2001 estimate prepared by Teshmont
17 Consultants, agreed?

18 MR. VINCE WARDEN: Yes.

19 MR. BYRON WILLIAMS: And, sir, are you
20 aware whether or not that estimate at that time
21 included a contingency with regard to transmission?

22 MR. VINCE WARDEN: I would expect so,
23 but I'm not aware of the quantum of that contingency.
24 Typically, capital forecasts do include contingencies
25 for various reasons, so I would expect that this would

1 include a contingency, but I'm not -- you know, I
2 couldn't say what the amount was at this -- at this
3 point.

4 MR. BYRON WILLIAMS: And, Mr. Warden,
5 if it did not contain a contingency, you'll -- you'll
6 get back to me on that? I'm not asking for an under --
7 undertaking. But you'll just advise if it did not?

8 MR. VINCE WARDEN: Okay. I'll -- I'll
9 do that.

10 MR. BYRON WILLIAMS: And then as -- as
11 we work down the page, Mr. Warden, we see that, again,
12 the C -- a reference to CPJ Addendum '05 submitted in -
13 - in May of 2007, agreed?

14 MR. VINCE WARDEN: Yes.

15 MR. BYRON WILLIAMS: And that was the -
16 - the addendum that underlay the estimate of -- of the
17 \$2.248 billion expenditure for Bipole 3 that was
18 carried through CEF07 through CEF09, correct?

19 MR. VINCE WARDEN: Correct.

20 MR. BYRON WILLIAMS: Can we also agree,
21 Mr. Warden, that when this revised estimate was put
22 forward into the CEF, cost estimates for licensing,
23 property, and contingency were not updated, agreed,
24 were not updated from the Addendum '04?

25 MR. VINCE WARDEN: That's right.

1 MR. BYRON WILLIAMS: Thank you, Mr.
2 Warden. If you could turn to -- I -- I want to talk
3 about converters for a little bit. If you could turn
4 to page 23 of CAC Exhibit 15.

5 MR. VINCE WARDEN: Yes, I have it here.

6 MR. BYRON WILLIAMS: And, Mr. Warden,
7 this is part of CPJ06-B dealing with the capital
8 program justification for the converter stations
9 associated with Bipole 3?

10 MR. VINCE WARDEN: That's right.

11 MR. BYRON WILLIAMS: And what we see on
12 page 23 is the estimate for the converter stations
13 rising from the \$1.1 billion in CPJ05, and jumping to
14 \$1.828 billion in CPJ06-B, agreed?

15 MR. VINCE WARDEN: Yes.

16 MR. BYRON WILLIAMS: A \$724 million
17 increase, sir?

18 MR. VINCE WARDEN: That's right, yes.

19 MR. BYRON WILLIAMS: Roughly a 65, 66
20 percent increase, subject to check?

21 MR. VINCE WARDEN: Yes.

22 MR. BYRON WILLIAMS: If you -- sorry,
23 if you could turn back to page 20, Mr. Warden. And
24 you'll see, under, "Background," again, that we have
25 the -- the initial estimate in 2004, CPJ Addendum '04,

1 derived from the 2001 Teshmont Consultants estimate,
2 agreed?

3 MR. VINCE WARDEN: Yes.

4 MR. BYRON WILLIAMS: And whe -- and
5 when we look to CPJ Addendum '05, submitted in May
6 2007, we can agree that it did not include re-estimates
7 for the converter stations, nor was a contingency
8 included for the converter stations.

9 Can we agree on that, sir?

10 MR. VINCE WARDEN: Yes, that's what it
11 indicates here.

12 MR. BYRON WILLIAMS: And that estimate,
13 with regard to converter stations, essentially remained
14 on the books of Manitoba Hydro's CEF for an additional
15 three (3) years, up till CEF10, correct?

16 MR. VINCE WARDEN: Yes.

17 MR. BYRON WILLIAMS: Now, then we come
18 to CEF10, Mr. Warden, and CPJ Addendum '06-B. And when
19 we look at the cost of the Riel Converter Station and
20 the associated 230 kV AC switch yard, am I correct in
21 suggesting to you that between 2001 and 2009, the
22 converter and HVDC equipment costs remained relatively
23 unchanged?

24

25 (BRIEF PAUSE)

1 MR. VINCE WARDEN: Yes. Again, that's
2 what is indicated in this -- in this document, Mr.
3 Williams.

4 MR. BYRON WILLIAMS: And so what -- what
5 this is telling us with regard to Riel is underlying
6 the base increase of almost \$170 million wasn't changes
7 in the estimate of converter and HVDC equipment costs
8 between 2001 and '09; rather it was the fact that the
9 original 2001 estimate did not provide explicit
10 indirect costs and did not provide for interfacing
11 costs, agreed?

12 MR. VINCE WARDEN: Yes.

13 MR. BYRON WILLIAMS: And, Mr. Warden,
14 if we look to the \$286 million base increase associated
15 with Kewatinow, can we agree again that the converter
16 and HVDC equipment costs estimates remained relatively
17 unchanged when comparing 2009 and 2001?

18 MR. VINCE WARDEN: Yes.

19 MR. BYRON WILLIAMS: So what was
20 driving this increase, again, was the -- the non-
21 inclusion of explicit indirect costs in the 2001
22 estimate and the absence of interfacing costs in the
23 2001 estimates, agreed?

24 MR. VINCE WARDEN: Yes.

25

1 (BRIEF PAUSE)

2

3 MR. BYRON WILLIAMS: Turning to page
4 21, Mr. Warden, and -- and just to the bottom of the --
5 the background table, another material revision in the
6 convertor station estimate was the introduction of a
7 contingency of roughly \$139 million, agreed?

8 MR. VINCE WARDEN: Yes.

9 MR. BYRON WILLIAMS: And -- and just to
10 remind ourselves, in terms of the prior CPJ05, with
11 regard to converters, there was no contingency
12 included?

13 MR. VINCE WARDEN: That's right.

14 MR. BYRON WILLIAMS: Mr. Warden, if we
15 can turn to page 27 of CAC Exhibit 15.

16

17 (BRIEF PAUSE)

18

19 MR. BYRON WILLIAMS: And you'll agree,
20 Mr. Warden, this relates to CPJ Addendum '06-C,
21 relating to collector lines?

22 MR. VINCE WARDEN: Yes.

23 MR. BYRON WILLIAMS: Correct?

24 MR. VINCE WARDEN: Yes, that's right.

25 MR. BYRON WILLIAMS: And what we see is

1 this estimate, sir, rising from in the range of 61 or
2 62 million all the way up to \$191 million in the most
3 recent CPJ amend -- addendum, correct?

4 MR. VINCE WARDEN: Correct.

5 MR. BYRON WILLIAMS: An increase of --
6 in the range of \$129 million dollars?

7 MR. VINCE WARDEN: Yes.

8 MR. BYRON WILLIAMS: Over 200 percent?

9 MR. VINCE WARDEN: Yes.

10

11 (BRIEF PAUSE)

12

13 MR. BYRON WILLIAMS: And flipping very
14 briefly, sir, back to page 25, under, "Background."

15

16 (BRIEF PAUSE)

17

18 MR. BYRON WILLIAMS: What we see, Mr.
19 Warden, is that the -- the 61 -- \$62 million figure was
20 largely in place in -- from the Teshmont Consultants
21 report from 2001.

22 Agreed?

23 MR. VINCE WARDEN: Agreed.

24 MR. BYRON WILLIAMS: And that CPJ
25 Addendum 05 did not include re-estimates for the

1 northern collector lines, the two (2) electrode lines,
2 the related property or contingency.

3 Agreed?

4 MR. VINCE WARDEN: Correct.

5 MR. BYRON WILLIAMS: So, essentially,
6 residing in the CEF from 2005 through to 2009, with
7 regard to collector lines, was that old 2001 Teshmont
8 estimate.

9 Would that be correct, sir?

10 MR. VINCE WARDEN: Yes.

11 MR. BYRON WILLIAMS: Mr. Chair, I'm --
12 I'm moving on to another subject. It's -- it's twenty
13 (20) minutes to a half an hour in terms of -- of
14 length, so I -- I'm at the discretion of the -- of the
15 Board.

16 THE CHAIRPERSON: I would suggest we
17 keep on going.

18

19 CONTINUED BY MR. BYRON WILLIAMS:

20 MR. BYRON WILLIAMS: Mr. Schulz, if you
21 could turn to CAC-15 and page -- page 29.

22 MR. MANFRED SCHULZ: I have that, sir.

23 MR. BYRON WILLIAMS: Good afternoon,
24 Mr. Schulz, by the way.

25 MR. MANFRED SCHULZ: Good afternoon to

1 you, as well.

2 MR. BYRON WILLIAMS: And, Mr. Schulz,
3 during the course of this Hearing, you recall some
4 interest by Board member Lafond, in terms of the
5 corporate afo -- ap -- the corporate apo -- approach to
6 fixed and floating rate debt?

7 MR. MANFRED SCHULZ: I do recall that,
8 yes.

9 MR. BYRON WILLIAMS: And in the course
10 of your and Mr. Warden's conversation with the Board
11 and with their counsel, reference was made to the
12 independent assessment of the corporate policy relating
13 to fixed and -- and floating rate debt performed by
14 National Bank.

15 Agreed?

16 MR. MANFRED SCHULZ: I agree.

17 MR. BYRON WILLIAMS: And before us, Mr.
18 Schulz, not for the first time in your and my
19 interaction, you'll see an excerpt from the report by
20 National Bank, in terms of the corporate policy for
21 fixed versus floating rate debt.

22 Would that be fair, sir?

23 MR. MANFRED SCHULZ: I do once again
24 see this report in front of me. This is the consulting
25 report that I facetiously otherwise refer to as the

1 consulting report that launched a thousand IRs, but I
2 do remember seeing it.

3 MR. BYRON WILLIAMS: Just a thousand,
4 Mr. Schulz?

5 MR. MANFRED SCHULZ: Would you like me
6 to be precise, Mr. Williams?

7 MR. BYRON WILLIAMS: That's probably an
8 answer I'd rather not hear, sir.

9 And at a high level, Mr. Schulz, would I
10 be correct in suggesting to you that what this report
11 tried to examine was the impact of various portfolios
12 of fixed and floating debt, in terms of their impact
13 both upon net income and upon corporate risk as
14 measured by net income volatility?

15 Would that be a fair assessment of the
16 report, sir?

17 MR. MANFRED SCHULZ: The report had a
18 number of facets to it, one (1) of which was the
19 assertion of the -- what they deem to be an optimal
20 range of fixed and floating, looking at a number of
21 dimensions, one (1) of them being the income statement
22 volatility that arose through the use of floating rate
23 debt, and the other being what they presumed to be a
24 notional return based on the difference in term spread
25 between our fixed-rate portfolio and our floating rate

1 portfolio.

2 MR. BYRON WILLIAMS: Thank you, Mr.
3 Schulz. And, once again, you have answered my question
4 better than I asked it, and I -- I thank you for that.

5 In terms of what National Bank did,
6 we're not going to go through it in excruciating
7 detail, but I think to assist the panel I'd like to
8 start at page 32 of CAC Exhibit 15, under
9 "Identification of Key Factors," and suggest to you
10 that one (1) of the early steps undertaken by National
11 Bank was -- was to identify the sources, from their
12 perspective, of Hydro's cash inflow and cash outflow
13 volatility.

14 Would that be fair, sir?

15 MR. MANFRED SCHULZ: This was an
16 interesting assignment, because what we originally
17 asked them to do was an assignment based on the debt
18 portfolio, and they performed an efficient frontier
19 analysis. And you can actually see the reference to
20 that on your page 31, the earlier page, where, on a
21 modern portfolio theory basis, they did the analysis
22 just on the debt portfolio.

23 And their optimized range based on that
24 -- what I was expecting the traditional view, was -- I
25 think it was 12 to 23 percent.

1 Then they took the additional step --
2 and this was not something that we had anticipated.
3 This was a value add to the proposition that National
4 Bank put forward. And they looked at it from an asset
5 liability matching perspective. Perhaps, not in the
6 same way that one might be accustomed to from an
7 actuarial sense, but more looking at it in the sense
8 that you are talking about on your page 32, whereby
9 they looked at the -- notionally assets and
10 liabilities, looking at the interface between our
11 export revenue, the asset side, and the liabilities as
12 reflected in interest expense.

13 And what they arose to is -- and perhaps
14 this will be part of your further questioning -- is a
15 correlation that they discovered -- we hadn't asked
16 for, but this was the value add -- they determined that
17 there was a correlation between short-term interest
18 rates and MISO export pricing. And that was the basis
19 for which they then conducted further work, which
20 became part of the body of the -- the final report.

21 MR. BYRON WILLIAMS: Mr. Schulz, I
22 thank you for that and we will come to that. But let's
23 -- and we're -- we're going to focus primarily on the
24 Efficient Frontier analysis. But in terms of the
25 recommended -- recommendations flowing from the

1 approach you thought you were going to get, your --
2 your evidence was that the -- the range flowing from
3 that analysis was between 12 percent floating and 23
4 percent floating?

5 MR. MANFRED SCHULZ: When we originally
6 commissioned this report with National Bank, they
7 adopted that methodology that arose to the calculation
8 of twelve (12) to twenty-three (23). That was what --
9 that was the methodology that I was anticipating and
10 that was the number that came forth.

11 It was then that they did this asset
12 liability approach that looked at both -- and -- and
13 their point was that they just didn't want to look at
14 one half of the balance sheet. To get a -- a full
15 measure of the understanding of this relationship, they
16 wanted to see the total system and they wanted to
17 understand that relationship. And that's when they
18 pivoted and turned to the other calculations that you
19 see as part of the body of their final report.

20 MR. BYRON WILLIAMS: And that was the
21 value added component of the -- compared to what you
22 were anticipating?

23 MR. MANFRED SCHULZ: I would agree.

24 MR. BYRON WILLIAMS: And, again, if we
25 turn to page 33 of CAC Exhibit 15, without going into

1 details, National Bank did conduct a peer group
2 analysis with the peer group defined to include both
3 some Crown utilities, as well as some publicly traded
4 corporations considered to be vertically integrated
5 electric utilities, agreed?

6 MR. MANFRED SCHULZ: Agreed. They were
7 a Canadian utility that they thought would be good
8 representatives for a benchmarking study.

9 MR. BYRON WILLIAMS: And what they were
10 trying to do in this part of their analysis was not
11 examine the floating versus fixed-rate policies of
12 those utilities, but rather get insight into their --
13 the relevant peer groups choice of floating rate debt
14 mix.

15 Agreed?

16 MR. MANFRED SCHULZ: It was less about
17 their debt mix because they didn't look at things like
18 their term, you know, what the length of the -- the
19 floating or fixed would be. It was more looking at the
20 measurement of what percentage of their debt portfolio
21 would have been fixed versus floating as defined by the
22 entities themselves.

23 And one (1) of the things that we
24 discovered in that process is that there were many
25 different definitions to how people calculated that.

1 For instance, in our view of floating rate debt, we
2 include short-term debt which is debt less than one (1)
3 year, as well as floating rate debt, in the -- the
4 manner that Mr. Lafond and I had a discussion on
5 January 7th. But we don't consider the current portion
6 of long term debt. So, BC Hydro for instance does
7 include that.

8 And so there's different ways of
9 measuring this and that was part of the complexity
10 associated with benchmarking studies, and certainly
11 that's a -- a challenge that we faced here.

12 MR. BYRON WILLIAMS: And, you -- you've
13 mentioned this already, but they -- in terms of their -
14 - they went on to conduct a technical analysis of what
15 they considered to be key volatility factors.

16 Would that be fair, sir?

17 MR. MANFRED SCHULZ: Right. And you
18 actually see that on the bottom of your page 33. There
19 were three (3) notional asset variables, 'A', 'B' and
20 'C', and liability variables listed as being 'D' and
21 'E'.

22 MR. BYRON WILLIAMS: And to jump to
23 their conclusion, in this regard, at the top of page
24 34, the first full paragraph there, sir, they can -- in
25 terms of volatility they concluded that -- that short-

1 term export power contracts and spot market sales were
2 the most volatile factors.

3 Agreed?

4

5 (BRIEF PAUSE)

6

7 MR. MANFRED SCHULZ: That's in that
8 second paragraph.

9 "And this analysis proved that short-
10 term export power contracts and spot-
11 market sales were the most volatile
12 factors being driven by power prices
13 in the MISO grid.

14 MR. BYRON WILLIAMS: And -- and it also
15 -- their analysis, as you've mentioned maybe about five
16 (5) answers ago, also noted that these vola --
17 relatively volatile factors exhibited higher
18 correlation with short term interest rates compared to
19 domestic utility rates, or long term export contracts.

20 Correct?

21 MR. MANFRED SCHULZ: Yes, that's
22 indicated in the second sentence on that paragraph.

23 MR. BYRON WILLIAMS: We're going to
24 come back to that correlation analysis in -- in just
25 one (1) second, but just to finish off on page 34, what

1 they did following that was to do, using Monte Carlo
2 simulations, a scenario analysis conducted in order to
3 identify the range of floating rate debt mixes that
4 would low -- lower net income volatility.

5 Agreed?

6

7 (BRIEF PAUSE)

8

9 MR. MANFRED SCHULZ: Well, again, they
10 looked at the two (2) dimensions of income statement
11 volatility reduction, which would be the impact of
12 having a hedge between floating rate debt and export
13 revenues, because of the correlations that they
14 determine, as well as on another aspect and dimension
15 of this, which you would see later on -- on the chart
16 on the 'Y' axis is also looking at the return. And so,
17 they ran a Monte Carlo simulation that ran with ten
18 thousand (10,000) different scenario's against
19 different options and ranges of portfolios; a hundred
20 different ones from zero floating, a hundred percent
21 fixed, all the way to the opposite. So that's the --
22 the methodology that they used.

23 MR. BYRON WILLIAMS: And you corrected
24 me because what you're telling me is that the scenario
25 analysis examine both volatility as measured by impact

1 on net income, as well as returns.

2 MR. MANFRED SCHULZ: I'll go with that
3 for now.

4 MR. BYRON WILLIAMS: We'll do a better
5 job of it when we get actually to the -- the table, Mr.
6 Schulz, or maybe you'll do a better job again than my
7 question.

8 At page 39 of CAC Exhibit 15, under
9 Table 12 at the bottom, Mr. Schulz, we see that
10 variable correlation matrix of -- of which you were
11 speaking, agreed?

12 MR. MANFRED SCHULZ: Yes, indeed.

13 MR. BYRON WILLIAMS: And if I go to the
14 -- under the -- the column, "Correlations," to the
15 second line I'll see the -- the heading, "Extra-
16 provincial Power ST & Spot." And -- and that refers to
17 the factor that -- that National Bank identified as
18 having relatively greater volatility overall, agreed?

19 MR. MANFRED SCHULZ: They indicated
20 that the extra-provincial power in -- in their
21 analysis, that this was an item that showed some
22 volatility that through this calculation they were
23 seeking to see if there was a way to minimize that
24 volatility.

25 MR. BYRON WILLIAMS: And if we go along

1 that line, we'll see the relative correlation with
2 various factors, whether they are domestic utility
3 rates in the -- in the adjacent column or Canadian
4 short-term in -- interest rates on the Column 2 from
5 the extreme right. And we'll see that correlation --
6 we'll -- I'll suggest to you, Mr. Schulz, that the
7 higher the -- the figure, that suggests a higher degree
8 of correlation.

9 Is that correct, sir?

10 MR. MANFRED SCHULZ: Yeah, statistics
11 indicates that if you have a correlation of one (1)
12 it's a perfect correlation. So the correlation here
13 between extra-provincial power and Canadian short-term
14 interest rates to -- to follow through on that line was
15 point four six (.46), which is statistical significant.

16 MR. BYRON WILLIAMS: Not perfectly
17 correlated, but a fairly strong and significant
18 statistical relationship?

19 MR. MANFRED SCHULZ: Agreed.

20 MR. BYRON WILLIAMS: And if we turn to
21 page 40, Mr. Schulz, we see an effort by National Bank
22 in Figure 9 to explain why they concluded that there
23 would be superior net income stability flowing from a
24 14 percent floating rate and 86 percent fixed, as
25 compared to 100 percent fixed.

1 Agreed?

2 MR. MANFRED SCHULZ: Yes. And I recall
3 that we talked about this chart at length I think at
4 the last GRA. And this was just a -- a depiction and -
5 - and not necessarily a mathematical representation of
6 what they found, but just illustrative purposes to
7 their concept and theme.

8 MR. BYRON WILLIAMS: And let's see if
9 we can make the conversation shorter this time, Mr.
10 Schulz, but I still -- I hope that the panel will find
11 it useful.

12 On the left-hand side of -- of Figure 9,
13 the -- the wave-like line at the top is the revenue
14 line, as depicted, agreeing that it's just for -- it --
15 it's not mathematical, it's just a depiction, sir?

16 MR. MANFRED SCHULZ: Yeah, this wasn't
17 intended to provide any kind of historical reference to
18 actuals, but just to give an indication of what would
19 happen if there was a movement up and down in a wave-
20 like pattern to periodic revenue streams.

21 MR. BYRON WILLIAMS: And the -- again,
22 the simplistic depiction of interest expense at 100
23 percent fixed is the straight line that appears at the
24 bottom, correct?

25 MR. MANFRED SCHULZ: On the figure 9,

1 chart to the left, correct.

2 MR. BYRON WILLIAMS: And the wavelike
3 line in the -- the middle of figure 9 on the left is
4 intended to reflect the -- the fluctuation of net
5 income.

6 Is -- is that correct, sir?

7 MR. MANFRED SCHULZ: Which line are you
8 referring to as the fluctuating net income?

9 MR. BYRON WILLIAMS: The -- not the top
10 wave, but the -- the second from the top, wavelike.

11 MR. MANFRED SCHULZ: Yeah, so the first
12 line at the top was revenue. And then there was a
13 notional line that described what the net income might
14 have been, earnings before interest expense.

15 MR. BYRON WILLIAMS: Thank you for
16 that, sir. And if we go to the right side, again
17 staying with this 100 percent fix but towards the --
18 the right side of this graphical depiction, we see the
19 revenue line taking a relatively precipitous drop,
20 correct?

21 MR. MANFRED SCHULZ: The -- you're
22 looking at the chart on the left side of figure 9?

23 MR. BYRON WILLIAMS: Yeah, the 100
24 percent fixed.

25 MR. MANFRED SCHULZ: And it goes from

1 the top of the peak into a valley towards that. I
2 would agree.

3 MR. BYRON WILLIAMS: And what nat --
4 and staying with the 100 percent fixed, one (1) of
5 National Bank's points is that when we look at the net
6 income as measured by earnings before interest expense,
7 it's quite narrow at -- at the bottom of that -- that
8 valley on the 100 percent fixed side, correct, sir?

9 MR. MANFRED SCHULZ: It's narrow in the
10 sense that it gets closer to the straight line, as
11 depicted by interest expense.

12 MR. BYRON WILLIAMS: And by contrast,
13 sir, and -- and just to finish with the left-hand side,
14 presumably that -- that drop in revenue is driven in
15 part by deteriorating results, in terms of short-term
16 power sales?

17 MR. MANFRED SCHULZ: I think that's the
18 depiction that they're trying to illustrate in this
19 case.

20 MR. BYRON WILLIAMS: On the right-hand,
21 Mr. Schulz, we see a similar table, again with the
22 revenue line following -- at the top following a
23 similar wavelike to the -- to the 100 percent fixed,
24 agreed?

25 MR. MANFRED SCHULZ: I agree.

1 MR. BYRON WILLIAMS: And what -- what
2 has changed, in terms of the -- on the 14 percent
3 floating, is that the interest expense, rather than
4 following a straight line, is -- is in a wavelike
5 action that -- that appears to show some relationship
6 to the -- the revenue line, sir, agreed?

7 MR. MANFRED SCHULZ: I agree. And
8 actually National Bank tried to get a little bit
9 finessey (sic) with this because they showed that that
10 wave was not in direct proportion to the other two (2)
11 lines but actually had sort of a flatter slope to it,
12 and, again, trying to illustrate that it wasn't a
13 perfect correlation but just a partial correlation.

14 MR. BYRON WILLIAMS: The point four-six
15 (.46) or the point three-seven (.37) correlation. And
16 if we take that same valley in revenues on the right-
17 hand side of the 14 percent floating, what the National
18 Bank is -- is showing is a relationship that as
19 revenues related to short-term power sales decline,
20 there was also a downward movement, in terms of short-
21 term interest rates, agreed?

22 MR. MANFRED SCHULZ: I agree. And this
23 is just coming to the point that they were making, that
24 there is -- because of the correlation between them
25 statistically, that, for instance, when export revenues

1 go down in -- in the circumstance that they were
2 calculating, that there would be -- if we had floating
3 rate debt because of the lower returns, you would have
4 a reduction in finance expense. So there would be some
5 partial inoculation to the overall movement on the
6 income statement, as depicted notionally and
7 conceptually in these charts.

8 MR. BYRON WILLIAMS: And, hence, their
9 conclusion that some proportion of floating rate might
10 yield more net income stability?

11 MR. MANFRED SCHULZ: Yes. And, in
12 fact, they calculated that for income statement
13 stability purposes, as defined by their methodology at
14 the -- the point that would best represent that as 14
15 percent floating. So if that was the key issue that
16 was at play for the determination of your debt
17 portfolio, they recommended 14 percent.

18 MR. BYRON WILLIAMS: So Mr. -- Mr.
19 Schulz, and -- and I thank you for your assistance. I
20 wonder if we could jump to the page 42 and Figure 10 on
21 page 42, which, I'll suggest to you, reflects the --
22 the results drawn from the scenario analysis undertaken
23 by National Bank?

24 MR. MANFRED SCHULZ: Right. And we had
25 verbally sort of spoken to this concept. Here you can

1 see the two (2) dimensions. On the X-axis you see the
2 risk and the relative volatility associated with the
3 inoculation that in part occurs because of the
4 introduction of floating rate debt and against
5 extraprovincial revenues.

6 And on the Y-axis you see a relative
7 measure of return because of the different term to
8 maturity on the floating rate debt versus the term to
9 maturity on our fixed rate portfolio at the date that
10 they calculated these -- these numbers.

11 MR. BYRON WILLIAMS: So, Mr. Schulz,
12 let's -- hopefully I re -- re -- the X-axis is the --
13 the risk, sir?

14 MR. MANFRED SCHULZ: That would be
15 correct.

16 MR. BYRON WILLIAMS: I better write 'X'
17 and 'Y' down, because I always struggle with that. But
18 in -- in terms of kind of indexing the -- the risk, it
19 -- it -- the 100 percent fixed, zero percent floating,
20 that -- that appears at the -- the dot right at one
21 hundred (100) on the X-axis, correct, sir?

22 MR. MANFRED SCHULZ: Correct.

23 MR. BYRON WILLIAMS: And if we move to
24 the left and up, the -- we see the next dot appearing
25 at, "Minimum variance 14 percent floating," correct,

1 sir?

2 MR. MANFRED SCHULZ: Yeah, so this is
3 one (1) of the two (2) points that they articulated in
4 their range between 14 and 27 percent. At the 14
5 percent this is where they determined, based on their
6 Monte Carlo simulation, this was the maximum hedging
7 capability, i.e. the minimum variance that would be
8 arising out of the -- the hedging that may occur.

9 MR. BYRON WILLIAMS: And I thank you
10 for that. So if we were to measure risk by net income
11 volatility, the 14 percent floating was -- was -- might
12 be considered to be preferable to the 100 percent
13 fixed?

14 MR. MANFRED SCHULZ: Yes. And -- and
15 this is a relative measure. It's not necessarily a
16 quantum in terms of what this would mean from a dollar
17 perspective. This was just a statistical determination
18 of relativeness on both 'X' and Y-axis. But this is
19 indicating if there was a 7 percent im -- improvement
20 in the volatility by taking out 14 percent floating
21 rate debt.

22 MR. BYRON WILLIAMS: And based upon
23 their Monte Carlo scenarios, sticking with that 14
24 percent floating, we also see a -- somewhat of an
25 improvement in return, as compared to the 100 percent

1 fixed, agreed?

2 MR. MANFRED SCHULZ: Again, this is a
3 notional 'X' -- or Y-axis concept on the -- on the
4 verticality of this chart, Mr. Williams, showing it at
5 50 percent, or the median between zero and a hundred
6 percent. This is where the -- the curve finds its
7 greatest bow to the left. And so they just notionally
8 assigned that to be 50 percent.

9 MR. BYRON WILLIAMS: And, again,
10 recognizing that it's -- it's -- it's not a quantum but
11 an -- an indexing, generally, sir, on the return axis,
12 one (1) wants to be higher up the return axis, correct?
13 On the -- on the Y-axis?

14 MR. MANFRED SCHULZ: It's beneficial
15 when prudent, balancing off against other measures --

16 MR. BYRON WILLIAMS: And --

17 MR. MANFRED SCHULZ: -- to have greater
18 return than not.

19 MR. BYRON WILLIAMS: And one (1) of
20 those other measures of course, is risk. And on the X-
21 axis, it's preferable to be more to the left or -- or -
22 - agreed, sir?

23 MR. MANFRED SCHULZ: Right. And so,
24 again, this is a classic risk return concept that
25 National Bank was trying to put forth to show -- and

1 just to spend this along, that at the 27 percent, that
2 was the fixed equivalent whereby they determine that 20
3 per -- 27 percent would be equivalent to having a 100
4 percent fixed-rate portfolio. And so, therefore, it
5 would be better to have re -- positive higher returns
6 than not. So their -- their optimal range was between
7 the 14 and 27 percent as calculated here.

8 Now, it's important to keep in mind that
9 you don't necessarily get an advantage by having -- in
10 this calculation, by having floating rate debt versus
11 fixed-rate debt. The calculation and the -- the
12 derived benefit here is actually arrived at because of
13 the term difference. And it's more about long versus
14 short, in terms of the upwardly sloped yield curve, and
15 has nothing to do with the inherent qualities or
16 benefit associated with floating rate debt.

17 MR. BYRON WILLIAMS: Mr. Schulz, as --
18 as always, you been very helpful in walking me through
19 that. Mr. Chair, this -- I have a couple of other
20 areas to go through. But it's certainly, from my
21 perspective, I do have a witness I'd -- I'd like to
22 prepare this evening. So I wonder if this would be an
23 appropriate time to -- to break.

24 And I could indicate, I -- I have some
25 additional questions. And Mr. Cormie, I didn't know

1 when I was going to start. I -- I apologize for having
2 you here.

3 You'll forgive me, I take it?

4 MR. DAVID CORMIE: I enjoy listening to
5 the -- the interaction, Mr. Williams. So don't
6 apologize.

7 THE CHAIRPERSON: I have a question I
8 wanted to have clarified and it's -- it was question
9 that was asked really early on, and it's in relation to
10 the budget guidelines that were issued internally by
11 Manitoba Hydro. Very specifically, in 2011/'12 you
12 indicated that the -- the management was told to hold
13 the line, as far as the expenses are concerned.

14 And so nothing was to be increased
15 except accounting-related changed and, you said, some
16 provision for pension expenses and so on. But then you
17 said, in subsequent years, including ten (10) years of
18 the IFF forecast, that instruction holds true, hasn't
19 change.

20 Did I -- did I hear correctly, or ...

21 MR. VINCE WARDEN: Yes, I think I did
22 say that, Mr. Chairman. The -- to be clear, when I
23 indicated no change, it would be no change from the
24 previous approved forecast. So it would be comparing
25 IFF12 compared to IFF11. So there'd be no change,

1 other than those -- those factors I mentioned
2 previously.

3 So we have -- we have an approved
4 forecast each -- each year. And then -- and then the
5 subsequent year is a revision to the -- the previous
6 forecast that we take to our board. So when we take
7 the forecast -- the revised forecast to the board, we
8 indicate what the changes are from what the pre --
9 approved previously.

10 And in the case of IFF12, and we're
11 talking operating and administrative expenses, the only
12 changes that were allowed or that were incorporated in
13 IFF12 were the accounting changes and the -- the
14 pension cost increases.

15 THE CHAIRPERSON: So there was no
16 provision for inflation at all in the --

17 MR. VINCE WARDEN: Oh, there would have
18 been provision for inflation in the base forecast. So
19 in IFF11, there would have been provision for inflation
20 at approximately the rate of 2 percent per year. So
21 that was already embedded in the -- in the base
22 forecast, so when the IFF12 comes along that provision
23 remained the same. The -- so there's no change to that
24 provision.

25 THE CHAIRPERSON: I think that's it for

1 the questions for today. So we're adjourned for the
2 evening and we will resume the proceedings tomorrow
3 morning at nine o'clock. Thank you everyone.

4

5

(PANEL RETIRES)

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7 --- Upon adjourning at 5:05 p.m.

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11 Certified Correct

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Wendy Warnock, Ms.

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<u> </u> \$	4086:24	3990:19	3975:5	3
\$1 4039:22	4087:25	3997:9	1.11 3972:4	4109:19,21
4040:1	05 4081:1	3998:8	1.18 3972:6	4110:12,25
4081:12,20	4085:8	4001:11	1.26 4082:25	4112:3
\$1.1 4084:10	4086:12	4002:3	1.83 4083:1	11
4087:13	4088:5	4003:11,12	1/2 3882:6	3984:13,16
\$1.26	4091:25	,15 4007:6	3910:17	4050:18
4084:10	05/12	4008:7	3911:4	11/'12
\$1.4 3957:16	3883:25	4012:1	4050:12,15	4074:12,14
\$1.828	3884:12	4014:25	4051:6,9	,25
4087:14	06 4085:8	4017:3	1/4 3882:7	12 3962:5
\$1.88 4085:7	06-B 4088:18	4018:7	3910:24	3963:4
\$10,000	06-C 4090:20	4023:13	3911:6	3970:4,16
3939:16	073 3971:25	4028:25	1:00 3973:2	4040:12
\$129 4091:6	09 4089:8	4030:4	1:07 3973:6	4042:12
\$139 4090:7	<u> </u>	4034:1	1:43 3999:10	4050:18
\$170 4089:6	<u> </u>	4035:22	1:48 3999:9	4066:14
\$178 4084:14	1	4039:15	10 3875:14	4069:6,8
\$191 4091:2	<u> </u>	4040:4,5,1	3888:6	4070:16
\$2.248	1	0,13	3917:14	4076:5
4080:22	1 3866:6	0,13	3920:20	4078:13
4081:21	3872:14	4041:8	3966:23,24	4083:7,9
4086:17	3875:1	4044:19	3976:7	4095:25
\$286 4089:14	3880:20	4051:9	4004:9	4097:3,8
\$3,000	3881:13	4052:5	4012:25	4102:9
4006:21	3884:15	4053:25	4014:18	12/'13
\$3.28	3885:18	4063:8	4022:15	4075:10
4081:16	3888:9	4069:6,8,2	4023:13,19	12:00 3973:5
4082:23	3888:9	0	4047:7	13 4015:6
\$33 4015:14	3891:7	4070:10,21	4054:18	4069:17
4016:25	3897:10,24	4077:1,19,	4064:4	4082:10,14
4058:15,19	3898:19	22 4084:5	4075:16	,15,17
4059:15	3903:25	4094:18,21	4108:20	14 3955:15
4060:22	3910:24	4095:10	4113:17	3966:7,17
4061:17	3911:6	4098:23	10,000	3978:7
\$50,000	3913:20	4099:2	4101:18	4042:11
4007:24	3916:20	4100:25	10.12 3956:3	4078:25
\$565 3956:18	3920:22	4103:11	10:20	4103:24
\$62 4091:19	3933:9	4106:4	3917:21	4107:2,17
\$724 4087:16	3935:12,16	4110:3	10:36	4108:14,17
<u> </u>	3936:10	4111:12,19	3917:22	4109:25
<u> </u>	3937:16,22	1,200	100 3992:7	4110:4,11,
0	3938:3	3882:11	3998:9	20,23
0.73 3964:20	3946:15	3895:3,6,1	4103:25	4112:7
04 4085:3	3949:25	7	4104:22	1-4 3921:8
	3950:10,23	1,300	4105:17,23	140 4052:18
	3953:16	4077:20	4106:4,8,2	4053:1
	3954:3	1,400		15 4014:19
	3959:2	4077:20		
	3965:12	1,772,000,00		
	3969:11	0 4070:19		
	3974:24	1.1 3971:24		
	3975:1			
	3983:4			

4035:5	3910:17	4054:18	4074:6	4110:4
4052:1	3911:4,14	4063:7	2013 3864:23	4112:1,3,7
4069:7	3923:16	4075:21	3956:17	270 3872:25
4079:6	3950:20	4087:23	3990:22	29 4092:21
4081:1	3957:19	4092:13	2013/14	
4082:8,10, 11	3961:8,15	4112:2	3864:8	<hr/> 3 <hr/>
4083:10,12 ,15	3963:11,25	200 4091:8	2013/'14	3 3867:17
4084:22	3969:10	2001 4085:16	4072:20	3868:7
4085:2	3991:4	4088:1,21	4075:14	3872:9,14
4087:4	3996:9	4089:8,9,1 7,21,23	2014 3881:1	3873:13,15
4090:15	4000:24	4091:21	2017 4079:21	3881:12
4095:8	4001:10	4092:7	4080:3	3882:5
4097:25	4003:8	2004 3965:3	2020 4015:20	3888:6
4102:8	4013:4	3966:12,15	4016:24	3897:8
150 4064:8	4019:9	3969:22	4017:1	3903:22
15th 4069:9	4026:8	4087:25	2030 3907:23	3904:1
16 3864:23	4031:16	2005 3979:1	2050 4054:7	3907:23
3886:25	4039:5,21	4079:19	21 3867:17	3908:1
3962:2	4040:1	4080:1,11	4037:19	3922:9
3990:3,20	4046:1	4085:4,11	4066:5,9,1	3924:15
4084:17	4050:12,15 ,16	4092:6	2,13,18	3932:22
16th	4053:11	2007 4086:13	4090:4	3959:2
3872:11,12	4068:21	4088:6	2100 4054:7	3961:9,16
17 3990:4,11	4070:15,20	2008 3989:8	21st 3918:22	3964:2
4000:24	4071:3,24	2009 4088:21	3919:7	3970:16
4066:14	4072:6	4089:17	22 3867:17	3971:4,16
4083:7	4076:4	4092:6	4066:5,9,1	3984:14
4084:5	4077:24	2010 4015:12	3 4067:1	4028:18
1700 3886:25	4092:1	2010/2012	23 3867:17	4039:21
18 4012:9,23	4101:10	4042:13	4025:13	4040:2
4066:6	4103:4	2011 3875:9	4037:18	4041:4,5,7
19 3881:17	4107:10	3962:19	4066:5,9,1	4066:4,5,9
4015:4	4109:1	3979:2	4,15	4069:8,10, 18,19
191 4083:2	4110:3	2011/'12	4087:4,12	4070:16
1977 3872:24	4114:20	4074:6	4095:25	4075:19
1980s 4023:3	2,000	4075:9	4097:3,8	4076:5
	3882:16	4113:11	230 4088:20	4077:17,18
	4006:23	2012 3867:12	24 4038:1	4078:6,13, 14,19
	2,500	3872:13	4041:22	4079:20
	3882:12	3879:16	25 4027:4	4080:7,10, 17,21
	3895:6,17	3880:12	4042:6,10	4081:8,13
	2,887	3962:2	4053:10,11	4082:23
	4002:13	4079:20	4091:14	4083:23,25
	2.248 4081:8	4080:2	26 4060:21	4086:17
	20 3875:7	2012/13	27 3881:21	4087:9
	3918:22	3864:8	4090:15	4088:15
	3976:7	2012/'13		4099:19
	3984:15			3.28 4083:23
	4034:22			
	4036:15			
<hr/> 2 <hr/>				
2 3866:15				
3868:7				
3877:10,11 ,23 3887:7				
3888:9				
3895:11				
3897:14				
3903:20,25				

3/4s 3963:21	3920:25	,21 3978:6	5:05 4115:7	61 4091:1,19
3:31 4064:15	3921:2	45 3963:1,5	50 3909:20	62 3971:19
3:46 4064:16	3922:7	4081:21	4022:13	4091:2
30 3900:20	3923:8	46 3965:8	4111:5,8	65 4087:19
3964:3	4004:6	4081:22	50/50 3951:9	66 4087:19
3998:9	4039:4	4103:15	500	69 3867:22
4034:22	4053:23	4107:15	3881:13,20	3964:14,16
4044:4	4,000	47 3971:7,10	3882:11	4067:23
4052:13	3882:12	47A 4026:8	3895:3,5,1	4068:3
31 4095:20	3887:5	475 4026:8	2,16	6A 4083:25
32 4048:13	3895:7,18	476 4029:25	3896:19	6B 4083:25
4095:8	3896:17	478 4030:3	3897:5,10,	6C 4084:1
4096:8	40 3875:11	479	14	
33 4097:25	3909:23	4030:15,19	51 4026:6	
4099:18	3910:16	48 3867:13	52 3881:16	<hr/>
330 3864:21	3911:24	4001:24	4029:24	7
34 3886:15	4010:12,17	4002:2	55 3867:21	<hr/>
4099:24	,19,22	4064:23	4067:14,17	7 3882:6,7
4100:25	4103:21	4065:3	,20	3954:13
35 3873:1	400 3864:21	49 4013:25	59 3867:14	4110:19
4057:25	4022 3868:12	4A 3880:21	4065:7,9,1	7.11 3964:4
37 4107:15	4058 3866:13	3888:25	2	3978:8,9,1
38 3985:20	4065	3918:17		6 3979:7
3864 3864:24	3867:13,14	3919:3,10	<hr/>	7:00 3903:22
3867 3866:3	,15		6	74 3867:16
3868 3866:4	4066		6 3879:22	4065:1,22
3879 3866:9	3867:16,17	<hr/>	3881:22	4066:1
3867:11	,19	5	3888:23	75 4052:16
39 4102:8	4067	5 3888:10	3912:15,22	4065:10
3912 3866:10	3867:20,21	3905:1	3925:7,12	76 3867:23
3868:4	4068	3917:13,17	3962:17	4065:17
3918 3866:11	3867:22,23	3922:8	3964:10	4068:6,8,1
3920 3868:6	4069 3866:22	3924:8,15	3997:17,20	1
3949 3866:12	4073 3868:16	3932:3,5,2	3998:7,11	77 4065:24
3961 3868:9	4115 3864:24	1 3962:15	3999:20	78 4067:6
3D 3971:20	3866:24	3997:17,19	4030:4	79 4067:18
	42	3998:7,11	4040:10,13	7th 4099:5
	4108:20,21	3999:3,4,6		
	428 3955:21	,20 4004:6	6.2 3978:17	<hr/>
	433 3963:18	4023:4	3979:8,10	8
	44 3867:20	4028:19	3980:4	<hr/>
	3955:17	4031:15	6.85 3882:2	8 3882:5
4 3881:9	4067:5,10	4053:23	6.94 3881:11	3887:7
3882:8	440 3971:11	4059:4,5	6:00 3903:22	3897:7
3895:19	441	4078:7,14	60 3867:15	3901:24
3905:22	3971:11,13	4079:20	4010:13	3954:12
3906:19		4080:2	4053:2,4	4014:1
		4100:16	4065:15,19	4049:23
		5.95 3897:6	600 4000:12	4051:5,9
				4066:14

8,000 4005:18	3910:22 3975:24	4032:23 4033:11,16	y 3952:9	,23 3935:4,8
8,760 3981:7	3980:15 3981:9	4043:18 4047:16	accessing 3934:12	action 3870:22
8.5 4049:24	900 3881:13,16	4050:2 4063:3	accidental 3939:14	3939:10 4032:4
8.52 3962:19	3882:4 3895:12	4068:14 4072:20	according 3945:23,25	4107:5 actions
80 3910:22 3975:24 4068:1	3897:3,8,1 3	Aboriginal 3916:3	account 3891:4	3878:19 3939:19
800 3882:15	94 3911:16,17	absence 4007:7	3914:7 3915:16	activities 4072:19
81 3881:18 4068:9	,22 95 3911:22	4089:22	3916:1 3949:17	activity 4071:23
83 3868:3 3912:20	3980:16 4028:16	absolutely 3916:5	3992:13 3995:2	actual 3881:2
84 3868:5 3920:14	95th 3887:5	3959:25	4004:4,13 4017:2	3887:9 3942:16
85 3868:7 3909:24 3911:18 3961:15 3980:15	96 3911:16,18	absorbs 4001:4	4022:24 4031:17	3981:11 4001:21
86 3868:10 4022:5 4103:24	<hr/> A <hr/> a.m 3869:1	AC 4088:20	4038:9 4040:23	4052:17 4072:25
87 3868:13 4073:11	3917:21,22	accelerating 3983:1	accounting 4054:21	4072:25 actually
<hr/> 9 <hr/> 9 3867:18	abatement 4015:13	accept 3871:6,21	4067:8 4074:23	3875:8 3884:23
3886:15 3922:8 3954:12 3979:15 3980:3 3983:6 4004:9 4012:25 4066:17,22 4070:7,9,1 6 4078:12 4080:17 4082:6 4103:22 4104:12,25 4105:3,22	ability 3902:17 3946:12 3949:4 3957:23 3988:6 4005:12	3873:21 3970:8,13 4059:8 4061:15 4079:12	4075:1 4114:13	3886:25 3896:9,13 3904:9 3910:25 3936:19 3945:12 3946:20 3953:21 3981:25 3994:12 3996:13 3998:17,19
9.1 4002:9	able 3899:14 3930:11 3932:20 3933:12 3935:18 3936:25 3937:18 3954:24 3961:7 3967:15 3976:24 3977:16 3984:3 3995:3 3998:18	accepted 3914:15,17	accounting- related 4113:15	3904:9 3910:25 3936:19 3945:12 3946:20 3953:21 3981:25 3994:12 3996:13 3998:17,19
9:05 3869:1	3930:11 3932:20 3933:12 3935:18 3936:25 3937:18 3954:24 3961:7 3967:15 3976:24 3977:16 3984:3 3995:3 3998:18	access 3900:8 3912:14 3932:20 3934:6 3938:10 3939:24 3941:21,23 3942:5 3947:18 3949:18,20 3956:9 3957:21 3962:25	accurate 3938:22 3953:8	3945:12 3946:20 3953:21 3981:25 3994:12 3996:13 3998:17,19
90 3909:24	4021:15 4025:3	access 3900:8 3912:14 3932:20 3934:6 3938:10 3939:24 3941:21,23 3942:5 3947:18 3949:18,20 3956:9 3957:21 3962:25	accustomed 4096:6	3994:12 3996:13 3998:17,19
		access 3900:8 3912:14 3932:20 3934:6 3938:10 3939:24 3941:21,23 3942:5 3947:18 3949:18,20 3956:9 3957:21 3962:25	achieved 4048:24 4049:8,9	4000:11 4008:21 4017:18,21
		access 3900:8 3912:14 3932:20 3934:6 3938:10 3939:24 3941:21,23 3942:5 3947:18 3949:18,20 3956:9 3957:21 3962:25	acknowledge 4064:20	4031:4 4042:8,11 4051:4
		access 3900:8 3912:14 3932:20 3934:6 3938:10 3939:24 3941:21,23 3942:5 3947:18 3949:18,20 3956:9 3957:21 3962:25	act 3936:17 3939:22	4053:22 4063:1 4095:19 4099:18 4102:5 4107:8,11 4112:12
		access 3900:8 3912:14 3932:20 3934:6 3938:10 3939:24 3941:21,23 3942:5 3947:18 3949:18,20 3956:9 3957:21 3962:25	acting 3934:20,22	actuals

4104:18	addition	3972:24	3883:2	ago 3900:20
actuarial	3891:10	3999:5	4086:7	3905:1
4096:7	3899:8	4063:19	advocate	3951:24
adapted	3913:12	4064:3	3943:24,25	3952:17
4030:5	3929:16	adjourned	4036:17	3953:5,25
add 3885:22	3933:22	4115:1	4041:22	3994:17
3918:4	4018:16	adjourning	advocates	4025:3
3969:3	4066:8,21	4115:7	3924:22	4031:4
3975:10	additional	adjustment	advocating	agreed
4005:9,16	3877:7	3959:5	3877:1,2	3916:4
4006:7	3879:4	3971:18	affect	3917:19
4013:10	3914:19	4033:12,15	3936:6	3938:12
4050:14	3969:7,23	adjustments	3958:17	3980:8
4056:12	3975:2,25	3957:12	3991:5	4077:14,15
4067:14	4004:2	4033:16	4009:18	4080:13,22
4096:3,16	4006:12	administrati	4026:25	4082:3
added 3989:4	4008:25	on	4033:22	4084:2,6,7
4016:17	4009:23	4073:4,7	affected	,11
4017:13	4011:13	administrati	3936:4	4085:8,9,1
4018:1	4017:6	ve 4074:22	3996:21	7
4051:12	4019:15	4075:6	4080:11	4086:13,23
4066:5	4031:15	4114:11	affecting	4087:14
4097:21	4045:3	administrato	4026:19	4088:2
addendum	4051:17	r 3929:17	affects	4089:11,23
4081:1	4064:23	ministrato	3925:20	4090:7
4084:22	4067:15	rs	3992:16	4091:22,23
4085:3	4088:14	3931:7,10	4051:10	4092:3
4086:12,16	4096:1	admission	affiliates	4093:15
,24	4112:25	4023:9	3925:5	4098:5,6,1
4087:25	additions	ado 3869:12	Affirmed	5 4100:3
4088:5,18	3925:19	adopt	3866:7	4101:5
4090:20	3966:24	3937:22	3875:2	4102:11,18
4091:3,25	3967:24	adopted	afford	4103:19
adder	4064:25	4097:7	3901:25	4104:1
3977:22	address	advance	afo 4093:5	4106:24
4014:5	4069:18	4056:17	afternoon	4107:6,21
4022:15,23	addressed	4057:17	4004:23	4111:1,22
4023:4	3995:17	advanced	4063:22	agreeing
4024:5	addresses	4018:2	4092:23,25	4017:2
4025:4	3989:18	advantage	against	4104:14
adders	addressing	4112:9	4101:18	agreement
4014:4	3986:2	advantages	4109:4	3932:23
4024:25	4046:20	3885:10	4111:15	3933:1
addi 4075:5	adds 4046:6	advice	aggregated	3934:15
adding	adequate	4067:6	3944:5	3939:18
3997:11	3948:12	advise	aggressive	3941:20
4046:4	adjacent	4049:3	4049:3	3942:5,13
addit	4103:3	advise		3944:25
4067:14	adjourn			3946:7
				3947:22
				4060:6,19

agreements 3924:10 3933:5,11, 19 3934:11 3938:25 3940:4 3941:3,15 3944:8 3961:5	3984:25	2,15,16 3976:24 3981:5 3988:5 3993:24 3995:22 4006:24 4011:17 4017:20 4023:13 4028:13 4086:2	Angeles 3875:16 Anita 3865:3 3866:12 3869:7 3884:21 3940:14,15 3941:1,11 3942:7 3945:1,2 3946:19 3947:3,21 3948:9,19, 23 3949:9,12 3951:22 3952:7,14 3953:2,24 3955:9,25 3956:7 3957:20 3958:7,10, 13 3959:20 3961:7,20, 21 3962:4,9,1 2,23 3963:9,16, 24 3964:7,15, 18,24 3965:7,18 3966:11 3970:2,12, 15 3971:5,23 3972:9,18 3973:1,11, 12,19,24 3974:21 3976:9,13 3977:6,25 3981:24,25 3983:4,20, 24 3984:2,12, 18 3985:10 3986:19 3987:2,7 3989:17,21 3990:2,10, 19,25 3991:7,13	3992:14 3994:5,11, 23 3996:2,22 3997:8,14, 19 3998:13,16 3999:14 4000:20,21 4001:7 4002:1 4011:22,23 4012:7,15, 23 4013:6,9,1 4,23 4014:3,9 4015:4,18, 20 4016:1,7 4017:5,11, 25 4020:11,15 4021:11,22 4022:10,11 ,21 4023:23 4024:1 4025:1,7,1 2,16 4026:3 4029:18 4030:9,16, 19 4032:2,15, 19 4033:3,7,1 0,21 4034:7 4036:1,16 4037:2,17, 25 4038:6 4041:21 4042:1,6,2 2 4043:8,25 4044:12 4045:3 4046:22 4047:24 4048:6,12 4049:11,20 4051:1,21
air 3993:6 4020:13 4021:1,5	already 3967:1 4009:24 4029:19 4031:7 4056:19 4099:13 4114:21	amplifies 4031:7		
akin 3945:5	alternative 3957:24	analyses 4062:5		
allocated 4071:15	alternatives 4035:10,19 4060:25 4061:1	analysis 3876:20 3880:15,25 3905:21,25 3913:5 3925:10 3942:25 3943:6 3950:2 3954:20 3976:22 3991:24 4003:25 4009:6 4017:23 4020:2 4037:5 4060:16,19 4061:6 4095:19,21 4096:24 4097:3 4098:2,10 4099:14 4100:9,15, 24 4101:2,25 4102:21 4108:22		
allocation 3953:18 3954:8	am 3886:11 3965:7 4003:21 4010:1,16 4023:24 4077:17 4078:15 4080:5 4082:10 4088:20			
allow 3938:5 3948:5,7,2 5 3954:1 3958:22 3968:5 3969:23 4036:19 4047:16	ambush 3883:14 3884:8	ancillary 4024:9		
allowance 3899:17	amend 4070:17 4091:3	and/or 3899:24		
allowances 3899:24 4017:20	America 3873:2 3898:1 3983:15 4005:8 4055:13	Anderson 3865:15		
allowed 3892:2 3916:24 3938:9 4047:2 4114:12	among 3873:5 3930:15 3948:20 3953:14 4050:7			
allowing 3900:10 4017:19 4053:1	amount 3877:6 3882:19 3892:2 3896:20 3913:17 3939:17 3974:7,9,1			
allows 3867:3 3879:9,25 3939:21				
alluded 4004:23				
alone				

annoying 3889:22	4012:24	APPEARANCES 3865:1	3938:15 4022:8	4029:11
annual 3960:20 4048:22 4073:23,25 4074:2	anyplace 4057:3	appeared 3873:10 3934:21 4042:15	4023:22 4025:2	argument 3960:14
another's 3937:9	anything 3885:22 3907:6 3914:14 3915:21 3916:14 3924:7 3947:8 3948:21 3950:15 3966:3 3970:11 4009:15 4019:13 4028:15 4037:13 4039:16,17 4040:22	appearing 4109:24	appropriate 3883:2 3896:18 3899:11 3907:8 3939:10,19 ,20 3945:21 3980:4 4058:3 4112:23	arisen 3874:6 3876:5
answer 3884:5 3937:10 3951:14 3953:5 3963:19 3974:3 3984:6,10, 15 3985:11 3986:4 4015:6 4043:7 4053:25 4074:8 4094:8	anyway 3877:21 3886:23	appears 4104:23 4107:5 4109:20	appropriatel y 3885:24	arises 3888:24
answered 4095:3	anywhere 3939:17 4057:4	applicant 3935:4	approval 3942:14 4076:14,17 ,18,20,25	arising 4110:8
answering 4070:2	ap 4093:5	applicants 3933:18	appropriatel y 3885:24	arose 3986:11 4094:22 4096:13 4097:7
answers 3913:22 4100:16	apart 4053:25 4063:3	application 3864:7 3870:25 3926:12 3956:4	approval 3942:14 4076:14,17 ,18,20,25	arrangement 3932:23
anticipated 4014:22,23 4021:12 4096:2	apo 4093:5	applications 4019:17	approved 4076:2,8 4077:5,9 4113:24 4114:3,9	arrived 4112:12
anticipating 4097:9,22	apologies 3919:5 4078:11	applied 3956:25	approved 4076:2,8 4077:5,9 4113:24 4114:3,9	article 3931:1
Antoine 3865:13	apologize 3874:23 4057:19 4076:7 4082:17 4083:14 4113:1,6	applies 3970:23,24 4032:20	approved 4076:2,8 4077:5,9 4113:24 4114:3,9	articulated 4027:3 4110:3
anybody 3946:6 3998:22 4011:1 4032:24	apologize 3874:23 4057:19 4076:7 4082:17 4083:14 4113:1,6	apply 3931:2	approves 3941:21	aside 3947:7
anyone 3918:8 3934:18 3938:10	apologies 3919:5 4078:11	applying 3936:12	approves 3941:21	ASL 4068:7
	apologize 3874:23 4057:19 4076:7 4082:17 4083:14 4113:1,6	appointed 3943:25	approximatel y 4114:20	aspect 3954:4 4101:14
	apparently 3909:8 3938:21 3947:20	appr 3931:13	approximatio n 4023:20	aspects 3948:13,15
	appear 3869:11 4022:15	appreciate 4057:21	approximatio ns 4007:7	assertation 4094:19
		approach 3937:10 3991:8,9 4029:14 4093:5 4097:1,12	April 4085:4	assertion 3914:17 3956:16 3957:15 4061:5
		approaches 3868:12	area 3871:23 3969:2 3993:2 4061:22	assessment 4026:16
			areas 3988:23 4112:20	assessing 4022:24 4036:3
			aren't 3903:13 3995:8 4033:3	assessment 4093:12
			arguing 3960:11	

4094:15	4088:20	4030:2	3888:6,7	4085:20,23
asset	4089:14	4034:10	3890:22	away 3896:19
3868:16	4099:10	attempted	3894:12	3907:11
4071:5,15	4109:2	4021:10	3902:22	3977:22
4072:22	4112:16	4030:21	3937:23	4036:18
4073:15	assume	attendant	3960:18	4056:6,14
4096:4,11	3976:23	3914:22	4059:5	4082:6
4097:11	3977:1	attention	averaging	axis 4101:16
4099:19	4008:19,21	3891:23	4003:22	4111:11,12
assets	4015:7	4025:17	avoid	,21
4034:18	4016:2	4026:6	3875:18	<hr/>
4096:9	4036:24	4027:16	3876:15	<hr/> B <hr/>
assigned	assumed	4029:23	3968:5	baby 3904:2
4111:8	3941:24	4078:15	4046:4	background
assignment	3958:23	4080:16	4051:19	3871:23
4095:16,17	3970:18	attic	avoidable	3883:17
assist	3972:12	4020:25	3915:22	3950:6
3870:24	3979:3	4021:1,4	avoided	3958:4
3907:14	3997:24	attorneys	3921:22	4085:2
3947:23	3998:12	3944:7	3924:24	4087:24
4095:7	4052:10	attractive	3925:1,10	4090:5
assistance	assumes	4010:22	3926:2	4091:14
3871:11,13	3964:19	auditors	3927:15,22	backing
3902:14	3970:17	4067:7	3928:4,7,1	4010:24
3917:6	assuming	authority	0,12,14,20	backs
3928:8	3890:25	4057:16	,22 3929:4	3909:16
3935:14	3891:3	available	3930:16	backside
4033:20	3972:17	3897:21	3931:8	3963:11
4060:20	3980:10,18	3906:12	3937:16,20	backwards
4108:19	4003:14	3926:8	3963:10	3929:3
assisting	4010:16	3936:2	3966:16	bad 4035:1
3953:3	4073:22	3941:13	3971:15	4046:11
associated	4076:24	3953:11	3996:18	4062:17
3868:14	assumption	3956:1	3997:23	balance
3913:3	3964:7	3962:10	4007:1	3959:3
3914:7	3971:19	3965:11	avoiding	4004:17
3956:10	3980:12	3981:5	3980:1	4056:15
3957:22	3982:16	3988:11,22	4037:13,16	4097:14
3962:14	3998:23	3990:8	4040:9,11,	balanced
3967:23	4077:8	4006:10	14	4037:15
4011:24	assumptions	4009:23	4051:6,7	balancing
4034:16	3925:3	4032:21	aware	3914:24
4037:19	3953:15	4043:19	3938:24	4111:15
4049:22	3954:1	Avenue	3939:4	ballpark
4072:7,14	3963:3	3864:21	3965:2,7,1	3998:12
4073:13	4005:2	average	4 3976:20	banjo
4081:13	assurance	3877:22	3985:19	3870:13
4082:25	3947:16	3882:14,15	3996:23	
4083:1,2	attachment	3887:23	4016:12	
4087:9	4029:25		4022:12	
			4058:24	

Bank 4093:14,20 4095:5,11 4096:4 4097:6 4098:1 4102:17 4103:21 4107:8,18 4108:23 4111:25	3967:14 3989:2 4000:9 4009:1 4028:9 4043:6 4051:15 basis 3925:10 3948:25 3951:8 3972:12 3977:9 3982:6 3985:6,14 3992:11 4048:22 4051:14 4095:21 4096:18 BC 4099:6 bear 3988:15 4033:11 4044:6 bearing 3966:18 4031:23 became 4096:20 become 4054:15 becomes 3954:6 4077:1 beginning 3873:3 4066:17 behalf 3870:22 3931:23 3934:20,23 3935:4,8 4026:18 behaviour 3879:4 3890:25 3891:25 3892:3,18 3894:4,17,	19 behind 3867:19 3911:8 3975:6 4005:21 4041:14 4066:18,22 belabour 3915:25 believe 3869:4 3873:13 3875:9 3885:8 3902:19 3904:21 3917:24 3920:9 3924:14 3925:2 3939:14 3944:7 3945:14 3948:14 3949:22 3952:15 3956:21 3964:25 3965:16 3966:1 3970:6 3973:8 3974:22 3977:11 3985:19 3989:20 3994:23 3999:12 4001:25 4002:18 4014:17 4015:2,21 4028:3 4042:9 4043:15 4051:16 4067:3 believes 3948:2 bell 4070:12	bench 4061:8 benchmark 4061:8 benchmarking 4098:8 4099:10 beneficial 4111:14 benefit 3935:17,21 4020:9 4024:25 4112:12,16 benefiting 4028:22,24 benefits 3891:7 3903:10,14 3993:11 4004:14 4017:13 4018:3,4,1 7 4019:13 4020:6,12, 18,19 4023:4,10, 17 4024:9,13, 14,16,22 4040:16,24 4042:2 4050:8,9 best 3896:11 3900:14 3908:9 3911:7,24 3938:12,13 3946:13 3974:3 4023:21 4035:2 4063:6 4108:14 bet 4050:6 better 3868:12 3881:6 3891:19 3898:4 3901:6	3902:5 3903:1,13 3907:10 3948:7 3958:25 3972:10,16 3980:1 3983:17 3987:4 4018:21 4022:8 4023:16,22 4025:2 4037:14,15 4039:15 4040:4,5 4041:3,7 4051:11 4061:5 4062:21 4063:1 4095:4 4102:4,6 4109:16 4112:5 beyond 3953:24 3966:3 3974:18 3994:19 3995:1 3999:20 4001:5 4006:17 4031:6 bid 3942:24 3946:8,12 bidding 3922:19,23 bids 3942:21 3946:8,9 bifurcate 3875:21 bigger 3944:19 biggest 3900:24 bill 3880:15,19
---	---	---	---	---

,23,24,25	4069:18	3893:4,6,2	3944:10,24	borrowing
3889:4,7	4075:19	3	3945:6	3937:17
3892:17,18	4077:17	3895:14,24	3948:6	bothered
3895:15	4078:6,14,	3896:6,18,	3949:5	4033:1
3921:8	18 4079:20	21	3955:4,11,	bottom
3952:19	4080:7,10,	3897:3,10	12,25	3971:11
4030:4	17,21	3898:2,6,8	3971:12	3984:13
4032:24	4081:8,13	,11 3900:4	3983:5	4037:18
4033:2	4082:23	3903:1	4013:24	4046:7
4037:1	4083:23	3904:17,24	4023:3	4079:2
billed	4086:17	3905:4	4038:8	4090:4
3878:1	4087:9	3944:22	4039:13	4099:18
3881:19	bit 3898:23	3954:11,12	4043:7	4102:9
3956:24	3917:17	4077:5	4049:19	4104:24
3959:13	3932:24	blocked	4058:14	4106:7
billion	3972:21	3881:9	4060:20	bottom-line
3957:16	3973:15	blocks	4061:15	4056:20
4007:20	3996:14	3877:9,11	4071:13	bounce
4070:18	4005:7	3886:14,17	4072:11	3919:22
4080:22	4032:13	3895:11	4075:23	bound 3948:4
4081:8,12,	4035:23	3897:9	4076:3,17,	bow 4111:7
16,20,21	4036:10	3907:5	22,25	boy 3892:24
4082:23,25	4056:13	blowing	4077:9	breach
4083:1,23	4075:22	4011:9	4092:15	3939:1,5
4084:10,11	4084:10	board	4093:4,10	break 3888:2
4085:7	4087:3	3864:3,13,	4114:6,7	3895:1,10,
4086:17	4107:8	14,15,16,2	Boards	14 3896:11
4087:13,14	block	0 3865:2	3961:4	3898:10
bills 3878:6	3867:5,6,8	3869:9	Board's	3916:12
3880:16	3874:12	3870:24	3870:24	3917:14,16
3881:17,19	3876:16	3871:2,14	3876:21	3991:24
,21,25	3877:2,5,1	3873:11,21	3971:7	3999:2,4
3887:1,2,3	0,12,13,16	3874:4	4022:14	4112:23
,5,6	,24 3878:4	3875:21	4029:22	breakdown
3888:7	3879:8,11,	3876:6,12	Bob 3865:2	3899:12
3891:4	12	3881:6	bodies	breakout
3892:9	3880:3,4,7	3882:22,23	3872:19	3989:24
3893:4	,16	3883:7,8,1	body 4096:20	brief
3895:7	3881:13,14	1,14,24,25	4097:19	3871:22
3896:7,16,	,20,23	3884:3,9,1	book 3955:13	3872:21
21 3956:23	3882:20	1 3886:2	3956:1	3921:4,15
3959:9,11	3883:10,20	3887:12,20	3963:1,14	3923:13
4028:18,20	3884:2	3888:14	3971:7	3924:12
4029:16	3885:11,20	3896:4,16	3978:6	3931:15
4031:1	3886:15,16	,18	4022:14	3935:24
4032:12,13	,18	3887:3,25	4026:6	3938:19
,17	3888:1,3	3888:1,3	4029:23	3940:9
4035:12,14	3890:15	3891:5,6,1	books 4070:1	3945:20
binder	3891:5,6,1	3	4088:14	
4066:6,19,	3	3939:16,18	born 3875:13	
25	3892:10,12	3941:20		
Bipole	,19	3943:25		

3946:15	brought	3900:19	4072:3,10,	5,23
3947:1	4029:22	3942:19	18	4106:3,12,
3949:7	4044:5	3968:9	4073:6,17,	20
3950:17	4080:22	3991:1	18 4074:4	4107:1,14
3951:20	4083:24	4017:12	4075:7,13,	4108:8,18
3962:7	brutalize	4036:8	18	4109:11,16
3978:19	4078:1	4051:20	4076:1,19,	,23
3987:16	budget	bunch	24	4110:9,22
4023:6	4073:25	3879:23	4077:4,11,	4111:9,16,
4034:5	4074:13,23	3904:18	16,23	19 4112:17
4043:23	,25	bundle	4078:5,10,	
4053:20	4113:10	4065:6	23	<hr/>
4055:23	budgeting	4066:4	4079:6,14,	C
4063:13	4074:3	burden	18	Ca 3978:5
4069:12,22	budgets	3900:17	4080:4,9,1	cables
4078:21	4073:23	burn 3910:19	5,20,24	4071:8
4079:4,9,2	build 3967:3	burning	4081:7,11,	CAC 3865:8
3	3968:5	3909:6,24,	15,19	3867:18
4081:4,25	3982:9	25	4082:1,5,1	3871:15
4084:24	3983:17	3910:4,14,	3,16,19,21	3912:17
4088:25	4003:16	23 3911:3	4083:6,10,	4066:17,22
4090:1,17	4011:2	business	13,17,21	4067:16
4091:11,16	4035:4	3875:5	4084:4,8,1	4069:6,7,8
4100:5	4047:9	3931:2	3,16,19	4070:7,8,1
4101:7	4054:2	3957:2	4085:1,6,1	5 4076:5
briefly	building	4027:6,9	0,15,19	4078:12,13
3871:1	3904:25	buy 4009:7	4086:4,10,	4080:17
3872:5,16	3905:2	4011:8	15,20	4082:6,8,1
4091:14	3914:21	buyers	4087:1,6,1	0
bring	3967:2	4014:23	1,16,19,22	4083:7,14
3887:12	3980:9	buying	4088:4,12,	4087:4
3982:23,24	3982:13	4009:16	17	4090:15
4021:17	3983:19	4046:14	4089:4,13,	4095:8
bringing	3995:9	Byron 3865:8	19	4097:25
4034:20	3998:24	3866:10,22	4090:3,9,1	4102:8
British	4006:18,20	3871:15	4,19,23,25	CAC/MH-2-27
4002:12,14	4010:20	3912:9,10,	4091:5,8,1	3963:18
,17,21	4020:19	24,25	3,18,24	CAC-12
broad	4024:11	3913:21	4092:5,11,	4069:19
3939:21	4029:15	3914:3	19,20,23	CAC-15
3970:1	4044:24	3915:9,24	4093:2,9,1	4069:9,16,
4083:4	4050:9	3916:6	7 4094:3,7	17 4076:4
broader	4051:17	4068:18	4095:2	4078:25
3886:19	4077:5	4069:3,4,1	4096:21	4092:21
3993:2	buildings	4,24	4097:20,24	CAC-3B
4036:17	3906:5,24	4070:5,14,	4098:9	3919:10
broken	3998:24	24	4099:12,22	CAC-GAC/
3992:20	4045:12	4071:7,11,	4100:14,23	MH-1-4
brother	built 3892:1	19	4101:23	3963:10
3901:16	3894:8		4102:4,13,	calculate
			25	3895:15
			4103:16,20	
			4104:8,21	
			4105:2,9,1	

4038:21	3945:6	4082:7	3986:25	4079:12
4039:10	Canadian	4085:8,24	3988:11,15	4080:13,18
calculated	3875:14	4087:7	4003:19	CEF06
3887:22	3979:1	capture	4018:19	4080:18
3956:17	4098:7	3968:11	4020:1	CEF07
4098:25	4103:3,13	3985:8	4027:6,9	4080:20
4108:12	candour	carbon	4043:2	4081:9
4109:10	3915:10	3909:6	4047:4	4086:18
4112:7	cap	3911:8	4052:7	CEF08 4081:9
calculating	4012:15,18	3913:10	4063:6	CEF09
4041:1	capability	3915:3	4106:19	4081:9,21
4108:2	4110:7	4014:4,5,1	4114:10	4086:18
calculation	capacity	8	cases 3882:4	CEF10
3921:23	3925:17	4015:1,9,1	3899:25	4081:11,15
3951:8	3981:11	3	3910:10	4082:2
3953:11,17	3983:16	4016:16,23	3941:25	4088:15,18
,18	3985:21	4017:18,20	3943:10	CEF12
3954:19,24	3987:10,12	,21,22	3950:11	4070:18
3957:19	,19	4051:2,7	3953:10,13	4082:3
3976:4	3988:3,5,7	4061:12	3967:2,25	ceiling
3977:14	,12,20,25	care 4028:25	3987:1	4024:4,10
3978:15	3989:1,2,4	4033:2	4006:15	cell 3951:15
4006:20	,9,10,13,1	4045:18	4018:17	cent 3971:2
4009:6,19	5,19,25	career	4045:13	3980:3,5
4040:18	4004:25	3873:4	4049:16	3997:9
4047:13	4005:3,8,1	carefully	case-	4041:8
4067:24	7,24	3968:15,22	specific	4051:9
4077:13	4006:1,6,8	4011:12	4004:20	cash 4095:12
4097:7	4010:6,8,1	cares	category	central
4102:22	0,15	4032:24	4054:8	4077:1
4112:10,11	4011:11,14	Carlo	caught	Centre
calculations	,16	4101:1,17	3927:16	3870:22
3888:16	4050:23	4110:6,23	cause	cents
3905:25	4054:14	carried	4002:24	3881:12
3920:1	capacity-	3945:23	4028:19	3882:6,7
3923:19	constraine	4086:18	4031:15	3891:11
3936:19	d 4005:22	carry 3970:5	caused	3897:6,7
3956:10	capacity-	case	3975:21	3954:12,13
3971:15	related	3876:2,7,1	4067:1	3962:19
3990:5	3991:22	0 3894:13	caveat	3964:4,10,
3994:18	4006:5	3911:22	3949:16	21
4000:24	Cape 3934:24	3915:1	CEF 4076:25	3971:24,25
4068:8	capital	3930:13	4077:4,8,1	3972:4,6
4097:18	4034:17	3934:20	2 4086:22	3978:9,16,
California	4036:5	3937:4	4088:14	17
3886:16	4069:25	3939:12	4092:6	3979:7,8,1
4012:22	4075:20,24	3941:18	CEF05	0,15
California's	4076:2,16,	3943:18,22	4078:15,16	3983:6
3905:9	21,25	3944:4		3990:12
camera	4078:17,25			

4002:9	cha 3897:12	3940:11	3907:7	4045:16
4004:7,9	chaff 3955:8	3943:21	3930:21	check 3872:3
4039:4,5	Chair	3944:2	3936:4	3889:18
4040:10,12	3870:21	3972:23	3949:19	3918:22
,13	3871:20	3973:8	3965:13	3919:8,9,1
4041:2,4,5	3872:7	3998:25	4030:25	3 3920:6
4049:24	3874:1,21	3999:5,12	4074:24	3969:18
4050:12,15	3882:17	4007:3,10	4075:1	4059:9
,18	3883:6	4008:6	4084:20	4078:24
4051:6,9	3908:18	4058:2	4089:6	4081:20
certain	3912:4	4063:17,25	4114:8,12,	4084:17
3892:2	3916:7,11	4064:2,18	13	4087:20
3901:9	3917:8	4068:16	changing	cheers
3902:13	3918:2	4092:16	3892:18	3891:19
3949:14	3933:8	4113:7	3894:17,18	Chernick
3986:12	3999:4	4114:15,25	charge	3866:7
3988:5	4070:24	challenge	3867:7	3869:10,13
4005:2	4092:11	4099:11	3877:11	3870:22,23
4010:7	4112:19	challenges	3879:12	3871:4,8,9
4045:13	Chairman	3874:12	3880:5	,13
4063:1	3864:14	4037:19	3882:1	3872:5,8,1
certainly	3869:8,12	4038:3	3896:20	5,20
3871:15,17	3884:21	chance	3906:23	3873:12,18
3882:25	3972:19	3886:21	4045:11	,23
3884:15	3973:13	3909:3,4	charged	3874:5,14,
3886:18	3999:15	3916:24	3881:25	15,19
3898:20	4051:23	3951:6	charges	3875:2,8
3899:3	4113:22	chances	3902:16	3879:20
3904:12	CHAIRPERSON	4037:15	4047:3	3880:14
3912:13,18	3869:3,15,	change	charging	3883:6
3936:7	22,24	3890:25	4001:4	3884:23
3937:11	3870:3,6,9	3891:25	chart	3886:7,11
3961:12	,12,15,19	3892:3,14,	3882:10	3888:21
3974:17	3872:2	23 3893:5	3885:9	3889:1,9,1
4009:15	3875:4	3895:15	4101:15	5 3890:16
4016:25	3885:21	3897:13	4104:3	3891:2
4036:6	3886:5	3898:11	4105:1,22	3892:4,8,2
4050:7	3894:25	3906:18	4111:4	1
4055:9	3895:9,20	3956:19	charts	3893:3,10,
4061:4,21	3897:1,17	4026:20	4108:7	17,20
4063:10	3910:6	4074:19	cheap	3894:2,5,1
4071:20	3912:1,5	4113:19,23	4041:13	0,20
4072:5	3916:8	,25	4047:10	3895:4,10
4099:10	3917:12,19	4114:23	4052:20	3896:2
4112:20	,24	changed	4054:25	3897:4,16,
Certificate	3931:17,22	3887:13	4055:9	23 3898:17
3866:24	3932:9,13,	3954:9	cheaper	3899:23
Certified	16,19	4062:13	4053:13	3902:8
4115:11	3933:13,16	4107:2	cheaply	3903:18
cetera	,25	4113:15		3904:7
3904:2	3934:6,10,	changes		3905:17,19
	19 3935:3			3908:16

3909:1	3961:6,12,	4013:5,8,1	3884:12,19	4000:14
3910:13	25	2,17	3885:8	clarificatio
3911:20	3962:3,11,	4014:2,8,1	3920:4,20	n 3973:21
3912:11,18	22	6	chief 4027:3	clarified
3913:1,7,2	3963:8,15,	4015:16,19	child	4113:8
5 3914:12	23	,25	3901:21	clarify
3915:19	3964:6,13,	4016:6,13	children	3916:24
3916:5,17	17,23,25	4017:10,17	3903:20	3918:13
3918:2,12,	3965:6,15	4018:6	3904:1	3970:13
18 3919:24	3966:9,13	4020:14,17	chill	4008:6
3922:4,12,	3970:10,14	4021:14	3875:11	4058:12,17
20	,20	4022:2,19	choice	clarity
3923:2,15,	3971:22	4023:1,8,2	3874:13	3919:17
24	3972:8,14	5 4024:2	3901:12	class 3889:6
3924:2,14,	3973:2,3,1	4025:6,11,	3906:15	3958:20
19	4,18,22	15 4026:1	3907:8	3959:13
3926:7,13	3974:6,23	4027:22	4053:13	3960:18,19
3927:1,3,1	3976:11,23	4030:8,14,	4098:13	3990:6
1,20	3977:11	18 4031:9	choices	3991:19
3928:9	3978:1,3,1	4032:2,11,	3873:6	3996:3,8,2
3929:7	1,21,25	16,22	3905:21	0,21
3930:5,14	3979:18,24	4033:6,8,1	4062:4	4024:24
3932:6,10,	3980:17,20	3	choose	4033:7,24
14,17	,24 3981:3	4034:3,19	3907:15	4037:7
3933:3,12,	3982:2,7	4036:6,24	choosing	classes
24	3983:11,23	4037:3,24	3906:8	3958:20
3934:1,9,1	3984:1,4,1	4038:2,15	3907:17	3960:9
3,22	7	4041:25	4035:19	3990:13
3935:5	3985:9,25	4042:5,21	chose	3996:17
3936:1	3986:24	4043:1,14	3931:25	4031:23
3937:5	3987:6,18	4044:11,18	chronology	4033:23
3938:11	3989:20,23	4045:8	4079:1	classic
3939:2,6	3990:5,9,1	4046:24	CI 4067:16	4111:24
3940:7,19,	5,24	4048:5,11,	circling	classroom
25	3991:5,12,	25 4049:14	4049:20	3994:10
3941:8,16	15 3992:19	4050:5	circulated	clean
3942:8,12	3994:6,22	4051:4,22	3955:13	3981:20
3943:23	3995:2	4052:10,12	4022:14	clear
3944:6	3996:7	4053:22	circumstance	3875:20
3945:11	3997:2,12,	4055:25	4003:12	3876:14
3947:9	16,21,23	4058:22	4108:1	3878:3
3948:1,18,	3998:14,21	4059:2,6,1	circumstance	3907:19
20	3999:22	0,18,21,25	s 4074:11	3924:17
3949:11,21	4000:16,25	4060:11	citizenship	3966:14
3950:19	4001:2,23	4061:4,20	3875:15	3969:22
3951:22	4002:5	4062:3,11,	City 3865:17	3986:11
3952:4,12,	4003:23	14 4063:16		3988:24
24 3953:9	4005:5	4064:6,10		4016:8
3954:7	4007:9,19	Chernick's		4045:20
3955:24	4008:18	3871:2,6,1		
3956:6,13	4010:20	6,21		
3958:6,9,1	4011:23	3872:14		
2,16	4012:6,13,	3874:2		
3959:25	20			

4062:20	3914:1	3898:6	4057:22	company
4063:9	4034:23	combined	commercial	3891:15
4072:23	4035:4	3910:15	3991:11	3923:18
4075:8	4055:1	3911:4,12	3992:2	3932:17
4113:22	coal-fired	4052:8	3995:21	3958:19
clear-cut	3909:16	comes	3997:7	4007:25
4062:16	3911:10	3916:23	3998:10	4009:19
clearly	coalition	3918:7	4019:17	4029:11
3876:11	3924:20	4054:25	4020:8	4031:14
3954:21	coincidence	4114:22	4024:17	comparators
3987:25	3955:16	comfort	Commission	4001:14
4031:13	cold 3903:23	4018:3,23	3960:21	compare
client	4010:25	4019:6,10,11,15	4030:6	3931:1
3912:11	collaboratio	4024:14	commissioned	compared
3924:18,19	n 3924:25	4050:9	4097:6	3877:24
3925:9	collaborativ	comfortable	commitments	3888:5
3943:22	e	3930:23	4009:10,11	3907:23
3944:4	3921:23,24	coming	committee	3946:9
clients	3922:1	3884:23	4074:15	4010:15
3876:16	collapsed	3896:13	4076:11,14,18	4050:13
cliff	3989:9	3903:21	common	4097:21
4004:15	collector	3909:19	3940:21	4100:18
climate	4078:6,7	3965:21	3941:16	4103:25
3905:3	4083:3	3972:22	3945:16	4110:25
4015:12,23	4084:2	3994:13	3952:10	4113:25
4059:16,20	4090:21	4055:7	4049:1	compares
4061:10,17	4092:1,7	4107:23	commonly	3891:16
Climate	Columbia	commencing	3941:15	comparing
4061:17	4002:12,14,18,22	3869:1	communicated	3953:10
close 3885:1	column	comment	4074:15	4089:17
3886:12	3890:22	3874:6	communication	4113:24
closer	3895:13	3917:10	ns 3932:11	comparison
3911:13	3897:15	3955:3	communities	3915:13
3979:15	3944:12,13	3966:5	3915:16	3993:20
4106:10	4102:14	3984:3	community	4002:25
closing	4103:3,4	3987:4	3901:23	4060:23
3884:16	columns	4010:3	3902:3	comparisons
clothes	3886:23	4012:5	4000:5	3952:19
3904:13	3887:23	4015:21	Compact	compensated
cluster	3889:17,21	4043:9,13,18	3934:25	3893:24
4057:19	combination	4048:14	companies	compensation
co 3989:25	3906:25	commentary	3922:8,9,13	3893:25
4058:15	3976:16	3886:6	3923:23	competitive
CO2 4058:15	combinations	comments	3932:21	3922:19,23
CO2e 4015:14	3897:9	3885:9	companion	3946:11
coal 3910:4	combine	3905:17	4077:10	4053:14
3913:15		4012:2		4055:12
		4044:1		competitivel
		4047:25		

y 4002:18	3867:7	3964:8	3934:7,16	connect
complete	3879:12	4099:25	3935:15,20	4010:3
3884:2	3880:6	4103:22	3939:8,25	Connecticut
3885:8	con 3877:7	concludes	3940:2,18,	3923:17
4056:18	4010:23	3890:13	21 3941:22	3937:6
completely	4016:14	3908:14	3942:2,15	3945:18
3930:18	4084:1	conclusion	3943:6,20	3947:4,10,
3944:13	conceivably	3884:24	3944:23	19
3946:4	3980:3	4099:23	3945:9	connections
4057:2	concentrate	4108:9	3946:2,16	3946:3
completion	3943:16	conclusions	3947:5,19	4045:4
4085:12	concept	4047:25	3948:5	cons 3878:23
complexity	3885:4,19	4062:13,15	3960:6,10,	consequences
3915:12	3886:2	,22	12 3961:4	3939:5
4099:9	3940:18	concrete	confidential	conservation
complicated	3961:23	3907:3	ity	3868:11
3875:25	4003:10	3908:4	3924:10	3877:15,20
3876:19	4004:24	condensation	3932:23	3878:15
3887:19	4012:2	4020:20	3933:1,4,1	3924:22
3898:19,22	4036:2	condition	1,19	3926:4,17
,24	4078:18	4071:5,16	3934:11,14	3929:12
3951:11	4104:7	conditioning	3938:6,25	3932:14
3954:20	4108:25	3993:7	3939:18	4003:6
3967:11	4111:3,24	conditions	3944:8	4004:13
3975:14	conceptual	3900:2	3948:5	confidential
complication	3955:2	4063:2	ly 3934:11	4008:1,4
3905:9	conceptually	conduct	confirm	4021:7
component	3976:5	4098:1	3868:5	4022:6
3928:11	3995:18	4099:14	3919:7,24	4035:23
4097:21	4108:7	conducted	3920:9,14	4044:19
components	concern	4096:19	4079:25	conserve
3963:19	3900:24	4101:2	confirmed	3877:17
3964:2	3902:2,10	conference	3918:25	3893:15
3967:17	3905:11	3885:25	confirming	3898:5
3976:12,21	4061:15	confidence	3930:10	consider
comprehensiv	concerned	3938:7,8	conflict	3916:21
e 3951:12	3882:18,22	3987:3	4052:22	3957:24
4036:25	3886:3	confident	confused	3989:24,25
comprised	3896:10	3932:22	3894:22	4045:9
4082:24	3938:17	3938:6	3919:5	4099:5
compute	3965:23	confidential	confusing	considerable
3882:7	4060:8	3924:6	3929:22	3933:5
computer	4113:13	3926:23	confusion	considerably
3919:21	concerns	3927:4,17	4058:13	3987:20
computers	3966:11	3930:3	4067:1	consideratio
3878:21	conclude	3931:24	congestion	n 3939:24
computes	3885:6	3932:25	3925:21	4014:4
	3999:19	3933:19	3930:17	4027:13
	concluded			4031:17
				4032:18

4045:5	3930:9	contend	4016:10,15	3997:10
4056:21	3931:22	3948:9	4017:12	converted
4057:13	4022:1	contentious	4060:3	3880:21
consideratio	consultants	3915:8	contracted	converter
ns 3896:23	3927:5	4020:10	4009:4	4077:24
3986:8	3929:16	CONTENTS	contractors	4078:2
considered	consultant's	3866:1	4044:21	4083:2
3883:21	3931:5	context	contracts	4084:1
3924:5	Consultants	3989:16	3941:12	4087:8,12
4052:6	4085:17	contingencie	3942:1	4088:7,8,1
4098:4	4088:1	s 3988:21	3943:14	3,19,22
4099:15	4091:20	4085:24	3960:2,4	4089:7,15
4110:12	consultation	contingency	4009:14	converters
considering	3876:20	4085:21,23	4014:12	4087:3
3883:12	consultation	4086:1,5,2	4100:1,10,	4090:11
3884:20	s 3938:4	3 4088:7	19	converting
3887:14	consulting	4090:7,11	contractual	3911:21
3993:22	4093:24	4092:2	3943:3	convertor
consistency	4094:1	continue	contractuall	4090:6
3883:3	consume	3955:18	y 3948:4	convey
3953:14	3878:24	4055:4	contradictio	3896:3
consistent	4053:10,11	4063:21	n 4056:3	conveying
3885:11	consumer	4064:5	contrast	3929:25
3906:2	3924:22	Continued	3928:1	cooling
3925:1,3	3943:24,25	3866:22	4106:12	3992:22
3930:19	consumers	3888:20	contributes	4021:4
4022:21	3877:22	3905:15	4006:1	cooperate
4061:25	3891:1	3912:24	contributing	3905:12
consistently	3908:9	3920:18	3898:3	co-panel
4074:11	3944:1	3921:20	3993:17	3872:3
constant	3945:17	3935:11	control	copy 3889:17
3980:10	consuming	3945:1	4019:23	Cor 4077:13
constrained	3892:16	3961:20	controls	core 3875:25
4005:9,15,	consumption	3973:11	4019:18	Cormie
25 4006:7	3877:7	3981:24	4024:21	3866:19
constraint	3878:9,11	4000:20	controversia	4068:25
4005:21	3893:25	4011:22	l 3883:4	4112:25
construction	3894:1	4022:10	convenience	4113:4
3873:7	3895:16	4069:3	4069:5	corner
3905:2	3913:3,9	4073:17	convenient	3955:19
3914:8	4011:25	4092:19	4039:3	corporate
3925:19	4013:2	continuing	conversation	4093:5,12,
3983:2	4017:14	3878:24	4061:24	20 4094:13
consult	contain	3947:11	4071:12,17	Corporation
3916:13	4048:18	4054:6	4093:10	4030:6
consultant	4086:5	contract	4104:9	4073:24
3927:10	containing	3943:11,12	convert	
3928:3	3918:24	,18		
		4008:22		
		4014:6,24		

4074:19	4070:22	4103:1,5,8	3987:5,9,1	1,14,16
corporations	4076:12	,11,12	0	4051:8
4098:4	4077:2,3,1	4107:13,15	3988:14,25	4055:6,17
Corporation'	7	,24	3990:6,12,	4056:8,22
s 4077:13	4078:4,15	correlations	22	4058:16
correct	4079:21	4101:13	3991:1,10,	4059:1
3870:17	4080:6,18,	4102:14	15,23	4060:9,23
3872:13	19	cost 3873:5	3992:11,20	4070:11
3873:17	4081:9,13,	3875:22	3994:18,24	4075:2
3874:14	17,18	3878:10,11	3996:18	4080:17,21
3885:7	4082:4,10	3896:6	3997:15,18	4086:22
3890:15	4083:4	3899:2	3998:19	4088:19
3891:1	4085:13	3900:6	4002:24	4114:14
3892:24	4086:18,19	3921:22	4003:10,13	cost-
3898:18	4088:15,20	3922:1	,14	effectiven
3899:22	4090:23	3924:24	4004:6,18,	ess
3908:15,20	4091:3,4	3927:15,22	19,24,25	3928:17,19
3913:4	4092:4,9	3928:5,7,1	4005:3,4	costing
3915:20	4094:10	2,22	4006:8,9,1	4007:5
3918:18	4100:20	3929:4	7,22	4013:11
3920:3,11	4103:9	3942:1	4007:1,4	4039:17
3922:3,4,1	4104:24	3951:3	4008:10	costs
5 3938:11	4105:1,6,2	3952:17,19	4009:19	3899:14
3940:24,25	0 4106:8	,20	4010:6	3906:3
3941:7	4109:15,21	3953:16,18	4011:25	3913:18
3947:25	,22,25	3954:8	4013:2,10,	3914:7
3952:3	4111:12	3961:24	13 4015:1	3924:3
3953:8	4115:11	3962:17	4017:7,15	3925:1,10
3956:5	corrected	3964:2,3,9	4019:10,21	3926:3
3958:1	4101:23	,10,20	4022:16,22	3928:2,16,
3962:21	correcting	3966:20,22	,24	20,23
3964:5,12,	3990:17	3968:17	4025:22	3929:18
22 3970:9	correction	3970:22	4026:15	3930:16
3971:21	3964:19	3971:15	4027:21	3931:8
3978:17	3978:22	3972:11	4032:5	3933:17
3990:14	4070:10	3973:16	4034:23	3948:22
3994:20	corrections	3974:24	4035:8	3961:23
3995:1	3873:20,24	3975:1,11,	4036:13	3963:10
4003:22	correctly	19	4037:20	3967:7
4012:6	3869:18	3976:6,10,	4038:4,12,	3969:15,19
4015:25	3909:8	12,14,15	16,18,20,2	5
4017:9,10	3918:14	3977:10	5	3970:7,25
4034:2	3922:6	3978:2	4039:2,14,	3975:13,15
4042:4	3985:8	3979:3,22,	19,20,23,2	3976:1
4044:10	4113:20	24 3980:5	5	3978:10
4046:8	correlated	3982:4,5,7	4040:14,21	3979:15
4048:4	4103:17	,23	4041:10,17	3984:7
4058:21,23	correlation	3983:1,3,9	,24	3985:1
4059:17,24	4096:15,17	,13,14	4042:18	3987:23,25
,25	4100:18,24	3984:7,22,	4046:4	3988:19
4062:10	4102:10	23	4047:5	3989:1,2,2
4068:15		3985:4,15	4048:2,19	4,25
		3986:14,22	4049:22	3991:22
			4050:3,8,1	

3992:18	country	4029:19	n	3976:7
3997:24	3873:9	4048:1	3866:10,11	3990:6
4001:3,15	4012:14	4054:23	,12,22	3995:5,9,1
4002:6,15, 21,22	couple	covers	3885:13	0,25
4003:3,20	3869:9	3881:16,21	3912:9	4001:4
4004:25	3874:6,10	3896:21	3918:11	4018:3
4006:19	3875:12	3969:20	3940:14	4029:6
4008:16	3887:23	4071:8	3972:21	4037:7
4012:10	3901:18	CPJ	4058:4	4039:16,19
4013:3	3922:12	4076:2,8,1	4069:3	,20,24
4014:13	3936:5	4 4081:1	crowds	4040:1
4015:13	3953:5,25	4084:22	4055:1	4045:2
4017:12,14	3960:12	4085:3,7	Crown 4098:3	4046:14
4018:1	3982:1	4086:12	crude	customers
4027:25	3991:19	4087:25	4030:25	3877:3,4,1
4029:7	4002:2	4088:5,18	cued 3881:3	4,18
4031:24	4007:5	4090:20	cuff 4023:21	3878:1,4,1
4040:1,9,1 9,23	4010:24	4091:3,24	cultural	6 3886:25
4041:5	4018:7	CPJ05	3916:1	3887:2,4,1
4042:24	4038:10	4087:13	current	4,24,25
4049:25	4058:6	4090:10	3966:15	3891:4
4054:21	4112:19	CPJ06-B	3974:9,10	3892:9
4074:22	course	4087:7,14	3983:7	3896:8
4081:8,13	3874:24	CPJs 4075:24	4016:10	3898:2
4088:22	3901:19	4083:24	4027:5	3900:1,5,8
4089:7,10, 11,16,21,2 2	3911:9	cream	4099:5	3902:9,12, 25
Council	3913:13	4041:12	currently	3903:2,4,7
3945:18	3945:6	create	3976:22	3905:5
counsel	3950:20	3986:22	3982:6	3906:8,13, 15
3865:2	3979:13	3991:1	3983:9	3907:14,17
3869:5,8	3980:5	created	curriculum	3909:23
3871:3	3983:21	3876:6	3872:14	3910:16
3917:1	4001:5	creating	curve 4111:6	3924:23
4093:11	4013:15	4037:9	4112:14	3942:17
counsel's	4053:12	creep	cus 4039:25	3945:19
3941:2	4093:3,9	4031:20	customer	3959:8,12
3955:13	4111:20	criticisms	3867:7	3960:6,10, 19 3980:1
count	court 3939:9	3966:4	3877:6,11	3982:9
3922:15	3947:10,14 ,16	critiqued	3879:12	3988:9,17
3938:22	courtesy	3928:25	3880:5	3991:11,17
counterpart	3890:12	critiquing	3882:1,14, 16 3888:10	3992:6,10, 11 3995:23
4014:11	cover	3930:21	3896:17	3996:6,11
counterparti es 4014:11	3984:23	cross	3904:23	3997:7,18
counterparty	4019:21	3916:16,22	3956:22	3999:24
4014:17	4035:6	4069:7	3968:24	4015:22
	4056:8	cross- examinatio	3975:2,5,1 2,25	4018:10,11
	coverage			4028:17,20 ,22,23
	3946:5			4029:1,3
	covered			
	4015:22			

4032:13,17 4033:18 4035:2,18 4041:7 4065:8 customer's 3974:16 3980:6 Customers 3877:15 cut 3895:22 3946:5 4028:11 4046:5 cutting 4037:10 cyc 4052:8 cycle 3902:5 3910:15 3911:5,12 4052:8 <hr/> <p style="text-align:center">D</p> <hr/> dam 3975:7 3982:10 3983:19 3984:7 4002:9 4007:13,18 4010:17 4011:14 4051:7 damage 4013:21 4028:12 4056:19 damages 3938:25 4051:17 damaging 3948:3 dams 3915:18,21 3916:3 3983:19 4005:21 4029:15 4051:8,17 4053:1	4054:2 dangerous 3994:7 darker 3936:1 DARREN 3866:17 4068:23 4074:1 data 3880:15,20 3881:3 3888:18 3889:16,17 3902:21 3904:20 3923:9,19 3924:6,8 3925:15 3929:18 3933:22 3934:12 3938:14 3941:22 3943:20 3944:5 3948:15,25 3952:18,22 3953:7 3975:16 3989:18 4007:8 4062:8,13 data- gathering 3905:12 date 3874:9 3900:2 4079:19 4080:2,5,7 ,13 4109:9 dated 3872:10 dates 4078:24 daughters 3901:18 DAVID 3866:19	4068:25 4113:4 day 3871:7 4063:19,20 days 3869:9 4010:13,17 ,19,22 4011:20 4052:1 de 4045:7 deal 3883:1 3946:13 4036:14,15 4040:11 4044:15 dealing 3876:15 3927:17 3930:3 3942:1 3960:24 4045:25 4064:23 4067:6 4087:7 deals 4066:15 dealt 3875:22 3876:13 3882:24 3885:24 3887:17 3902:11 debt 4057:24 4077:13 4093:6,13, 21 4094:12,23 4095:17,22 4098:13,17 ,20 4099:1,2,3 ,6 4101:3,12 4108:3,16 4109:4,8 4110:21 4112:10,11 ,16	dec 3895:25 decade 4052:22 decades 3908:13 4004:7 December 3875:9,15 decide 3895:2 decided 3875:21 deciding 3883:15 3895:22 3951:9 decision 3887:13 3896:1 3900:6 3982:8,22 4007:23 4027:22 4031:1 4037:8 decisions 3926:19 3948:7 3954:10 4056:17 decline 4107:19 decreased 3878:10 deem 4094:19 deep 3987:8 4057:19 deeper 4041:14 default 4023:4 defect 4034:11 deferral 4036:22 deferred	4080:2 deficient 3957:18,19 defined 3931:11 3989:14 4098:2,21 4108:13 definitions 4098:25 degree 3901:9 4103:7 degrees 3990:21 delivered 3910:25 3975:11 3979:6 3997:6 delivering 3910:16 demand 3988:8 3989:25 3993:1 Denise 3865:17 Department 3926:19 depend 3996:20 dependant 4054:13 dependent 3976:18 depending 3887:7 3888:7 3981:14 3987:20 3993:8 3994:1 4023:18 4049:9 depends 3975:14
---	---	---	---	---

3989:14	design	3902:20	developer	4011:14
4050:10	3873:5	3906:1	4045:15,18	4035:13
4074:11	3874:18	3959:10,19	4046:3	4040:7
depicted	3875:20,22	,21 3960:4	4047:6	4043:2
4104:14	3876:1,3,1	3977:5	developers	4045:10,25
4106:11	0,12,16,22	3994:3	3906:9,13,	4060:25
4108:6	3878:6	4020:2	14 3908:8	4098:25
depiction	3879:7	4021:16	4045:5,11	4099:8
4104:4,15,	3881:2,24	4043:15,18	4046:11	4101:18,19
22 4105:18	3883:10,16	4063:11		,20 4109:7
4106:18	3891:8,21	4095:7	developer's	differential
deposit	3899:12	detailed	4047:8	3992:17
4047:6,12	3906:21	3932:2	developing	differentiat
depreciated	3907:7	4067:23	4045:7	ed 3991:10
4036:12	3912:12	details	devi 3908:24	3996:3,8
depreciating	3928:19	3868:10	deviated	differently
4052:25	3948:13	4022:5	4048:9	4002:24
depreciation	3953:17	4065:22	di 4076:9	differs
3979:13	3954:5,7,1	4098:1	difference	3991:17
depth 3987:9	1	deterioratin	3886:24	difficult
derived	3958:11,17	g 4106:15	3974:14	3871:25
3921:23	3959:4	determinatio	3998:8	3878:19
3934:2	3971:1	n 3987:11	4084:13	3879:8
4088:1	3986:8	4108:16	4094:24	3915:5
4112:12	3991:9	4110:17	4112:13	3940:4
describe	3997:4	determine	differences	4020:10
3927:8	3998:3	3904:24	3896:7	difficulties
3994:19	4001:3	3922:1	3937:9	3889:12
described	4011:14	3969:23	4002:10	difficulty
3868:9	4027:14	3983:2	different	3917:11
3938:15	4028:5	4005:3	3881:3	dike 3908:5
3939:12	4029:10	4014:4	3882:5	dimension
3961:17	4039:23	4101:14	3897:9,20	4101:14
4009:19	4040:5	4112:2	3898:8,9	dimensions
4043:4	4041:5	determined	3899:16	4094:21
4105:13	4043:16	3973:25	3900:3	4101:10
describing	4049:6	4096:16	3913:3	4109:1
3942:11	designed	4110:5	3914:25	dioxide
3959:22	4032:23	determining	3917:2	3909:6
3961:11	designing	4008:9	3936:16	3913:10
description	3876:18	develop	3953:17	3915:3
3867:2	3991:10	3876:22	3957:13	direct
3868:2	designs	3904:20	3963:2	3869:13
4009:5	3877:8,10	3930:19	3967:12,13	3872:8
4025:22	3895:13	3978:4	3978:22	3873:16,21
4043:1	3957:24	4059:4,12	3991:20,21	3908:15
descriptions	det 3901:5	developed	3994:1	3912:2
3969:25	detail	3879:9	3998:2,3,4	3916:19
	3882:19	3889:25	,5	
	3886:3		4002:21,22	
	3892:25		,23	

3918:14	4096:15	disposable	4006:24	4040:1
3962:2	4098:24		4038:20	4110:16
4013:3	discovery	disproportio	4083:25	dollars
4030:5	3939:13	nately	division	3891:11
4107:10	3944:9	4034:12	4074:16	3939:16
directed	3949:1,25	distinct	4076:9	3944:16
3884:1	3950:10,14	3988:3	docket	3959:1
directing	,21,23	3989:18	3947:12	3962:20
4078:14	3951:1	3990:13	4030:6	3975:22
4080:16	discretion	distinction	document	3976:2
direction	4092:14	3988:24	3919:18	3977:2
3906:14	discuss	4001:18	3926:8	3979:1,2
3907:18,20	3874:11	distinguish	3930:23	4006:21,22
3972:20	3877:10	3987:12	3955:10,22	4007:20,23
4031:11,25	3921:22	distribution	3956:4	,25
4044:9	3944:10,18	3868:16	3957:21	4015:14
directional	discussed	3880:22,25	3958:5	4016:25
4055:17	4047:22	3899:1	3959:18,22	4039:21
directions	4052:1	3922:8,9,1	4026:9	4040:2
4003:8	4058:14	8,22	4030:3	4046:6
directive	discussing	3923:10,23	4066:3,16	4058:15,19
3884:11	3970:25	3924:3	4067:13	4059:15
directives	discussion	3927:13,21	4068:19	4060:22
3883:25	3877:9	,22	4079:7	4061:17
directly	3890:14	3928:16,22	4089:2	4091:6
4020:13	3913:1	3937:7	documentatio	domestic
dis 3928:14	3914:6	3963:20	n 3948:12	3982:15,25
4063:5	3915:22	3964:20	3969:22	4011:25
disagreed	3961:22	3965:1,3	documents	4013:2,11
4062:22	3970:25	3967:16	3918:15	4018:10
disagreement	4025:8	3970:7	3935:8	4100:19
3955:6	4071:4	3972:1,5,1	3943:3	4103:2
3979:2	4075:23	1 3973:16	3943:3	done 3871:7
disclosure	4099:4	3974:1,7	3951:25	3875:18
3941:3	discussions	3975:12	3952:15	3884:5
3944:25	4049:22	3978:14	3955:13	3889:22
discount	4052:19	3984:25	3956:1	3905:13
3936:11	4053:18	3991:3	3963:1	3915:6
discounted	dishes	3992:3,6,8	3964:1	3938:13
3903:7	3879:3	3993:9,19	3971:7	3943:7
discounts	3904:13	4000:1,4,5	3978:7	3944:20
3956:24	disincentive	4028:23	4026:7	3945:12,25
discourage	4046:23	4040:8	4029:24	3950:15
3939:22	3910:11	4071:5,15	4064:20	3954:19,24
4045:13	4012:3	4072:15,22	4069:15	3976:4
discovered	displace	4073:15	4070:15	3998:17,22
	3910:7	divide	4071:1	4002:25
	displaces	3976:2	4077:10	4019:8,24
	3910:7	4039:1	dollar	4021:19
		divided	3972:15	4045:16
		3981:11	4021:8	4056:19
			4039:18,22	4062:5

4063:4	3980:19	dur 3883:23	easily	4034:20
dot	4009:8,14	durable	4020:5	4037:6,7
4109:20,24	droughts	4018:20	4040:18	4055:16
dots 4010:3	3980:11	during	eastern	4077:12
doubt	drove	3883:23	4016:3	effective
4037:21	3967:21	3885:12	4079:13	3906:17
downs	DSM 3878:20	3897:21	easy 3870:10	4035:8
3980:14	3928:1	3903:23	4039:9,10	4040:14
downward	3931:7	3910:12	eat 3982:16	effectiveness
4107:20	3932:15	3916:22	economic	s 3922:2
Dr 3918:3	3934:25	3956:23	3942:25	effects
draft	3935:1	3993:13	3943:6	3887:14
3930:21	3948:16	4006:2	3982:21	3893:11
draw 3948:10	3959:16	4093:3	4001:17	3913:2,13
4025:17	3962:16	dust 4021:2	4045:5	3914:24
4026:5	3970:22		4061:6	3915:1
4027:15	3991:8			3930:17
drawn	3992:16	<hr/> E <hr/>	economical	3968:12
4048:14	3994:14	earlier	4010:14,18	4018:9,12
4108:22	3996:10	3900:2	economically	4030:4
drew	3997:5	3911:19	4055:12	4032:4
3925:5,6	4001:5,16	3955:14	economics	4037:1
drilling	4007:14,17	3996:4	3943:2	efficiency
4055:18	4013:15	4004:22	3944:14	3873:7
drive 4006:5	4017:8	4018:15	4007:22	3879:5
4045:5	4018:5,16	4022:14	4054:16	3903:10,14
4056:6	4022:25	4024:12	economists	3909:25
driven	4025:23	4044:1	4056:11	3910:14,22
3966:25	4027:7,21	4045:2	educated	3911:13,16
3967:4	4032:6,21	4050:1	3878:5	,23
3968:1	4033:4,23	4095:20	education	3922:2,10,
3989:2	4035:21	earliest	3885:3	21 3980:12
4009:8,9	4036:3,19	4012:2	3887:15	4007:24
4100:12	4038:14	early	educational	4017:14
4106:14	4042:3,13	3979:11	3872:16	4020:6
drives	4044:13,15	4047:20	3883:9	4024:18
3982:22	4045:9	4095:10	3884:9	4031:14
4024:19	4048:17	4113:9	3907:4	4034:14
driving	4049:13,24	earnings	eff 3915:15	4037:14
3993:8	4050:3,20	4105:14	effect	4043:10
4089:20	duct 4020:21	4106:6	3878:5	4044:23
drop 4056:14	4024:4,10	earthshaking	3891:22	4045:9
4105:19	ducting	4055:16	3895:8	4049:3
4106:14	4020:23	easier	3904:9,10	efficient
drought	due 4042:18	3953:21	3909:9	3891:17
3977:23	Dunsky	3954:23	3913:6,10	3909:20,21
	3869:10	4019:19	3914:10	,23 3910:3
	4001:14	easiest	3915:16	3911:11
	4021:15	3913:19	4009:22	3947:24
	4043:19	3954:18		4042:17
				4095:18

4096:24	electric	,25	4016:3	21
effort	3900:2,15,	electrode	4060:3,7,9	3924:21,24
4007:22	19 3904:21	4092:1	4061:12	3925:17
4008:4	3907:25	electrical	4114:21	3928:10
4103:21	3908:11	ly 3951:25	emissions	3939:16
EFTs 3868:14	3910:2	3952:9	3911:8	3960:20
4072:14,21	3922:9	element	3913:11	3967:14
4073:12	3923:3,18,	4077:24	3915:3	3974:15
eight 3882:5	22 3924:20	4078:6	4015:10	3975:9
3897:7	3925:16	elements	4016:10	3983:14,16
3901:24	3926:1	4077:19	4017:18,22	3984:21
3903:21	3932:7	elevator	4018:13	3985:21
3954:12	4044:8,16	4024:18	4058:15	3986:10
3962:18	4045:1,7,1	eleven	emitted	3988:1,3,1
3981:6	9	3978:8,9,1	4017:21	3,19,24
4005:18	4046:10,16	6 4050:18	employ	3989:1,5,6
4049:23,24	,19	eligibility	4022:15	,7,10,24
4051:5,8	4047:12,14	3902:13	en 4056:11	3993:5,16,
eighty-five	,17	else 3879:2	enclose	17 3997:6
3882:2	4055:17	3885:22	3941:19	3999:20
3909:24	4098:5	3901:17	encounter	4003:6
eith 3881:23	electrically	3909:12	3889:13	4004:25
either	3906:24	3913:15	encourage	4005:3,10,
3871:7	3908:10	3934:18	3878:16,18	15,16,21
3881:23	electricity	3970:11	,19 3888:9	4006:13,19
3895:11	3896:19	4012:24	3893:15	,23,24
3900:17	3899:7,18,	4014:24	3907:8	4008:25
3944:10	20,21	4020:16	4041:11	4010:6,14
3946:12	3906:6,9,1	4021:3	encouraging	4011:5,6,1
3950:3	0,11	4024:20	3936:17	7,18
3960:12	3907:11	4035:13	endangered	4012:3
3976:3	3908:22	4046:13	3914:10	4013:19
4021:16	3909:7,10,	4052:3	energy	4017:13,14
4029:15	11,19,22	4053:13,15	3868:10	4019:4,6,8
4045:22	3910:8,11,	else's	3877:11	4020:6
4063:9	12,20	4025:18	3878:24	4021:3,7
elaborate	3911:2	elsewhere	3881:22	4022:6
4051:11	3913:14	3906:3	3882:1	4024:7,20
elaborated	3914:19	3997:20	3893:15,16	4029:15,16
4028:14	3915:14	3998:20	3896:22	4031:14
elaboration	3974:25	4012:4	3901:3,7	4034:14
4028:7	3975:3	4021:13	3902:4	4037:11,14
elasticity	3982:9	4046:23	3904:2,9,1	4039:4,5
3888:8	3990:14	4062:4	2	4040:11,15
3929:10	4000:11	email 3868:5	3906:4,16	4041:3,4,6
ele 4013:22	4005:13	3918:23	3908:8,9	4042:16
elected	4012:1,4,1	3920:7,14	3913:4	4043:10
3900:1	7	embedded	3915:14	4044:19
	4013:2,22		3922:2,10,	4045:9
	4045:4,14			4049:3
	4059:23			4050:24
	4062:18,24			4052:20
				4053:12,17
				4055:8,17

4067:25	4018:12	establishes	3985:5,15	4115:3
England	4023:4	3905:3	4077:12	everyone's
3937:18	4040:24	estimate	4080:10,12	4068:14
enjoy 4113:4	4051:10	3868:13	4084:21	everything
Enstar	equipment	3896:6	4086:22	3899:19
3923:16	3878:22	3928:20	4089:16,23	3945:25
E-N-S-T-A-R	3879:5	3965:1,2	estimating	3959:3
3923:16	3899:2	3966:15	3987:9	3971:2
entered	3942:23	3970:6,9,1	3998:5	4021:2
4014:24	3981:15,21	3 3975:19	4006:19	4056:12
entire	3992:7	3976:15,22	estimation	evidence
3925:7,12	3996:12,16	3977:9,12	3976:25	3869:9,13
4008:3	4018:18	3978:1	et 3904:2	3870:21
4036:13	4088:22	3979:21	evaluating	3871:8
entirely	4089:7,16	3983:12	3959:16	3872:18
3884:24	equity	3984:6	evaluation	3884:13
3938:22	4077:14	3995:4	3926:3	3885:8
3968:24	equivalent	3996:25	3962:15	3907:16
3990:16	4015:16,17	4002:24	3970:22	3918:17
4034:15	,18	4008:24	4008:2	3920:4,20
4049:9	4049:19	4051:3	4022:16	3921:21
entities	4112:2,3	4063:6	4048:17,21	3927:15
3924:21	error 3955:2	4072:13,20	4049:8	3940:20
3925:1	especially	4073:11	evaluations	3948:11
3988:4	3875:24	4080:17,21	3928:1	3949:4,20
4098:22	3878:5	4081:7,17,21	evening	3956:8
entitlements	3900:4	4082:2,22	4112:22	3962:1,18
3988:5	3957:10	4083:23	4115:2	3963:4
entity	3996:14	4084:9	evenly	3965:11
3934:20	4053:9	4085:7,11,16,20	4038:18	3984:14
4035:18	4054:12	4086:16,21	event	3985:19,20
env 3913:2	essence	4087:12,25	3962:24	3990:20
envelope	3932:20	4088:1,12	4009:14	4014:10
4020:19	essential	4089:7,9,2	eventually	4025:13,18
environment	4077:5	2 4090:6	3877:3	4026:10
4046:17	essentially	4091:1	3925:6	4027:18
environmenta	3899:19	4092:8	everybody	4037:18
1 3906:4	3914:18	estimated	4007:21	4058:25
3913:2,6,10,18	3925:6	3928:22	4027:25	4060:8
3914:5,7,24	3929:10	3975:15	4046:13	4097:2
3915:13,16	3978:13	4014:25	everybody's	Ex 4033:13
3985:1	3982:14	4081:12	3996:14	exactly
4011:25	4029:9	estimates	4029:16	3876:14
4013:20	4043:3	3882:14	everyone	3880:24
4016:9	4083:22	3927:24	3869:10	3970:23
4017:6,11	4088:13	3929:11	3936:2	3975:14
	4092:5	3946:9	3955:12	3987:21
	established	3948:22	4025:18	3989:13,15
	4049:23	3962:16		3995:4
		3977:14		4020:8
				4043:4

Examination-in-chief 3866:9 3879:18	4021:17 exc 4074:23 Excel 3889:4,8,14 4 3918:15,24 3919:2,9,11,14,17,20 3952:2	exhibit 3867:2 3872:9,14 3873:15 3879:21,25 3920:24 3921:1 3955:15 3978:7 3984:14 4064:25 4065:3,9,12,17,19 4066:1,6,8,18,21,25 4067:1,6,10,18,20 4068:1,3,9,11 4069:6,8 4070:16 4076:5 4078:13 4082:8,10 4083:7,8,10,12,15 4087:4 4090:15 4095:8 4097:25 4102:8	expect 3976:24 4003:2 4036:11 4039:12 4085:22,25 expectancy 4052:9,16 expectations 4014:5,12 expected 3906:20 3959:10 4002:15 4052:9 expecting 3882:25 4095:24 expenditure 4073:23 4076:16,21,25 4078:17 4085:8 4086:17 expense 3979:14 4037:10 4046:6 4096:12 4104:22 4105:14 4106:6,11 4107:3 4108:4 expenses 4075:6 4113:13,16 4114:11 expensive 3906:15 3968:10 3992:10 3993:11 4004:1 4035:9 4037:16 4046:12,13,14,15 4055:10	4056:6,13 4057:8 experience 3872:16,17 3980:9 3983:7 expert 3870:24 3871:4,5,21 3872:1 expertise 3871:6,16,23 3872:6 3973:20 experts 4053:17 explain 3877:4 3908:24 3910:14 3949:5 3958:1 3966:19 3974:4 3991:14 4034:8 4038:11 4103:22 explained 3878:9 4076:15 explaining 3881:5 explanation 3884:19,22,24 3954:19 3974:19 3999:18 4028:8 explicit 4089:9,21 explicitly 4017:7,22 explore 3953:21 3954:2 3994:16 4084:20
examine 4094:11 4098:11 4101:25	examining 3883:22	except 3930:17 4000:10 4040:22 4113:15 exception 3923:4 4074:23 exceptions 3902:23 excerpt 4093:19 excerpts 4026:9 excess 3977:16,21 3989:3,4 excluded 3934:4 excruciating 4095:6 excuse 3945:14 4000:6 4009:17 4082:25 excused 4009:13 4071:21 excusing 3943:12 executive 4027:3 4074:15 4076:10,14,18 exhausts 4020:25	exhibited 4100:17 exhibits 3866:3 3867:1 4067:3 exist 3947:20 4001:17 existing 3907:24 3969:5,6,9 3983:19 4031:24 exp 4053:17 expand 3874:7 expansion 3914:18	examples 3881:9,12,15 3886:13 3887:9 3896:3 3933:15

export 3976:17,19 3977:16 3982:5,16 4008:9 4012:16 4014:6 4015:22 4017:12 4058:25 4059:4 4060:14 4096:11,18 4100:1,10, 19 4101:12 4107:25	external 3902:12 4067:7 externalitie s 4018:8,11 externally 3953:11 Extra 4102:15 extraprovinc ial 4109:5 extra- provincial 4102:20 4103:13 extreme 4103:5 extremely 4054:25 eye 3927:16 <hr/> F <hr/> fac 3942:18 face 3887:24 3900:5 faced 3877:22 4099:11 facetiously 4093:25 facets 4094:18 facilities 3914:22 3980:21 3982:14 4000:2 4009:18 4054:11 facility 3942:18,19 3981:15 3983:13 3987:25 3995:20,21 4010:21	4011:3,4 facing 3874:12 4056:16 fact 3882:23 3883:24 3890:5 3898:24 3901:2,12 3919:2 3938:4 3946:3 3952:16 3956:8 3957:6 3960:24 3969:24 3970:16 3982:20 3995:5 4004:13 4033:24 4042:14 4048:1 4052:17 4060:1 4074:20 4075:16 4077:6 4089:8 4108:12 factor 3944:19 3969:16 3970:17,18 3971:3,18, 20 3972:17 3976:4 3979:14 3981:11 3998:19 4003:7 4009:3 4016:9 4102:17 factored 4012:16 factors 3904:11,18 3959:16 3968:2 3991:21	3993:8 3998:10 4017:4 4050:6 4095:9 4099:15 4100:2,12, 17 4103:2 4114:1 factory 4000:9 facts 3979:20 fails 4029:4 failure 3994:25 4046:20,21 fair 3882:19 3913:17 3917:10 3927:7,8 3948:19 3972:20 3990:23 4012:5,12 4013:7 4017:5 4032:9 4093:22 4094:15 4095:14 4099:16 fairest 3904:6 fairly 3877:14 3878:3 3945:15 3952:10 3989:12 4046:19 4049:1 4071:4 4103:17 fairness 3917:4 fall 3891:5 3892:11 3893:4	3993:16 falling 3892:10 falls 3877:15 familiar 4037:21 4043:20 familiarity 3875:17 families 3900:25 3901:13 3902:4 family 3875:16 3901:10 3903:19,25 3905:2 3918:8 fancy 3904:16 4056:2 farm 3942:15 fast 3887:13 4052:19 father 3875:12 feature 3954:6 February 3918:22 Federal 3960:20 feedback 4056:18 feeding 4078:7 feel 3891:13 3994:9 4012:8 feels 4045:17 fees 3906:23 3908:7
---	--	--	--	---

4045:12	3928:16	4100:25	4055:13	4106:4,8,2
fend 3906:25	3929:17	4106:13	4064:22	3
FERC 3960:23	3933:9	finished	4078:17	4109:9,19
Fernandes	3935:1	3912:2	4079:12	4110:13
3865:6	3941:19	4072:1,4	4093:18	4111:1
fewer	3942:2,3,1	firm	4099:24	4112:2
3877:19	4 3950:25	4009:10,12	4105:11	fixed-rate
fibreglass	3951:5,12	first	firstly	4094:25
4021:2	3959:8	3867:5,8	3950:9	4098:11
fiction	3960:20	3874:22	4052:7	4112:4,11
4054:8	filings	3875:4,15	first-year	flagged
field	3926:17	3879:10,12	4064:8	4001:24
3872:23	final 4075:16	3880:3,6	fiscal	flat 3877:25
fifteen	final 3878:1	3881:12,14	4074:13	3881:11
4014:19	4047:25	3886:13,16	fish 3981:17	3888:5
4052:1	4049:21	,18,20	five 3881:20	3903:5,6
fifty	4076:13	3888:3,24	3882:10	flatter
4007:23	4096:20	3891:6	3895:2,5,1	4107:11
4064:8	4097:19	3892:12	1,16	flawed
figure	finally	3895:5,13,	3897:6,14	3965:4
3890:3	3887:22	24	3905:1	flaws
3900:13	3905:20	3896:17,21	3917:13,17	3965:25
3903:11	3963:16	3897:3,4,5	3922:8	flexibility
4020:7	4068:5	,9,15	3924:8,15	4054:14
4040:17	finance	3898:11	3932:3,4,2	flip 4030:10
4070:17	4108:4	3900:4	1	4070:15,25
4081:16	financial	3902:8	3999:3,4,6	flipping
4091:19	3906:3	3904:7,24	4004:6	4091:13
4103:7,22	4027:5	3905:4,19,	4049:24	flip-side
4104:12,25	4077:2	23 3908:20	4053:23	4026:8
4105:3,22	financing	3915:17	4059:4,5	floating
4108:20	3907:14,19	3916:12	4078:7,14	4093:6,13,
figuring	3979:14	3918:23	4079:20	21
3899:10	4053:6	3919:3,10	4080:2	4094:12,20
4004:17	finds 4028:1	3920:22	4100:15	,22,25
file 3889:10	4111:6	3937:11	five-two	4097:3,4
3941:18	fine 3894:23	3951:12	3962:19	4098:11,13
3944:9,21	3984:3	3954:11	fix 4105:17	,19,21
filed 3872:9	4022:3	3955:17	fixed 3877:6	4099:1,3
3873:15	4039:11	3966:21	3914:18	4101:3,12,
3918:23	4041:18	3970:8	3982:14	20 4103:24
3929:20	4056:15	3975:15	3987:23,25	4107:3,17
3984:14	4061:8	3976:3	4093:6,13,	4108:2,9,1
3985:19	fined	3991:20	21	5
4067:5	3939:15	3995:16	4094:12,20	4109:4,8,1
4068:19	finessey	4005:7	4098:19,21	9,25
4070:8	4107:9	4026:22	4101:21	4110:11,20
filing	finish	4030:24	4103:24,25	,24
		4035:5	4104:23	4112:10,16
		4036:15	4105:24	
		4047:5		
		4054:1		

flow 3983:18	,18,22	4053:1	3920:21	4034:16
flowing	forecasted	forward	3933:2	fuzzy
3974:13	4061:13	3887:12	3953:22	3902:19
4096:25	forecasting	3908:4	3955:23	
4097:2	3925:25	3930:11	4093:24	<hr/>
4103:23	4009:25	3970:5	frontier	<hr/> G <hr/>
flows 3974:9	4074:3	4027:1,8,1	4095:18	GA 3912:14
3980:10	forecasts	0 4072:19	4096:24	GAC 3865:10
fluctuating	3907:22	4083:24	fuel 3874:13	3866:6
4105:8	3925:15	4086:22	3905:18,21	3868:3,5,7
fluctuation	3930:24	4096:4	3906:20	,10 3872:9
4105:4	3931:1	forwarded	3907:8,21	3875:1
fo 3890:24	3960:11	3919:11	3913:1	3877:2
focus	4059:1	fossil	3942:1	3879:22
3955:3,5	4073:24	3909:14	3948:15	3888:23
4082:7	4085:8,24	4009:18	3950:23	3912:20,21
4096:23	forget	fouled	3952:25	3919:10
focusses	3949:13	3889:20	3971:1	3920:14,24
4034:12	Forgetting	four-six	4044:2,8	3961:15
focussing	3903:16	4107:14	4045:20	3984:14
4044:13	forgive	Fox 4078:3	4060:15,21	4022:5
follow-up	4113:3	fracking	4061:25	GAC/Manitoba
3881:7	form 3914:16	4055:18	4062:4	3888:24
3937:15	3924:23	frag 3914:9	fuel-	3918:16
3982:1	3934:15	fragmentatio	switching	GAC/MH
4072:24	3956:14	n 3914:9	4058:20	3921:7
footnote	4048:2	franchise	full 3879:2	GAC/MH-2-23
3970:15	formal	3923:1	3900:5	3963:12
3971:4,16	4012:18	frankly	3949:1	GAC-6 3867:3
foray	4074:10	3917:1	4019:13	3868:4
3983:22	4076:18	3930:2	4097:14	3879:25
force	format	free 3910:20	4099:24	GAC-8F
3888:15	3889:8,13,	3994:9	fully	3919:10
4009:17	14	4039:17	3883:21	GAC's 4022:1
forecast	3919:18,25	freed	fulsome	Gange
3957:6	3952:2,3	3909:12	4048:21	3865:10
3959:5	formula	freezing	fundamental	3866:9
3976:18	3890:3,6	4019:2	3951:1	3869:11,18
3977:2	formulas	frequency	funding	,20,21,22,
4008:8	3919:19	3880:15,20	4075:5	23,25
4059:5,13,	3920:2	,23,25	furnace	3870:1,5,7
20,23	forth	3889:5,7	3911:16	,8,11,13,1
4075:17	4097:10	3921:8	future	6,17,20
4076:16,21	4111:25	friendliness	3939:22	3871:10,18
4077:1,2	forty	3914:5	3967:20,22	3872:4,12
4078:18	4010:12,17	front 3872:7	3976:18	3873:10,14
4113:18,24	,19,21		4008:8,23	,19,25
4114:4,6,7	4052:18		4015:1	3874:16,23
			4016:24	3875:9
				3879:18,19

3883:5	4044:22,23	1 3968:21	,20 4004:6	3910:22
3885:7	,24,25	3984:23	4006:13	3936:22
3888:20,21	4045:6,19,	3997:24	4007:12	3981:16
3889:2,11	22,23	3999:20	4008:2	3985:12
3890:13,17	4046:2,5,1	4007:14	4012:4	3995:8
3900:21	0,15	4032:7	4034:18	3998:7
3905:15,16	4047:15	4034:25	4035:19	4029:1
3908:14,17	4052:8	4049:5,13	4036:4,22	GHG 4051:2
3912:1,3	4055:2,19	4111:11	4040:8	4060:23
3917:8,15	4062:18,23	generate	4050:14	GHGs 3913:6
3918:3,4,5	gas-burning	3936:24	4052:15	4012:16
,6,9,14,20	3909:20	3954:3	4065:8,16	4014:13
3919:4,12	gases	4009:7	4067:15	girlfriend
3920:9,11	3913:18,23	4011:17,18	generation-	3901:20
3921:6,10,	4013:10	generated	level	given 3874:3
13,17	gas-fired	3910:8	3929:13	3895:14
3933:7,14	3910:3	3944:3	3930:16	3920:9
3941:6	3911:11	3975:9	generator	3926:11
3950:19	gas-	3996:24	3909:14,16	3938:7
3999:1,7	generated	generating	3913:20	3950:5
Gange 's	3910:11	3988:16	3974:15	3990:17
3869:25	gather	generation	3975:4,5,2	4008:5
3884:22	3940:20	3909:13	4	4009:5
gap 4020:25	gauge	3922:25	3979:8,10,	4013:24
gas	4026:15	3923:3	22 3980:2	4014:4
3891:15,16	gen 3922:24	3927:13	4034:21	4027:5
3900:8,18	3979:10	3928:1,9,1	generators	4036:4
3904:21	general	2,21	3980:25	gives 4039:2
3906:6,8,1	3864:7	3929:8	4006:3	giving
2 3907:11	3870:25	3931:4	4010:25	3886:21
3908:1,21	3915:5	3936:22	generic	3952:17
3909:6,9,1	3927:23	3963:19	3966:18	3984:5
1,16,24	3940:17	3964:3	generous	4031:5
3910:1,7,1	3949:24	3967:13	3912:13	glare
4,15,17,19	3957:11	3975:1,10,	geothermal	4018:22
,23,25	3958:8	11,17,21	4065:23	Google
3911:4,5,6	3980:25	3976:6,14,	germane	3952:7
,21	3988:23	15,21	3931:20	Gosselin
3913:8,9,1	3991:16,19	3977:9,23	gets 3901:3	3864:14
2,16	3992:9	3978:2,10	3947:14	gotten
3922:8	3998:12	3979:4,5	3975:13	3942:22
3923:23,25	4006:6	3980:9	3977:21,22	government
3924:20	4016:20	3982:5	3995:12	3902:14
3925:15	4020:4	3983:9	4057:8	GRA 3956:3
3926:1	4034:20	3984:24	4076:15	4104:4
3930:24	4045:10	3985:4,14	4106:10	grace 3909:2
3953:12	generally	3986:22	getting	grade
3989:8	3877:19	3987:5,12	3878:7,12	
3992:25	3895:21	3988:25	3902:15	
4010:15,18	3939:6,9,2	3991:2,23	3909:22	
4012:10		3992:20		
4040:19		4003:13,14		

4049:10	3928:3,7,1	guided	happen	4008:7
gradually	1 3931:23	4024:16	3954:9	4009:7
3925:5	3935:9	guideline	4031:21	4010:17,18
grandfather	3938:5,9	4073:25	4052:21	4019:8
3875:13	4028:25	4075:3	4053:8	4029:16
grandfathere	4066:16	guidelines	4054:9	4051:20
d 3900:1	4067:3	4074:5,10	4063:11	4101:12
grandson	4098:1,2	4113:10	4104:19	4102:18
3901:19	grouping	guiding	happened	4112:3,9,1
graphical	4067:4,13	3936:17	3874:9	0 4113:1
4105:18	groups	guts 4028:11	happens	head 3891:20
great	4098:13	<hr/>	3954:11	heading
4040:11	growing	H	3955:16	4102:15
greater	4044:16	habitat	4053:3	heads 3936:3
3993:12	growth	3914:9	happy	health
4001:16	3966:23	Hacault	3888:12	4018:3
4013:3	3967:1,5,6	3865:13	3890:11	4020:12,17
4019:10,11	,7,11,21,2	half 3882:6	3898:20	,18 4021:5
4033:11	3	3910:17	hard	4024:13
4036:21	3968:2,7,9	3911:4	3954:21,22	4050:8
4102:18	,15,18	4016:17	4019:15	hear 3886:6
4111:17	3976:2,3	4050:12,15	4021:9	3892:15
greatest	4003:24	4051:5,9	4023:10	3908:19
4111:7	GS 3996:11	4072:2	4024:8,20	4094:8
Greek 4056:2	3997:18	4075:21	4054:10	4113:20
Green	3998:9	4092:13	harder	heard
3870:22	guess	4097:14	3891:14	3908:25
greenhouse	3898:22	halfway	hardly	3916:18
3913:12,18	3900:23	4085:2	4029:7	3918:13
,23	3901:5,10	hampered	haven't	3948:13
4012:10	3902:1,5	3949:3	3875:7	3999:18
4013:10	3907:13,24	Hampshire	3884:5	4010:4
grey 3944:22	3910:7	3923:4	3892:2	hearing
grid 3923:16	3912:5	hand 3899:6	3936:18	3871:17
4100:13	3934:23	3969:12	3949:22	3874:9
gross	3936:21	3979:16	3978:3	3882:21,25
3969:14	3952:8	4008:22	3983:12	3883:11,15
ground	4003:11	4063:9	3986:20	,18,19
4062:19	4004:22	4076:6	3989:18	3886:1
ground-	4007:5	4107:17	4002:25	3913:22
source	4008:20	handfuls	4014:15	3916:25
3911:13	4010:11	4053:11	4036:11	4052:2
group	4039:8	handout	having	4053:9
3924:24	4056:20	3881:8	3871:4	4093:3
3925:9,12	4063:18,20	hands-on-	3901:9	hearings
3926:10,25	guidance	type	3902:11	3945:4,20
	4040:3	4072:25	3907:6	3946:17,22
	guide 3986:7		3914:23	3979:11
	4028:4		3948:21	heat 3900:2
	4038:5		3968:5	3907:25

3910:1,2,1 8,24,25 3911:13,22 3974:7,9 4062:20 heated 3906:24 3908:10 heater 4024:6 4044:23,25 4045:1,19 4046:5,19 4047:12 heaters 3906:24 3908:12 heating 3882:16 3897:22 3899:19,20 ,21,22,25 3900:15,19 3904:19 3905:22 3906:5,6,1 0,12 3907:15 3908:21 3910:20 3911:3,8 3992:21 3993:5,7 4021:4 4024:21 4044:8,16, 17 4045:6,7,2 2,23,24 4046:10 4060:25 heavily 3993:17 4003:5 4006:1 hedge 4101:12 hedging 4110:6,8 HELD 3864:19	he'll 3885:6 help 3903:12 3974:4 3985:17 4004:14 4013:20 4031:12 4033:15,18 4079:1 4081:2 helped 3937:24,25 helpful 3896:25 3936:16 3946:24 3954:8 4112:18 hence 4108:8 he's 3884:25 3901:20 high 3886:18 3899:7,8 3911:12 3918:6 3969:6 3981:9 3988:21 3989:7,11 3992:25 3993:1 4006:2,11 4044:22 4094:9 high-cost 3898:4 high- efficiency 3910:15 higher 3877:8,12, 16,17 3878:2,4,1 3,15 3881:20 3886:16 3887:2 3891:12 3893:4,6,2 3,24	3897:20 3898:18,25 3899:3 3902:24 3903:3 3947:15 3959:21 3969:19 3976:8 3979:25 3980:6 3982:15 3983:13 3991:25 3993:1,3 4001:15 4002:6,15 4003:3,4 4007:13 4024:5 4029:17 4035:11,12 4100:17 4103:7 4111:12 4112:5 higher- voltage 3992:5 highest 3898:16 high-level 3976:21 high-price 3992:23 high-voltage 3992:11 4000:1 historical 3904:23 3986:3 4104:17 historically 3967:22 history 3875:17 hit 3993:10 hits 4004:8 hold 4074:20	4113:12 holding 3922:13 holds 4113:18 hole 3908:5 home 3871:7 3903:21,22 3904:3 3909:25 3910:20 4000:14 4018:25 4024:9 homeowner 3901:4 homes 3908:11 3969:8 4000:7 4045:7 4060:24 hooking 3906:23 4045:12 hook-up 3906:23 3908:7 4045:12 hope 3884:6 3937:12 3973:20 4007:20 4057:13 4058:13 4060:16 4104:10 hopefully 4021:25 4030:23 4068:13 4109:12 hoping 3935:13 hot 3878:25 4011:1 4024:7 hou 3908:11	hour 3877:17,18 3881:14 3882:4 3897:8,11 3962:19 3964:4,11, 21 3971:2,24 3972:1,5,6 3974:25 3975:2,4,6 ,9,11 3977:2 3978:9 3988:13,14 ,17 3990:12 3992:21,22 3993:5,6,7 3994:1 3995:19,20 3996:19 3997:10 4002:10 4005:17 4013:18 4028:2 4039:3 4041:2,3,4 ,6,8 4075:21 4092:13 hours 3867:5 3877:23,25 3878:2 3879:10 3880:2,17 3881:13,16 ,18,19,21, 24 3882:12,15 ,16 3887:1,6 3896:17,19 3897:3,6 3905:4 3910:12 3956:24 3959:10 3975:3 3981:7 3989:12
---	--	---	--	--

3993:19	4111:5	3977:10,13	4113:11	4065:15
4005:11,18	hurt	3978:10	Hydro/GAC	4068:7
,20	3903:10,13	3980:9,21	3920:21	4088:14
4006:4,10	HVAC 4044:21	3982:24	Hydro/GAC-4	4095:12
4011:7	HVDC 4088:22	3984:7	3920:23	hypothetical
4039:1	4089:7,16	3985:14,18	Hydro/GAC-4B	3954:3
house	Hydri	3986:7,17,21	3922:7	<hr/>
3900:19	3871:11	3987:25	Hydro-based	I
3901:3	hydro 3864:6	3989:15	4005:14	i.e 4110:7
3909:6	3865:5	3990:7,14,16	hydroelectri	I'd 3874:19
3910:18	3866:15	3993:24	c 3980:24	3886:9
3911:1,15	3868:13	4001:8,13	4052:15	3888:12
3969:3	3871:12	4002:16	hydroelectri	3901:23
4045:6,17	3874:4,13	4005:15,23	city	3903:15
4046:2,7,1	3876:15,18	4007:13,18	3914:6	3905:17
4 4047:9	,20	4008:20,22	Hydro's	3916:15,20
household	3879:14	4009:13,16	3867:11	3918:21
3901:2	3880:19	,17,18	3876:8	3931:18
3904:8,19,25	3881:1	4010:13,21	3879:15	3961:22
households	3882:2,14	4011:2,4	3880:11	3966:5,14
3902:21	3884:1,13	4014:6,9	3881:10,11	4025:8
housekeeping	3885:18	4015:11	3888:17	4030:10
4080:25	3886:24	4016:8	3890:8	4050:21
houses	3888:5,13,24	4017:7	3914:17	4052:3
3969:10	3889:25	4018:10	3920:5	4058:7
4020:24	3890:24	4025:10,23	3940:7	4094:8
4046:9	3894:8,13	4026:11	3956:3	4095:7
How's 3937:4	3899:14	4027:7	3960:8	4112:21
hundred	3905:6,7,12,20,23	4042:3,16	3962:16	idea 3881:6
3872:25	3906:7,16,21	4043:4,10	3964:1	3983:12
3881:20	3907:2,12,17,22	4046:8	3965:12	4014:20
3882:11,12	3908:3,23	4047:22	3970:9,17	4062:17
3895:3,5,6	3909:8	4048:3,8	3976:18	ideally
,12,16,17	3914:13,18	4049:23	3980:1	4024:15
3897:13,14	,21 3915:1	4050:13	3982:6,11	ident
3967:10	3916:23	4054:6,15	3990:22	3955:20
3970:17	3918:17,21	4055:3	3994:17	Identificati
3971:19	3919:1,8	4058:3,4,19	3996:1	on 4095:9
3972:17	3925:23	9 4059:12	4009:5	identified
3975:3,20,23	3948:2,11	4060:12	4012:17	3906:16
3981:6	3956:22	4062:8	4015:8,22	3952:14
4036:14	3960:24	4063:3	4022:12	3955:20
4041:6	3963:2	4065:1,7,24	4026:10	3956:4,8
4046:6	3964:8,19	4067:4,5,13,14,17,22	4027:21	3966:1,4,8
4052:17	3965:4,23	4068:1,9,19,21	4028:8	3996:25
4053:1	3966:18	4069:5,16	4036:3	4012:10
4064:7	3970:21	4070:8	4042:13	4013:3
4070:19	3972:13	4071:23	4044:2	4025:2
4101:19,20	3976:15,16	4072:13,19	4045:20	4030:11,21
4109:21		4073:11,21	4058:16,25	,24
		,24 4099:6	4063:16	

4041:16	4107:12	4009:11	implicit	3946:14
4042:14	illustrative	4010:2	4042:19,22	incentive
4043:12	4104:6	4011:23	,24	3891:12
4044:4	im 4110:19	4015:14	import	3898:4
4102:17	I'm 3869:8	4016:13	4008:5	3900:15
identify	3874:3	4022:2	importance	4029:8
3924:6	3879:21	4025:16	3915:4	4039:18
3925:14	3880:24	4042:10	important	4046:11
4042:1	3881:4	4044:1	3939:25	incentives
4050:2	3882:18,21	4048:12	3944:20	3877:14
4095:11	3884:24	4049:20	3954:6,14	3878:15
4101:3	3886:5	4051:10	3958:18	3908:8
IFF 4075:17	3888:21	4064:3,11	3959:4,5	4044:22
4077:5,7	3890:1,11	4073:6,22	3977:12	inclined
4113:18	3891:19	4075:8	4001:18	3897:19
IFF11	3893:24,25	4077:25	4009:3	4045:2
4113:25	3894:3,5,6	4079:16	4024:13,14	inclining
4114:19	,10,21	4083:11,13	4112:8	3874:11
IFF12	3900:21	4085:23	importer	3876:16
4113:25	3902:3,8	4086:1,6	3977:18	3877:2,5,1
4114:10,13	3905:6,13,	4092:11,12	impressed	3,24
,22	20 3908:20	,14	3875:12	3879:7
ignoring	3913:22	imagine	impression	3882:20
4023:17	3914:3	4054:5	3876:18	3883:10,20
4034:15	3916:21	impact	4061:16	3884:2
I'll 3872:20	3919:5,21	3894:4	improvement	3885:5,10,
3874:17	3921:11,24	3898:15	4110:19,25	19
3877:10	3922:6,17,	3915:14	improvements	3886:2,14
3879:23	22 3925:13	3916:1,2,3	4024:11	3887:3
3916:9,12	3929:2,23,	3991:2	improves	3890:14
3930:1	25 3930:2	3992:18	4021:5	3893:14
3941:8	3935:13	4011:25	improving	3898:2,6,8
3963:6	3938:21	4025:21	3879:5	,15
3970:12	3940:11,16	4026:13,23	3931:13	3899:17
3973:22	3941:12	4030:13	4019:22	3907:5
3977:7	3943:21	4031:3	4020:19,21	include
4025:6,25	3945:11,14	4033:21	4024:18	3953:7
4037:23	3949:9	4094:11,12	inability	3963:3
4047:15	3951:22,23	4101:11,25	3956:9	3966:22,24
4070:9	3961:2	impacts	inappropriat	3994:18
4079:12	3962:12	3958:10	e 3937:14	4000:25
4082:23	3965:8	4034:13,16	inappropriat	4013:10
4084:21	3972:1,18,	4036:20	ely	4014:12
4086:8	22 3973:13	implemented	3986:17	4017:24
4102:2,15	3979:3,11	3883:16	INC 3894:14	4018:11
4103:6	3984:1,11	3887:8	in-camera	4019:14
4108:21	3985:15	4048:3	3945:4	4044:20
illustrate	3989:16	implementing		4051:2,19
3896:12	3990:3	3896:10		4073:3
4106:18	3999:15	implications		4075:14
	4002:14,19	3969:25		4085:24
	4008:7,15			4086:1

4088:6	4102:1	3894:8	4114:8	3996:5
4091:25	4103:23	4003:21	indicated	4000:11
4098:2	4105:5,8,1	4018:23	3879:20	4007:25
4099:2,7	3 4106:6	4034:22	3907:4	4053:10
included	4108:6,10,	4050:12	3911:18	4056:4,7,2
3876:10	12 4110:10	4113:14	3918:14	4
3934:4	incomes	increases	3921:25	industrials
3941:5	3903:25	4075:2	3941:2,6	4056:14
3942:16,21	inconsistent	4114:14	3949:14	industry
,25 3963:1	4035:24	increasing	4010:7	3941:15
3965:8	inconvenienc	3959:2	4014:10	3952:6
3974:22	ed 3901:11	increasingly	4061:24	inexpensive
4004:3	incorporate	4056:13	4074:9	4004:8
4013:25	3987:10	incredibly	4089:2	4040:15
4016:9	4034:22	4057:19	4100:22	infimest
4034:9	incorporated	incremental	4102:19	4029:3
4042:2	3943:1	3868:14	4113:12,23	infinitesima
4049:25	4061:18	4072:14,21	indicates	lly 4029:3
4051:5	4074:25	4073:12	3894:14	inflation
4067:15	4076:16	4075:5	4088:11	3936:11
4085:21	4114:12	incrementall	4103:11	3953:12
4088:8	incorrect	y 4056:12	indicating	4114:16,18
4090:12	3937:21	increments	3942:3	,19
includes	increase	4057:23	4065:7	inflow
4009:7	3888:9	indeed	4110:19	4095:12
4050:8	3894:11,12	4085:15	indication	info 4016:19
including	,14	4102:12	3884:25	inform
3874:11	3909:15	independent	3902:20	3887:21
3883:25	3974:11	3927:9	4044:7	3970:25
3904:18	3975:20,23	3930:9	4104:18	information
3915:17	3976:10	3978:1	indications	3880:16
3916:2	3997:17	3982:14	4067:7	3887:11
3931:7	4011:16	3996:19	indicative	3888:23
4005:14	4019:20	4049:12	3966:17	3899:13
4019:12	4027:12	4057:2	indirect	3912:17
4038:8	4028:19	4093:12	4089:10,21	3914:16
4040:22	4029:9	indexing	individual	3915:12
4062:5	4031:16	4109:18	3931:9	3916:23,25
4078:7	4074:21	4111:11	3937:23	3917:5
4113:17	4081:12,20	indicate	3950:7	3918:19
inclusion	,22	3868:11	individuals	3921:2
3985:16	4084:17	3890:23	4032:20	3926:23
4089:21	4087:17,20	3924:5	indoor	3927:4,6,1
income	4089:6,14,	3962:18	4021:5	0,17
3890:23	20 4091:5	4004:23	industrial	3929:1
3894:8,11,	increased	4022:7	3924:23	3930:4
14 3901:7	3877:14	4033:22	3960:6	3931:24,25
3903:17,20	3878:9	4112:24	3991:11	3932:2,21
,25	3890:24		3995:20	3934:7,16
4094:13,14	3892:17			
,21				
4101:4,10				

3935:16,20	4023:3	4107:25	4113:5	3936:8
3937:19	Initiative	instant	Interconnect	3982:11
3938:7,10	4015:12,23	3903:17	ion 4016:4	interrupt
3939:8,11, 14,25	4059:16,20	instead	interest	3888:22
3940:3,18, 22	4061:11,18	3878:23	3884:10,18	interrupted
3942:2,16	initiatives	3903:25	3890:9	3988:10
3944:22	3883:25	3969:10	3979:14	interruptibl
3945:9	4044:5	3980:4	4036:12	e 3984:21
3946:10	in-law	3995:25	4053:6	interrupting
3948:2,6	3901:16	4070:18	4093:4	4076:7
3949:23	inoculation	Institute	4096:12,17	Intervenor
3952:6	4108:5	3872:22	4100:18	4066:19,25
3953:7,11	4109:3	instruction	4103:4,14	introduce
3959:17	input	4113:18	4104:22	3879:21
3960:7,16, 17 3962:14	3889:16	instructions	4105:14	introduced
3982:18	3925:14	4073:25	4106:6,11	3889:19
3987:3	3931:5,6	4074:2,6	4107:3,21	4078:17
3992:12	3954:9	insulate	interested	4079:13
4010:1	3977:12	4018:25	3921:24	introduction
4016:19	inputs	Insurance	3930:2	4090:6
4025:4	3934:3	4073:20	4039:13	4109:4
4041:1	3943:7	integrated	interesting	intuit
4043:19	3954:2	4077:2	3886:8,9	3878:7
4063:3	4077:1	4098:4	3943:14	inverted
4064:24	inserted	intend	3985:25	3885:5
informationa	3956:2	3874:1	4028:1	3900:25
l 3883:17	in-service	4042:7	4041:18	3902:6
informed	4079:19	intended	4095:16	3903:1
3948:8	4080:5,7	4045:4	interests	invest
informs	inside	4104:17	3948:3	3967:10
4037:8	3936:3	4105:4	interface	investing
infrastructure	3998:23	intending	4096:10	4026:19
re 3914:23	4020:20	3941:12	interfacing	investment
inherent	4050:9	4073:2	4089:10,22	3942:15
4112:15	insight	intense	interject	3968:20
inherited	3874:7	4071:23	3882:18	3984:24
3901:17	4098:12	4072:6	internal	4006:12
initial	install	intent	3932:11	4007:18
3877:12	3969:1	4061:21	internalized	4026:16,24
3904:17	installing	4082:22	4012:11	4036:4
3950:1	3879:4	intention	internally	4038:5,24
3951:5	3906:10,11	3876:11	4113:10	4055:4
4038:23	instance	3985:22	internet	investments
4049:22	3899:18	interact	3946:5	3923:10
4087:25	3987:4	3967:17	3952:8	3967:4
initially	4003:12,16	interaction	interpret	3975:22
3953:8	4052:25	4093:19	3979:19	4034:17
	4099:1,6		interpreted	4036:22

4037:16	4108:15	3939:7	4038:20	3947:14
invite	issued	3941:24	4039:6,11	3956:20
4025:25	4074:10	3944:16,20	4040:11,14	3958:1
4026:3	4075:8,9	3945:15	4041:17,18	3960:13
involved	4113:10	3947:7,11	4043:3	3965:8
3873:4	issues	3951:17	4045:10,20	3972:1,20
3901:20	3874:6,10,	3953:10,13	4046:12,13	3982:11,16
3922:10,17	13 3875:25	,19,20	4049:18	3989:23
3924:21	3885:18	3954:8,16,	4053:5	3997:24
3941:4	3906:20	17,23	4054:9,20	4012:9
3946:22	3925:14	3955:14,17	4055:11	4013:24
4007:21	3926:20	,20	4058:2	4022:12
4038:8	3944:10	3956:4,13,	4060:6,20	4023:2
involvement	3944:10	15 3957:18	4061:3,5,7	4034:21
3942:10	3965:22	3959:4,17	,8	4039:11
involves	3966:18	3960:15	4062:16,20	4041:17
3943:17	4052:5	3965:4	4063:6,9	4042:9
4006:20	4073:25	3966:14	4064:18	4048:14
IR 3919:1	item 4067:15	3972:15,16	4073:19	4052:2
3963:2	4102:21	,19	4081:16	4062:5
4067:16	it'll 3936:5	3977:20	4092:12	4068:18
IRs 3918:23	4022:2	3978:21,22	4103:12	
4094:1	4037:14	,24,25	4104:14,15	
isn't	it's	3979:6,7	4106:7,9	
3900:18	3871:5,25	3982:20	4110:15	
3956:15	3875:7	3983:13	4111:10,14	
4005:20	3876:14,24	3987:21,22	,21	
isolated	3878:3,9	3988:10	4112:8,13,	
4033:24	3882:22,23	3989:3	20	
issue	,24,25	3993:1,22	4113:8,9	
3876:4,5,2	3883:3,8,1	3995:10,14	IV	
5 3898:19	0,13,16	,15,16,22	3955:12,14	
3903:17	3884:7,8	3997:12	3962:25	
3915:8	3886:1,8,9	4002:2,5	3971:7	
3919:19	3888:14	4003:1	3978:7	
3929:13	3889:16,17	4006:4,24	4022:13	
3951:23	,21,22,23	4007:17	4029:24	
3967:25	3896:9	4008:11	I've 3872:24	
3968:23	3898:24	4009:2,6	3875:11,17	
3969:20	3901:10	4012:25	3879:22	
3976:14	3903:8	4016:1,7	3887:4	
3985:23	3904:11	4017:22	3888:16	
3986:11	3907:18	4019:18,19	3890:2	
3989:19	3909:1,15	4021:19,24	3899:13	
4001:9,12	3911:9	4023:1,19,	3906:3	
4018:24	3915:8	20	3908:25	
4052:6	3919:23	4024:8,20	3915:6	
4057:22	3922:7	4026:7	3918:5	
4058:1	3926:7	4028:4	3926:17,18	
	3928:11	4029:13	3938:13	
	3935:13	4030:3	3943:10	
	3936:2	4031:24,25	3945:13	
	3937:6,25	4035:8,9	3946:14,17	
		4037:4,5		

J

January

3864:23

4069:9

4099:5

job 3891:19

3940:1,4

4031:10

4045:16

4102:5,6

join 3985:22

judgments

3887:19

jump 3917:9

3949:9

4099:22

4108:20

jumping

4087:13

jurisdiction

3960:25

4002:13

jurisdiction

s 3868:9

3873:1

3875:24

3897:18,24

3898:1,8

3899:23	3867:4	4024:12	3978:5,12,	larger
3902:11	3877:16,18	4040:7	24	3887:1,14
3903:6	,23,25	4047:22	3979:9,23	3896:8
3937:25	3878:2	4052:19	3980:8,18,	3900:4
3940:22	3879:10	4055:14	23	3901:1
3941:4	3880:2,17	4056:10	3981:1,22	4005:24
3952:11	3881:13,14	kinetic	3982:19	4034:15
3959:23	,16,17,18,	3925:21	3999:17	largest
3961:11,18	21,24	knew 3983:25	4000:13,18	3887:3
3983:8	3882:4,12,	4042:17	,22 4003:9	Larry
3997:21	15,16	knowledge	4004:21	3864:16
4001:13,17	3887:1,6	3915:15	4007:2	3900:23
,19 4025:5	3896:17,19	3938:13	4010:2	last 3887:23
4048:18	3897:3,6,8	3987:9	4051:24	3890:21
4049:3	,11 3905:4	3989:22	4052:11,14	3897:14
justificatio	3956:23	4017:6	4057:20	3899:16
n 4075:24	3959:10	4022:22	4071:14	3902:19
4076:2	3962:19	known 3918:5	4072:12	3903:16
4082:7	3964:4,10,	KURT 3874:21	4075:23	3936:5
4087:8	21	kV 3992:7	4093:4	3938:3
justificatio	3971:2,24	4088:20	4099:4	3946:20
ns 4075:20	3972:1,5,6	kW 3972:15	Lafond's	3947:4
justified	3974:25	3976:6	3982:1	3963:17
4006:13	3975:2,4,6	3998:9	laid 3957:14	3990:21
justify	,9,11	<hr/>	Lake 4067:15	3999:18
4048:9	3976:5	L	4078:3	4000:23
<hr/>	3978:9	labelled	lands 4078:3	4036:2,23
K	3988:17	3886:24	language	4043:5
<hr/>	3990:12	3934:16	3939:20	4052:1
Kansas	3992:21,22	lack 3982:17	large 3896:7	4054:3
4030:5	3993:5,6,7	Lafond	3901:10,13	4104:4
4032:3	3994:1	3864:15	3902:3,4	late
4034:2,9	3995:19	3872:10,13	3904:9	3950:12,15
Keewatinoo	3996:19	3890:18,20	3915:18	,24 4023:3
4078:2	3997:10	3891:24	3916:3	later 3935:6
Kewatinow	4002:9	3892:7,15	3960:5	4101:15
4078:8	4006:21,22	3893:2,9,1	3991:18	latest
4089:15	4013:18	3,19,22	3996:11	3942:13
key 3948:24	4028:2	3894:3,7,1	3997:18	latter
4095:9	4039:1,3	8,23	3998:9	4024:9
4099:15	4041:2,3,4	3897:2,12	3999:24	launched
4108:15	,5,8	3898:13	4000:9	4094:1
kids 4019:3	kinds 3888:8	3899:15	4007:18	laundry
kilo 3897:3	3893:11	3903:15,19	4010:24	3879:3
kilometre	3902:13	3908:19	4034:17	lawyer
4077:20	3914:25	3910:5	4053:9	3939:15
kilometres	3953:6	3911:15,25	4054:10	lawyers
4003:18	3959:18	3919:16,25	4055:12	3943:15,16
kilowatt	3968:12	3920:24	largely	
	3969:23		4091:20	
	3992:16			
	4018:4			
	4019:24			

leads 3996:22	3940:2	3995:7 3996:4	3878:20	4104:13,14 ,23
leaks 3908:6	length 4092:14	4007:13,17	likely 3899:1	4105:3,7,1 2,13,19
leaned 4003:5	4098:18 4104:3	4026:16 4094:9	4009:6 4043:20	4106:10,22 4107:4,6
leap 3992:17	less 3878:11,12	levelized 3964:3	4057:6 4060:3,7	4113:13
learn 3886:9 3937:8	3902:16,17 3908:22	4025:21 4026:14	limit 3908:10	line-by-line 3957:9
learned 3937:12	3909:25 3911:11	4027:20 4037:20	limitations 4030:12	lines 3908:4 3909:22
learning 3886:7	3915:2 3968:9	4038:4,12, 17,25	limited 3960:25	3914:8 3915:7,11
least 3886:8 3894:16	3982:10 3993:5	4039:2 4041:17	3981:4 3986:12	3916:4 3957:14
3897:20 3899:4	4003:7 4010:18	4042:23 4060:23	4000:10 4011:18	3969:17 3974:8
3913:8,20 3946:15	4011:7 4020:13,18	levels 3880:18	limits 3915:11	4000:6 4006:3
3960:17 4010:8	4029:16 4035:9	3895:16 3957:13,19	4014:18 4040:6	4012:25 4078:7,14
4021:19 4033:14	4046:11 4055:10	3967:16 3990:18	line 3889:21 3928:21	4083:3 4084:2,6
4049:5 4059:11	4084:10 4098:16	3992:2	3929:18 3951:7	4090:21 4092:1,7
leave 3890:21	4099:2	liabilities 4096:10,11	3960:3 3962:15,17	4107:11 link 4008:16
3910:2 3943:15	let's 3874:16	liability 4096:5	3967:3 3968:6,10	4013:15 liquidated
4041:13	3972:23,24 3999:5	4097:12 4099:20	3973:25 3974:4,11,	3938:24 List
leaved 4061:16	4005:7 4053:2	licensing 4086:22	19 3982:1 3984:15	3866:3,4 3867:1
leaves 3876:23	4096:22 4104:8	life 4014:12 4035:8	3990:21 3991:25	3868:1 listed
3958:25	4109:12	4038:19 4052:9,16	3997:24 3998:5	3895:12 3924:8
leaving 3903:21	letting 3879:1	4054:18	3998:5 4003:17	4002:13 4099:20
3906:14 3911:3	level 3874:3 3875:25	light 3923:18	4004:3 4015:6	listen 3931:19
3967:4	3882:8,10 3886:3	4018:21	4027:4 4037:18	listening 4113:4
left-hand 4104:12	3887:25 3928:2,21	lighting 3993:15,18	4042:11,12 4046:7	literate 3919:22
4106:13	3947:15 3959:21	3995:9,19 4018:19	4074:21 4077:19,20	literature 4020:23
legal 3869:5 3900:9,11	3960:17 3967:5	4019:18,22 4020:8	4083:1 4084:9,21	4021:24 little
legislatures 4049:16	3974:1 3975:17,21	4024:21	4102:15 4103:1,14	
legitimate	3976:6 3994:3	lights		

3882:18	,23,25	4112:13	3916:25	voltage
3891:14	3976:2,3,6	longer	3933:10	3992:9
3893:5	3982:15	3917:18	3941:9	low-income
3898:23	3988:8,10	4004:16	3946:14,17	3900:25
3902:18	3991:20,21	longer-term	3950:9	3902:9,12,
3909:2	3992:13	4004:18	3951:14	15,21,25
3910:23	3993:12	long-run	3959:7	3903:2,7
3913:8,9	4003:24	3986:13	3968:7	4018:24
3917:17	4005:13,19	long-term	3993:15	LUC 4041:23
3932:24	,25	4036:5	3998:24	4067:24
3950:12	4054:24	loops	4002:16	Luminating
3975:13	4056:7,8	4056:18	4007:21	3923:20
3977:20	4057:24	Los 3875:16	4011:5,10	<hr/>
3994:12	load-related	loss 3959:16	4021:3	M
3996:14	3969:25	3974:17	4023:18	magnitude
4005:7	loads 3879:2	3976:4	4024:8,19,	4004:19
4006:10	3898:25	3997:1	21 4053:17	4031:10,25
4019:9	3988:21	3998:9	4054:9	magnitudes
4028:12	3993:18	3999:20	4071:7	3944:18
4032:13	4006:2,4,1	losses	4072:24	main 3925:22
4035:23	1 4011:9	3928:21	lots 3988:1	Maine 3937:7
4041:12	4056:4,24	3929:18	low	maintain
4056:13	load-serving	3973:25	3877:7,11	3938:6
4087:3	3988:4	3974:5,11,	3896:17	3969:18
4107:8	local	20 3975:10	3903:17	maintenance
live 3868:5	3915:16	3979:6	3937:21	3914:8
3901:17	3922:18	3990:17,21	3989:9,10	3969:15,19
3919:21	locate	3991:25	3993:16	3979:13
3920:5,8,1	3971:8	3994:18	4011:9	3981:14
5 3954:1	3999:15	3995:1,8,1	4031:2	
lived	4021:24	1,12,22,24	4055:3,20	
3875:13	4037:23	,16	4101:4	
lives	location	3996:12,14	low-cost	Maitre
3901:16	3915:2,4	,16	3989:5	3916:9
living	3984:8	3997:3,25	lower	3940:12
3901:23,24	locationally	3998:1,5	3877:19	major
lo 3997:25	4057:2	4001:1,5	3878:1	3905:11
load 3880:18	locations	4024:8	3887:1	3939:23
3966:23,25	4068:15	4033:23	3893:6	4006:3
3967:5,10,	long 3875:16	lost 3899:9	3902:11,22	4008:2
15,20	3962:17	3974:7,9	3914:20	4009:21
3968:2,7,9	3993:23	3975:4	3970:18	4015:22
,15,18,20,	3994:9	lot 3892:14	4014:22	4036:4
22,24	4003:18	3896:22	4028:17	4077:18,23
3969:2,5,7	4035:2	3898:3	4035:13	4078:5
,14,24	4053:5	3902:1,10	4039:14	majority
3970:17,18	4054:20	3904:1	4101:4	3881:24
3971:3,18,	4060:6	3905:5	4108:3	makers
19 3972:17	4099:6	3909:25	lowered	4031:2
3974:11	4100:19	3915:7	4019:9	Man 4018:9
3975:16,20			lower-	

management	3886:24	4027:7	3948:22	3899:6
3988:8	3888:13	4029:14	3952:20	3923:6
4074:17	3890:24	4036:3	3961:23	3925:16
4113:12	3894:8,13	4042:3,13	3962:17	3976:17
	3898:14	4043:4	3964:2,9,1	3977:13
managers	3900:7	4044:2,17	9 3966:20	3979:4,25
4074:16	3905:7	4047:22	3970:7,22,	3981:8
4076:10	3906:4	4048:3,8	25 3972:11	3987:20
manages	3908:9	4051:16	3973:16	3988:15
4055:1	3909:14	4053:9,12	3975:13,19	3992:24,25
MANFRED	3910:7,10,	4058:16,19	3976:10,12	3993:2
3866:20	19	,25	3977:9	4008:25
4069:1	3911:3,5	4060:24	3978:2,10	4010:8,10
4092:22,25	3912:17	4062:8	3980:5	4012:18
4093:7,16,	3913:14	4063:16	3982:4,7,8	4015:13
23	3914:19	4065:1,6,1	,23	4016:16
4094:5,17	3916:23	5,24	3983:3,9	4026:19
4095:15	3918:21	4067:4,5,1	3985:4	4046:20,21
4097:5,23	3919:1,8	3,14,17,22	3986:14,22	4061:13
4098:6,16	3920:5,21,	4068:1,7,9	3987:5,9	4100:1,11
4099:17	22 3922:7	,19,21	3990:6,12	marketed
4100:7,21	3940:7	4069:5,16	3991:1,10	4044:20
4101:9	3945:13	4070:8	3992:10,18	marketplace
4102:2,12,	3948:11	4071:23	3994:18,24	4026:20
19	3956:3,22	4072:13	3997:14,17	markets
4103:10,19	3960:24	4073:11,20	3998:19	3873:8
4104:2,16,	3963:2	,21,24	4001:3,15	3922:19,23
25	3964:1,8,1	4088:14	4002:6,8,1	,25 3985:6
4105:7,11,	9	4113:11	5,21	3988:16
21,25	3965:3,12,	manner	4003:3,10,	4056:10
4106:9,17,	22	4099:4	20	4057:5
25	3970:9,16	mar 4058:16	4004:6,18	market's
4107:7,22	3972:13	marbles	4006:8,19	3989:14
4108:11,24	3976:15,16	4053:14	4007:4,5	Mass 3923:18
4109:14,22	3977:10	margin	4008:9,16	Massachusetts
4110:2,14	3980:1,21	3976:1	4009:18	s 3872:22
4111:2,14,	3982:6,11	marginal	4013:11	3925:2,3,4
17,23	3985:14,18	3873:5	4017:7,15	3926:18
manhole	3990:6,13	3877:19	4022:24	3934:24
4071:8	4001:8,12,	3887:23	4036:7	master's
Mani 3964:1	18	3888:6,9	4040:9	3872:21
4042:15	4002:7,16,	3890:22	4049:22	match
Manito	20 4003:3	3894:12	4050:3,8,1	3967:23
3976:16	4005:14,23	3896:6	1,14,16	matches
Manitoba	4009:13	3899:14	4058:16	3957:6
3864:3,6,2	4010:9	3900:6	4059:1	matching
2 3865:5,8	4012:17	3909:18	4060:9	3966:21
3866:15	4013:18	3914:13	marked	3967:7
3868:13	4014:6,9	3923:9	4064:25	4096:5
3871:11,16	4016:8	3924:2	4065:9,16,	
3884:1,13	4018:10	3928:15	23 4067:25	
3885:18	4022:12	3929:18	4068:9	
	4025:10,23		market	
	4026:9,11			

material	3986:10	3917:16	4109:7	3872:3
4002:11	3991:20	3922:23	4110:10,15	4063:20
4030:3	3994:24	3939:7	measured	4071:24
4077:12	3995:3	3941:25	4094:14	4072:11
4090:5	3996:20	3966:2	4101:25	membership
materials	4002:23	3979:7	4106:6	3926:24
4057:3,5,8	4005:15	3983:21	measurement	memorized
4069:9,18	4008:1,4	3987:24	4098:20	4068:19
math 3971:21	4011:6	3993:14	measures	memory
mathematical	4015:2	3995:3,7	3906:22	3946:23
4104:5,15	4016:22	4039:15	3928:18	mention
matrix	4017:1	4046:21	4024:10	3944:15
4102:10	4018:2,25	4051:15	4028:10	3965:16,19
matter	4022:11,23	4052:18	4040:7	3995:15
3882:20	4023:20	4062:15	4111:15,20	mentioned
3913:16	4025:9	4063:19	measuring	3952:20
3928:18	4026:24,25	4083:8	4030:4	3953:25
3942:9	4031:2	4110:16	4099:9	3994:17
3944:10	4032:25	meaning	mechanics	3996:4
3946:3	4033:16	3987:19	3896:4	4031:4
3949:24	4036:13,14	4005:15	mechanism	4099:13
3953:10,14	4043:2	meaningful	3981:16	4100:15
3955:4,5	4047:14,15	3984:5	mechanisms	4114:1
3992:22	4073:19	means	4045:25	mentioning
3998:15	4083:21	3881:18	median	3971:18
4026:4	4086:13	3930:3	4111:5	mere 3901:2
4063:7	4088:5	3988:6	meet 3967:15	merged
matters	4110:8	3989:15	4005:13	3960:3
3919:14	maybe 3877:4	4010:10	meeting	merit 4036:3
3943:4	3888:10	4038:17	3968:18	message
maturity	3910:16	meant	3988:20	4074:14
4109:8,9	3911:24	3883:13	3989:6	met 3968:7
maximum	3918:21	3884:6,7,8	megawatt	4042:18
4110:6	3924:17	4079:14	3975:20,23	4063:2
may 3876:17	3949:2	measurable	3977:2	meter
3884:11	3953:19	3974:14	4013:18	3953:17,18
3887:9	3958:20	measure	megawatts	3974:16,18
3891:13,14	3970:12	3925:11	3967:10	3975:25
3903:2	3974:3	3993:4	3975:25	3976:7
3909:23	3987:11	3994:25	member	3980:6
3914:9	3992:15	3995:3	3864:15,16	3994:19
3931:2,20	4006:22	4020:5	3982:1,19	3995:1,6,2
3932:10	4010:12	4021:21	3983:5	5 3996:1
3936:16	4023:14,15	4024:3,24	4000:22	3999:21
3945:8	4025:24	4025:21	4071:13	4001:1,4
3953:19	4055:11	4026:14,23	4075:23	metering
3959:15	4100:15	4030:13	4093:4	3957:13
3967:3	4102:6	4032:4	members	methodologie
3969:3	mean 3877:5	4033:22,23		
3981:17	3892:23	4038:19		
	3893:25	4097:15		
	3904:10			
	3910:8			

s 3928:24,25 3929:19 3931:12 3933:17,20 ,22 3937:9 3938:14 3948:16 3998:4 4002:23	MH-76 3867:15 4065:19 MH-77 3867:16 4066:1 MH-78 3867:20 4067:10 MH-79 3867:21 4067:20 MH-80 3867:22 4068:3 MH-81 3867:23 4068:11 M-hm 3897:16 3903:18 3930:5 3961:6 3962:3 3964:17 3978:11 3997:2 4007:9 4013:5 4014:2 4025:11 4030:14 4041:25 mic 3909:4 3916:25 Michael 3865:15 microscopica lly 4035:20 middle 4057:7 4105:3 Midwest 4012:21 mil 4082:25 Miles 3866:18 3965:11	4068:24 Miller 3865:11 3918:3 million 3956:18 3959:1 4007:25 4070:19 4083:2 4084:14 4087:16 4089:6,14 4090:7 4091:2,6,1 9 millions 3944:16 3975:22 3976:2 mind 3869:19 3871:17 3966:19 4010:14 4016:22 4017:4 4042:25 4044:14 4112:8 minds 4017:2 mine 3963:14 minimal 4000:15 minimize 4102:23 minimizing 3878:25 minimum 4109:25 4110:7 Minnesota 3911:24 4009:1 4013:20,21 minus 3875:7,10 minuscule 4031:3	minute 4035:21 minutes 3917:13,14 ,17 3994:17 3999:3,6 4025:3 4038:11 4064:4 4075:21 4092:13 MIPUG 3865:13 misgivings 3960:22 mismatch 3967:5 MISO 3984:20 3985:5 3986:7 4008:25 4010:8,9 4017:19 4096:18 4100:13 MISO's 3986:17 missed 4057:18 misspeak 4083:18 misstated 3958:1 mistake 3903:8 3953:20 3955:2 mix 4098:14,17 mixes 4101:3 MKO 3865:15 moderate 4037:10 modern 4095:21 modest	3886:14 moment 3949:13 3951:24 3952:16 3957:21 3963:6 3965:20 3987:11 3991:8 3999:15 4031:4 4037:23 moments 3953:5,25 money 3967:9 4008:5 4013:19 4047:9,11, 14,18 monopolized 3952:5 monopoly 3922:18 3923:1 Monte 4101:1,17 4110:6,23 month 3877:6 3878:8 3882:2,15 monthly 3867:6 3877:10 3879:11 3880:5 3891:15 months 3903:23 mor 4040:9 Morin 4072:5 Morin's 4071:20 morning 3869:3,10 3870:21 3903:21 3917:16
---	--	--	---	--

3918:2,13, 17 3920:4 3940:16 3948:14 3955:14 3973:14 4044:2 4061:23 4115:3 Morrison 4026:11 4028:3 mostly 3945:21 motors 4024:18 mould 4020:21 mountain 4004:12 move 3885:19 3896:5 3905:17 3930:11 4007:4 4025:8 4044:22 4047:24 4057:6 4109:23 moved 3875:16 movement 4104:19 4107:20 4108:5 moving 3906:13 3908:4 3978:13,14 4041:21 4052:19 4056:12 4057:23 4072:18 4092:12 MRC 4067:23 multiple 3922:14	3941:23 multiplied 3951:17 murky 3946:18 myself 3898:22 3901:14,24 3909:3 <hr/> N <hr/> narrow 4106:7,9 narrowly 3931:11 nat 4106:3 National 3923:16 4093:14,20 4095:5,10 4096:3 4097:6 4098:1 4102:17 4103:21 4106:5 4107:8,17 4108:23 4111:25 Nations 3915:17 natural 3906:6 3913:8,9 4055:2 4062:18 nature 3876:7 3960:5 3994:2 navigate 4041:19 nearest 3893:8 near-term 4036:20 necessarily	3878:6 3905:8 3917:1 3965:9 3968:12 3980:21 4104:5 4110:15 4112:9 necessary 3904:20 3905:12 3914:16 3918:15 3919:3 3951:18 3968:8 3981:15 3992:12 4051:18 necessitated 4072:21 needles 3891:18 neglected 4073:21 negotiate 4008:23 4016:20 negotiated 4009:25 4014:6,21 negotiating 4014:10 4016:21 neighbours 3891:17 Nelson 4078:3 net 3977:18 4042:2 4068:7 4094:13,14 4101:4 4102:1 4103:23 4105:4,8,1 3 4106:5 4108:10	4110:10 neutral 3894:16 nice 3900:11 4050:19 niece's 3901:18 night 3903:22 3993:23 nine 3895:12 3897:13 3922:8 3954:12 3979:15 3980:3 3983:6 4002:9 4004:9 4115:3 nine-five 3897:6 nine-four 3881:11 ninety 3981:9 nobody 4057:16 nobody's 3878:24 non 3941:2 3944:24 3950:3 3957:10 4009:17 4089:20 non-con 3942:5 non- disclosure 3941:19 3942:5,13 3946:6 3947:22 3961:5 none 3923:23 non-energy	4018:17 4024:25 4040:16 nonetheless 3872:2 3906:7 4064:3 non-heating 3882:14 non- participan t 4035:22 non-TRC 4042:19,24 non-trivial 3974:12 non-utility 3942:20 4065:8,15 noon 3972:19 nor 4088:7 normal 3869:5 3959:8 normally 3980:13 north 3873:2 3898:1 3983:15 4005:8 4055:13 4077:21 4078:8 north/south 4064:24 northeast 3923:17 4012:22 4077:25 northern 4092:1 note 4012:9 4015:11 noted 4072:3 4100:16 noth 4012:20
---	---	---	---	---

nothing 3875:18 3907:3 3915:2 3969:13 4012:20 4112:15 4113:14	3917:9 objections 3871:3,12 obsolescence 4052:6 obtain 3976:17 obvious 3944:16 obviously 3902:22 3909:6 3932:1 3951:2 3960:8 3983:10 4007:13 4014:15 4032:6 4038:9 4040:16 4070:25 Occasionally 3909:13 occur 3992:23 4038:13 4110:8 occurred 3946:21 occurring 3959:23 3995:12 occurs 4009:8,9 4109:3 o'clock 3903:21 3972:25 4115:3 Odette 3865:6 offences 3939:22 offended 3939:21 offer	3912:14 offering 3992:16 officer 4027:3 offline 4010:25 off-peak 4040:15 off-system 3899:9 3982:12,21 oh 3871:11 3892:21 3894:5,10 3911:20 3921:10 3941:16 3951:16 3952:12,24 3954:25 3955:1 3959:25 3969:12 3976:5 4011:2 4020:14 4035:3 4039:4 4056:1 4114:17 oil 3909:16 3913:15 3914:1 oil-fired 3911:10 okay 3869:24 3870:6,12, 15,19 3873:25 3874:16,19 3884:9 3886:11 3893:9 3895:4,9 3912:5 3919:6 3921:13 3924:1 3927:20	3931:18 3932:9,13, 19 3933:13 3938:2 3950:5 3951:6 3957:4 3958:22 3972:23 3973:3 3974:6,20 3979:9 3983:23 3987:2 3990:2 3999:7 4001:7 4025:7 4030:18 4052:14 4056:15 4058:24 4059:3 4060:5,18 4061:14 4063:25 4064:2 4073:8 4076:19 4083:12,16 4086:8 old 4092:7 older 3913:16 one-eight 3972:6 one-one 3972:4 3979:6 ones 3896:11 3913:19 3935:1 3968:13 4040:19 4101:20 one's 3937:13 ongoing 4036:4 online	4034:21 4036:10 Ontario 3910:2,21 3939:13,16 onto 3900:10 3902:15 4026:8 4037:25 op 3900:15 3981:19 open 3939:7 3994:6 4076:4 opening 3885:17 opera 3969:19 operate 3977:19 3980:13 4006:9 4054:7 operating 3911:17 3982:17 3987:21 4074:21,22 4075:5 4114:11 operation 3873:8 3925:16 3969:15,19 3979:12 opinion 3914:17 3948:12 3974:2 4062:23,25 opportunities 3874:12 3877:20 4001:16 4033:18 4042:17 4043:10 opportunity
---	--	---	--	---

3887:15	oriented	outside	3867:2	4100:25
3908:2	3988:12	3878:18	3868:2	4102:8
3917:6	4020:3	3922:25	3919:23	4103:21
3950:4,14	original	3925:23	3920:1,20	4108:20,21
3966:5	4089:9	3998:24	3955:21	pages
3981:19	originally	4018:9	3962:5,15,	3864:24
3984:21,22	4095:16	4049:8	18	3955:19
3988:8	4097:5	ov 3910:23	3963:4,11,	4076:4
4036:22	o-seven-	overall	13,17,18,2	4084:5
opposed	three	3903:13	1	paid 3942:17
3901:7	3971:25	4102:18	3966:7,17	4016:3
3903:24	oth 3907:9	4108:5	3970:4,16	4039:18
3911:23	others	overdo	3971:11,13	4047:7,13
3922:19	3932:4	3905:10	,21	Pambrun
3949:2	3958:21	overestimate	3978:6,8	3865:17
3955:7	3962:25	d	3984:13,16	panel
3959:14	4057:4	3958:19,20	3985:20	3864:13
3967:13	4069:16	overhead	3990:3,11,	3866:6,15
4017:19	otherwise	3968:23	20 4000:24	3874:4
4045:6	3879:3	3969:3,13	4002:13	3875:1,5
opposite	3907:9	overlay	4012:9,23	3886:6
3908:25	3975:6	4020:5	4015:4	3917:12
4003:8	4013:21	oversimplifi	4025:13	4063:21
4101:21	4031:22	cation	4026:7,8	4064:13
optimal	4048:8,22	3969:14	4029:25	4068:21
4094:19	4075:3	oversimplify	4030:2,4,1	4069:5
4112:6	4093:25	3999:19	0,15,16	4095:7
optimized	ought 3877:4	overwhelming	4037:18,25	4104:10
4095:23	3883:11	4063:6	4041:22	4115:5
option	3887:17	overwhelming	4042:6,10	panel's
3897:5,7	3908:3	ly 3906:10	4044:4	4078:15
3900:17,18	4042:2	4062:17	4048:13,15	paper 3878:8
options	4044:5	owning	4060:20	paperclip
3887:8	4051:12	3957:12	4065:5	4067:3
4101:19	ourselves	<hr/>	4069:17,19	papers
oral 3945:9	4090:10	P	4070:16	3905:24
order 3875:4	outcomes	<hr/>	4076:5	3951:5
3876:6,12	3954:3	p.m 3973:5,6	4078:13,25	4064:8
3916:16,17	outdoor	3999:9,10	4079:6	paperwork
4043:7	3993:15,18	4064:15,16	4081:1	3933:10
4050:25	outflow	4115:7	4082:10,11	par 4001:10
4101:2	4095:12	Pacific	,15 4083:7	paragraph
ordered	outlined	3904:21	4084:5,22	4099:24
3905:23	3965:25	pack 3891:20	4085:2	4100:8,22
orders	output	package	4086:11	parameters
3884:14	3981:11,12	4067:2	4087:4,12,	3936:13
organized	,18	page 3866:2	23	paraphrase
3988:16			4090:3,15	4030:21
			4091:14	
			4092:21	
			4095:8,20	
			4096:8	
			4097:25	
			4099:18,23	

pardon 3964:9,15 3971:20 3972:24 3998:18 4001:10 4014:5 4033:4	4033:5 particularly 4044:14 4061:7 particulates 3914:2 4018:14 parties 3876:12,22 3887:11,21 3888:14 3890:12 3916:21 3920:7,8,1 9 3930:8 3931:24 3940:1 3941:21 3942:4 3943:13 3944:24 3948:6 4039:13 party 3888:15 3939:21 3942:20 3955:4 3958:18 party's 3888:16 pass 3893:17 4028:10,11 4031:2 4037:13 4048:7 passing 4032:5 passwords 3941:23 past 3915:7 3967:19 paste 3889:18 past-the 4000:25 path 3953:4 pattern	3914:18 4104:20 Patti 3865:5 3866:11,13 3871:10 3882:17 3885:23 3916:11 3918:1,11, 12,20 3919:6,20 3920:3,18, 19 3921:1,9,1 2,20,21 3922:5,16, 24 3923:7,21 3924:1,4,1 6 3926:5,9,2 2 3927:2,7,1 4 3928:4 3929:2 3930:1,6 3931:21 3935:11,12 3936:21 3938:2,21 3939:3 3940:6 3961:2 4058:6,11, 12,24 4059:3,8,1 4,19,22 4060:5,18 4061:14,22 4062:6,12 4063:15,23 4064:1,21 4065:5,14, 21 4066:3,11, 24 4067:12,22 4068:5,13 Paul 3866:7 3870:22 3872:20 3873:12,18 ,23	3874:15,19 3875:2,8 3880:14 3886:11 3889:1,9,1 5 3890:16 3891:2 3892:4,8,2 1 3893:3,10, 17,20 3894:2,5,1 0,20 3895:4,10 3896:2 3897:4,16, 23 3898:17 3899:23 3902:8 3903:18 3904:7 3905:19 3908:16 3909:1 3910:13 3911:20 3912:18 3913:7,25 3914:12 3915:19 3916:5 3918:18 3922:4,12, 20 3923:2,15, 24 3924:2,14, 19 3926:7,13 3927:1,3,1 1,20 3928:9 3929:7 3930:5,14 3932:6,10, 14,17 3933:3,24 3934:1,9,1 3,22 3935:5 3936:1 3937:5 3938:11 3939:2,6	3940:25 3941:8,16 3942:12 3943:23 3944:6 3945:11 3947:9 3948:1,18, 20 3949:11,21 3950:19 3952:4,12, 24 3953:9 3954:7 3955:24 3956:6,13 3958:6,9,1 2,16 3959:25 3961:6,12 3962:3,11, 22 3963:8,15, 23 3964:6,13, 17,23 3965:6,15 3966:9,13 3970:10,14 ,20 3971:22 3972:8,14 3973:3,18, 22 3974:6,23 3976:11,23 3977:11 3978:3,11, 21,25 3979:18,24 3980:17,20 ,24 3981:3 3982:7 3983:11,23 3984:1,4,1 7 3985:9,25 3986:24 3987:6,18 3989:20,23 3990:9,15, 24 3991:5,12, 15 3992:19
--	--	---	--	--

3994:6,22	4052:10,12	4035:11,22	pending	4060:23
3995:2	4053:22	4036:12	3958:15	4072:14
3996:7	4055:25	4040:6	4016:10	4073:12
3997:2,12, 16,23	4058:22	4051:19	4085:12	4112:3
3998:14,21	4059:2,6,1 0,18,21,25	paying	penny 4041:3	4114:20
3999:22	4060:11	3878:13	pension	percent
4000:16	4061:4,20	3995:11	4075:2	3881:16,17
4001:2,23	4062:3,11, 14 4064:10	4028:2,14	4113:16	,18,21,22
4002:5		4032:16	4114:14	3886:15
4003:23	pause	4037:11	people	3887:7
4005:5	3921:4,15	4053:6	3883:2	3888:6,10
4007:9,19	3923:13	pays	3886:21	3892:6
4008:18	3924:12	4039:16,17	3891:8,23	3893:8
4010:20	3931:15	4055:4	3892:5	3907:23
4012:6,13, 20	3935:24	PDF 3880:21	3893:15	3908:1
4013:5,8,1 2,17	3938:19	3889:9,13, 20 3918:19	3894:17	3909:20,23
4014:2,8,1 6	3940:9	3919:18,23 ,25	3900:17	,24
4015:16,19 ,25	3947:1	peak 3910:12	3901:1,3,1 2,19,25	3910:16,22
4016:6,13	3949:7	3929:8	3902:1,16	3911:16,18
4017:10,17	3950:17	3967:15	3903:11,12	,23,24
4018:6	3951:20	3993:10,13 ,14,17,18, 19,21	3904:8,12, 13 3909:3	3959:2,3
4020:14,17	3962:7	4006:2	3930:23	3970:17
4021:14	3972:19	4106:1	3936:19	3971:19
4022:2,19	3978:19	peaker	3945:21	3972:17
4023:1,8,2 5 4024:2	3987:16	3911:10,11	3951:2	3976:7
4025:6,11, 15 4026:1	4023:6	4006:23	4003:5	3980:15,16
4027:22	4034:5	peaker-	4019:3,9,2	3997:17,20
4030:8,14, 18 4031:9	4043:23	related	4 4033:1	3998:7,11
4032:11,16 ,22	4053:20	4006:16	4035:11	3999:20
4033:6,8,1 3	4055:23	peaking	4044:7	4000:17
4034:3,19	4063:13	3989:2	4047:16	4019:21
4036:6,24	4069:12,22	4006:9,18	4098:25	4022:15
4037:3,24	4078:21	4010:23	per 3868:14	4023:4,13, 14,19
4038:2,15	4079:4,9,2 3	peaking-	3882:2	4028:17,18 ,19
4041:25	4081:4,25	related	3904:4	4031:15
4042:5,21	4084:24	4006:16	3962:19	4034:22
4043:1,14	4088:25	peer	3964:4,21	4035:5
4044:11,18	4090:1,17	4098:1,2,1 3	3971:2,24, 25	4053:11
4045:8	4091:11,16	peaking-	3972:4,6,1 5	4057:25
4046:24	4100:5	related	3975:9,11	4063:7
4048:5,11, 25 4049:14	4101:7	4006:16	3976:5,6	4081:22
4050:5	pay	peer	3977:2	4084:17
4051:4	3877:17,18	4098:1,2,1 3	3978:9	4087:20
	3891:23	peers	3990:12	4091:8
	3902:17	3936:15	3996:19	4095:25
	3993:25	pen 4063:24	4028:2	4097:3,4
	4010:11	penalty	4039:2	4101:20
	4011:13	3901:9	4041:2	4103:24,25
	4016:23			4104:23
	4032:13,14 ,17 4033:1			4105:17,24
				4106:4,8,2

3	3942:24	3886:8	3930:25	4054:18
4107:2,17	3944:15	3930:7	3967:12	play 4108:16
4108:15,17	3949:5	3939:24	4003:2	please
4109:19,25	3960:2	4035:15,16	4023:2	3889:4
4110:4,5,1	3974:3	,24 4039:6	4046:25	3955:12
1,12,19,20	3977:6	4095:12	4047:2	3958:1
,24,25	3992:17	4096:5	plain	3970:4
4111:5,6,8	3993:14	4110:17	4004:11	3971:14
4112:1,3,4	4002:10	4112:21	plains	3990:4
,7 4114:20	4025:25	Peter	3983:14	3991:14
percentage	4038:3	3865:11	planned	4021:22
3893:12	4042:11	Peters	4078:2	4029:20
3959:12	4074:8	3865:2	4080:7	4030:16
3977:15,17	4096:5,13	3869:5	planning	pleased
3981:18	period	PG&E 3905:6	3872:24	3905:20
4028:22	3888:11	phase 3876:2	3873:6	plug 3908:5
4031:19,21	3904:23	3935:6	3985:7	plumbers
4098:20	3966:23,25	pick 3917:2	3992:18	4044:21
percentages	3996:20	3940:16	3998:2	plus 3928:21
3890:23	4003:24	3973:13	4035:25	point
3892:1	4004:16	4041:13	4085:12	3881:11
3894:9	4031:19	4053:14	plans 3935:1	3883:21
3981:10	4047:13	picked	3976:16	3885:23
percentile	4057:25	3882:8	4042:13	3888:2,22
3887:5	4075:17	3895:18	plant	3895:14
perfect	periodic	picture	3911:10	3896:12
3901:14,22	3945:18	4035:17	3913:15,16	3897:6
4103:12	4104:20	piece 3878:7	3980:13	3898:10
4107:13	periodically	3946:20	3982:24	3915:25
perfectly	3981:20	3949:5	3984:24	3916:22
4103:16	periods	pieces	3987:23	3948:24
performed	3966:22	3948:24	4003:11,20	3949:2
3943:2	3977:4	3949:23	,21	3950:4,9
3954:20	permits	3950:7	4006:21	3962:18
4093:13	4047:1	3967:13	4008:3	3963:25
4095:18	person	4018:7	4010:18	3964:4,10,
performs	3904:4	4063:4	4018:12	13,15,20
3977:14	4069:25	4083:25	4034:23,24	3966:14
perhaps	personally	piggyback	4035:4,8	3969:21
3872:15	3875:18	3903:16	4052:8	3971:24,25
3877:3	persons	pipes 4019:2	4054:22	3972:4,6,1
3878:18	3916:3	4024:7	plants	2,17
3884:23	person's	pivoted	3914:1	3978:9,16,
3885:25	4018:25	4097:18	3977:19	17
3895:21	perspective	placed	3983:2	3979:6,8,1
3898:9	3874:8	4021:13	3988:7	0 3980:3,4
3900:4	3882:13	places	3989:4	3985:18,20
3906:22	3883:20	3909:19	4013:21	,23,24
3908:7			4054:6	3986:2
3919:24			plant's	3990:21
				3994:24

3995:15	policies	3982:20	3878:16,17	4114:8
3996:3	4098:11	position	,22	Pre-ask
3997:21	policy	3947:22	3887:16	3867:18
4001:9	3872:22	3972:10	3906:22	4066:6,13,
4002:3,9	4049:15	3982:3,12	3907:7	14,15,17,1
4003:13,16	4065:16	3984:18	3923:6,18	9,22
4004:23	4093:12,20	3987:4	3936:23,24	4070:7,9,1
4008:7	policymakers	4001:13,21	3941:18	6 4078:12
4016:24	4049:15	4009:16	3942:18	4080:17
4026:12	pollutants	4013:1	3943:1	4082:6
4027:2	4020:13	4016:5	3945:19	precipitous
4031:8	polluting	4018:2	3974:12	4105:19
4032:3,12	3906:16	4019:7	3977:3,13,	precise
4034:8,10	3908:22	4027:6	16,18	4094:6
4036:23	pollution	4035:1	3979:25	predicting
4042:12	4020:18	4036:2	3981:7	3986:13
4049:23,24	poor	4043:9	3982:10	prefer
4052:7	3903:11,12	4049:12	3987:23	4058:7
4054:10	4018:25	positive	3988:6	preferable
4055:11,19	Portage	3885:15	3992:24	4110:12
4060:1	3864:21	4112:5	3993:25	4111:21
4061:11	portfolio	possibility	4000:2,3	preferred
4070:6	4032:23	4016:23	4009:7,10	3991:8,9
4079:19	4094:25	4054:17	4013:21	4062:7
4080:25	4095:1,18,	possible	4014:23	pre-filed
4086:3	21,22	3987:14	4018:12	3873:16
4097:13	4098:20	3997:10	4034:23	4048:13
4103:15	4108:17	3999:2	4054:23	pre-hearing
4107:14,15	4109:9	4010:5	4057:25	3885:25
,23	4112:4	4028:12	4100:1,10,	preliminary
4108:14	portfolios	4045:16	12	4085:11
pointed	4094:11	4052:20	4102:16,20	preparation
3907:12	4101:19	4058:8	4103:13	3868:15
pointing	portion	4060:10	4106:16	4030:20
3881:5	3927:13	4072:12	4107:19	4072:15
3936:14	3932:15,18	4074:5	Power's	4073:14,23
points	3942:18	possibly	3942:14	prepare
3895:1,10	3991:23	3892:17	pr 4078:25	3925:25
3896:11	3997:9	3909:17	practical	3940:22
3966:17	4025:18	4035:3	3900:18	4112:22
3981:18	4052:17	post 4080:10	3954:17	prepared
4027:16	4099:5	potential	practice	3873:15
4029:22	posed	3959:16	3940:21	3879:20
4030:22	3971:12	3981:12,18	4049:1,2	3947:5
4034:1	4052:2	4002:16	practices	3966:19
4037:21	4071:12	4003:7	4067:8	4074:13
4038:7	4072:11	potentially	prairie	4085:16
4106:5	posited	4036:19,21	4004:11	prepares
4110:3		power 3873:8	pre 3984:13	
poles		3877:21	4011:6	
3969:18			4066:13	
4071:8				

3985:14	3940:3	3897:10	3977:15	3876:2,4,5
preparing	3953:5	3925:16,21	probably	,6,8,23
3872:18	3987:1	,22	3875:6	3881:7
4071:22	4010:3	3926:1,2	3885:11	3898:21
4073:5	4030:12	3929:11	3929:24	3907:3,6
present	4031:5	3984:20	3934:14,15	3912:12
3871:5	4043:2	3986:7,18	3943:3	3945:13
3884:1,3,1	4113:24	3988:3	3975:24	3955:11
3 3890:7	4114:5	3989:1,7,8	3993:19,21	3958:14
3897:5	previously	,9,10	4010:18	4001:8
4012:11	3873:11	3992:25	4011:19	4042:14
4032:7	4114:2,9	4012:17	4016:24	proceedings
4038:23	pri 3989:1	4014:6	4023:11,19	3873:1,13
4049:25	price	4015:8	4037:8	3917:25
presented	3867:5,8	4016:3,11	4053:23	3945:16
3870:23	3877:7,19,	4017:12	4055:13	3947:6,13
3883:7	22 3878:13	4055:19	4057:4,7	3972:25
3887:10	3879:11,13	4061:12,13	4058:2	3973:9
3926:16	3880:3,7	4100:12	4066:12	3999:13
4076:17,21	3887:24	pricing	4075:20	4064:5,19
4077:9	3888:8,9	3873:6	4094:7	4115:2
presents	3893:18	3943:11	problem	process
3871:8	3895:1,8	3983:25	3906:17	3875:24
3966:19	3899:6	4096:18	3907:1	3881:5
presidents	3930:24	primarily	3955:2	3883:9
4074:16	3942:16	3913:6	3956:14,15	3889:20,22
4076:10	3953:12	3928:2,12	3966:21	3921:23,24
pressure	3976:17	3931:5,9	3984:5	3922:1
4027:11,12	3977:13	3943:5	3987:18	3924:20
presumably	3979:4	3977:20	4010:23,24	3927:8,17
3979:7	3982:5	4043:21	4037:9	3928:19
4106:14	3992:25	4044:21	4045:15,21	3945:10,25
presume	3993:17	4096:23	4046:3	3947:23
4010:8	4009:2,23	primary	4047:5,16	3949:1
presumed	4010:11,12	3913:11	4056:16	3953:3
4094:23	4014:19,21	3959:14	4061:9	3954:5
pretty	4015:3	3995:6	problematic	3967:1
3886:11	4016:2,16,	4032:18	4041:16	4020:10
3939:7	18,20,21	principal	problems	4042:3
3952:2,4	4017:3	4053:7	3900:10,11	4043:5,16
3993:21	4046:9	printout	3968:3	4057:13
3995:18	4055:3	3957:1,3	proce	4074:3
4039:8	4059:1,5,2	prior	3876:12	4098:24
prevent	3	4090:10	procedure	procurement
3981:15	4060:4,14	privy 4010:1	3952:10	3945:22
previous	priced	pro 3912:12	proceed	procurements
3875:9	3877:8	3943:11	3869:13	3945:18
3884:14	4002:18	4039:22	3885:6	produ
	prices	probability	proceeding	4059:22
	3877:24		3875:21	produce
	3878:4			3881:10
	3888:8			

3888:23	4021:20	4039:7	3918:8	proposition
3889:25	4022:16	4043:17	prompt	4096:3
3901:21	4023:24	4044:19	3906:17	protec
3925:1	4024:3,23,	4048:6	pronounce	3981:16
3929:20	24 4025:24	4049:4,5	3869:17	protect
3975:5	4026:24	4050:7	pronunciatio	3903:4
3988:1,6	4028:4	progre	n 4078:1	3939:11
4005:10	4029:6,10	4082:7	proof 3868:8	3981:17
4011:6	4031:14	prohibited	3952:18	protects
4013:22	4033:4,25	4047:1	3956:4,11,	3900:3
4057:25	4035:23	project	15,20	protocol
produced	4038:19	3881:1	3957:17,22	3945:4
3907:17	4039:15,23	3943:2	3958:21	proved
3908:22	4040:4,10	3944:14,17	3959:6,11,	3956:19
3929:15	4041:2,8,9	3968:8,13,	21	4100:9
4059:16	4043:16	18	3961:10,16	provide
4062:1,2	4044:20	4007:12,20	properly	3868:3,7,1
produces	4045:10	,24 4008:3	3870:16	0 3870:23
3913:17	4046:23	4021:25	3889:21	3874:7
4011:5	4049:6,7	4030:25	3929:25	3879:23
producing	4065:8,23	4036:13	4032:23	3888:17
3925:9	4067:25	4054:17	4071:21	3889:4
product	4075:20,24	4056:22	property	3890:12
3911:22	4076:2	4070:11,17	4086:23	3905:24
production	4087:8	4072:7	4092:2	3912:17,20
4055:20	programming	4077:17	proportion	3919:15
productivity	4027:21	4078:6	4107:10	3922:22
4019:20	4044:13,15	4080:10	4108:9	3927:24
4020:9	programs	4082:7	proportional	3928:5,6
professional	3868:11	projected	3974:10	3933:12
s 3903:20	3878:17	3985:5	proposal	3937:19
professor	3887:16	4016:2	3882:22	3949:4
3994:8	3906:22	projecting	3885:3	3957:23
4064:7	3907:14	3967:20	3886:25	3959:19
profitable	3922:2	4015:13	3896:9,14	3961:8,15
3982:13	3926:4	projection	3986:9	3971:14
4036:8	3928:18	3953:12	proposals	4006:25
program	3991:10	4009:2,22	3876:13,22	4021:15,23
3878:18,20	3992:16	4061:10	3894:16	4022:5
3907:4,8	3994:14	projections	3906:22,23	4025:3
3925:11	4001:16	3925:18	proposed	4044:22
3926:17	4018:24	4048:19	3876:17	4062:8
3929:16	4021:7	projects	3882:3	4089:9,10
3931:10	4022:7	3934:3	3907:2,6,7	4104:17
3944:17	4025:24	3968:1	4047:21	provided
3991:8	4027:7,10,	3969:24	4079:19	3874:4
3993:25	25	3984:9	proposing	3879:22
4008:1	4028:9,11	4036:5,7	3881:4	3880:19,21
4020:8	4031:2,24	4056:22	prolific	3905:20
	4032:5,21			3923:19
	4033:22			3924:8
	4034:14			
	4036:3,20			

3926:6,24	3951:13	4062:20	pushing	3925:23
3929:1	4016:19	purchase	4040:6	4057:10
3932:1	4062:12	3923:6	puts 4027:8	question
3933:4,5	4068:7	purchasers	putting	3874:2
3941:2,9	4075:2	3936:23,25	3878:22	3880:20,21
3944:23	4113:16	purchases	3899:1	3889:2
3948:12,25	4114:16,18	3977:23	3909:21	3890:19,21
3949:14	,19,22,24	4058:25	4021:8	3895:18,20
3951:4	provisions	4059:4	4045:22,23	3899:16
3953:8	3943:12	purports	4077:7	3903:16
3971:8	proxy 3982:4	4032:4	puzzling	3923:8
3977:5	3996:25	purpose	3876:24	3935:13
3978:10	3997:3	3883:17	<hr/>	3937:11
3986:20	prudent	3893:14	Q	3938:22
3987:3	4111:15	3921:25	qualificatio	3949:10
3990:10	psychologica	3951:8	n 3902:15	3950:1
4029:25	l 3891:11	3993:22	qualificatio	3955:6
4065:6	PUB 3955:14	4027:24	ns	3962:14
4067:16	4029:23	4038:13	3871:2,21	3971:12,20
4075:5	4066:6,13	4049:24	qualitative	3973:20,25
provider	PUB/GA-7-1	purposes	3896:22	3975:13
3927:5	3933:8	3883:8	qualitativel	3981:2
3939:8	PUB/GAC-1	3884:9	y 3938:15	3982:20
providers	3941:6	3914:15	3944:11	3983:5,6
3922:10	PUB/GAC-10	3934:17	qualities	3984:15
provides	4030:1	3959:7	4112:15	3985:2,11
3934:25	PUB/GAC-3D	3986:12	quality	3986:4
3950:25	3971:13	3990:14	4018:21	3994:4
3951:1	PUB/GAC-7	3996:18	4021:5	3996:23
providing	4014:1	3997:5	quantifiable	4000:23
3907:19	public	4001:3,5	4040:19	4004:22
3923:9	3864:3,20	4050:3	quantified	4007:6
3933:10	3923:4	4077:7	4023:12	4013:15
3988:17	3926:8,19	4080:25	quantify	4015:6
3989:5	3945:21	4104:6	4023:11	4016:14
3991:16	3959:22	4108:13	quantum	4021:12
4025:4	3960:15	pursue	4085:23	4049:21
4033:19	4023:2	3978:5	4110:16	4051:25
4046:18	4073:20	pursued	4111:10	4052:25
province	publicly	4047:23	quarter	4056:1
3908:12	3942:24,25	4048:7,8	3882:7	4063:18
3909:17	4098:3	pursuing	3910:24	4071:3
4009:11	pull 4021:17	3876:17	3911:6	4073:7,19
4056:16	4053:24	4029:14	quarters	4076:8
4057:14	4063:3	4042:16	3963:20	4095:3
provinces	pump 3911:13	4043:11	Quebec	4102:7
4065:22	4005:12	push 4003:8		4113:7,8
provincial		4004:14		questioned
4102:16		4009:15		3876:9
provision				4042:9
				questioning
				3874:3

3945:9	Rainkie	3961:2	,21	4094:22,25
4096:14	3866:17	4058:6,11,	3885:11,20	4098:13
questions	4068:23	12,24	3886:18	4099:1,3
3912:6,12	4073:18	4059:3,8,1	3887:13,25	4101:3,12
3916:7	4074:1,9	4,19,22	3888:1,4,5	4103:24
3930:24	raise	4060:5,18	,6	4108:3,9
3931:17	3896:15,16	4061:14,22	3890:15,22	4109:4,8,9
3940:7,18	3907:22	4062:6,12	3891:8,21	4110:21
3951:14	3916:15	4063:15,23	3893:23,24	4112:10,16
3955:1	4028:15	4064:1,21	3894:12	4114:20
3962:13	4029:2	4065:5,14,	3895:13,14	ratepayer
3982:1,2	4035:5	21	,23	4026:18
3994:7	4047:14	4066:3,11,	3896:10	ratepayers
4007:5	raised	24	3897:24	3943:18
4010:4	3916:14,17	4067:12,22	3898:19	3948:3
4011:24	raises	4068:5,13	3899:12	rates
4025:19	3925:21	ramification	3900:3,10	3867:11
4030:21	Ramage	s 4021:7	3902:15	3874:12
4051:22	3865:5	ran 3881:9	3903:1	3876:3
4053:23	3866:11,13	4101:17	3904:17	3877:13
4057:19	3871:10,19	range	3906:21	3879:15
4058:7	3879:23	4050:15	3907:7	3880:11
4063:16	3882:17	4091:1,6	3912:12	3881:4,9
4070:2	3885:21,23	4094:20	3937:4	3882:5
4071:12	3916:9,10,	4095:23	3953:13,17	3883:8
4072:11	11 3917:11	4097:2	3954:5,7,1	3884:2
4112:25	3918:1,11,	4101:3	0	3885:5
4115:1	12,20	4110:4	3957:7,24	3886:3
quick	3919:6,12,	4112:6	3958:11,17	3887:3
3916:12	20	ranges	3959:2,4	3888:14
4058:7	3920:3,18,	4101:19	3960:18	3893:19,20
quickly	19	rarely	3970:25	3898:6,7,8
3893:1	3921:1,7,9	3988:9	3980:12	,15
3987:8	,12,20,21	rate 3864:7	3983:18	3899:17
quite	3922:5,16,	3870:25	3985:7	3900:25
3875:23	24	3873:5	3986:8,10	3902:7,11
3885:11	3923:7,21	3874:18	3990:6,12	3903:5,6,7
3894:6	3924:1,4,1	3875:19,22	3997:4	3936:11
3917:1	6	,25	4001:3	3956:17,25
3926:8	3926:5,9,2	3876:1,9,1	4025:21	3957:11
3930:2	2	2,15,16,18	4026:13,23	3960:9
3941:15	3927:2,7,1	,22	4030:4,12	3986:9
3947:15	4 3928:4	3877:2,5,8	4031:15	4003:4
4036:10	3929:2	,16,17,24,	4033:21,23	4026:25
4039:6	3930:1,6	25	,24	4027:11,12
4071:21	3931:18,21	3878:1,2,6	4034:13,16	4028:15,19
4106:7	3935:11,12	3879:8	,20	4029:2,9
quote 4043:6	3936:21	3881:2,10,	4036:20	4031:1,3,2
4060:12	3938:2,21	11,20	4037:1,6,7	0
	3939:3	3882:20	4042:14	4032:5,12,
	3940:6,12,	3883:10,16	4049:18	14
	16 3949:14		4052:21	4033:3,11
			4093:6,13,	
			21	

4034:22	3903:15,19	3999:13	4010:10,14	3985:18,20
4035:5,11	3908:19	4064:1	,21 4018:9	,23 3986:1
4036:10	3910:5	4068:17	4019:4	4014:10
4056:24	3911:15,25	real 3902:10	4024:20	recall
4096:18	3919:16,25	3917:16	4025:17	3883:22
4100:18,19	3920:24	3930:7	4027:23	3884:4
4103:3,4,1	3978:5,12,	3943:17	4029:12	3885:16
4 4107:21	24	3955:6	4030:9	3918:19
rate-setting	3979:9,23	3976:6	4031:12	3926:9
3959:23	3980:8,18,	3996:16	4033:2	3986:6
rather	23	4010:25	4037:4	4071:4,6,9
3879:4	3981:1,22	4011:1	4041:11	,11,17,22
3889:14	3999:17	4047:4	4047:17	4075:22
3896:11	4000:13,18	realign	4050:9	4093:3,7
3898:16	4003:9	3981:20	4051:16	4104:2
3904:3	4004:21	realistic	4055:5,12,	receive
3951:9	4007:2	3971:3	16 4063:7	3889:7
3982:5	4010:2	4055:5	4073:6	3918:15
3983:19	4051:24	realize	4085:11	3920:5
3995:12	4052:11,14	3933:2	4113:9	3940:21
4005:16	4057:20	4007:6	reason	received
4009:3	re 3864:6	4054:19,20	3940:2	3867:11
4010:15	3876:19	really	3953:19	3868:6
4024:16	3879:13	3876:24	4002:20	3879:15
4037:12	3889:3	3878:23	4005:6	3880:10
4070:14	3909:15	3883:9,17	4046:18	3889:13
4089:8	3935:16	3884:8	4073:20	3918:19
4094:8	4047:1	3892:8,22	reasonable	3919:2
4098:12	4074:17	3893:14,24	3882:10	3920:16
4107:3	4109:12	3896:8	3896:20	3938:8
ratio 4018:5	4112:5	3899:11	3983:8	recent
4077:14	reach	3901:10,17	3984:6	4091:3
rationale	4015:13	3902:7	3985:6	recently
3985:16	4032:24	3905:25	4015:7	3873:7
rattling	4056:14	3907:2	4016:2	recess
4019:3	reached	3908:3	4035:14	3972:24
raw	4054:10	3908:3	4050:20	4058:3,8
4057:3,5,8	4062:22	3935:22	4056:21	4063:18,19
Raymond	react	3936:3,18	4057:12	4064:4
3864:15	3886:21	3938:3	reasonablene	recessing
3872:10	4053:16	3946:17,23	ss 3987:5	3917:21
3890:20	readable	3950:15	reasonably	3973:5
3891:24	3951:25	3956:15	3957:6	3999:9
3892:7,15	3952:9	3968:16	reasons	4064:15
3893:2,9,1	reading	3970:11,21	3989:5	reco 3955:20
3,19,22	4023:24	3977:4	4053:14	recognize
3894:3,7,1	ready	3984:10	4085:25	4074:17
8,23	3869:4,11	3986:2,16	rebuttal	recognizing
3897:2,12	3906:21	3996:20	3876:9	3913:21
3898:13	3917:24	4002:9,11,	3907:13	
3899:15	3973:9	19,25	3965:17,19	
		4008:1		
		4009:2		

3915:11	reduces	4058:18	4099:23	3960:20
4111:10	3925:22	4060:22	regarding	reiterate
recollection	4039:24	4085:3	3939:13	3884:11
's 3902:18	reducing	4086:12	regardless	3938:3
recommend	3879:3	4093:11	4046:9	rejected
4025:20	3892:5,18	4095:19	region	3876:21
4048:1	3893:24	4104:17	3925:7,20,	related
recommendati	3894:1,21	referenced	24	3934:7
ons	3908:2	4059:15	3929:5,9,1	3943:3
3931:13	3993:12	references	1	3967:25
3948:7	4017:18,21	4060:12	3930:11,17	3968:15,17
4044:14	4031:23	referencing	regional	,22,24,25
4096:25	4032:17	4027:2	3921:22	3969:2,24
recommended	reduction	referred	3928:24	3976:18
4096:25	3888:10	3923:8	regions	4001:10
4108:17	3892:11	3951:25	3988:2	4004:22
reconfigure	3909:13	referring	Regis	4006:19,24
3969:9	3977:21	3962:13	3864:14	4051:25
record	4060:24	3979:21	regret	4074:24
3918:5	4101:11	4105:8	3960:24	4092:2
3955:15,21	4108:4	refers	regulation	4107:19
3966:2	reductions	4015:11	3872:24	relates
3986:25	4018:17	4102:16	3873:4	4090:20
4066:13	re-estimates	reflect	regulations	relating
records	4088:6	3982:8	3945:24	4090:21
3920:6	4091:25	4015:9	regulator	4093:12
Re-cross-	refer	4060:2	3926:10,11	relation
examinatio	3955:12	4105:4	3928:6	3895:21
n 3866:13	3987:22	reflected	3934:21	4008:9
4058:11	3990:3	4014:21	3935:2,7	4113:9
redacted	4025:13	4015:2	3939:10	relationship
3942:3	4034:8	4022:23	3942:9	3904:15
3944:21	4048:12	4061:6	4049:19	3968:19
3960:2	4093:25	4096:12	regulators	4018:9
reduce	reference	reflection	3876:1	4097:15,17
3891:5	3959:7	4057:21	3924:22	4103:18
3909:12	3963:6,9,1	reflects	3926:14,16	4107:5,18
3976:3	2,19	4108:21	3927:25	relative
3983:18	3970:16	refused	3928:17	3913:5
4013:20	3971:6,9,1	3905:24	3929:21	3914:5
4027:10	6	regard	3933:18	3915:13
4028:13	3985:18,24	4075:8,9	3946:7	3944:18
4032:7	3997:22	4084:6	4049:16	4103:1
reduced	4002:2,3	4085:21	regulatory	4109:2,6
3988:10	4008:8	4088:13	3872:18	4110:15
4016:10	4012:25	4089:5	3943:25	relatively
4018:13,22	4013:25	4090:11	3947:23	3870:10
4054:24	4022:13,17	4092:7	3953:3	3886:14
	4026:6			3889:16
	4030:3			3928:13
	4037:19			

3988:20	remember	3907:22	4041:18	3917:7
3993:21	3870:10	3925:25	4048:19,23	3932:22
3995:14	3941:9	3926:6,15,	reports	3960:19
4046:4	3945:12,15	21 3944:3	3906:7	3982:25
4088:22	3957:2	3945:22	3940:23	3988:4
4089:16	3973:17	3948:15,24	4048:17	4008:14
4100:17	3986:16	3950:7,24	4073:5	4048:7
4102:18	4043:4	3952:19	represent	requirement
4105:19	4059:6,10	3953:1	3887:4	3866:15
relativeness	4094:2	3961:24	3944:1	3981:13
4110:18	remind	3964:25	3945:17	4032:8
release	3909:4	3966:1,4	3972:10	4048:23
3938:16	4090:10	3970:4	4108:14	4068:21
3939:14	reminder	3984:13	representati	requirements
3942:23	3871:17	3985:3,11	on 4104:5	3898:4
3948:4	3973:15	3990:4	representati	3961:1
released	reminds	4001:15	ve 3882:9	3989:6
3934:17	3950:19	4007:11	3895:7	4009:12
3938:13	remotely	4012:7,24	4026:11	4048:20
3942:25	4051:25	4013:7	representati	4054:24
releases	removed	4015:5,12	ves	requires
3909:6	3900:12	4044:3,6	3924:23	3925:18
relevance	rendered	4045:21	3926:14	4004:20
4060:16,19	3956:23	4048:21	4098:8	requiring
relevant	3959:9	4049:7	representing	4004:1
3993:10	renewable	4058:16,20	3893:20	reran
4003:24	3989:6	4060:15,21	reproduce	3892:14
4060:13	4002:17	4061:25	3888:15,16	res 3918:23
4098:13	4055:10	4062:9	3890:1	4072:25
reliability	renewables	4071:5,16,	reproduced	research
3980:20	4055:14	23	3890:6	4021:25
reliable	rep 3893:18	4072:15,22	request	reserving
3981:4	repair	4073:1,15	3921:2	3912:11
rely 3936:25	3981:20	4091:21	3961:4	residential
relying	4024:4	4093:19,24	requested	3867:9
3937:3	replace	,25	3884:14	3874:11,18
remain	3907:15,18	4094:1,10,	3918:16	3875:19
3915:8	4055:1	16,17	3924:9	3876:9,15
4056:25	4070:20	4096:20	requesting	3877:3
remainder	replacement	4097:6,19	3920:6	3879:13
3897:7	3968:10	reported	require	3880:9,19
3923:5	4018:18	3960:4	3876:19	3881:18
3942:6,19	4045:1	4028:3	3890:2	3887:5
remained	replacing	reporter	3899:13	3905:21
4081:8	3968:4	3947:10,14	4029:6	3956:18
4088:13,22	4019:22	4078:11	4047:6	3957:11
4089:16	report	reporters	4054:24	3958:23
4114:23	3868:16	3947:16	required	3991:11,16
		reporting		3992:1
		3961:1		
		4027:25		
		4039:12		

3995:20	4007:11	4013:24	resume	4104:13,20
3996:5	4042:12	4014:1	3917:25	4105:12,19
3997:7	4044:15	responsibili	3972:25	4106:14,22
3998:10	4064:24	ties	3973:9	4107:6
4000:14	4067:8	3943:13	3999:13	revenues
4050:17	respective	responsibili	4064:19	3867:10
4060:24	4074:16	ty 3928:2	4115:2	3879:14
residential-	4076:9	3929:17	Resumed	3880:9
level	respond	3931:9	3866:15,16	3881:10
3998:1	3878:4,14	4043:21	,17,18,19,	3956:16,20
residing	3919:3	4057:16	20	3957:8,18
4092:6	3930:24	responsible	4068:21,22	3959:6,12
resistance	3932:8	3939:15	,23,24,25	4101:13
3911:7	responded	rest 3886:6	4069:1	4107:16,19
resonate	3971:12	4056:8	resuming	,25 4109:5
3902:7	response	restating	3917:22	reverse
resource	3867:13,14	3978:22	3973:6	3907:19
3873:6	,15,16,20,	restraint	3999:10	4011:10
3898:4	21,22,23	4074:18	4064:16	reverses
3914:10,14	3880:20	result	retirements	3944:13
3916:2	3887:15	3867:9	3925:19	reversing
3962:24	3888:24	3879:13	RETIRES	3907:10
4004:1	3906:18	3880:8	4115:5	review
4005:16	3918:16	3884:12	return	3870:25
4029:23	3919:1,10,	3890:4	4094:24	3871:1,22
4041:23	15 3922:6	3906:18	4101:16	3872:16
4042:18	3923:8	3910:1	4109:7	3905:25
4048:2,19	3933:8	3914:9,20	4110:25	3927:22
4055:12	3941:6	3929:12	4111:11,12	3929:19
4056:13	3950:3,4	4001:16	,18,24	3931:6
resources	3961:4	4020:12	returns	3933:17,20
3988:22	3963:10,12	4036:21	4102:1	3935:17
4002:17	3971:20	4050:17	4108:3	3936:2
4004:2,8	3978:8	4072:25	4112:5	3941:20
4005:9	3985:2	resulted	revenue	3952:23
4006:8	4010:7	3966:15	3866:15	4029:21
4056:5,6,7	4026:5	resulting	3868:8	4042:13
,9	4029:25	4020:21	3894:16	4064:9
respect	4031:5	results	3952:18	reviewed
3873:20	4044:2	3906:2	3956:5,11,	3874:5
3874:13,17	4064:22	3913:14	17	3928:24,25
3881:8	4065:3,6,1	3935:21	3957:15,22	3935:2,16,
3890:14	2,19	4044:6	3958:21	19 3938:14
3895:1	4066:1,13	4048:20,24	3959:22	reviewer
3902:9	4067:10,16	4049:6	3960:18	3927:23
3905:18	,20	4061:25	3961:10,17	reviewing
3927:21	4068:3,11	4062:1,3	4008:13	3928:13
3928:23	4070:8	4106:15	4032:8	3931:11
3933:16,20	responses	4108:22	4033:23	3935:7
3934:12	3944:9		4068:21	3943:6
3957:24	3950:11		4096:11	
	3963:2			

3965:24	3915:17	4000:1,5	saved 3975:6	6,18,23
4007:22	4078:3	4009:17	4028:2	4094:4,5,9
revised	road 4055:8	4010:21	Saver	,17
3972:10	role 3924:18	running	4067:25	4095:3,15
3978:15	3925:12	3913:15	saves 4021:3	4096:21
3979:15	3927:18,21	3981:6	4041:2,4	4097:5,23
4079:20	3930:20	4004:15	saving	4098:6,16
4080:21	3942:8		3992:21	4099:17
4083:23	3943:5,8		3993:4,6	4100:7,21
4086:21	rough 4051:3	S	4037:15	4101:9
4114:7	roughly	sale 3980:2	4039:4,5,8	4102:2,6,9
revision	3873:1	sales 3899:9	savings	,12,19
4090:5	3979:4	3907:23	3910:9	4103:6,10,
4114:5	4049:23	3923:5	3994:1,2	19,21
reward	4050:24	3957:5	3995:19	4104:2,10,
3878:12	4052:11	3958:19,23	3996:11,13	16,25
Riel 4077:25	4081:12,21	3960:5,11,	4001:6	4105:7,11,
4088:19	4084:14	18	4006:14	21,25
4089:5	4087:19	3976:19,24	4012:3	4106:9,17,
right-hand	4090:7	3977:1,20	4019:4,6	21,25
3955:19	round	3982:12,16	4036:21	4107:7,22
4106:20	3888:25	,21	4037:11	4108:11,19
rigour	3918:23	4008:9,12,	4038:19	,24
4007:14,17	3919:3,10	13,14,16	4041:6,14	4109:11,14
RIM	3920:22	4009:4,22,	saw 3927:15	,22
4027:20,24	3936:6	23	3930:6	4110:2,14
4028:12,13	3949:25	4015:3,8	scale	4111:2,14,
,24	3950:10,14	4100:1,11	3944:17	17,23
4029:4,10	,23	4106:16	4041:1	4112:17
4030:13,25	4050:19	4107:19	scenario	science
4031:2,7,1	rounded	salvage	4101:2,24	4054:8
8 4032:3	3893:7	4068:7	4108:22	scope
4034:11	rounds	samples	scenarios	3876:4,8
4035:21	3950:20	3868:8	4110:23	3883:18
4037:13	route	3961:9,16	scenario's	scores
4042:23	4079:13,15	sampling	4101:18	4031:2
4067:24	,17	3941:2	schedule	Scotia
ring 4070:12	routes	sanctions	3907:9	3941:18
rising	4084:20	3939:20	3982:13	3942:9,14,
4087:13	rules 3946:1	satisfied	3990:13	17,18
4091:1	ruling	3874:3	school	3943:1,24
risk 3999:18	3872:1	3935:19	3918:6,9	3945:3,14
4055:5	run 3878:25	save 3877:16	Schulz	3946:16,23
4094:13	3879:1,2	3994:9	3866:20	4002:6
4109:2,13,	3910:3	4013:18	4069:1	screen
18 4110:10	3962:17	4019:7	4092:20,22	4025:23
4111:20,24	3981:9	4024:19	,24,25	4048:7
river	3988:7	4029:7	4093:2,7,1	screened
3869:25		4039:2,25		4043:17
		4046:6		screening
				3925:11

3996:10,18	3995:10	3894:25	3880:12	3946:3
4013:16	3997:4,25	sell 3922:25	3918:22	sessions
4025:9	4000:12	3977:3	3919:7	3946:15
4029:11	second-block	3982:10	3949:15	setting
4032:7	3881:25	4005:24	sequential	3883:8
4038:14	3882:5	4009:10	3955:18	4049:13
4042:3	secondly	4011:10	3963:17	seven 3882:6
4043:16	3950:11	4029:16	4026:7	3954:13
4049:6,25	secrecy	4046:9	serious	3964:3
4050:20	3947:11	selling	3906:17	3978:8,9,1
4051:13	section	4008:25	3907:1	6 3979:6
screens	3946:16	4009:16	4034:11	3981:6
4042:19,23	sections	4012:18	seriously	4070:19
,25	3942:3	4013:19	4041:11	seven-three
sealing	seeing	sells 4010:9	serve	3964:20
4021:3	3871:24	4046:7	3969:10	seventy
searches	3890:4	4059:23	3992:10	3872:25
3952:8	4039:13	sends	3993:11	seventy-five
season	4094:2	3891:15	4005:17,18	4052:16
3897:22,25	seek 3939:20	sense	,19	seventy-two
3992:20	seeking	3954:25	served	4070:19
seasonal	4102:23	3973:21	3969:2,9	several
3897:19	seem 3929:22	3979:17	3990:13	3873:8
3898:7	3952:5	3983:17	3999:25	3877:9
3899:12	4052:5	4011:15	service	3888:11
4050:22	seen 3906:3	4019:19	3875:22	3918:24
seasons	3930:25	4061:2	3922:10	3923:8,11
3898:9	3944:5	4096:7	3923:4	3937:23
second	3956:20	4106:10	3951:4	3947:13
3867:6	3960:13	sensitive	3952:17	3948:24
3876:2	3989:18,23	3944:22	3956:18	3967:3
3879:11	4014:15	3946:11	3990:18,22	4011:24
3880:4	4021:14	sent 3918:24	3991:16,17	shale
3881:20	4023:2	3919:8,9	,19	4055:18
3883:18	4034:21	sentence	3995:6,10	shape
3891:4	4046:22	4100:22	4000:6	3992:13
3892:10	4048:16	sentences	4006:4	shapes
3895:14,23	4062:4	3908:21	4023:3	3991:21
3897:7,10	select	separate	4045:11	share
3898:11	3867:4	3876:2	4080:2,13	3888:12
3900:14	3879:10	3914:17	services	3940:2
3954:12	3880:1	3923:19	3922:18,22	3945:8
3968:6	3895:2	3941:22	3934:25	sheet
4003:20	3908:8	3947:17	3952:19	3951:17
4069:20	3932:4	3985:21	3957:11	4097:14
4100:8,22,	selected	4056:1	3988:25	shell
25 4102:15	3896:5	September	4005:24	4024:11
4105:10	selection	3867:12	4029:1	
secondary		3879:15	session	
3959:14			3945:21	

ship 4057:9	4107:9	simply	4017:5	3942:11
shoes 3869:5	sided	3885:24	4022:11	3946:12
short	3963:11	3886:7	4025:8,14	3956:21
3900:13	sign 3932:22	3902:16	4029:18	3982:19
3983:16	3933:19	3914:20	4030:7	4033:17
3989:11	3934:10	3937:13	4034:8	4057:15
3999:2,3	3941:21	3990:17	4036:2,18	4063:1
4004:14	3942:4	4017:19	4037:17	situations
4005:12	3944:7	4053:14	4041:22	3900:16
4057:24	signal	simulation	4042:7	3907:25
4099:25	3891:9	4101:17	4043:25	3977:24
4100:9,18	3893:18	4110:6	4046:23	4011:15
4107:20	signed	simulations	4047:25	4034:21
4112:14	3941:4	4101:2	4049:11,21	4046:1
shortcoming	3942:13	single	4051:21	4049:17,18
3956:11	3944:24	3960:3	4070:6,22	4062:19
shortcomings	3946:6	4035:18	4071:8,17,	six 3881:11
4038:4,13	4076:9	sir 3870:18	20 4072:18	3882:2
4041:23	significant	3873:11,14	4073:7	3925:7,11
shorter	3903:10	3908:15	4074:5	3964:10
4104:9	3959:15	3945:2	4075:24	3978:17
shortfall	3974:14	3946:19	4076:12	3979:7,9
3958:25	4034:20	3947:3,21	4079:2	3980:4
short-term	4103:15,17	3948:10,23	4081:13	4040:10,13
4004:18	similar	3949:10	4083:4,18	4103:15
4096:17	3961:3	3952:15	4085:19	six-nine
4099:2	4062:2	3953:2	4087:17	3964:13,16
4103:4,13	4106:21,23	3955:9,22	4088:9	sixty 3981:6
4106:15	Simonsen	3956:3	4091:1,14	4010:13
4107:19	3874:21,24	3957:20	4092:9,22	4053:2,4
showed	3879:22	3959:21	4093:22	size 3882:9
4102:21	simple	3961:21,24	4094:8,16	3904:18
4107:9	3879:9	3962:5,10,	4095:14	3905:2
shower	3889:15	14	4099:16,24	3968:25
3879:1	3929:25	3963:5,13,	4103:9	3984:8
showing	4075:4	22 3965:7	4104:15	4009:10
4067:7	simplest	3966:3	4105:6,16	sizes 3882:9
4107:18	3997:3	3970:2	4106:8,13	skimming
4111:4	simplicity	3971:6,13,	4107:6	4041:12
shows 4084:8	3877:9	21	4109:13,21	slap 4083:18
shrink	3882:1	3984:12,19	4110:1	slightly
3893:5	3896:4	3985:8,17	4111:11,22	3881:3
shut 3980:14	simplified	3986:20	sit 3977:23	4045:24
3981:19	3972:16	3989:17	sitting	slope
sic 3912:15	simplifying	3990:3,11	3902:2	4107:11
3998:9	3998:23	3991:4	4054:19	sloped
4066:18	simplistic	3994:15,24	situation	4112:14
	4104:22	4000:23	3876:23	slowing
		4001:7	3900:7	
		4013:7,23	3901:5	
		4015:4,21	3907:24	
		4016:8	3931:2	

3907:10	sold 3959:10	3886:5	4027:8	3971:5,23
slowly	3975:7	3894:11,21	source	3972:9,18
4031:20	Soldier	3897:12	3904:19	3973:1,11,
4056:12	3864:16	3900:22	3906:16	12,19,24
small	3900:22,23	3902:9	3908:8	3974:21
3892:11,13	4071:13	3919:5	4002:8	3976:9,13
3928:13	4072:11	3921:11	4010:14,15	3977:6,25
3988:20	solely	3940:11	4062:20	3981:24,25
3989:12	3927:12	3943:21	sources	3983:4,20,
3991:16	3935:21,22	3947:3	3911:14	24
3992:1	solution	3961:5	3913:4	3984:2,12,
3995:14	4011:2	3965:1	3915:14	18 3985:10
3997:7	solutions	3966:7	4052:20	3986:19
3998:10,24	4047:20,21	3971:8	4095:11	3987:2,7
4004:14	solve	3972:1	south	3989:17,21
4031:21	4047:16	3983:20	3903:24	3990:2,10,
4034:13	somebody	3984:11	4077:21	19,25
4046:4	3869:4	3985:17	Southall	3991:7,13
4057:23	3913:15	3989:17	3865:3	3992:14
4070:6,10	4035:13	3999:1	3866:12	3994:5,11,
smaller	someday	4013:14	3869:6,7,1	23
3881:13	3994:10	4064:3	6 3884:21	3996:2,22
4023:11	somehow	4066:24	3940:12,14	3997:8,14,
smallest	3979:11	4079:16	,15	19
3877:18	someone	4082:12	3941:1,11	3998:13,16
Smart	4052:3	4087:22	3942:7	3999:14
3878:16,17	something's	sort	3945:1,2	4000:20,21
3887:16	3917:2	3870:11,13	3946:19	4001:7
3906:22	somewhat	3891:11,18	3947:3,21	4002:1
3907:7	3887:9	3957:18	3948:9,19,	4011:22,23
3993:25	3894:21	3969:20	23	4012:7,15,
snapshots	3972:16	3972:22	3949:9,12	23
4021:20	4011:16	3976:20	3951:22	4013:6,9,1
social	4043:2	3997:20	3952:7,14	4,23
3916:1	4049:4	4018:12	3953:2,24	4014:3,9
4013:2,13	4110:24	4021:20	3955:9,25	4015:4,18,
societal	somewhere	4023:9	3956:7	20
4017:23	3887:6	4028:6	3957:20	4016:1,7
4018:1,4	3909:12	4039:12	3958:7,10,	4017:5,11,
4022:15,22	somewheres	4047:19	13 3959:20	25
4040:21	4053:13,15	4048:23	3961:7,20,	4020:11,15
4041:24	sooner	4054:7	21	4021:11,22
4048:2	3982:10	4056:1	3962:4,9,1	4022:10,11
4051:14,15	sophisticate	4057:7	2,23	,21
society	d 4037:12	4107:11	3963:9,16,	4023:23
4051:15	sorry	4108:25	24	4024:1
solar	3874:21	sorts	3964:7,15,	4025:1,7,1
4054:14		3943:19	18,24	2,16
4055:11		sound	3965:7,18	4026:3
		3884:25	3966:11	4029:18
		3930:12	3970:2,12,	4030:9,16,
		3946:4	15	19
				4032:2,15,
				19

4033:3,7,1 0,21 4034:7 4036:1,16 4037:2,17, 25 4038:6 4041:21 4042:1,6,2 2 4043:8,25 4044:12 4045:3 4046:22 4047:24 4048:6,12 4049:11,20 4051:1,21 4061:24 Southall's 3916:22 Southern 3898:14 space 3899:18,20 ,21,24 3905:22 3906:12 3908:21 3992:21,22 3993:7 4044:16 space- heating 4060:25 spaces 3889:19 span 3897:11 speaking 3902:6 3951:24 3979:4 4007:14 4050:24 4102:11 special 3899:24 3900:10 3960:2,4 4047:1,2 species	3914:10 specific 3881:4 3896:24 3915:2,3,4 3925:15 3933:4 3949:22 3955:10 3968:23 3981:14 3986:21 4007:18 4020:2 4024:24 4025:19,24 4047:20 specifically 3949:4 3962:5 3984:14 4016:16 4025:12 4026:10 4027:15 4044:12 4113:11 specified 3939:17 spend 3967:19,20 3975:21 4007:23 4008:2 4011:16 4039:20 4112:1 spending 3901:6 3955:7 4007:20,21 4008:3 4036:19 4039:7 4071:15 spends 4038:17 spiders 4021:2 spill	3977:17 spilling 3980:11 split 3876:1 3951:10 4050:23 splits 3899:10 spoke 3915:10 spoken 4108:25 sponsored 3926:10 sponsors 3925:14 3926:6,23 3927:9 3930:20 3931:7 3942:22 spot 3984:20 3985:6 3986:7,18 4010:12 4100:1,10 4102:16 spots 4002:3 spread 3991:21 3993:13 4038:18 4094:24 spreads 3886:19 spreadsheet 3867:3 3868:3 3879:9,25 3880:22 3888:13 3889:18,24 3890:10 3912:14,21 3919:2,21 3952:18 3954:1,11, 16 3956:14	spreadsheets 3868:6 3888:18 3918:24 3919:9,11, 14 3920:5,8,1 5 3949:14 3951:2,3,1 3 3952:1,9 3954:15 3957:3,22 spring 3876:5,6,1 0,13,23 3887:18 3898:21 3907:5 3993:16 springtime 3875:23 square 3974:10 ST 4102:16 stability 4103:23 4108:10,13 staff 3879:8 3890:10 4071:14,23 standard 3952:3 standards 3998:4 STANDS 4064:13 start 3869:4,16 3871:22 3874:20 3900:24 3909:2 4069:15 4095:8 4113:1 started 3894:17 3925:2 3953:4	3957:2 3967:1 4019:13 starting 3962:5 3971:11 3972:12,14 ,16 3984:15 4015:5,6 4029:24 4030:2 4037:18 4042:11 starts 3962:15 state 3925:7 3937:15 stated 3979:20 statement 3884:16 3885:17 3891:16 3985:13 4013:7 4026:2 4032:9 4061:9 4094:21 4101:10 4108:6,12 states 3909:17 3910:4,8 3925:5,6,1 2 3960:17,25 4011:8 4012:11 station 3980:10 4003:14 4078:2 4088:19 4090:6 stations 4077:25 4083:2 4084:1
---	--	---	--	--

4087:8,12	streams	3877:23	23 4067:5	3996:5
4088:7,8,1	4104:20	3918:21	4070:9	supplies
3	stress	3919:9	4082:23	3914:13
statistical	3899:1	3921:8	4092:16	supply
4103:15,18	strike	3949:15	4095:9	3909:18
4110:17	4070:20	3970:3	4103:6	3924:24
statisticall	strips	4014:18	4108:21	3928:11
y 4107:25	3878:22	4015:6	suggested	3989:11
statistics	strokes	4026:4	3938:23	4002:8
4103:10	4083:4	4059:9	suggesting	support
stay 4044:22	strong	4081:20	3913:4	4035:10
4083:14	4062:25	4084:16	3930:21	4036:8
stayed	4067:7	4087:20	3986:17	4055:20
4080:18	4103:17	4092:12	4047:20	4083:24
4082:2	stronger	subjected	4077:18	supporting
staying	4062:23	4074:18	4078:15	3948:14
3957:20	structural	submitted	4080:6	3971:14
3970:3	3968:3	3873:22	4082:10	suppose
4105:17	structure	3944:4	4088:21	3949:16
4106:4	3882:20	4085:3	4094:10	4016:15
step 3977:7	structured	4086:12	suggestion	surcharge
4005:7	3987:21	4088:5	3876:21	4045:4
4096:1	3989:15	subsequent	suggests	surcharges
steps	4045:13	4072:19	4103:7	3956:24
4095:10	struggle	4074:14	sulfur	sure
stereo	4109:17	4075:1,12,	4018:14	3869:17,18
3878:21	stuck	14 4080:10	sulphur	3870:16
sticking	3908:12	4113:17	3914:1	3880:24
4110:23	studies	4114:5	sum 3951:16	3884:24
stimulating	3951:1	subsidiaries	summarize	3889:19,21
3891:23	3952:20	3923:17	4044:7,9	3890:1
stop 3898:22	3966:20	substantial	summarizing	3894:6
stopping	3996:24	4024:11,22	4043:5	3905:6,13
3907:10	3998:17	substantiall	summer	3921:7
stops 4019:2	4021:9	y 4002:22	3897:21	3922:22
storage	4062:2	4003:10,21	3898:2,3,1	3931:21
4054:14	4085:12	substat	1,16	3965:8
straight	4099:10	4000:5	3899:7	3979:11
4104:23	stuff	substation	3929:9	3989:16
4106:10	4041:13	4000:4	3967:14	4002:14,19
4107:4	stumbling	successful	3993:1,3	4007:4
straightforw	4057:15	3945:23	super	4009:12
ard	sub 4075:12	sucks 4021:1	4018:25	4015:15
3889:16	subclass	sudden	superior	4022:2
4039:6	3992:8	3901:20,22	3906:6	4038:15
4046:20	subject	suggest	4062:24	4073:8
		4064:25	4103:23	surplus
		4065:9,16,	supplied	3986:9
				surprised

4047:21	4010:24	4000:24	4071:22	4014:18
suspect	4012:16,19	4001:10,11	4104:3	4047:7
4021:15	,22	4013:4	talking	4054:17
4051:10	4046:15,16	4037:6	3898:23	4064:4
swamped	4085:12	4043:13	3900:24	4075:16
3904:11	4097:16	4050:16	3921:7	4101:17
swear	systems	4067:16	3927:12	4113:17
3874:22	3907:16	4090:5	3946:21	tend 3901:1
switch	3915:17	4102:5,9	3950:21	4020:1
3906:8	4005:8,14,	4106:21	3971:17	tended
4044:25	22 4018:19	tables	3973:15	3902:21
4058:9	4019:25	3990:3	3979:3	tenth 3975:3
4088:20		Tab 3867:17	3980:15	tepid 4049:4
switched	T	4066:4,5,9	4007:16	term 3987:19
3908:1	T&D 3899:3	tabulated	4008:12,13	4004:14
switching	3924:5	3949:22	4024:12	4034:13
3892:19	3928:23	tactic	4036:25	4035:3
3905:18	3929:18,19	4044:19	4050:1,6,1	4053:5
3906:20	3930:10,14	Tadoule	3 4051:6	4064:8
3907:21	3931:8	4067:15	4075:19	4094:24
3913:2	3932:18	tail 3877:12	4096:8	4098:18
3948:15	3933:17	3878:4	4114:11	4099:6
3950:24	3935:21	3886:15,17	targets	4100:1,10,
3952:25	3937:2,16,	3887:25	4049:7,13,	18,19
3971:1	20 3966:16	3888:1	17	4107:21
4044:3	3967:11	3893:23	task 3915:13	4109:7,8
4045:21	3969:16	3896:5	3928:13	4112:13
4060:15,21	3974:13	taking	3931:5,11	terms
4061:7,25	tab 3867:18	3887:24	team 3929:15	3872:17
sworn 3871:4	3872:14	3903:22	technical	3874:8
3947:11,12	3933:9	3979:12	4099:14	3875:19
,14	3955:17	3990:20	technically	3883:1
system	3963:1,5,1	4019:5,11	3879:8	3886:21
3899:5	7 3965:8	4025:16	technologies	3887:16
3904:22	3971:7,10	4044:8	4055:7,9	3889:24
3905:9	4001:24	4105:19	technology	3891:22
3946:4	4002:2	4110:20	3872:22,23	3894:4
3974:13	4013:25	talk 3898:20	4055:15	3899:3,9
3975:17	4022:13	3913:19	tedious	3902:20
3982:10	4026:6	3932:24	3889:17	3904:6
3988:11	4029:24	3978:8	teeth 4019:3	3906:3,4
3989:11	4066:12,13	4050:7	temperature	3911:8
3993:19	,14,17,18,	4056:11	4019:18,23	3913:1,5
3998:2	22	4071:7	ten 3875:14	3915:3
3999:25	table 3866:1	4087:2	3917:13	3916:16
4000:1,8	3884:7	talked	3939:15	3917:4
4004:5	3887:23	3902:19	3966:23,24	3927:16
4005:24	3889:5,7	3936:18	4004:9	3935:18
4006:7	3990:11,19	4040:17		3936:11
4009:24	3991:4	4042:8		3944:2
	3996:9			3945:9
	3998:8			

3946:11	3866:18	3908:15	3994:11,15	3923:16
3949:17	4068:24	3915:23	3999:7,14	3925:8
3952:22	Teshmont	3944:9,21	4000:18,21	3926:8
3953:2	4085:16	3945:4	4007:2	3929:12,15
3959:15	4088:1	3950:8	4025:7	,24
3961:1	4091:20	3962:2	4051:21,22	3931:4,5,8
3970:24	4092:7	3986:5	4057:20	,18 3937:5
3971:2		4001:8,22	4058:1	3938:11,12
3974:25	test 3946:23	4022:12	4063:15	3940:7,25
3981:10	4007:15	4026:10	4064:5	3941:24
3987:8	4025:22	4028:8	4068:16	3943:8
3992:24	4026:14,15	4030:5,12,	4070:4	3944:13
3997:11	,23	22	4076:19	3946:24
4004:1	4027:21,24	4032:3,10	4080:4	3949:15,16
4009:11	4028:12,13	4034:2,9	4087:1	3951:16,18
4010:5	,24	4048:13	4095:2,4	3954:14
4018:4,8	4029:10	4060:12	4096:22	3955:10
4019:11	4031:18	4071:20	4105:15	3956:19
4020:6,12	4032:5	tests 4025:9	4108:19	3957:25
4021:8	4034:11	4026:21	4110:9	3959:17
4026:18	4035:21	4032:6	4115:3	3960:10,15
4027:24	4036:17,25	4042:24	Thanks	3967:11
4031:7,25	4037:4,12,	4043:3	4030:19	3971:13
4037:21	20	tha 4056:22	that's	3976:5,7,9
4040:8,9	4038:4,12,	thank	3870:17	3980:11
4044:6,18	16	3869:7,13,	3871:7,12	3981:1
4045:6	4039:14,20	15 3870:20	3872:13	3982:16
4049:21	,23	3871:19	3875:23	3983:8
4050:16	4040:21	3872:3,4	3878:21	3984:3,6
4051:15	4041:10,17	3894:24	3879:6	3985:13,25
4061:3	,23,24	3897:15	3880:24	3996:2,4
4069:19	4042:18	3900:21	3882:21	3998:11,16
4070:10	4048:2,9	3905:16	3883:7	4000:3
4071:5,14,	4067:24	3908:17	3884:10,14	4001:18,21
20,22	testified	3910:5	3885:7	,23,24
4072:24	3872:25	3911:25	3890:25	4002:3,13
4075:23	3885:12	3915:9	3891:25	4005:21,24
4076:1	3914:14	3916:8	3893:5	4006:25
4077:7,16	3926:18	3918:1	3894:7,23	4009:2,23
4080:5	4062:7	3921:13,17	3898:17	4011:5
4090:10	testify	3940:6,11,	3899:9	4012:6,13
4092:13	3940:23	15 3941:11	3902:1,6,1	4014:8
4093:4,20	testifying	3946:19,24	0 3903:5	4015:15,16
4094:12	3872:18	3949:11	3905:1,11,	,25 4016:5
4095:5	testimony	3956:2	13 3908:9	4017:10
4096:24	3870:24	3961:21	3909:13	4019:4
4099:13,25	3871:5	3964:18	3910:25	4020:1
4106:15	3872:8	3970:2	3913:11	4023:16
4107:2,20	3873:16,21	3973:1,3,1	3915:19	4025:22
4109:18	3874:2,7	2,24	3917:10	4028:2
4110:16	3876:9	3981:22	3918:18	4029:9
4112:14	3883:23	3990:2	3920:3,11,	4030:3
TERRY			24 3922:4	4033:8,14
				4034:1

4035:1,14, 24 4039:12 4040:12 4041:13 4048:4,10, 25 4054:12 4055:5 4056:20 4057:12 4058:1,20, 22 4059:17,25 4060:5,6 4063:5,16 4065:15 4067:6,23 4069:8,17 4070:25 4072:8 4075:15 4076:23 4077:22 4080:6,8 4084:3 4086:25 4087:10,18 4088:10 4089:1 4090:13,24 4094:7 4097:17 4099:11 4100:7,21 4101:21 4106:17 4114:25 theirs 3996:14 theme 4104:7 themselves 3901:6 4049:10 4098:22 theoretical 3885:4 theory 4032:19 4095:21 thereabouts 4053:4 there'd	4113:25 therefore 3872:5 3876:3 3881:2 3892:17 3893:22 3904:1 3944:20 3968:18 3969:7 3975:8 3978:15 3996:17 3997:4 3998:1 4003:4,6 4010:13 4017:15 4040:23 4056:5 4112:4 there'll 4052:22 4075:4 there's 3891:11 3901:2,9,2 5 3902:22,23 3907:25 3908:1 3910:9 3914:1 3928:13 3929:23 3933:9 3942:2 3948:2 3955:6 3956:16 3966:3 3974:13 3979:2 3980:13 3981:8 3988:24 3989:3 3999:20 4002:17 4012:8,15, 21	4016:16,19 4018:1 4024:8 4033:4 4034:20 4035:22 4039:19 4040:20 4044:24 4045:19 4049:8 4052:18,19 4054:16 4055:15 4057:7,16 4064:21 4072:6,24 4074:1 4077:8 4079:1 4099:8 4114:23 thermal 3977:19,23 4009:7 4012:3 thermostat 4019:1 they'd 3910:4 3912:13 3923:22 they're 3878:5,8 3901:5,6 3903:13 3910:10 3930:18 3936:23,24 ,25 3939:6 3941:13 3948:4 3957:4,7 3960:11 3965:12,13 ,23 3969:16 3975:18,19 3981:4 3986:13 3992:8 4012:17	4014:1 4019:5,10 4023:11 4029:14 4036:7,8,1 1 4045:21,23 4054:2,3 4055:20 4056:23 4057:5,6 4063:23 4067:3 4077:9,10 4106:18 they've 3930:25 3934:5 3958:23 3981:5 4049:9 4072:1 Thi 4070:5 Thir 4082:16 third 4002:13 4078:5 thirteen 4082:16 thirty 3900:20 3964:3 4052:12 4061:16 thirty-five 3873:1 thirty-three 4015:14 4016:25 4058:14,19 4059:14 4060:22 tho 4039:11 Thomson 4027:4 thousand 3895:6,18 3939:16 3981:6	4003:17 4005:18 4006:21,22 ,23 4007:23 4094:1,3 4101:18 three-seven 4107:15 throughout 4074:18 throw 3946:6 thrown 3977:22 tie 3994:14 tied 3988:20 till 4088:15 timely 3948:25 time-of-use 3986:9 tired 4083:13 today 3874:1 3883:1 3939:4 3945:5,6 3949:4 4012:2 4022:14 4050:1 4051:3 4070:8 4115:1 tomorrow 4115:2 tonne 4015:14 4016:25 4058:15,19 4060:22,23 tool 4024:15 4045:10 tools 3906:25 top 3966:9 3978:7
---	---	---	--	---

4020:5	3866:24	4006:3	3956:12	3961:22
4048:13,14	3947:5,6,1	4036:5	4002:5	3962:1
4099:23	8,19	4040:8	4003:1	3976:14
4104:13	3965:16	4051:18	4011:10	4011:24
4105:9,10,	4001:24	4064:24	4012:13	4012:8
12	4002:14	4077:19,20	4014:7,8	4019:1
4106:1,22	4022:20	4083:1,25	4015:24	4042:10
topics	4026:9	4084:6,9,2	4055:14	4044:1
3950:1	4028:6	1 4085:21	4113:18	4045:17
total 3888:1	transformed	trapped	truth	4060:20
3892:18	4000:4	3977:22	3939:23	4064:19
3907:23	transformer	trash	3986:5,15	4069:17,19
3909:9	3969:4,5,6	3981:16	try 3872:21	4082:9
3957:15	,8 3974:8	TRC 4028:10	3891:14	4083:7
3975:17	3995:11,13	4032:6	3903:11	4084:22
3976:24	transformers	treat 3927:9	3908:5,6	4087:2,3,2
4001:6	3957:12	3997:3	3943:15	3 4090:15
4013:1,13	3968:23,25	treated	3968:11	4092:21
4032:8	3969:1,10,	3926:20	3973:22	4097:25
4041:23	13,17	3968:24	trying	4103:20
4042:18	3992:4	4006:18,25	3890:3	turned
4048:1,19	4000:2,6	treating	3896:3,20	3878:23
4050:3	transmission	3968:14	3901:4,6,8	3917:17
4070:11,17	3899:2	3997:5	3910:14	4018:13
4097:16	3914:8,22	treats	3914:4	4097:18
tough	3915:11,21	4039:16	3915:24	turning
3965:21	3916:4	trend	3927:18	3878:20
towards	3923:10	3907:11	3930:7	3984:12
3896:6	3925:19,23	trends	3945:11	3990:5
3988:12	3927:12,21	3907:22	3946:23	3991:7
4105:17	,22	trick	3975:18	4001:12
4106:1	3928:14,15	4082:22	3985:15	4090:3
tra 3937:7	,21 3937:7	tried	3999:19	TV 3878:21
3991:4	3963:20	3947:18	4008:15	twe 4016:24
track 3905:6	3964:9	3978:3	4010:3	twelve
4025:5	3965:1,2	3983:12	4020:7	3882:11
trade	3967:2,16	4094:11	4046:3	3895:3,5,1
4012:16,18	3968:3,6	4107:8	4098:10	6 4040:12
4017:19	3970:6	tripling	4106:18	4050:18
traded	3971:25	4057:24	4107:12	4097:8
4098:3	3972:3,11	trivial	4111:25	twenty
tradeoff	3973:16	4023:13	tu 4031:20	4036:15
4035:11	3974:1,8	trouble	turbines	4054:18
traditional	3975:12,22	4008:7	3942:22	4075:21
3914:10	3978:14	true 3903:5	turn 3874:17	4092:12
3916:2,17	3984:9,25	3937:6	3896:23	twenty-five
4078:3	3991:2,3,2	3952:25	3909:4	3882:11
4095:24	1 3992:3	transcript	3916:9	3895:6,17
	3993:9		3920:20	4053:10
	3999:25		3946:4	twenty-three
	4003:17		3951:23	
	4004:3			

4097:8	3912:14,21	3922:5	3911:9	4048:14
twice	3952:22	3947:15	4006:9,18	4054:13
3886:17	4062:8	4062:21	United	4064:15,16
tying	4089:5	undertake	3909:17	4077:13
3963:25	underneath	3912:16	3910:8	4094:13
type 3938:4	3922:14	4022:1	3923:20	4110:22
3983:25	understand	undertaken	3960:16,25	4115:7
types 4043:3	3873:25	4095:10	4012:11	upper
typical	3883:19	4108:22	units	3955:19
3928:16	3891:24	undertaking	3910:17,24	4012:21
3968:19	3900:9	3867:13,14	3911:4,6	upward
typically	3914:4	,15,16,20,	universal	4027:11
3896:1	3919:23	21,22,23	4049:2	upwardly
3975:16	3930:7	3912:20	unless	4112:14
3997:20	3949:15	3920:9,14	3998:17	usable
4074:2	3954:25	3949:16	4012:8	3911:21
4085:24	3957:14	3961:8,15	4042:7	usage 3879:3
	3977:8	4021:18,23	unlike	3880:17
	3985:15	4022:5	3936:22	3882:7
	3990:11	4064:23	unnecessaril	3888:1,10
	4004:21	4065:3,7,9	y 3913:14	3891:5,16,
	4008:17	,12,14,19,	unreasonably	23 3892:11
	4009:21	22 4066:1	3900:16	3894:21
	4018:1	4067:4,10,	upcoming	3897:25
	4025:20	13,17,20,2	4074:22	3898:16
	4031:12	3	updated	3902:22,24
	4039:10	4068:3,6,8	3953:20	3904:3,6,9
	4057:1	,11	4086:23,24	3908:2
	4097:17	4072:13	upgrade	3909:12
	understandin	4073:2,11	3907:15	3914:19
	g 3885:2	4086:7	upgrading	4031:23
	3890:4	Undertakings	3968:4	useful
	3927:18	3866:4	upon 3869:1	3888:15
	3929:24	3868:1	3887:7	3952:16
	3959:15	undesirable	3888:7	3959:7,18
	3962:16	3907:11	3904:23	3984:10
	3994:21	undoubtedly	3914:10	3986:12,13
	4008:8	3904:10	3917:21,22	4020:3
	4072:5,9	4021:17	3973:5,6	4031:1,25
	4097:15	unfortunate	3981:14	4054:11
	understands	4029:13	3985:14	4061:8
	3886:2	unfortunatel	3987:20	4104:11
	understated	y 3907:16	3989:14	user 3867:3
	3994:25	3970:21	3993:8	3879:9
	understating	uniform	3994:2	3880:1
	3968:19	3930:16	3996:20	users 3906:4
	3996:10,12	unit 3909:20	3999:9,10	3914:11
	,13	3910:3,15,	4023:18	3916:2
	understood	17,25		4053:10
	3910:9			usual
	3918:25			

3875:24	3946:13	3970:17	variances	verge
3967:18	3959:11	3972:15	4048:20,23	4040:13
usually	3960:13	3975:9,10	variation	verification
3909:2	3974:13	3977:1,9	3961:9	3902:13
3958:22	4005:8,23	3979:25	varies	3953:7
ut 3933:18	4025:21	3980:3,5	3904:17	verified
utilities	4026:15,17	3986:23	3987:20	3963:3
3864:3,20	4027:21	3992:24	various	verify
3922:14,17	4028:1,14	3996:10,17	3880:18	3927:10
,21	4032:4,5	,18 3997:9	3887:2	3998:18
3923:3,9	4033:15	4008:24	3925:14	Vermont
3924:5,21	4037:20	4011:4,5,1	3926:20	3922:21
3925:4	4038:4,12,	1 4014:23	3927:9	3937:16,22
3926:2,3,1	16	4015:2,9	3930:25	,24 4002:6
6,19	4039:2,5,1	4016:9	3933:11	4023:2
3927:24	4,17,19,20	4017:6,7	3936:13	versa 3937:8
3930:15	,22,23,25	4019:16,19	3940:22	version
3931:10	4040:21	4032:7	3943:12	3944:21,23
3932:7	4041:10,16	4038:21,23	3948:13,15	4040:21
3934:24	,17	4050:23	3949:23	versus
3936:3,15	4042:23	4054:23	3954:2	3895:24
3937:18,20	4049:10,18	4060:2	3957:12	3898:14
3940:1	4098:7	4096:3,16	3960:9	3899:19
3945:19,22	4100:19	4097:21	3977:3	3909:10
3959:24	4103:2	valued	3990:18	3915:14
3975:16	utility's	3964:2,10	3992:16	3979:1,2
3988:4	3937:7	4017:22	4019:24	3996:5
3998:2	3953:15	values	4038:7	4004:25
4005:1	4039:7	3890:7	4055:10	4008:16
4009:1	4040:22	3896:5	4085:25	4010:6,12
4016:3,22		3937:23	4094:11	4093:21
4017:19	<hr/>	3953:10	4103:2	4098:11,21
4022:24	valid 3904:5	3970:23	vary 3887:9	4109:8
4034:25	4017:16	3985:21	3913:19	4112:10,13
4045:11	valley	3986:21	3930:15	verticality
4049:13	4106:1,8	4014:25	3984:7	4111:4
4062:1	4107:16	4021:12,14	3996:16	vertically
4098:3,5,1	valuable	4040:7	4003:10	4098:4
2	3952:23	4050:16	4023:18,23	viable
utility	3993:6	var 3943:11	,25	4056:25
3872:24	4011:19	variability	4024:2,3	vice 3937:8
3873:4	4054:15	3952:21	4050:6	4074:16
3922:22	valuation	3954:2	varying	4076:10
3923:17	4017:24	variable	3990:21	view 3982:3
3928:22	value 3877:8	4102:10	vast 3881:24	4001:20
3929:16	3893:21	variables	verbal	4014:14
3934:8	3899:9	4099:19,20	3954:19	4027:17,19
3935:17,18	3915:5	variance	verbally	4044:10
,22 3936:8	3929:8,10	4109:25	4083:17	
3937:6	3936:9	4110:7	4108:25	
3939:19	3943:17			
3941:20				

4048:10	3940:3	3866:16	4113:21	4046:5,10,
4052:3	visit 3875:9	3885:16	4114:17	19 4047:12
4095:24	vitae	4068:22	Warden's	4060:25
4099:1	3872:14	4069:24	4093:10	4067:24
VINCE	vola 4100:16	4070:1,3,1	warm 4019:1	watt 3975:3
3866:16	volatile	2,13,23	warn 3875:10	wave 4104:19
4068:22	4100:2,11,	4071:2,6,1	Warnock	4105:10
4070:3,13,	17	0,18,25	4115:16	4107:10
23	volatility	4072:8,16,	warrants	wavelike
4071:6,10,	4094:14,22	23 4073:8	3906:17	4105:2,10
18,25	4095:13	4074:8	wash	4106:23
4072:8,16,	4099:15,25	4075:7,11,	3904:13,14	4107:4
23 4073:8	4101:4,11,	15,18,25	wasn't	wave-like
4074:8	25	4076:7,13,	3896:10	4104:13
4075:11,15	4102:18,22	23	3924:17	waving
,25	,24 4109:2	4077:3,6,1	3946:23	3969:12
4076:13,23	4110:11,20	5,17,22	4043:10	ways 3899:10
4077:3,6,1	voltage	4078:4,9,1	4089:6	3905:10
5,22	3959:14	0,12,16,23	4104:16	3907:8
4078:4,9	3995:7	4079:7,11,	4107:12	3936:18
4079:11,16	3996:4	15,16,25	waste	3939:22
,25	4000:12	4080:5,8,1	3889:23	3959:18
4080:8,14,	volts	4,15,19,23	3890:8	3991:19
19,23	4000:12	4081:1,2,6	3893:15	3998:3
4081:6,10,	volume	,10,14,18,	wasted	4099:8
14,18,23	3955:12,14	19,23	3877:18	WCI 4016:2
4082:4,12,	,17,19	4082:1,4,9	wasting	wealth
14,18,20	3962:25	,11,12,14,	3890:9	3959:17
4083:5,8,1	3971:7	17,18,20,2	water	wealthier
2,16,19	3978:7	3	3878:25	4019:9
4084:3,7,1	4022:13	4083:5,6,8	3899:18,22	wealthy
2,15,18	4029:24	,11,12,16,	,24	4033:1
4085:5,9,1	volumes	19,22	3905:22	weather
4,18,22	3878:25	4084:3,7,1	3906:5,10,	4010:25
4086:8,14,	<hr/>	2,14,15,18	24 3907:15	4011:1
19,25	w	,19	3908:6,11,	website
4087:5,10,	wading	4085:1,5,9	21	3941:23
15,18,21	3987:7	,14,18,22	3977:17,21	3960:8
4088:3,10,	wait 4035:21	4086:4,8,1	3980:10	we'd 3916:24
16	waiting	1,14,19,21	3981:5	4035:4
4089:1,12,	3879:2	,25	3983:18	Week 3931:2
18,24	walking	4087:2,5,6	3993:5	weeks
4090:8,13,	4112:18	,10,15,18,	4005:20	3903:23
22,24	wall 4004:8	21,23	4024:6,7	weighted
4091:4,7,9	walls	4088:3,10,	4040:19	3877:23
,23	4020:20	16,18	4044:17,23	3926:1
4092:4,10	Warden	4089:1,12,	,25	
4113:21		13,18,24	4045:1,19,	
4114:17		4090:4,8,1	23	
violate		3,14,20,22		
3940:5		,24		
violated		4091:4,7,9		
		,19,23		
		4092:4,10		

weighting 3888:1	4075:19 4076:3	4096:8 4112:2	3892:14 3903:1	3900:21 3905:15,16
weightings 3893:5	4083:14 4095:6	wherever 3910:21	3908:10 3935:9	3908:14,17 3912:3
welcome 3869:6 3870:19 3875:5 3918:2	4096:23 4100:23 4114:10 4115:1	whether 3871:3 3876:9 3884:18 3890:4,6 3893:6 3896:10 3898:18 3899:11 3905:1 3916:3 3930:8 3933:4 3937:17,25 3945:12 3967:21 3969:23 3982:4 3983:8 3984:6,9 3985:13 3996:23 4007:17,23 4009:12 4010:5 4016:8 4028:25 4031:20,22 4036:2 4037:9 4040:4,5 4045:18,21 ,22 4046:9 4048:16 4049:12 4050:23 4056:24 4063:7,18 4085:20 4103:2	3988:19 4019:21 4035:2 4037:5 4046:15,16 4052:6 4056:17 4075:16	3917:8,15 3919:4,12 3920:11 3921:6,10, 13,17 3933:7,14 3999:1,7
we'll 3872:5 3919:13,14 3973:2 4023:13,14 ,15 4029:5,6,7 4102:4 4103:1,5,6	western 3923:18 4015:12,23 4059:16,19 4061:10,17 4079:15,17	western- routed 4078:18	wholesale 3923:6 3992:24	Williams 3865:8 3866:10,22 3871:15,20 3912:6,9,1 0,24,25 3913:21 3914:3 3915:9,24 3916:6,9 4051:11 4068:17,18 4069:3,4,1 4,24 4070:4,5,1 4,24 4071:7,11, 19 4072:3,10, 18 4073:6,17, 18 4074:4,9 4075:7,13, 18 4076:1,19, 24 4077:4,11, 16,23 4078:5,10, 23 4079:6,11, 14,18 4080:1,4,9 ,15,20,24 4081:7,11, 15,19 4082:1,5,1 3,16,19,21 4083:6,10, 13,17,21 4084:4,8,1
well-behaved 4056:10	we've 3877:1 3915:10 3945:12 4023:12 4030:21 4042:7 4048:1 4050:6 4051:2,25 4071:19,21 4073:21	whatever 3904:24,25 3905:3 3934:15 3936:12 3939:10 3959:10 3975:7 3980:3 3986:11 4021:24 4057:10	whom 3943:22 who's 3998:22 whose 3877:15 3878:1 widely 3877:14 3926:8 3984:8 4028:2	
Wendy 4115:16	we're 3869:4 3881:6 3882:19 3884:15 3886:1 3916:25 3925:9 3928:11 3945:6 3958:14 3965:2 3971:17 3990:4 4002:10 4003:25 4021:25 4029:1 4030:14 4035:16,17 4036:18 4039:4 4047:19 4052:15 4053:5 4054:4 4055:19 4056:15 4060:6,18, 19 4069:14,15	wheat 3955:8 4057:9 whenever 4052:24 4064:6 whereas 3911:5 3988:13 whereby	Wiens 3883:23 3885:12,13 Wiens's 3884:5 wife 3901:15,23 William 3865:10 3866:9 3869:20,23 3870:1,5,7 ,11,13,17, 20 3871:18 3872:4,12 3873:10,14 ,19,25 3874:16,23 3879:18,19 3883:5 3885:7 3888:20,21 3889:2,11 3890:13,17	
		whi 3958:14 whichever 3993:10 Whoa 4035:21 whoever 4054:19 whole		

3,16,19	3983:14,17	witness	4096:19	3949:20
4085:1,6,1	4011:9	3869:11	worked	3962:1
0,15,19	4029:15,17	3872:1	3943:23	wrong
4086:4,10,	4037:5	3874:22	3997:24	3906:14
15,20	4054:13	3912:7	workers	3907:18
4087:1,6,1	4057:14	3917:2	4019:20	3908:20
1,16,19,22	winding	3972:21	working	3919:5
4088:4,12,	3886:1	4112:21	3872:23	3936:9
17	windings	witnesses	3931:23	3972:2
4089:3,4,1	3974:8	3916:13	3990:16	4006:11
3,19	winds	3947:12,17	4072:2	4044:9
4090:3,9,1	4046:14	3965:12	worksheet	4066:25
4,19,23,25	Winnipeg	wonder	3890:21	Wuskwatim
4091:5,8,1	3864:22	3869:17	3897:2	4068:8
3,18,24	3865:17	3912:16	worksheets	4070:10,17
4092:5,11,	3875:5,12,	4058:3	3919:17	<hr/>
19,20,23	13,17	4072:12	workspace	X
4093:2,9,1	3901:24	4108:20	4019:23	X-axis
7	3918:3	4112:22	world	4109:1,12,
4094:3,6,7	4000:15	wondered	3901:14,22	21
4095:2	4077:25	3983:24	4052:18,23	<hr/>
4096:21	winter	wonderful	4054:12	Y
4097:20,24	3897:22	4024:19	worlds	yard 4088:20
4098:9	3898:1,12,	wondering	4054:5	Y-axis
4099:12,22	15,16,19,2	3961:3	worried	4109:6
4100:14,23	5 3899:4,8	wont 4023:15	3994:12	4110:18
4101:23	3903:23	work 3872:17	worrying	4111:3,13
4102:4,13,	3929:9	3873:3	4047:8	Ye 4080:23
25	3967:14	3876:21	worse 3911:9	yesterday
4103:16,20	3992:25	3883:10	4046:16	4069:7
4104:8,21	3993:20	3905:24	worth	4071:4
4105:2,9,1	winters	3915:6,7	4040:12	4075:23
5,23	3875:17	3925:13	4051:9	4076:15
4106:3,12,	wintertime	3930:21,22	4054:6,22	yesterday's
20	3900:5	3935:18	wound	3917:17
4107:1,14	wire 3974:9	3937:15	3950:22	yet 3884:5
4108:8,18	wires 3974:7	3950:13	3986:4	3900:16
4109:11,16	Wisconsin	3951:5	wrapped	3950:14
,23	3910:2,21	3961:23	4000:9	4072:1,4
4110:9,22	3911:3,10,	3970:11	wrapping	yield
4111:4,9,1	23 4009:1	3973:23	3886:12	4108:10
6,19	4016:22	3998:6	4024:6	4112:14
4112:17	wise 4008:4	4007:11	write	you'll
4113:5	wish 3873:20	4020:22	4109:16	3872:13
willing	3890:11	4029:7	written	3883:22
3888:17	3916:23	4062:9	3948:11	3884:4
3896:15	3962:25	4071:25		3885:16
3993:25	3965:10	4072:4,7,2		3949:16
4011:13		5 4073:3		4020:9
4051:19		4086:11		
wind 3875:11				
3914:23				
3942:15,22				

4039:25	4039:15			
4047:12	4044:4			
4064:10	4046:2			
4070:7	4048:16			
4071:3,11, 21	4056:3			
4076:5,6	4065:6			
4085:3	4072:3			
4086:5,7	4080:1			
4087:24	4099:12			
4090:19	4100:15			
4093:19				
4102:6				
4113:3				
young 3904:2				
yourself				
3902:5				
3941:3				
3962:1				
3996:24				
4022:18				
you's				
4024:15				
you've				
3874:2,5				
3875:6				
3879:20				
3892:25				
3912:1				
3923:8				
3948:23				
3950:5				
3953:4				
3965:25				
3966:7				
3967:1,5				
3968:7				
3976:4				
3979:20				
3990:10				
3996:23				
3998:17				
4004:7				
4009:24				
4012:9				
4013:24				
4018:18				
4019:8,9				
4029:19,25				
4030:22,24				
4031:6				
4034:9				