

**BRITISH COLUMBIA UTILITIES COMMISSION**  
**IN THE MATTER OF THE UTILITIES COMMISSION ACT**  
**S.B.C. 1996, CHAPTER 473**

**and**

**An Application by British Columbia Hydro and Power  
Authority (BC Hydro) for the Approval of the  
2008 Long-Term Acquisition Plan (2008 LTAP)**

**Vancouver, B.C.**  
**March 3, 2009**

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**PROCEEDINGS AT HEARING**

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**BEFORE:**

<b>A. J. Pullman,</b>	<b>Chairperson</b>
<b>B. Milbourne,</b>	<b>Commissioner</b>
<b>M. Harle,</b>	<b>Commissioner</b>

**VOLUME 11**

## APPEARANCES

G.A. FULTON, Q.C.	Commission Counsel
C. GODSOE K. THRASHER	British Columbia Hydro and Power Authority
D. CURTIS	British Columbia Transmission Corporation
M GHIKAS	Terasen Gas Inc., Terasen Gas (Vancouver island) Inc., Terasen Gas (Whistler) Inc.
F. WEISBERG	Columbia Power Corporation
E. WALKER	Pristine Power Inc.
C. BOIS	NaiKun Wind Energy Group Inc.
D. AUSTIN	Independent Power Producers of British Columbia
B. WALLACE K. SEYMOUR	Joint Industry Electricity Steering Committee
C. WEAVER	Commercial Energy Consumers of British Columbia
J. QUAIL L. WORTH	B.C. Old Age Pensioners' Organization, the Active Support Against Poverty, B.C. Coalition of People with Disabilities, Council of Seniors' Organizations of B.C., End Legislated Poverty, Federated Anti-Poverty Groups of B.C., and the Tenants' Rights Action Coalition
W. ANDREWS	B.C. Sustainable Energy Association; Sierra Club Of Canada, B.C. Chapter
R. GATHERCOLE	Peace Valley Environmental Association
L. BERTSCH	Horizon Technologies Inc./Energy Solutions for Vancouver Island Society; Okanagan Environmental Industry Alliance; Island Transformation.Org; Rental Owners and Managers Society of BC
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P. COCHRANE	City of New Westminster
R. FLETCHER	Texada Action Now Community Association

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**CAARS**

VANCOUVER, B.C.

March 3, 2009

**(PROCEEDINGS RESUMED AT 8:30 A.M.)**

THE CHAIRPERSON: Please be seated.

**B.C. HYDRO PANEL 3 - MARKET AND PORTFOLIO ANALYSIS**

**RICHARD LAUCKHART, Resumed:**

**RANDY REIMANN, Resumed:**

**STEVE HOBSON, Resumed:**

**REN ORANS, Resumed:**

**DAVID INCE, Resumed:**

THE CHAIRPERSON: Mr. Andrews, you --

MR. ANDREWS: Good morning, members of the Commission panel. I have two filings at this point, and I'll have two more perhaps at the break. The first is the direct testimony of Thomas Hackney. I understand it will be Exhibit C21-10.

THE HEARING OFFICER: Exhibit C21-10.

(DIRECT TESTIMONY OF THOMAS HACKNEY, 03 MARCH 2009,  
MARKED EXHIBIT C21-10)

MR. ANDREWS: The second is Mr. Hackney's resume, which I presume would be C21-11.

THE CHAIRPERSON: Thank you, Mr. Andrews.

THE HEARING OFFICER: C21-11.

(RESUME OF THOMAS HACKNEY, JANUARY 2009, MARKED  
EXHIBIT C21-11)

1 THE CHAIRPERSON: Good morning, Mr. Fulton.

2 MR. FULTON: Good morning, Mr. Chairman, Commissioners.

3 **CROSS-EXAMINATION BY MR. FULTON (CONTINUED):**

4 MR. FULTON: Q: Good morning, panel. I'd like to begin  
5 with a few questions on the composition of Options A  
6 and B, and the options were discussed with you  
7 extensively yesterday during Mr. Andrews's cross of  
8 you, and Mr. Weafer had previously touched on Options  
9 A and B as well.

10 My questions are a little different, and in  
11 order to take you to the points that I want to raise,  
12 if I could ask you to have before you Exhibit B-3,  
13 BCUC IR 1.50.3, and Exhibit B-4, BCUC IR 2.198.1. So,  
14 B-3, BCUC IR 1.150.3 [*sic*], and B-4, BCUC IR 2.198.1.

15 **Proceeding Time 8:32 a.m. T2**

16 MR. REIMANN: A: Was that 1.50?

17 MR. FULTON: Q: Yes. No, pardon me, 1. -- yes, 1.50.3.

18 The second reference is B-4, BCUC IR  
19 2.198.1. All right.

20 Now, if we could begin with page 2 of 10 of  
21 the response to BCUC IR 1.50.3, but if we can agree  
22 generally that in that question you were asked to  
23 produce some information on the composition of the DSM  
24 Options A and B ranked by cost, according to the all  
25 ratepayer or TRC test, and you did provide those  
26 tables at pages 3 and 4 of the response, correct?

1 **Proceeding Time 8:34 a.m. T03**

2 MR. HOBSON: A: That's correct.

3 MR. FULTON: Q: And for the purposes of the questions  
4 that I'm going to ask, if you could just look at the  
5 residential customer class. And if I look at Options  
6 A and B, and in particular the refrigerator buy-back  
7 program and the lighting program, those are both low  
8 cost programs and they cost about \$31 a megawatt hour  
9 or less, correct?

10 MR. HOBSON: A: That's correct.

11 MR. FULTON: Q: And in Option B compared to Option A, I  
12 think we've agreed that you've expanded both -- or  
13 you'll agree that you've expanded both the programs  
14 and their levelized costs have changed little, if at  
15 all, between Option A and Option B. Correct?

16 MR. HOBSON: A: Are you speaking still of those two --

17 MR. FULTON: Q: Yes.

18 MR. HOBSON: A: -- specific programs?

19 MR. FULTON: Q: So both programs have been expanded in  
20 Option B, but their levelized costs --

21 MR. HOBSON: A: That's correct.

22 MR. FULTON: Q: -- have only changed a little. And if  
23 I took a look at the total resource cost test for the  
24 residential sector, the cost rises from 1.80 million  
25 under Option A to 1.358 million under Option B.

26 MR. HOBSON: A: Can you give me those numbers again,

1 please?

2 MR. FULTON: Q: Yes, 1.80 million under Option A, and  
3 1.358 million under Option B.

4 MR. HOBSON: A: That's correct.

5 MR. FULTON: Q: And so the difference is approximately  
6 278 million, subject to check.

7 MR. HOBSON: A: Subject to check.

8 MR. FULTON: Q: And then again if I look at the  
9 sustainable community and load displacement programs,  
10 under the residential heading, those programs, you'll  
11 agree with me, are relatively expensive programs,  
12 correct?

13 MR. HOBSON: A: Relatively speaking, yes.

14 MR. FULTON: Q: Yes. And the costs for those programs  
15 are in excess of \$104 a megawatt hour.

16 MR. HOBSON: A: That's correct.

17 MR. FULTON: Q: And would you agree with me as well  
18 that, in fact, only the low-income program is more  
19 expensive than the sustainable community and load  
20 displacement programs?

21 **Proceeding Time 9:03 a.m. T2**

22 MR. HOBSON: A: As it's represented here. I think one  
23 thing to note is that it likely doesn't, at the point  
24 this IR would have been put forward, would not have  
25 included the provisions from the Minister's regulation  
26 or cost-effectiveness.

1 MR. FULTON: Q: Yes.

2 MR. HOBSON: A: But other than that, yes.

3 MR. FULTON: Q: Okay. And again subject to check,  
4 comparing Options A and B, both the sustainable  
5 communities and load displacement programs have  
6 expanded to the extent that the total increase in the  
7 two programs is \$158 million. Do you agree with that?

8 MR. HOBSON: A: Sorry, I lost you on that.

9 MR. FULTON: Q: Okay. So if I compare Options A and B,  
10 and I total the sustainable community and load  
11 displacement program expansion costs, would you agree  
12 with me that subject to check, the total increase for  
13 those two programs is approximately \$158 million?

14 MR. HOBSON: A: Subject to check, yes.

15 MR. FULTON: Q: And that \$158 million is more than half  
16 the \$278 million difference between the costs of  
17 Options A and B. Would you agree with that, subject  
18 to check?

19 MR. HOBSON: A: Subject to check, yes.

20 MR. FULTON: Q: Now, if I could ask you next to turn to  
21 IR 2.198.1, and I'll wait till you finish reading  
22 that, Mr. Hobson.

23 MR. HOBSON: A: Thank you.

24 MR. FULTON: Q: And in that question you were asked,  
25 when B.C. Hydro was designing Option B, it didn't  
26 expand below cost programs even more instead of

1           expanding the high cost program. And the answer in  
2           part was:

3                    "Initiatives and programs in DSM Option A  
4                    were expanded to larger versions in DSM  
5                    Option B to capture higher levels of  
6                    economic conservation potential while  
7                    maintaining the portfolio cost between costs  
8                    below new electricity supply."

9                    And do I take that response to mean that it  
10                   was not important to B.C. Hydro to get the most out of  
11                   the programs, provided that the portfolio cost as a  
12                   whole was below the avoided cost?

13 MR. HOBSON:    A:    No, I think we're looking at both, but  
14                   I think when we're constructing Option A and Option B  
15                   we're at the point of developing resource options for  
16                   analysis in the LTAP. We're looking at developing two  
17                   different portfolios, one more aggressive than  
18                   another. But I think consistent with what we have  
19                   discussed earlier, there's tradeoffs between low costs  
20                   and risk and reliance, and I think that's reflected  
21                   within what we've looked at here. So as we look at  
22                   individual programs and we go more aggressively with  
23                   individual programs, we are taking on additional risk  
24                   within those programs as well, and I think that  
25                   carries through with how we look at Option B as a  
26                   whole.

1 **Proceeding Time 8:41 a.m. T05**

2 MR. FULTON: Q: Let me try this example, then. If I  
3 had a business that had two products, and the first  
4 was a very profitable product at a low cost, and the  
5 second was an unprofitable, or a less profitable  
6 product at a high cost, wouldn't you expect me to  
7 direct any expansion that I might have to the  
8 profitable low cost product rather than the less-  
9 profitable high cost product?

10 MR. HOBSON: A: Well, again, I think when we looked at  
11 Option B, we still looked at what we could do in  
12 moving to higher levels of energy savings with the  
13 range of programs that we had. And I think the point  
14 of Option B, when we took a look at the programs, was  
15 what could we do to build off of Option A? And how  
16 could we deliver more energy savings?

17 So I don't think we looked at it with a  
18 frame of trying to advance lower-cost or more  
19 profitable initiatives versus less profitable  
20 initiatives. I think we looked at them individually  
21 and said, "How much further can we go with some of  
22 these initiatives?" And when we put the specific  
23 initiatives together, that's the outcome that was  
24 shown within those tables.

25 MR. FULTON: Q: All right, thank you. I'd next like to  
26 turn to the topic of price elasticity, and the bulk of

1 my references here will be in Exhibit 4, and mostly  
2 surrounding the responses to BCUC IRs 2.230 through  
3 2.234.1.

4 And so, you still should have Exhibit B-4  
5 in front of you, hopefully. And if you could begin by  
6 turning to the response to BCUC IR 2.230.1.

7 MR. INCE: A: Yes.

8 MR. FULTON: Q: And the question was prefaced with the  
9 comment that the questions were seeking

10 "...to understand the impact on the economic  
11 potential for DSM and the associated rate  
12 impacts, if own price elasticity should take  
13 on higher values than those assumed by B.C.  
14 Hydro, and if real rate increases of greater  
15 than zero persisted in the last ten years of  
16 the forecast."

17 If we turn to the second paragraph of the  
18 response, which is page 2 of 6, B.C. Hydro states that  
19 it:

20 "... relied on short-run price elasticity  
21 estimates provided by Dr. Ren Orans to  
22 account for the effects of rate-induced  
23 conservation for the purposes of long-term  
24 planning."

25 Did B.C. Hydro also use these short-term elasticities  
26 for -- or does B.C. Hydro also use the short-term

1 elasticities for short-term planning? Mr. Ince?

2 MR. INCE: A: Could you define "short-term", please?

3 MR. FULTON: Q: Three years or less.

4 MR. INCE: A: Yes, I believe we do. We do have a load  
5 forecast that covers the remaining months of the  
6 current year, and for the next 20 years, so the entire  
7 forecast horizon is covered by our forecasts. And  
8 those assumptions with regards to rate impacts and  
9 elasticity are embedded in those forecasts.

10 MR. FULTON: Q: Thank you. And the response goes on to  
11 say, in the next sentence:

12 "Because long-run effects have been  
13 separately accounted for through the DSM  
14 Plan and the consumer response implied by a  
15 long-run price elasticity would require  
16 other DSM initiatives such as DSM programs  
17 or codes and standards, this response  
18 focuses on short-run rate-induced  
19 conservation impacts."

20 Now, you've said that the long-run effects have been  
21 accounted for separately in the DSM Plan. Can you  
22 take us to where in the DSM Plan, which is in Appendix  
23 K of Exhibit B1-1, the separate accounting for the  
24 long-run price-induced effects appear?

25 MR. HOBSON: A: I think what that's getting at, and I  
26 think we touched on this a little bit yesterday, is



1 going to find it as one number in one place. I think  
2 the concept that we're following here is that the  
3 elasticity that we've utilized from Dr. Orans is  
4 intended to isolate it on the price piece itself. The  
5 combined effect of the DSM numbers in combination with  
6 that would reflect your long-term impacts.

7 MR. FULTON: Q: Now, yesterday Dr. Orans provided a  
8 definition of price elasticity to Mr. Bertsch during  
9 Mr. Bertsch's cross-examination. I wanted to confirm  
10 if I could, that -- because the definition that Dr.  
11 Orans provided didn't include these terms, but that  
12 the definition includes the codes, standards, DSM  
13 programs, and long-term pricing. Does it, Dr. Orans?

14 MR. ORANS: A: Can you restate the question, please?

15 MR. FULTON: Q: Right. Yesterday you provided Mr.  
16 Bertsch with a short definition of what price  
17 elasticity was. Earlier yesterday you had talked with  
18 Mr. Weafer at page 1706 of the transcript about the  
19 long-run price elasticity effect, and you said it's  
20 got commingled in it codes, standards, DSM programs,  
21 and long-term pricing. And so I wanted to determine  
22 whether or not your definition of price elasticity  
23 includes commingled in it the codes, standards, DSM  
24 programs and long-term pricing.

25 MR. ORANS: A: No, I think actually the first two  
26 statements you made are correct. I did say long-run

1 price elasticities from the literature frequently have  
2 commingled in the codes, standards, changes over long  
3 periods of time and it's difficult to separate them.

4 My task here was to look at a program that  
5 was already very aggressive on the code standards and  
6 program level, and see if I could create a reasonable  
7 estimate of incremental conservation that would be  
8 induced by rates only, both rate level and rate design  
9 only, quite apart from the code and standard effect  
10 and the program effect.

11 MR. FULTON: Q: So then is your definition then  
12 calculated on the basis of all other things being  
13 equal?

14 MR. ORANS: A: I mean, technically I'm not looking at  
15 the codes and standards to calculate my elasticity.  
16 However, I think it does make a difference that we  
17 have a huge expansion of codes, standards and  
18 programs. So we in effect are taking the majority of  
19 the conservation and putting it in, for example --  
20 let's say we had a normal refrigerator rebate program,  
21 and let's say without an inverted block rate the  
22 payback was -- I don't know, I'm just making it up,  
23 seven years. And once we put in the inverted block  
24 rate, the payback was four years for a customer.

25 So in effect, you could then change the  
26 take-up, the participation rate, increase the

1 incentives, and then what's left over -- and that goes  
2 in the programs, or it could go in the code and  
3 standard, and what's left over then is a smaller  
4 amount to be induced by short-term behavioural changes  
5 for rates.

6 **Proceeding Time 8:51 a.m. T07**

7 MR. FULTON: Q: Okay. In the last paragraph of the  
8 response on page 2 of 6, B.C. Hydro expresses the  
9 belief that

10 "...it is appropriate to use Dr. Orans'  
11 recommendation of minus 0.05 as the price  
12 elasticity estimate for the 2007 Load  
13 Forecast that accounts for natural  
14 conservation, or the level of conservation  
15 induced by price changes without additional  
16 rate design changes."

17 Correct?

18 MR. INCE: A: That's correct.

19 MR. FULTON: Q: And the tables that have been prepared  
20 in response to the IR show the sensitivity of sales to  
21 both B.C. Hydro's assumption regarding price  
22 elasticity and the assumption of zero real price  
23 increase in the last ten years of the forecast,  
24 correct?

25 MR. INCE: A: Correct.

26 MR. FULTON: Q: If we turn to page 4 of 6, then, and

1 look at fiscal 2000 -- look at the fiscal 2016  
2 reduction in GWh sales excluding losses, and can we  
3 agree that line losses in a round number are  
4 approximately ten percent?  
5 MR. HOBSON: A: I think that's a fair assumption.  
6 MR. FULTON: Q: So that, then, if we go to 2016, the  
7 sales have been reduced by 1163 -- or, 1,163,000  
8 gigawatt hours?  
9 MR. INCE: A: One thousand --  
10 MR. FULTON: Q: 1,163 gigawatt hours, sorry.  
11 MR. INCE: A: That's right.  
12 MR. FULTON: Q: And then that would mean that the total  
13 losses, if we include the line losses, would be about  
14 1300 gigawatt hours.  
15 MR. INCE: A: That's right.  
16 MR. FULTON: Q: And if one was to assume a price  
17 elasticity of minus .2, then the sales in fiscal 2016  
18 would be lowered by 4,522 gigawatt hours? Subject to  
19 check?  
20 MR. INCE: A: That's correct, it's in the table.  
21 MR. FULTON: Q: Yes. And with the ten percent line  
22 losses, it would be approximately 5,000 gigawatt  
23 hours.  
24 MR. INCE: A: I'm sorry, I think you'd have to make it  
25 ten percent higher.  
26 MR. FULTON: Q: Right, so you would -- the total load

1 would be reduced by about 5,000 gigawatt hours. If  
2 you take ten percent of the 4500.

3 MR. ORANS: A: Mr. Fulton, I guess we were confused  
4 about your commingling of losses with additional  
5 incremental induced conservation from rates. I mean,  
6 in my mind, unless I'm missing it, losses are  
7 something B.C. -- lost and unaccounted for, B.C. Hydro  
8 has to supply this. So, additional losses don't  
9 decrease the gap, they actually increase the gap.  
10 But, maybe I'm missing the question.

11 MR. FULTON: Q: All right. Well, if you added the ten  
12 percent, going back to the 1163 at the minus .05  
13 percent, you would get a number of approximately 1300  
14 gigawatt hours including losses. Correct?

15 MR. ORANS: A: You have to supply an additional 1300 to  
16 close the gap if you're adding losses.

17 MR. FULTON: Q: Right.

18 MR. INCE: A: So I'm trying to get this straight in my  
19 mind. I think that if you have more elasticity, you  
20 have lower losses, which means Dr. Orans is right.

21 **Proceeding Time 8:56 a.m. T8**

22 MR. FULTON: Q: All right, so then, just on the  
23 arithmetic then, if we go down to the elasticity of  
24 minus .2, you would have the -- you'd show the 4,522  
25 gigawatt hours, and you add the 10 percent to that,  
26 you'd get 5,000 gigawatt hours approximately.

1 Correct?

2 MR. ORANS: A: I think you'd subtract it.

3 THE CHAIRPERSON: The Panel is divided on this one, Mr.  
4 Fulton, so you'd better keep --

5 MR. FULTON: All right, thank you.

6 MR. ORANS: A: Just to finish that, I would agree with  
7 you that if the load is lower by 4,522 gigawatt hours,  
8 then the losses are lower associated with that. But  
9 the other calculation that you have to do is remember  
10 the delivered energy is scaled up by one plus whatever  
11 the loss factor is. So there's two calculations here  
12 it seems like you have to do, the before and then the  
13 after case.

14 THE CHAIRPERSON: Sorry, can I help in here?

15 MR. FULTON: Yes, thank you.

16 THE CHAIRPERSON: If your consumers consume 4,500  
17 gigawatt hours less, that's 5,000 hours less that you  
18 have to produce at the bus bar.

19 MR. ORANS: A: Yes, that's correct.

20 THE CHAIRPERSON: Okay. Well, does that help you, Mr.  
21 Fulton?

22 MR. FULTON: That's the way that I had understood it, but  
23 obviously not putting it as succinctly as you have,  
24 Mr. Chairman.

25 THE CHAIRPERSON: It just seems that's the way I look at  
26 it now. If there are other ways to look at it, I

1 would be interested. I invited you to share them with  
2 us.

3 MR. INCE: A: Okay, so this is from the generator.  
4 You're looking at things down from the generator all  
5 the way to the meter. So you're right in that 4500  
6 would be grossed up by 10 percent.

7 MR. FULTON: Q: Would you agree with me though, panel,  
8 that whatever way we look at it, the price elasticity  
9 that is assumed is a very important assumption?

10 MR. INCE: A: Absolutely. As these tables indicate  
11 that if you're looking at a minus .05 elasticity you  
12 get one effect, but if you're looking at a .1  
13 elasticity it's linear. It's doubled. And then .2  
14 it's doubled again, .4 it's doubled again. So  
15 elasticity, the key parameter in terms of predicting  
16 what our future load will be. I think hence the  
17 amount of effort we went through in the RIB design and  
18 the LTAP in terms of determining what's an appropriate  
19 elasticity.

20 MR. FULTON: Q: Now, we return to the second paragraph  
21 in the response. B.C. Hydro referred the recipient of  
22 the response to BCUC IR 2.231.2 for a discussion of  
23 long-run price elasticity. Correct?

24 MR. INCE: A: Sorry, the reference again, Mr. Fulton?

25 MR. FULTON: Q: 2.231.2 was where the reader of the  
26 response was referred to in paragraph 2.

1 MR. INCE: A: Correct.

2 MR. FULTON: Q: Okay. So if we go to the response to  
3 231.2 --

4 MR. INCE: A: Yes.

5 MR. FULTON: Q: -- the response states that based on  
6 the review of other comparable jurisdictions, that the  
7 level of rate-induced conservation equivalent to the  
8 use of a long-term price elasticity of minus .27  
9 cannot exist on its own. Correct?

10 MR. ORANS: A: Yes, that's correct.

11 MR. FULTON: Q: It needs to have some help from code  
12 changes or from PowerSmart programs, for example.

13 MR. ORANS: A: Yes, that's correct.

14 MR. FULTON: Q: And in that response, B.C. Hydro draws  
15 the conclusion, from looking at what it says are  
16 comparable jurisdictions, that's where it draws its  
17 conclusion from, the two comparable jurisdictions.

18 **Proceeding Time 9:01 a.m. T09**

19 MR. ORANS: A: Actually I drew that conclusion from the  
20 review of all of the literature. The comparable  
21 jurisdictions provide estimates that are more in the  
22 range of what I would expect for B.C. Hydro. The rest  
23 of the literature supports other responses, other  
24 levels, for different types of jurisdictions.

25 MR. FULTON: Q: All right. Well, you'll agree with me  
26 that the response doesn't say that the review was

1 based on the results from a review of comparable  
2 jurisdictions and all the other literature, does it?  
3 MR. ORANS: A: No, it actually does in the negative.  
4 Basically, it says the B.C. Hydro's -- B.C. Hydro's  
5 were for the comparable jurisdictions, and the other  
6 estimates are more in line with the literature review  
7 from other jurisdictions.  
8 MR. FULTON: Q: Well, let's focus on the two examples  
9 that are cited of comparable jurisdictions. The first  
10 that's mentioned is mentioned in paragraph 3, and  
11 that's Pacific Corp.?  
12 MR. ORANS: A: I believe the first one is Avista, and  
13 the second one is Pacific Corp.  
14 MR. FULTON: Q: Right. And the Pacific Corp. is the  
15 residential long-run price elasticity? Right? It's a  
16 Pacific Corp. residential long-run price elasticity  
17 that's being referred to, correct?  
18 MR. ORANS: A: Yes, it is.  
19 MR. FULTON: Q: Okay. And the unnamed utility in  
20 paragraph 4, is that Avista?  
21 MR. ORANS: A: No, it isn't.  
22 MR. FULTON: Q: Can I take it from the discussion in  
23 this answer, then, Dr. Orans, that B.C. Hydro rejected  
24 the use of a long-run price elasticity above minus 1  
25 based on the two studies that are referenced then? Or  
26 is it your position now that it's based on all the

1 literature as well?

2 MR. ORANS: A: No. First of all, the decision to  
3 modify the methodology B.C. Hydro had used in the  
4 previous long-term plan was based on a discussion that  
5 all of us had, in looking at the sizes of the programs  
6 and the literature together. And I state in my  
7 testimony that it looked to me like if you use the  
8 literature from the long-run price elasticity studies  
9 that cover usually in excess of four years, but  
10 frequently a decade or a couple of decades, it's got a  
11 large number of code and standard and program data  
12 embedded in it. So without -- we had really two  
13 choices. We could use a long-run price elasticity and  
14 then strip out everything out of the codes and  
15 standards and program data, which seemed to me a much  
16 harder task, than using the short-run elasticity data  
17 that we had had from other studies, so we excluded the  
18 long-run elasticity data.

19 One of the studies that I used for short-  
20 run had long-run in them. The direct answer to that  
21 previous question was, one of the eight studies I  
22 used, four are for residential and four for  
23 commercial, had a long-run also stated in it. So that  
24 was the unnamed utilities.

25 The third paragraph here refers to  
26 supplemental data that I also included, which were the

1 long-term planning results from Avista and Pacific  
2 Corp. Those were not part of the eight studies that I  
3 used to support the short-run price elasticity.

4 MR. FULTON: Q: You don't need to turn to this, but  
5 it's -- in Exhibit B3-6, which was a revised response  
6 to BCUC IR 1.150.1, you said that you looked at 100  
7 residential and 60 non-residential studies, and you  
8 referenced pages 14 to 17 of your evidence, which is  
9 Appendix E to the LTAP Exhibit B1-1. Do you recall  
10 that?

11 MR. ORANS: A: Yes, yes. I recall that.

12 **Proceeding Time 9:06 a.m. T10**

13 MR. FULTON: Q: Yes. If I could ask you to turn to  
14 your evidence in Appendix E, page 14 of 28. And  
15 beginning at line 13 there you reference a case which  
16 I took from one of your review of the over 100  
17 studies, where that case is the residential estimates  
18 reported in a 2004 meta-analysis summarizing (a) 123  
19 short-run estimates that range from minus .004 to  
20 minus 2.01, with an average of minus 0.35, and 125  
21 long-run estimates that range from minus .04 to minus  
22 2.25 with an average of minus 2.85.

23 Now, just in terms of the long-run  
24 estimates, why aren't those long-run estimates  
25 appropriate for B.C. Hydro? Why aren't those results  
26 applicable to B.C. Hydro?

1 MR. ORANS: A: For the discussion we just had, because  
2 we got also commingled in this results, frequently --  
3 not in all studies, but frequently the codes,  
4 standards and programs are included and attributed to  
5 the long-run price elasticity.

6 MR. FULTON: Q: Now, I would like to next return to the  
7 response to BCUC IR 2.234.1, which contains a number  
8 of studies. You discussed the studies with Mr. Austin  
9 and also with Mr. Bertsch. And I'd like to begin with  
10 the Gai study which is Attachment 4. I'll wait till  
11 Mr. Ince gets there as well.

12 And did I understand your evidence  
13 correctly, Dr. Orans, to be that you had not reviewed  
14 these studies, the Gai studies, prior to preparing  
15 your evidence?

16 MR. ORANS: A: I had seen the UtiliPoint study, which  
17 was the first one. I had not seen the Gai study.

18 MR. FULTON: Q: The Gai studies.

19 MR. ORANS: A: Yes.

20 MR. FULTON: Q: There are two Gai studies, aren't  
21 there?

22 MR. ORANS: A: I hadn't seen the Gai studies at all.

23 MR. FULTON: Q: Right. And Mr. Ince, were you familiar  
24 with the Gai studies at the time that Dr. Orans  
25 prepared his report?

26 MR. INCE: A: Just of their existence but not in

1 detail.

2 MR. FULTON: Q: Well, would you -- you had not read  
3 them prior to the time that Dr. Orans prepared his  
4 report?

5 MR. INCE: A: The summaries, but hadn't tried to  
6 recreate the analytics.

7 MR. FULTON: Q: Right. And I take it that the studies  
8 had not been provided to Dr. Orans prior to his  
9 preparing his evidence?

10 MR. INCE: A: I assume not, but I'm not sure.

11 MR. FULTON: Q: Now, if we begin with the Gai study,  
12 the 1990 study, which is Attachment 4, this was a  
13 study prepared for B.C. Hydro in July 1990 to analyze  
14 electricity demand elasticity in the B.C. Hydro  
15 system, correct?

16 MR. INCE: A: Correct.

17 MR. FULTON: Q: And if we turn to the summary, and you  
18 were familiar with the summary at the time that Dr.  
19 Orans was asked to provide evidence to B.C. Hydro on  
20 price elasticities, correct?

21 MR. INCE: A: Yes.

22 MR. FULTON: Q: And looking at the summary, it contains  
23 a recommendation of long-run elasticities of  
24 electricity demand, correct?

25 **Proceeding Time 9:10 a.m. T11**

26 MR. INCE: A: Yes.

1 MR. FULTON: Q: And am I correct in my understanding  
2 that these elasticities were estimated by the  
3 consultant, and that the consultant had already  
4 undertaken a literature survey of electricity demand  
5 elasticities?

6 MR. INCE: A: My first part of my response is, Mr. Gai  
7 did work for B.C. Hydro. I don't know if he worked  
8 for Hydro at the time he generated this study, but he  
9 certainly had worked for B.C. Hydro up to about 2005.

10 Sorry, Mr. Fulton. What's the second part  
11 of your question?

12 MR. FULTON: Q: And -- okay. And did not Mr. Gai  
13 undertake a literature survey of electricity demand  
14 elasticities in arriving at the results of his study?

15 MR. INCE: A: That was the first phase of his study,  
16 yes.

17 MR. FULTON: Q: Yes. And would you agree with me that  
18 the study is an econometric approach to estimating  
19 demand elasticities based on B.C. Hydro data for the  
20 1962 to 1989 period?

21 MR. INCE: A: Yes.

22 MR. FULTON: Q: And the summary recommends long-run  
23 electricity price elasticities in the first column of  
24 the table that appears at the bottom of page two.

25 MR. INCE: A: Yes, the first column. Own price  
26 elasticity for electricity.

1 MR. FULTON: Q: And these values are recommended based  
2 both on the elasticities computed from the econometric  
3 results and the results of the literature survey.  
4 Correct?  
5 MR. INCE: A: Correct.  
6 MR. FULTON: Q: Now, if I could ask you to have, as  
7 well, transcript volumes 9 and 10 before you. And I'd  
8 like to begin with an exchange that Dr. Orans had with  
9 Mr. Austin at page 1629 of the transcript, beginning  
10 at line 21 of page 1629. So, I'll wait till you have  
11 that, Dr. Orans. And then carrying over to line 1 of  
12 1630.  
13 MR. HOBSON: A: Sorry, Mr. Fulton, what was the line  
14 reference again?  
15 MR. FULTON: Q: Line 21.  
16 MR. ORANS: A: I think it's 1629.  
17 MR. FULTON: Q: 1629.  
18 MR. HOBSON: A: Ah. Oh, I'm sorry.  
19 MR. FULTON: Q: Okay. Over to line 1 on page 1630.  
20 And as I took that part of your response, it was that  
21 Mr. Gai did not have a strong and long-term trend  
22 variable in the report that you were -- in the study  
23 that you were discussing with Mr. Austin at that  
24 point?  
25 MR. ORANS: A: Yeah, that's generally one of the  
26 omitted variables, it looks like, in his

1 specification. He does have a lagged variable on  
2 usage, which to the extent that the trend is  
3 consistent, it's picked up in the lag variable, but he  
4 doesn't have a trend variable that picks up the strong  
5 growth.

6 **Proceeding Time 9:15 a.m. T12**

7 MR. FULTON: Q: And if I could ask you to turn to  
8 transcript 10, Volume 10, at 1846, beginning about  
9 line 18 where you had an exchange with Mr. Bertsch.  
10 And at line 23 you say that you'd seen the -- you  
11 hadn't seen the work by Tabors Caramanis & Associates  
12 either.

13 Mr. Ince, were you familiar with the Tabors  
14 Caramanis & Associates report?

15 MR. INCE: A: It doesn't come to mind, no.

16 MR. FULTON: Q: So the exchange with Mr. Bertsch  
17 continues, and you were at page 1849 and taken to  
18 Attachment 4 which is another study, and page 19 of  
19 117 which was Table 2. And then at page 8850 about  
20 the middle of line 15 there's a discussion of the GDP  
21 deflation factor.

22 MR. ORANS: A: Yes, I'm with you.

23 MR. FULTON: Q: And as I understood your evidence at  
24 least, it was to the effect that GDP does not act as a  
25 trend variable? Would I be correct in summarizing  
26 your evidence that way?

1 MR. ORANS: A: The GDP deflation factor is used to  
2 basically, when they're flat, relatively flat prices,  
3 is adjusting the price levels throughout here for this  
4 inflation factor.

5 MR. FULTON: Q: Why would you not use the B.C. GDP as a  
6 trend variable in arriving at your price elasticity  
7 number?

8 MR. ORANS: A: If you look at the GDP, there are a  
9 whole number of tables that list the GDP levels  
10 throughout Attachment 4 and 5. It doesn't grow  
11 anywhere near at the growth levels that we're seeing  
12 in the electricity use. So GDP is not growing at --  
13 it's not doubling every ten years. So we're getting  
14 GDP growth just on -- I'm on page 95 of 117 of  
15 Attachment 4, which has a GDP local level, and it's  
16 got growth of about -- in 1961, which is the first  
17 year of this trend, it was 94, and in 1962 it was 98,  
18 then it stayed in 98 in '63 and then it went to a  
19 little bit over 100. So it's growing at 2 to 3  
20 percent a year. And we've got electricity growth in  
21 excess of 7 or 8 percent a year.

22 So it's a trend, it is one trend variable.  
23 It isn't a trend variable that picks up much of the  
24 natural growth in plug loads or other loads that's  
25 happening during the period.

26 MR. FULTON: Q: But it is a trend variable.

1 MR. ORANS: A: Yes, it's a trend variable.

2 MR. FULTON: Q: And then just turning back to 2 of 117  
3 of Attachment 4 to BCUC IR 2.234.1.

4 MR. HOBSON: A: Can you repeat the reference?

5 MR. FULTON: Q: Yes. BCUC IR 2.234.1, Attachment 4,  
6 which is the 1990 Gai report or study.

7 MR. ORANS: A: Yes, I'm at Attachment 4.

8 MR. FULTON: Q: Does that -- yes, page 2 of 117, where  
9 you'll see the summary.

10 MR. ORANS: A: Yes, I'm with you.

11 MR. FULTON: Q: And can you tell me, is it your view  
12 that income does not act as a trend variable either?

13 MR. ORANS: A: Income can act as a trend variable.  
14 It's -- again, income usually follows business cycle  
15 levels. So usually you have a strong trend variable  
16 and you have a cycle variable. I mean there are three  
17 main things you want to pick up that should not be in  
18 the price elasticity. Seasonal variation, cycle  
19 variation, and natural embedded trend.

20 So in this case, I think he's got a very  
21 weak trend variable that doesn't pick up much of the  
22 strong trend.

23 I don't see what he's done for seasonal,  
24 but he's estimating annual, so it doesn't matter that  
25 much. And it's long-term, so I'm not as worried about  
26 the variation in the weather piece. But I don't see

1 the income picking up much of the trend either.

2 **Proceeding Time 9:20 a.m. T13**

3 MR. FULTON: Q: Did you use income as a trend variable  
4 in arriving at your conclusions?

5 MR. ORANS: A: A number of the studies that I used  
6 looked carefully at the trend variables embedded in  
7 those studies, along with the cycle variables. So  
8 they have adjustments for those. I didn't do an  
9 independent study, so I didn't personally use a trend  
10 variable or an income variable.

11 MR. FULTON: Q: Thank you. Now, just staying at the  
12 Gai study on page 2 of 17, you'll agree with me that a  
13 total B.C. Hydro long-run electricity price elasticity  
14 of minus .6 is shown, and that the values for  
15 different customer classes run from minus .3 to minus  
16 .8?

17 MR. ORANS: A: I see that, yes.

18 MR. FULTON: Q: Okay. If we turn next to attachment 3  
19 to the same response, this is the draft Tabors  
20 Caramanis & Associates report from May the 8<sup>th</sup>, 2002.

21 MR. ORANS: A: Correct.

22 MR. FULTON: Q: And if we turn to page 4 of 7 of that  
23 report, would you agree with me, Mr. Ince, that this  
24 is a study on price elasticity and demand response  
25 prepared by consultants for B.C. Hydro?

26 MR. INCE: A: As per my earlier answer, I did not

1 review this paper, but yes, Tabors Caramanis &  
2 Associates are consultants. This has been prepared  
3 for B.C. Hydro. And page number 4 of 7 outlines the  
4 elasticity results.

5 MR. FULTON: Q: Yes. And there are two tables provided  
6 at page 4 which summarize two literature reviews of  
7 price elasticity studies and which show, first of all,  
8 long-run price elasticities substantially greater than  
9 what B.C. Hydro expects are possible, and secondly,  
10 long-run price elasticities which are significant  
11 multiples of the short-run price elasticities?

12 MR. INCE: A: That is the case. Most of the  
13 elasticities are in excess of one.

14 MR. FULTON: Q: If you turn back to page 3 of 7, would  
15 you agree with me that the table seems to suggest a  
16 reasonable time frame over which long-term price  
17 elasticities will be experienced is multiple years to  
18 a decade or more?

19 MR. INCE: A: That's their specific definition of short  
20 versus real versus long-term. And I assume that time  
21 frame definition is consistent with the tables on page  
22 4 of 7.

23 MR. FULTON: Q: And does that time frame seem to be  
24 plausible to you?

25 MR. INCE: A: It seems to be a reasonable definition,  
26 although as we discussed earlier with Dr. Orans, the

1 long-term elasticities are multiples of the short-  
2 term, but hopefully in B.C. Hydro's DSM plans we've  
3 captured a lot of that incremental benefit, elasticity  
4 benefit, through our DSM programs.

5 MR. THRASHER: Mr. Fulton, sorry, Mr. Ince, if you could  
6 just move a little closer to the mike, I think --

7 MR. INCE: A: Fair enough.

8 THE CHAIRPERSON: Bring the mike closer to you, I think.

9 MR. INCE: A: Yes.

10 MR. THRASHER: We'll go with two mikes. We'll have  
11 stereo.

12 MR. FULTON: Thank you, Mr. Thrasher.

13 MR. ORANS: A: Mr. Fulton, also on that, on page 3 of  
14 7, you note, on the Caramanis -- Tabors Caramanis  
15 study, they have real-time elasticity and short-run  
16 price elasticity, months to over a year, and they do a  
17 nice job at describing the range of price elasticities  
18 you see in the literature to real-time prices. There  
19 are programs that are shorter-term, like seasonal  
20 rates, and time of use rates. And then there are  
21 annual kind of rate increase studies, like Mr. Gai's  
22 study or the studies we're talking about.

23 So, again, it's probably a misnomer to say  
24 we're calculating a short-run elasticity. We're  
25 trying to capture the rate-induced conservation from  
26 an annual rate change, both design and level. So just

1 to make the record clear, it's not a strictly short-  
2 run price elasticity from the literature, and it's  
3 certainly not a long-run price elasticity.

4 **Proceeding Time 9:25 a.m. T14**

5 MR. FULTON: Q: All right, turn to Attachment 2 to the  
6 same IR response, and this is a document that's styled  
7 "Economic Estimates of Price and Income Elasticities"  
8 and dated June the 23<sup>rd</sup>, 2004.

9 MR. INCE: A: That's right.

10 MR. FULTON: Q: And this document is prepared by the  
11 B.C. Hydro market forecast group, Mr. Ince?

12 MR. INCE: A: That's right.

13 MR. FULTON: Q: And were you familiar with this  
14 document?

15 MR. INCE: A: Yes, I was.

16 MR. FULTON: Q: And you were familiar with the document  
17 at the time that Mr. -- or Dr. Orans was retained to  
18 prepare his study, I take it.

19 MR. INCE: A: That's right, yes.

20 MR. FULTON: Q: And would you agree with me that this  
21 is a relatively recent study?

22 MR. INCE: A: Yes.

23 MR. FULTON: Q: Now, if we turn to page 2 of 13, will  
24 you agree with me that the elasticities were estimated  
25 econometrically by rate class, GDP electricity prices  
26 and natural gas prices for the years 1994 through

1 2003?

2 MR. INCE: A: That was the scope of the study, yes.

3 MR. FULTON: Q: Yes. And Dr. Orans, were you familiar  
4 with this study at the time that you prepared your  
5 evidence?

6 MR. ORANS: A: This study was basically referenced in  
7 the 2000 -- in both the UtiliPoint work and in the  
8 2006 LTAP. So I believe that B.C. Hydro's own  
9 internal market price forecasting group was  
10 responsible for providing the short-run and long-run  
11 elasticities used in the previous LTAP. And as I  
12 think they -- at least one member from that group was  
13 in the meeting we had initially when we were talking  
14 about going forward for this LTAP, what would make  
15 sense in light of the new, much more aggressive  
16 programs and codes and standards and providing a  
17 reasonable estimate of elasticities on top of that.

18 MR. FULTON: Q: Well, had you read this study then,  
19 prior to preparing your evidence?

20 MR. ORANS: A: Prior to preparing my evidence, I had  
21 looked at -- I'm not sure I'd seen the whole study but  
22 I had seen some of the data and I'd seen some of the  
23 functional forms of this.

24 MR. FULTON: Q: Okay. You'll agree with me, Mr. Ince,  
25 that the results of the in-house study are summarized  
26 on page 2, correct?

1 MR. INCE: A: Yes.

2 MR. FULTON: Q: And if you look at the third bullet,  
3 the comment appears, "Third, estimated own price  
4 elasticities have the following ranges: total load  
5 varies from minus .27 to minus .61; residential load  
6 varies from minus .27 to minus .33; commercial load  
7 varies from minus .31 to minus .46; industrial load  
8 varies from minus .10 to minus .61."

9 MR. INCE: A: I see that, yes.

10 MR. FULTON: Q: Yes. You will agree with me that in  
11 total, the estimates that B.C. Hydro has previously  
12 made are considerably higher than what B.C. Hydro now  
13 considers to be possible for a long-run price  
14 elasticity applicable to its present circumstances.

15 **Proceeding Time 9:30 a.m. T15**

16 MR. INCE: A: Yes. But --

17 MR. ORANS: A: Mr. Fulton, so, I think -- I've tried to  
18 make the record clear on that. We don't have an  
19 estimated long-run price elasticity to compare to  
20 these levels. We have some of all the codes and  
21 standards and programs, and the annual price-induced  
22 conservation. So I don't think it's fair to compare  
23 this annual price elasticity to these long-run price  
24 elasticities.

25 MR. FULTON: Q: Well, let's drop down to the sixth  
26 bullet, Dr. Orans, where it says:

1            "...these ranges are consistent with those  
2            reported in the econometric literature on  
3            own price and income elasticities, but not  
4            consistent with the more limited literature  
5            on cross-price elasticities where the  
6            estimated elasticities are typically  
7            positive, indicating that electricity and  
8            natural gas are substitutes."

9            Do you agree with that finding?

10    MR. ORANS:    A:    Yes, I do. It's consistent with what my  
11            testimony is too, and that's why I have also reviewed  
12            the existing literature.

13    MR. FULTON:    Q:    Now, if we turn to page 3 of 13, and  
14            Table 2, which appears at the bottom of that page --

15    MR. INCE:    A:    Yes.

16    MR. FULTON:    Q:    Would you agree with me, Mr. Ince, that  
17            that table summarizes long- and short-term own price  
18            elasticities based on a 2003 EPRI study?

19    MR. INCE:    A:    Electric Power Research Institute  
20            summaries, yes.

21    MR. FULTON:    Q:    Yes, thank you. And would you agree  
22            with me that Table 2 shows that based on the survey of  
23            the long-term price elasticities that are shown, those  
24            are much higher than B.C. Hydro has assumed are  
25            applicable to B.C. Hydro.

26    MR. INCE:    A:    Currently, based on current studies,

1 current expertise provided by UtiliPoint and Dr.  
2 Orans. So, these studies, the econometric studies and  
3 literature studies, we felt, going into the RIB  
4 design, that these were a combination of dated and  
5 inapplicable -- B.C. Hydro went through a period from  
6 1994 to 2004 with zero real rate increases. So, we  
7 felt we needed to -- the studies that were done at the  
8 time, and the econometrics, were very challenging,  
9 given that we had -- typically when you're doing  
10 econometric studies you want some variability in  
11 prices. So you want to test the variability in load  
12 in response to the variability in price. But B.C.  
13 Hydro, given that it had been through a period of ten  
14 years of zero real rate increases, we felt that the  
15 econometric studies were very challenged.

16 Other factors were that we're a low-cost  
17 northern jurisdiction. So that the applicability of  
18 the literature studies that were done were suspect as  
19 well. So, hence, we hired Dr. Orans to help us do --  
20 we thought was a more definitive study in terms of  
21 elasticities.

22 MR. FULTON: Q: But hasn't B.C. Hydro, in the past,  
23 relied on the survey of the literature, or the studies  
24 in the literature, to --

25 MR. INCE: A: Well, I would say, in effect, Dr. Fulton  
26 -- or, Mr. Fulton, that we do not depend on these

1 studies. That these studies were -- our load forecast  
2 was based on zero real rate increase assumptions. So  
3 in effect these studies were done, but they had no  
4 effect in terms of influencing our load forecasts.

5 So hence we made a more concerted effort  
6 going into the 2007 load forecast to get current  
7 expertise and do some current studies, because at this  
8 time it was real, that we were going to have --  
9 reflect real rate increases in our load forecasts, and  
10 we felt we needed something better.

11 MR. FULTON: Q: Just one last point on the table.

12 Would you also agree with me that the long-term price  
13 elasticities shown on the table are several-fold above  
14 the short-term price elasticities?

15 MR. INCE: A: Sorry, which table?

16 MR. FULTON: Q: Table 2. Page 3 of 13.

17 MR. INCE: A: Yes, they increase between the low, the  
18 medium and the high -- or, sorry, the short- and the  
19 long-term. Yes, there is an increase.

20 MR. FULTON: Q: And the increase is several-fold.

21 MR. INCE: A: Yes, but even just looking at this table,  
22 I'm very concerned about the long-term elasticities  
23 indicated. Most of these numbers are in excess of  
24 one, which means if you have a one percent increase in  
25 rates, that you have more than a one percent decrease  
26 in load. And I find that really problematic.



1           useful in assessing B.C. Hydro's long-term price  
2           elasticity? And Dr. Orans, if you prefer to answer  
3           this question that's fine.

4 MR. ORANS:    A:   Well, once again we didn't seek to --  
5           there were two paths, and we -- other than reduce Mr.  
6           Hobson's estimates, the program data which was an  
7           extensive, huge data set and we didn't see an easy  
8           path through that, that maze of all of the program  
9           data, we used what we believe are reasonable short-run  
10          estimates of price elasticities, not long-run.

11 MR. FULTON:   Q:   Beginning at page 14 of 42, the  
12          UtiliPoint study refers to a recent study of price  
13          responsiveness by California residential customers by  
14          Reiss and White. Would you agree with me that the  
15          UtiliPoint report expresses the opinion that the Reiss  
16          and White study provides some insight for results  
17          relevant to the long-term rate strategy, particularly  
18          because at the time of the study California had in  
19          place a two-step electricity rate?

20 MR. ORANS:    A:   Yeah, that's one of the studies they  
21          reference. They also reference, however, the CPP TOU  
22          design experiment in California, which Dr. Neenan, who  
23          was primary author of this report, worked on and as  
24          well as several of my partners worked on. Those  
25          elasticities also are referenced as another recent  
26          case to look at. I don't believe that either of these

1 are as close to the examples that I have in my  
2 comparison, which include Avista, Pacific Corp. and  
3 Bonneville. Bonneville in particular, there was a  
4 stepped rate also design looked at.

5 MR. FULTON: Q: If you turn over to page 15 of 42.

6 MR. ORANS: A: Yes, I'm there.

7 MR. FULTON: Q: Okay, would you agree with me that the  
8 table on that page summarizes the short-run price  
9 elasticities from Reiss and White for households and  
10 found an overall own price elasticity of minus .39?

11 MR. ORANS: A: Yes, all households together, and it's  
12 particularly weighted by this electric space heat  
13 example. And if you remember, for those of you who  
14 participated in the RIB proceeding, electric space  
15 heat is a big difference for residential customers, in  
16 terms of their ability to respond and not respond. So  
17 the end use makeup is very important, along with the  
18 weather, and that's why I think it was really  
19 important to focus on winter peaking jurisdictions  
20 with relatively low rates and with similar mix of  
21 electric space heat and no space heat for the  
22 comparison. I don't think California matches up on  
23 either of those criteria.

24 **Proceeding Time 9:40 a.m. T17**

25 MR. FULTON: Q: If we turn forward to page 30 of 42,  
26 the last sentence in the penultimate paragraph says

1           that,

2                    "To be conservative, [UtiliPoint's] initial  
3                    recommendation is that it will take B.C.  
4                    Hydro 10 years to achieve the level of price  
5                    response embodied in the assumed long-run  
6                    elasticities."

7                    Mr. Ince, did B.C. Hydro accept that  
8                    recommendation?

9 MR. INCE:    A:    I'll start off, but I think Dr. Orans and  
10               perhaps Mr. Hobson have to fill in, in that we saw a  
11               distinction between short-term and long-term  
12               elasticities.  So early on in our investigation of  
13               elasticities we realized that there was some, perhaps,  
14               double-counting of DSM-type programs within these  
15               elasticity studies.  And I think what I saw was that,  
16               in the short term, you would have a much lower  
17               elasticity value just due to behavioural impacts, but  
18               in the long term, you eventually see the effects of  
19               appliance turnover and DSM programs that are enabled  
20               by these rate changes to influence elasticities so  
21               that they're much higher, and hence my concern with a  
22               lot of the literature.  And then perhaps I'll turn it  
23               over to Dr. Orans.

24 MR. FULTON:   Q:    Okay, but before you turn it over to  
25               Dr. Orans, did B.C. Hydro accept the recommendation  
26               that appears at page 30?

1 MR. INCE: A: Well, I did not accept the -- or did not  
2 accept the premise that elasticities from start to  
3 finish, from short-term to long-term, are not  
4 influenced by programs, codes and standards, and  
5 appliance turnover.

6 So, perhaps over to Dr. Orans.

7 MR. FULTON: Q: Thank you. Dr. Orans?

8 MR. ORANS: A: Yeah, I think this was a discussion, you  
9 know, looking at the UtiliPoint recommendation, they  
10 had this relatively complex model, where you had to  
11 first choose an appropriate short-run elasticity from  
12 the literature, which was admittedly broad in their  
13 case. So they gave ranges, big wide ranges. The next  
14 thing you had to do was pick a transition period from  
15 short-run to long-run, which was fairly arbitrary,  
16 because if you were using the literature, it depended  
17 on how long the study was done over. Some studies  
18 collected ten years of data, some studies collected  
19 twenty years, some five years. So they had to choose  
20 something, and then base it on it. And then they --  
21 third, then they had to pick a long-run price  
22 elasticity that didn't double-count.

23 So, and actually the fourth thing is, they  
24 had to decide on the mathematical translation of the  
25 short-run to the long-run. And there was some  
26 discussion about whether this was a geometric

1 progression that multiplied each time, and then  
2 approached the long run, or whether it was some  
3 additive just, let's take ten years and divide them  
4 all in equal, you know, parts.

5 Once again, to do that accurately, you'd  
6 have to match the short-run and long-run price  
7 elasticity methodology that you were borrowing from,  
8 and they weren't borrowing from one, they were  
9 borrowing from a body of literature.

10 So that seemed to me it was fraught with  
11 just difficulties in estimation and fundamentally had  
12 this fatal flaw of the double-counting which, you  
13 know, we couldn't get over that one. So we chose  
14 another path, and I did not recommend to B.C. Hydro  
15 that they use this methodology.

16 MR. FULTON: Q: All right. And so, then, if we turn to  
17 page 31 of 42, you'll see in Table 6 that the  
18 recommended long-run own price elasticities are shown,  
19 and would you agree with me that the average values  
20 are all minus .3?

21 MR. INCE: A: Long-term elasticities, yes.

22 MR. FULTON: Q: Yes. And I take it from what Dr. Orans  
23 just said, he also did not recommend B.C. Hydro accept  
24 this recommendation.

25 MR. INCE: A: Well, I'll start off. I personally  
26 wouldn't recommend these.

1 MR. FULTON: Q: Okay. And can you tell me why you  
2 personally would not, Mr. Ince?

3 **Proceeding Time 9:45 a.m. T18**

4 MR. INCE: A: Well, I think it's a combination of the  
5 effects that we just talked about, that I thought that  
6 the short-term elasticities are largely driven by  
7 behaviour. And there is a potential for double  
8 counting or under counting the effects between the  
9 behavioural impacts and DSM. We only see larger long-  
10 term elasticities as a result of appliance turnover or  
11 DSM programs that are enabled, or partially enabled by  
12 rates. And that's where I thought the threat of,  
13 shall we say, contamination in these elasticities came  
14 about.

15 That the short-term elasticities were  
16 appropriate for pure price effects, but the long-term  
17 elasticities quoted had DSM programs mixed in with  
18 them.

19 MR. FULTON: Q: Anything you wish to add to that, Dr.  
20 Orans?

21 MR. ORANS: A: I agree with that statement.

22 MR. FULTON: Q: Just looking at that Table 6, would you  
23 agree with me that the recommended long-term own price  
24 elasticities are all more than 150 percent of the  
25 short-term elasticities for the average case, except  
26 in the case of residential?

1 MR. INCE: A: Correct.

2 MR. FULTON: Q: You could next then turn to the  
3 response to BCUC IR 2.232.2. Would you agree with me  
4 that the response contains three tables showing the  
5 real change in residential electricity prices for B.C.  
6 Hydro, and the total percentage change in B.C. Hydro  
7 residential use per account?

8 MR. ORANS: A: Sorry, Mr. Fulton. We're referring to  
9 BCUC IR 2.231.2?

10 MR. FULTON: Q: No, 232.2, I'm sorry.

11 MR. ORANS: A: We've got a binder malfunction here. I  
12 see it now, yes.

13 MR. FULTON: Q: Okay, so you'll agree with me that the  
14 response contains three tables that show the real  
15 change in residential price increases for B.C. Hydro--

16 MR. REIMANN: A: Mr. Fulton --

17 MR. FULTON: Q: Yes?

18 MR. REIMANN: A: One more time, the IR number please.

19 MR. FULTON: Q: Yes, 2.232.2, Exhibit B-4.

20 MR. INCE: A: Yes, now we're there.

21 MR. FULTON: Q: Okay.

22 MR. INCE: A: And I see, yes, you're correct.

23 MR. FULTON: Q: Thank you. And subject to check, would  
24 you agree with me that if one were to calculate the  
25 residential price elasticities for the periods shown  
26 by a definition which is the percentage change in

1 quantity divided by the percentage change in price,  
2 the result would be about minus .82 for the period  
3 1980 to 2005, and minus .36 for 1985 to 2005?

4 MR. ORANS: A: Can you restate the calculation, please?

5 MR. FULTON: Q: Yes. The calculation would be the  
6 percentage change in quantity divided by the  
7 percentage change in price. So you would take 17.8  
8 and divide it by minus 21.8, and you would arrive at a  
9 number of approximately minus .82.

10 MR. ORANS: A: We agree with the math.

11 MR. INCE: A: Correct.

12 MR. FULTON: Q: And similarly for the period 1985 to  
13 2005, you would take the 9.3 and divide it by the  
14 minus 25.6 and you would arrive at approximately minus  
15 .36 for that period.

16 MR. INCE: A: Looks correct.

17 **Proceeding Time 9:50 a.m. T19**

18 MR. FULTON: Q: Right, and would you agree with me that  
19 that -- quite apart from the math, would you agree  
20 with me that that is the usual approach that one takes  
21 to calculate residential price elasticities with the  
22 numbers that are shown?

23 MR. ORANS: A: No.

24 MR. FULTON: Q: Why not?

25 MR. ORANS: A: That's the exact problem we've been  
26 discussing. So, you're attributing basically the

1 entire change in quantity to the change in price,  
2 which is -- Mr. Gai used the GDP deflator as one  
3 trend, and he had then another very small trend  
4 variable, and he had a lag variable, but it -- to  
5 argue that the price, this -- these degrees of price  
6 changes, which, you know, there was only one small  
7 change in real price -- one small change in price in  
8 this period that wasn't a GDP deflator. The rest of  
9 it was all GDP deflators over the whole period, and  
10 the rates were flat during the whole period. And  
11 you're attributing all of that change in sales, which  
12 was due to many factors, to that -- those relatively  
13 small price changes.

14 MR. FULTON: Q: Thank you.

15 THE CHAIRPERSON: Mr. Fulton, we're about -- we could  
16 break at any time between now and the next five  
17 minutes.

18 MR. FULTON: Yes. Yes. Why don't we break now, Mr.  
19 Chairman, and then we'll --

20 THE CHAIRPERSON: We'll come back in 15 minutes.

21 MR. FULTON: Thank you.

22 **(PROCEEDINGS ADJOURNED AT 9:52 A.M.)**

23 **(PROCEEDINGS RESUMED AT 10:06 A.M.) T20**

24 THE CHAIRPERSON: Please be seated.

25 Mr. Andrews?

26 MR. ANDREWS: Mr. Chairman, I have two filings. The

1 first, I understand, will be Exhibit C21-4-1. It's  
2 amended tables from Mr. Plunkett's evidence, based on  
3 the changes to DSM A in the December, '08 evidentiary  
4 update. The second is V-20 -- excuse me. It will be  
5 Exhibit C21-4-2, and it is an amended version of Table  
6 JJP-2, which is at the very end of the Plunkett  
7 evidence. The package that I'm handing out in hard  
8 copy has copies of the worksheets that support that --  
9 the table that's the first page of the exhibit.

10 THE CHAIRPERSON: Very good.

11 (DOCUMENT "RE: EXHIBIT C21-4, AMENDED TABLE V1-1 AND  
12 TABLE V1-2", FILED BY BCSEA-SCBC, MARCH 3, 2009,  
13 MARKED EXHIBIT C21-4-1)

14 (DOCUMENT "RE: EXHIBIT C21-4, AMENDED EXHIBIT JJP-2  
15 AND SUPPORTING SPREADSHEET WORKPAGES", FILED BY BCSEA-  
16 SCBC, MARCH 3, 2009, MARKED EXHIBIT C21-4-2)

17 **CROSS-EXAMINATION BY MR. FULTON (CONTINUED):**

18 MR. FULTON: Q: I just have one last matter for  
19 clarification, and it's for you, Mr. Ince. Did I  
20 understand your evidence to be that in the 1990s, B.C.  
21 Hydro experienced zero percent real price increases?

22 MR. INCE: A: No, sorry. It should have been, I  
23 believe, zero nominal increases. So in real terms,  
24 our rates were decreasing. And in fact you see that  
25 in the response to IR from the Commission, 232.2, in  
26 that from 1980 to 2005 we had a 21.8 percent decline

1 in terms of real rates.

2 MR. FULTON: Q: Right. And I was going to take you to  
3 that table had you not taken me there, so thank you,  
4 that helps in terms of the clarification of the  
5 record.

6 Those are my questions, Mr. Chair. Thank  
7 you, panel.

8 THE CHAIRPERSON: Thank you, Mr. Fulton.

9 COMMISSIONER MILBOURNE: Good morning. I'd like to try  
10 and get a couple of things maybe a little straighter  
11 in my mind, with your assistance.

12 In terms of the discussion that's gone on  
13 about B.C. Hydro being in a surplus energy position  
14 once the requirements of SD 10 have been complied  
15 with, is it fair to say that that surplus arises --  
16 structural surplus, if you will, arises because of the  
17 shape of your demand that you serve over an annual --  
18 over a year? In other words, if your demand was the  
19 same every month of the year, you could match the two,  
20 your capability to plan and your requirements. But  
21 it's not that way. You have -- I think the -- what  
22 has taken on the identity of the "Terasen graph", if  
23 you will, shows significant increase over the four  
24 winter months.

25 Am I correct in assuming that that's what,  
26 all else equal, gives rise to this structural surplus?

1 MR. INCE: A: Well, I'll start with a clarification in  
2 terms of the Terasen graph. Certainly that B.C. Hydro  
3 reaches its peak load requirements in  
4 December/January, and a minimum in July and June. So,  
5 it has a very sinusoidal shape that peaks out during  
6 the winter. It's a winter peaking utility.

7 COMMISSIONER MILBOURNE: And is it --

8 MR. REIMANN: A: Mr. Milbourne?

9 COMMISSIONER MILBOURNE: Yes?

10 MR. REIMANN: A: If I could, let me just try to be  
11 helpful in describing and contrasting.

12 COMMISSIONER MILBOURNE: Yeah.

13 MR. REIMANN: A: So, if you had a thermal system, you  
14 typically build thermal to the amount of capacity you  
15 need, and you presume that there's not a fuel  
16 shortage. And so then you always have enough energy,  
17 and you almost -- and thermal utilities don't talk  
18 about an energy supply or an energy adequacy. And so  
19 any time that the load's down, those units, if they're  
20 available, could shift to other jurisdictions and sell  
21 surplus capability.

22 **Proceeding Time 10:11 a.m. T21**

23 When you get into the hydro system, the  
24 nature of building a hydro dam, reservoir and  
25 generation, you capture a certain amount of water  
26 behind the reservoir. And then typically, in order to

1 provide flexibility in the system, you add more  
2 capacity. And so you wouldn't be able to ever run  
3 your hydro system flat out. You would run out of  
4 water.

5 So what you end up doing then is you've got  
6 this ability to shape the energy into the time when  
7 you need it, and you can then start to turn down your  
8 hydro generation at certain periods and shift it to  
9 other. And it's that ability to shift the hydro then  
10 says, what other times do we need to be able to turn  
11 that hydro down and put other energy source is in  
12 there?

13 So I think in answer to your question, part  
14 of the reason of the surplus is meeting the load  
15 variability. Part of it, though, comes from --  
16 because of that Heritage hydro as well has got  
17 variable water inflows. And so we have a minimum  
18 inflow of 42,600 gigawatt hours. It can be up to  
19 10,000 gigawatt hours longer. And there's a  
20 distribution around that. So what's the probability  
21 going to be at a certain point.

22 So what we've got up until 2016 by our  
23 energy reliability criteria, average water would be  
24 some 4,000, 4200 gigawatt hours more than critical.  
25 What we've done historically is said 2500 gigawatt  
26 hours of that, we would count on either the Heritage

1 hydro or as supplemented by what you could buy in the  
2 market. What the Special Direction 10 has done is  
3 said the government wants us to be sufficient even in  
4 the minimum years, and so we're down to critical  
5 water. So where on average we used to be maybe 1500  
6 gigawatt hours long, on average now we might be more  
7 like 4,000 long.

8 COMMISSIONER MILBOURNE: And that's what I call the  
9 structural surplus.

10 MR. REIMANN: A: Right.

11 COMMISSIONER MILBOURNE: Okay, I think we're on the same  
12 ground.

13 MR. REIMANN: A: Right.

14 COMMISSIONER MILBOURNE: Is it equally fair to say that  
15 winter peaking behaviour results almost exclusively  
16 from residential demand?

17 MR. INCE: A: Very much so. There is some element of,  
18 in the commercial sector, space heating loads, but  
19 it's primarily residential.

20 COMMISSIONER MILBOURNE: Again, I think it's driven by  
21 residential, but it's equally reflective of heating  
22 requirements.

23 MR. INCE: A: It's very much related to heating, yes.

24 COMMISSIONER MILBOURNE: Right, whether it -- because  
25 there's an element of add-in all customer classes,  
26 most customer classes, right?

1 MR. INCE: A: Yes.

2 COMMISSIONER MILBOURNE: Is it also fair to say that, all  
3 else equal, the degree of surplus, if you will, is  
4 related in part to the difference between the winter  
5 requirement and the, I'll call it the base  
6 requirement? In other words, the higher -- the more  
7 the peak, the bigger the multiple of the peak is of  
8 what I've called the base, okay, quote, all else  
9 equal, the bigger the surplus.

10 MR. REIMANN: A: So in terms of where the hydro system  
11 is today, we have these hydro reservoirs. We're  
12 building -- we had four additional units that we could  
13 add into the Revelstoke Mica. We're building  
14 Revelstoke 5, I think it's in fiscal '11. We have an  
15 additional three units. So if the total amount of  
16 energy didn't change but we got to be more peak here  
17 in the wintertime, our response currently would be to  
18 add one of those Mica Revelstoke units.

19 So you wouldn't necessarily have to have  
20 more energy but more capacity.

21 COMMISSIONER MILBOURNE: Pardon me. There's equally a  
22 cost of adding that capacity.

23 MR. REIMANN: A: Correct.

24 COMMISSIONER MILBOURNE: Which is to serve the nature of  
25 your demand.

26 MR. REIMANN: A: There is.

1 COMMISSIONER MILBOURNE: So there's costs on the energy  
2 supply and there's costs on the capacity side.

3 MR. REIMANN: A: One advantage Hydro tends to have is  
4 that these additional units come at a cost  
5 substantially cheaper than even gas-fired capacity,  
6 without the energy costs to it.

7 COMMISSIONER MILBOURNE: I understand that, being --

8 MR. REIMANN: A: But there is a cost, absolutely.

9 COMMISSIONER MILBOURNE: -- simply, simple-minded, there  
10 is a cost of adding that capacity.

11 MR. REIMANN: A: There is.

12 COMMISSIONER MILBOURNE: And to the degree that the  
13 system becomes peak year, for lack of a better term,  
14 you have to continue to add capacity one way or the  
15 other to deal with that, whether it's IPP capacity or  
16 the effect capacity, right?

17 MR. REIMANN: A: Agreed. And I would point out that  
18 what we're showing, based on the DSM programs that are  
19 proposed right now, is that the capacity demand is  
20 actually dropping off more than the energy is. So it  
21 appears that the DSM programs that we're targeting  
22 would take us away from being a more peaky to a  
23 flatter utility.

24 **Proceeding Time 10:16 a.m. T22**

25 COMMISSIONER MILBOURNE: Well, I'm not necessarily quite  
26 with you on that point, because I'm going to ask my

1 next question, okay?

2 MR. INCE: A: Okay.

3 COMMISSIONER MILBOURNE: Is it fair to say that, to the  
4 degree that additional heating requirements, electric  
5 heating requirements are added, that the system  
6 becomes peakier, all else equal?

7 MR. INCE: A: All else equal, yes.

8 COMMISSIONER MILBOURNE: Okay, all else equal, right?

9 MR. REIMANN: A: I should say there too, that we don't  
10 anticipate that there would be a significant increase  
11 over what we've modeled in the load forecast, and I  
12 don't think the impact of new homes switching more to  
13 electric heat over what we forecast is that  
14 substantial a number.

15 I don't know, Mr. Ince, if you can speak to  
16 that.

17 MR. INCE: A: That would be --

18 COMMISSIONER MILBOURNE: Sorry, just before you answer  
19 that.

20 MR. INCE: A: Okay.

21 COMMISSIONER MILBOURNE: I've heard your discussion about  
22 how you have a -- 25,000 a year doesn't change the big  
23 total. So I understand that.

24 MR. INCE: A: Okay.

25 COMMISSIONER MILBOURNE: My point is strictly at the  
26 incremental additions. It's not at the average, okay?

1 MR. INCE: A: Okay.

2 COMMISSIONER MILBOURNE: There's a one -- there's  
3 literally a one-to-one relationship between adding the  
4 next electric heating requirement and an increase in  
5 demand in the winter.

6 MR. REIMANN: A: Within the context of the DSM program  
7 proposed --

8 COMMISSIONER MILBOURNE: No, all else equal, right.

9 MR. REIMANN: A: Yes, agreed.

10 MR. INCE: A: Yes.

11 COMMISSIONER MILBOURNE: Because unless the DSM programs  
12 specifically are directed towards winter heating, they  
13 have an equal probability of applying at any time of  
14 the year, and they don't change the relative  
15 relationship between the peak and the base.

16 MR. REIMANN: A: That's not what the programs are  
17 showing, but on the margin, I --

18 COMMISSIONER MILBOURNE: On the margin.

19 MR. REIMANN: A: Yeah.

20 COMMISSIONER MILBOURNE: Okay. That's what I wanted to  
21 understand, so thank you for that.

22 Mr. Reimann, in the course of this, I'm  
23 sure, long past couple of days, and I think it's in --  
24 I've got a transcript reference here, which is  
25 unusual. Oh, yeah. It's transcript -- you don't have  
26 to go there, I'll just read the sentence out, but just

1 for the record, it's transcript Volume 9, and it's  
2 page 1601, and it's at lines, kind of 5 through 8.  
3 And you make the statement -- this is in respect of  
4 the renewable energy credits and what do you do with  
5 them. You made the statement there that:

6 "If we could then optimize our revenues by  
7 selling the RECs with the surplus energy  
8 into the U.S. market, and receive more  
9 revenues to offset our domestic costs, we'd  
10 do that."

11 MR. REIMANN: A: Correct.

12 COMMISSIONER MILBOURNE: Okay. In that sentence, who is  
13 "we"?

14 MR. REIMANN: A: B.C. Hydro.

15 COMMISSIONER MILBOURNE: B.C. Hydro as B.C. Hydro?

16 MR. REIMANN: A: So, I'm not sure Hydro has worked out  
17 everything with regards to its transfer pricing  
18 policy. So are you distinguishing as between B.C.  
19 Hydro and Powerex, perhaps, or --

20 COMMISSIONER MILBOURNE: Absolutely.

21 MR. REIMANN: A: Okay. So, my understanding of the  
22 transfer pricing policy is, if there's surplus energy,  
23 it's something that B.C. Hydro owns, then Powerex will  
24 transact and sell that into the market, and the  
25 revenue and the proceeds go to the generation business  
26 line. I would expect the same thing if we own energy



1           shortly after you made a comment to the effect that if  
2           B.C. Hydro have sold green energy or renewable energy  
3           into the States, it wouldn't result in anything other  
4           than the U.S. utilities avoiding the cost of building  
5           renewable energy sources. Do you recall that?

6 MR. LAUCKHART:    A:    Yes.

7 COMMISSIONER MILBOURNE:   I'm trying to understand how  
8           that -- what are the kind of ground rules or  
9           parameters around which you make that statement? Does  
10          that assume no growth in the States? Because  
11          otherwise it would seem to me that their markets would  
12          be subject to the same kind of behaviours as protected  
13          for British Columbia. That somewhere in here the  
14          demand for electricity is going to keep on growing.

15 MR. LAUCKHART:    A:    Yes, so let's say that some utility  
16          in California has a target of 20 percent. And my  
17          assumption here is they're going to get to 20 percent.  
18          The question is where are they going to go to get that  
19          resource? And one hypothetical would be, well, they  
20          could have wind built in California. We don't have a  
21          great wind resource there, Class 3 wind, that would be  
22          pretty expensive for them. Or they could, if offered  
23          power from British Columbia, which is cheaper, they  
24          would buy that and thereby meet their 20 percent.

25                        So the concept would -- they're going to be  
26          meeting 20 percent either way, is either from a

1 purchase of renewable from British Columbia, or having  
2 a wind resource built at California.

3 COMMISSIONER MILBOURNE: Okay, so part of your ground  
4 rules is that you were speaking to the 20 percent say,  
5 whatever is deemed that must be renewable.

6 MR. LAUCKHART: A: Correct.

7 COMMISSIONER MILBOURNE: Then over here there's the 80  
8 percent, which I believe I've heard is the marginal or  
9 the incremental element of that, or the bulk of it is  
10 kind of greenhouse gas intensive?

11 MR. LAUCKHART: A: Could you repeat that question?

12 COMMISSIONER MILBOURNE: The bulk of the 80 percent that  
13 isn't renewable is carbon fired.

14 MR. LAUCKHART: A: There is some nuclear in there and a  
15 few other things that don't count as --

16 COMMISSIONER MILBOURNE: The marginal stuff, right?

17 MR. LAUCKHART: A: Pardon me?

18 COMMISSIONER MILBOURNE: The incremental or the marginal.  
19 The nuclear stuff generally is baseload.

20 MR. LAUCKHART: A: Right.

21 COMMISSIONER MILBOURNE: So the displaceable portion by  
22 exports of energy from British Columbia is the carbon-  
23 fired portion.

24 MR. LAUCKHART: A: Well, my point is this. They're  
25 going to meet their renewables 20 percent.

26 COMMISSIONER MILBOURNE: Right.

1 MR. LAUCKHART: A: So they're going to have 80 percent.  
2 Whatever they have of their 80 percent, they're going  
3 to have. The question is how are they going to meet  
4 the 20 percent renewables? Is it from a wind resource  
5 in California, or is it a purchase from British  
6 Columbia that might be available that's countable as  
7 renewable? So the 80 percent is not going to change.

8 COMMISSIONER MILBOURNE: Right.

9 MR. LAUCKHART: A: It's the 20 percent that's either  
10 going to be the wind or the B.C.

11 COMMISSIONER MILBOURNE: So the 80 percent isn't  
12 affected, right?

13 MR. LAUCKHART: A: It isn't affected.

14 COMMISSIONER MILBOURNE: Thank you very much. Just what  
15 I wanted to clarify.

16 THE CHAIRPERSON: Thank you.

17 Good morning, panel. This morning I gave  
18 -- Mr. Fulton gave your counsel a document which I  
19 found on the WCI website. I believe you have that.

20 MR. LAUCKHART: A: I have that.

21 THE CHAIRPERSON: I don't, of course. Mr. Fulton has. I  
22 gave Mr. Fulton my copy.

23 MR. FULTON: Mr. Chairman, there were two documents that  
24 I received from you this morning. One was an extract  
25 from *Fundamentals of Corporate Financing*.

26 THE CHAIRPERSON: That was not the one I was going to go

1 to Mr. Lauckhart with.

2 MR. FULTON: Okay. Do you have copies -- did I take your  
3 copy of that one?

4 THE CHAIRPERSON: Let's just go with the Western Climate  
5 Initiative one first. Don't hand that out.

6 MR. FULTON: All right, so the Western Climate Initiative  
7 document I'll produce now. And if that document, Mr.  
8 Chairman, could be marked Exhibit A2-4.

9 THE CHAIRPERSON: Thank you.

10 THE HEARING OFFICER: Marked Exhibit A2-4.

11 ("WESTERN CLIMATE INITIATIVE, ELECTRICITY SUBCOMMITTEE  
12 DISCUSSION PAPER ON RENEWABLE PORTFOLIO  
13 STANDARDS...DECEMBER 8, 2008, SCOTT MURTISHAW,  
14 CALIFORNIA PUC", MARKED EXHIBIT A2-4)

15 THE CHAIRPERSON: Thank you, Mr. Fulton.

16 And you've had a chance to skim this, have  
17 you, Mr. Lauckhart?

18 MR. LAUCKHART: A: I have.

19 THE CHAIRPERSON: And would I be right in saying that  
20 this document summarizes the uncertainty that exists  
21 in defining a market for renewable energy certificates  
22 in the Western Climate Initiative area, and any value  
23 that might be ultimately ascribed to them?

24 **Proceeding Time 10:26 a.m. T24**

25 MR. LAUCKHART: A: That may be one way to characterize  
26 it. I might have characterized it a little bit

1           differently.

2   THE CHAIRPERSON:   Please do.  I mean, I -- what I really  
3           want to put this on the record, is to show that this  
4           is not a simple issue.  The rules are being made up as  
5           we go -- as somebody goes along.  After you file your  
6           -- the LTAP, and between that time and now, things are  
7           happening, and I just wondered if we could get your  
8           take on what they are, and --

9   MR. LAUCKHART:   A:   Sure.  There has become an issue.  
10           We started out with renewable portfolio standards,  
11           renewable goals, in large part to accomplish a  
12           reduction on a requirement to burn natural gas.  And  
13           when we burn natural gas, there's some emissions in  
14           the local area.  So, particulate matter, those kinds  
15           of things.  So they start out with a renewable goal,  
16           and then somebody said, "Well, we have a -- now we  
17           have a climate change issue we want to deal with too."  
18           Well, the renewables, of course, also help the climate  
19           change issue.  So the question became, "Well, if I  
20           have a renewable, can I get compensated two ways, one  
21           for meeting the renewable goal and one for meeting  
22           this climate change, help out on the climate change  
23           side."

24                           That has been addressed differently in  
25           different states across the United States.  California  
26           itself had a very sort of extensive proceeding, and

1           they've ruled that for purposes of California  
2           determinations, the REC counts towards renewables, it  
3           doesn't get to count towards greenhouse gas. They  
4           recognize that -- the fact that you accomplished the  
5           renewables actually helps reduce greenhouse gas, and  
6           I'll just take that one step forward before I get to  
7           WCI.

8                           And as you're probably aware, the  
9           California Air Resources Board has been charged with  
10          coming up with a plan how California, just on its own  
11          if they can't get anybody else to work with them, is  
12          going to meet its greenhouse gas goal of 1990 levels  
13          of greenhouse gas emissions by 2020. And they have a  
14          draft plan out on the street, and one of their key  
15          steps is the utilities have to make 33 percent  
16          renewables by 2020.

17                          Now, they've calculated if the utilities  
18          meet 33 percent renewables from 2020, they still don't  
19          make it. So they said, "Well, then the rest of this  
20          is going to have to be met with a cap and trade  
21          program." So the basic starting point is, you've got  
22          to get your renewables there, that's a starting point.  
23          You get RECs, if you want to buy RECs, we can do that,  
24          but you've got to get it there.

25                          Now, for the remaining greenhouse gas  
26          emissions we need, you're going to have hopefully a

1 cap and trade program, and then they've, you know,  
2 gotten the Western Climate Initiative working on these  
3 issues with them.

4 So, California has made the decision,  
5 greenhouse gas -- RPS and RECs go with renewables, but  
6 they don't go towards greenhouse gas emissions  
7 reductions. And what this paper is, they're trying to  
8 get the Western Climate Initiative to reach that same  
9 conclusion.

10 THE CHAIRPERSON: So when it talks about sort of, on page  
11 6, I think, \$10 a megawatt hour U.S. for REC price,  
12 this is for illustrative purposes more than a sort of  
13 an estimate or anything else.

14 MR. LAUCKHART: A: Yeah, and I've got -- I don't know  
15 this well enough to know --

16 THE CHAIRPERSON: I think Dr. Orans is itching to speak  
17 for his --

18 MR. ORANS: A: I've worked extensively with Scott  
19 Murtishaw Shaw on these -- we were hired by the state  
20 to do greenhouse gas scenarios, and hired by  
21 California Air Resources board to do the cost of  
22 compliance with AB-32 and the REC standard. And what  
23 the big debate there, as Mr. Lauckhart said is, all  
24 right, if you have an AB-32, which requires GHG  
25 reductions, why -- and we recognize we already have a  
26 20 percent RPS standard that's law. And we have a 33



1 about 2009 to 2020, is \$100 billion of new capital  
2 into the renewable sector. Nothing to do with  
3 greenhouse gas regulation.

4 And as Mr. Lauckhart said, I mean, they're  
5 buying wind extensively already, and they're about to  
6 launch into a huge new endeavour to develop solar  
7 thermal in the Mojave Desert and Desert Southwest, on  
8 the order of, you know, in excess of 5,000 megawatts  
9 could be as much as 10,000 megawatts of solar thermal  
10 resources, which are -- you know, there's a wide  
11 variety of costs in those, but it's safe to say  
12 they're north of the \$120 figure that's been used in  
13 this proceeding. So you can see where the capital  
14 costs come from.

15 And Scott's numbers, you know, if he were  
16 using any kind of -- those kind of numbers, these  
17 numbers would be north of \$100 a ton. The ranges we  
18 talked about in our report to the California Air  
19 Resources Board were just around 100 and up to a  
20 couple hundred dollars per ton.

21 THE CHAIRPERSON: Are all your reports on the website?

22 MR. ORANS: A: Yeah, they're all posted on our website,  
23 www.e3.com. There's a whole page, thousands of pages  
24 of documentation on -- there's open public  
25 consultation, et cetera.

26 THE CHAIRPERSON: Thank you. I'll read those with

1 interest, Dr. Orans. Thank you.

2 MR. THRASHER: Mr. Chair, if you have any more questions  
3 -- as you recall yesterday, if you have any questions  
4 with regard to GHG price forecasting, we would be  
5 happy to undertake those too, because of course Mr.  
6 Rob Youngman is not here, so.

7 THE CHAIRPERSON: No, that's fine.

8 MR. THRASHER: Okay.

9 THE CHAIRPERSON: Mr. Reimann, I think most of my  
10 questions from here on in probably go to you. Could  
11 you turn to page 3.42 of B-1.

12 MR. REIMANN: A: I have that.

13 THE CHAIRPERSON: And you will remember that in the 2006  
14 IEP LTAP, you -- B.C. Hydro, not you personally,  
15 sought the Commission's endorsement, if you like, of  
16 your project evaluation methodology.

17 MR. REIMANN: A: Correct.

18 THE CHAIRPERSON: And the Commission spent quite a lot of  
19 time giving you comments. And what I think I read in  
20 page 3-42 is that as a result of OIC 27 and 8, was it,  
21 that changed HSD 1 and 2, you've basically gone back  
22 to 8 and 6, or 6 and 8.

23 MR. REIMANN: A: That's correct.

24 THE CHAIRPERSON: Yeah. And I think that for the  
25 purposes of this exercise, I think that's fine. I  
26 guess, do you intend to at some stage come back to the

1 Commission with, if you like, a revised view of  
2 project evaluation methodology, having regard to the  
3 changes brought about by HSD 1 and 2?

4 **Proceeding Time 10:36 a.m. T26**

5 MR. REIMANN: A: I don't think I can actually speak to  
6 that, but it's something I imagine we could ascertain.

7 THE CHAIRPERSON: Okay.

8 MR. THRASHER: Would you like an undertaking on that, Mr.  
9 Chairman?

10 THE CHAIRPERSON: No, I think what will happen probably  
11 is that there will come, in the course of our  
12 decision, and instruction to B.C. Hydro for -- if we  
13 feel that way, that we will do it that way.

14 And correct me if I'm wrong. You used the  
15 same discount rates, cost of capital, for all sources  
16 of projects, ResourceSmart and IPPs.

17 MR. REIMANN: A: That's correct.

18 THE CHAIRPERSON: And how did you inform yourself as to  
19 the cost of capital of the IPP developers?

20 MR. REIMANN: A: So, we -- I think there's an IR on  
21 this that maybe I can point to that might be helpful.

22 THE CHAIRPERSON: There weren't many IRs under financial  
23 assumptions, but --

24 MR. REIMANN: A: I think it's BCUC 1.60.2, but I need  
25 to confirm that.

26 Yeah, BCUC 1.60.1 and .2. Whatever volume

1           that was.

2   THE CHAIRPERSON:    B-3.  Yeah, I have it.

3   MR. REIMANN:    A:   B-3.  So, I guess what we were saying  
4           is that we haven't altered the methodology that we  
5           used in the 2006 IEP/LTAP, and we went through and  
6           prepared for that.  I guess that's the answer to  
7           1.60.1.  When we went through with that exercise, we  
8           did a simplified analysis, and when we were developing  
9           a resource options report, as part of the 2006  
10          IEP/LTAP, we went to intervenors and IPPs and said,  
11          "Here's the range of capital costs that we're  
12          proposing, and does that seem reasonable to you?"  And  
13          using a 6 and 8 percent real translated to a 12 to 15  
14          percent pre-tax ROE, and IPPs said that is in the line  
15          of what we would expect.

16                        So they were comfortable with it at that  
17          time.  We didn't go back subsequent to the 2006 IEP to  
18          revisit that, to see if anything had changed.

19   THE CHAIRPERSON:    Okay.

20   MR. REIMANN:    A:   And let me just point to the response  
21          to 1.60.2.  What we did is, we tried to look at -- and  
22          this is pre the latest direction, but we did look at  
23          -- I think it's OIC 27 that you're referring to, the  
24          change that it would have done to the discount rate  
25          and we compared it to what the 6 and 8 real was, and  
26          if it was at the upper end, it would have been 6 to 7



1 MR. THRASHER: Is that one undertaking?

2 THE CHAIRPERSON: Two, actually.

3 MR. THRASHER: Two. We'll take them.

4 THE CHAIRPERSON: Well, the first is subject to check, to  
5 confirm that it's --

6 MR. THRASHER: Right.

7 THE CHAIRPERSON: -- that this, the 6 percent, was  
8 incremental. And the second to say what the  
9 incremental rates are now.

10 MR. THRASHER: We can do those together.

11 THE CHAIRPERSON: Thank you. Dr. Orans, turning away now  
12 from -- I wasn't going to ask you any questions on  
13 corporate finance, Dr. Orans.

14 I wonder if you could explain what in DSM  
15 literature is I understand to be known as the bounce-  
16 back effect.

17 **Proceeding Time 10:41 a.m. T27**

18 MR. ORANS: A: Bounce-back has been used for a number  
19 of different things, but the bounce-back that I'm  
20 familiar with is in the TOU kind of pricing  
21 literature. When you get a reduction in on-peak or a  
22 short time period, there is an increase typically in  
23 off-peak period usage. That's one way that I've seen  
24 bounce-back used.

25 Another term that's come more recently is,  
26 as we've developed these wholesale markets, and when

1       wholesale market price operators go out for an  
2       emergency case and they say, "We have a shortage at  
3       stage 1, stage 2, stage 3," and this happened in  
4       Ontario a number of times, they get a price reduction  
5       or they get a price induced or an emergency reduced --  
6       sometimes they pay, sometimes they don't -- response.  
7       And sometimes they see an increase in usage after the  
8       period.

9       THE CHAIRPERSON:     Sorry?

10      MR. ORANS:     A:    They sometimes see, after the period is  
11      over, say it's a four-hour emergency period, they see  
12      a bounce-back in the subsequent period after their  
13      emergency ends.  So it can happen intertemporally  
14      between time periods, and it can happen kind of day-  
15      to-day from emergency calls.

16      THE CHAIRPERSON:     But in terms of terms of behavioural, I  
17      mean, is there a bounce-back there as well?  Is it  
18      possible that I feel so good about my renovation and  
19      weather stripping that I go out and buy a plasma TV?  
20      And I can assure you that having listened to Ms.  
21      Zacharias, I forewent the pleasure of an HD TV.

22      MR. ORANS:     A:    I don't think that's a well -- it's  
23      discussed, but I don't think it's a well measured and  
24      a proven thing about bounce-back at these levels.  And  
25      the problem is, you know, with the exception of some  
26      few industrial customers where electricity is a major

1       portion of their budget, say in excess of 20 percent,  
2       if it's -- if electricity is, you know, below 10  
3       percent of your disposable income, whether you're  
4       commercial or residential, it typically -- that kind  
5       of bounce-back, you typically don't see people talking  
6       a lot about. I could see potentially in a really --  
7       in an oil and gas crisis period, where prices were  
8       extremely high, that might be much more feasible.

9       THE CHAIRPERSON:     Right. Okay, thank you.

10                            During Ms. Van Ruyven's testimony I heard  
11       her speak often of an average levelized cost of DSM of  
12       somewhere between 38 and 41 dollars a megawatt hour,  
13       Mr. Hobson. Is that --

14       MR. HOBSON:     A:     That's correct, yeah.

15       THE CHAIRPERSON:    That was an average of overall  
16       programs, rate standards, rates and programs.

17       MR. HOBSON:     A:     That's right. It's taking a look at  
18       the full package or DSM plan that we put forward.

19       THE CHAIRPERSON:    One of the problems I have is trying to  
20       pick out from there, if you like, the marginal cost of  
21       the -- the cost of the megawatt hours saved on the  
22       margin. And I'm looking -- because you've got a broad  
23       orchard, if you like, of sources of DSM, and I'm  
24       guessing that it should go to the low-hanging fruit  
25       first. So I'm trying to find as you go up the tree --  
26       I can mix metaphors better than Mr. Quail, can't I?



1 through the benefit/cost ratios also that we run  
2 within the DSM plan in Appendix K that, where we have  
3 ratios for the TRC or all ratepayers' cost test, that  
4 gets you down into about a 1.0, 1.1 neighbourhood.  
5 Then what that's telling you is, your benefits and  
6 costs are coming into pretty much alignment.

7 THE CHAIRPERSON: Yeah, okay. Thanks.

8 Mr. Reimann, can we turn to page 3.27. And  
9 I think you might help if you had panel IR 1.25.1,  
10 which I think is B-12, was it?

11 Having directed you there, I don't have it  
12 myself, so let me catch up with you. Do you have  
13 25.1?

14 MR. REIMANN: A: I do.

15 MR. THRASHER: Sorry, Mr. Chair, is this 1.25.1 is what  
16 you're saying, in the panel IRs?

17 THE CHAIRPERSON: So, having got to 1.25.1, it is -- no,  
18 I've got it in -- okay, well, I apologize again.

19 In one of those IRs around 1.25, you are  
20 introducing the concept of a ratepayer levelized --  
21 it's 1.25.2, actually, page 3 of 3. You have a  
22 levelized blended price per ratepayer impact, and  
23 footnote 2 you say:

24 "Based on actual volumes of energy, firm  
25 plus non-firm, and consideration of time of  
26 delivery factors where appropriate."

1 Are you familiar with that?

2 MR. REIMANN: A: Yeah, just let me read through the IR  
3 here to --

4 THE CHAIRPERSON: Me too.

5 MR. REIMANN: A: This may be a question that may need  
6 to go to Mr. Scouras, actually.

7 THE CHAIRPERSON: I don't think so, because it's  
8 levelized -- well, I mean, you -- if you want to take  
9 it to Mr. Scouras, that's fine, because you'll be on  
10 the panel with him.

11 MR. REIMANN: A: True. You can run, but you can't  
12 hide, yeah.

13 Yeah, I think, just looking at it here, I'm  
14 not familiar with the IR, I'm pretty sure this is one  
15 that would have been prepared by the acquisition  
16 group. So, I see levelized LDs here, so I think that  
17 would be one -- and if I can assist Mr. Scouras, I'd  
18 be happy to do that.

19 THE CHAIRPERSON: Well, it was going to come to a  
20 question I was going to -- I'll take you back to 3-27  
21 anyway, which is where I wanted to start with.

22 MR. REIMANN: A: Okay.

23 THE CHAIRPERSON: And you've got the -- Mica 5, 6 and  
24 Revelstoke 6, and the UCC in terms of dollars per  
25 kilowatt hour-year, of 58, 59 and 52. Okay?

26 MR. REIMANN: A: Those are dollars per kilowatt year?

1 THE CHAIRPERSON: Yeah, dollars per kilowatt year.

2 MR. REIMANN: A: I'm sorry, what -- I'm missing the  
3 question.

4 THE CHAIRPERSON: Well, I'm just saying that it -- and  
5 Table 3.18, you have got on column 6, I think, three  
6 values for weighted UCC, dollars per kilowatt year for  
7 those three projects.

8 MR. REIMANN: A: Ah. Your question is, what is the  
9 weighted --

10 THE CHAIRPERSON: No, I'm just saying, those are the  
11 dollars per kilowatt, right?

12 MR. REIMANN: A: Yeah. Yes.

13 THE CHAIRPERSON: And you get that number by discounting  
14 the capacity and the costs over the 70-year period,  
15 and getting them back, and --

16 MR. REIMANN: A: Correct. So, yeah, it's the present  
17 value of the costs divided by the levelized capacity.

18 **Proceeding Time 10:51 a.m. T29**

19 THE CHAIRPERSON: Right. So what I'm wondering is that  
20 Mica 5 is going to produce 130 gigawatt hours a year  
21 of annual energy, and that that will be new energy  
22 over and above what Mica 1 to 4 would produce if you  
23 didn't have Mica 5 there.

24 MR. REIMANN: A: Correct.

25 THE CHAIRPERSON: And in addition, as I understand it  
26 having sat on the panel of Revelstoke 5, that there

1 will be the ability to shape some more energy, to move  
2 it, if you like, out of lower value hours into higher  
3 value hours.

4 MR. REIMANN: A: Correct.

5 THE CHAIRPERSON: And I'm wondering if, armed with that,  
6 you could do a ratepayer levelized UEC for these three  
7 projects.

8 MR. REIMANN: A: So are you thinking of the total cost  
9 divided by this energy? And the energy, I think, is  
10 pretty marginal.

11 THE CHAIRPERSON: The energy will be weighted. So it  
12 will be what it will be. And this goes back to a  
13 conversation I had with a Mr. Spafford, I think, of  
14 your -- on the second Alcan hearing, where he had  
15 established a value, if you like, for the 30 megawatts  
16 annual that you were able to push into 165 -- purchase  
17 at high value hours at 165 megawatts. And he worked  
18 out a value for that.

19 MR. REIMANN: A: Okay.

20 THE CHAIRPERSON: And what I'm looking for is for you to  
21 tell me what the UEC of these three projects are,  
22 given the weighting of the energy -- incremental  
23 energy, and the value of shifting.

24 MR. REIMANN: A: So you're right, these values are  
25 strictly the cost of the project. It doesn't include  
26 a credit -- typically when we're looking at the

1 capacity project, the primary function being capacity,  
2 we'd look at a dollars per kilowatt year versus  
3 kilowatt hours -- or megawatt hours. And the  
4 rationale is, is it's largely capacity, the energy is  
5 a small portion. If you're to take these costs over  
6 the energy I think they'd be quite high. You  
7 wouldn't, I think, build these projects for energy  
8 reasons.

9 But when we actually come in to do an  
10 application for like a CPCN, then we try to model what  
11 the shaping value that the unit would add into the  
12 system. I'm not sure if we've got any of those  
13 studies available that would allow me to sort of pick  
14 that value out quickly. You probably will see that at  
15 the point that we bring the Mica units forward for the  
16 next stage.

17 THE CHAIRPERSON: I'm surmising that -- you've made  
18 whatever estimate you like, but I mean, it seems to me  
19 that you would know pretty well how much energy you  
20 would shift out of those low-value hours into high-  
21 value hours.

22 MR. REIMANN: A: So I can go back and check to see what  
23 studies we've done today. It's a pretty involved  
24 process to actually model the system on an hourly  
25 basis, with and without this capacity unit in, given  
26 the storage. And we do do that. If it's available.

1 THE CHAIRPERSON: Feel free to make whatever assumptions  
2 you like with the terms.

3 MR. REIMANN: A: Okay.

4 THE CHAIRPERSON: Because you have the data for  
5 Revelstoke 5, I take it?

6 MR. REIMANN: A: Yes. We could look at that or -- if  
7 we've done any studies on the Mica -- are you looking  
8 for all three units or --

9 THE CHAIRPERSON: I'd prefer if -- Mica Unit 5, but also  
10 Unit 6 and Revelstoke 6 if --

11 MR. REIMANN: A: Okay, and if we brought that back as  
12 opposed to dollars -- like to an energy price in a  
13 UEC, we left it as a UCC, is that --

14 THE CHAIRPERSON: No, I want it as a UEC.

15 MR. REIMANN: A: You want a --

16 THE CHAIRPERSON: I want it ratepayer impact. So you  
17 ascribe the high value, you put higher value on the  
18 high value hours.

19 MR. REIMANN: A: Yes.

20 THE CHAIRPERSON: So an hour of super peak is worth 1.4  
21 megawatts or whatever, 1.45.

22 MR. REIMANN: A: Right. Yes. You could put a  
23 weighting on the capacity as well. It's just that the  
24 energy is going to be small, and the denominator, that  
25 it'll end up being quite a large number, I think.

26 THE CHAIRPERSON: I want to see the numbers.

1 MR. REIMANN: A: Okay.

2 THE CHAIRPERSON: Thank you.

3 MR. THRASHER: Is that an undertaking?

4 THE CHAIRPERSON: I think so, yes. Mr. Reimann has been  
5 kind enough to do that.

6 **Information Request**

7 THE CHAIRPERSON: Mr. Reimann, again, you had a  
8 discussion with Mr. Austin at page 1635 of the  
9 transcript, if you could turn to that.

10 MR. REIMANN: A: Which volume?

11 THE CHAIRPERSON: I wish I knew. Volume 9.

12 MR. REIMANN: A: I have that.

13 THE CHAIRPERSON: And about line 11, Mr. Austin is  
14 talking about "Why can't I use those reserves," and  
15 then he says, "for a certain shutdown of wind  
16 generation, bearing in mind that typically the wind  
17 doesn't stop blowing all of a sudden."

18 You see that?

19 **Proceeding Time 10:56 a.m. T30**

20 MR. REIMANN: A: Yes.

21 THE CHAIRPERSON: And my question, am I right in thinking  
22 that another reason for wind power ceasing is actually  
23 that the wind, far from stopping, actually gets too  
24 strong.

25 MR. REIMANN: A: That's correct. They do have a high  
26 wind speed cut-out, and you -- guess in past practice

1       you might have seen a whole wind farm cut off as -- if  
2       too high a wind would go through. They have available  
3       more sophisticated technologies that start bringing  
4       things down as the wind gets higher, to maybe dampen  
5       that, but yeah, high-speed cut-out is a significant  
6       issue.

7   THE CHAIRPERSON:    You ever been to Pincher Creek?

8   MR. REIMANN:        A:    Yes.

9   THE CHAIRPERSON:    I'm looking at Garrad Hassan's report  
10       in Appendix F-6. And I note -- and Garrad Hassan, is  
11       that how you pronounce that?

12   MR. REIMANN:        A:    Yes.

13   THE CHAIRPERSON:    They are the gurus of wind, are they?

14   MR. REIMANN:        A:    They are one of them.

15   THE CHAIRPERSON:    Okay.

16   MR. REIMANN:        A:    The wind data study that we're doing  
17       now uses another three-tier.

18   THE CHAIRPERSON:    And Garrad Hassan, at page 10 to 74,  
19       and again at page 20 of 74, are discussing the wind up  
20       in Pincher -- oh, not Pincher Creek, up in Peace  
21       River. And they talk about, and I quote, "highly  
22       complex nature of mountainous terrain and high wind  
23       speeds". You're aware of those, are you?

24   MR. REIMANN:        A:    Yes.

25   THE CHAIRPERSON:    And I couldn't find a wind duration  
26       curve in Garrad Hassan's report, and I wondered if you

1 would have one.

2 MR. REIMANN: A: We could produce one.

3 THE CHAIRPERSON: For Peace -- well, for all. I would be  
4 interested in the wind duration reports for the four  
5 areas that Garrad Hassan looked at.

6 MR. REIMANN: A: Okay.

7 **Information Request**

8 THE CHAIRPERSON: Thank you. And what sort of speed is  
9 the -- do the machines typically turn themselves off,  
10 wind speed?

11 MR. REIMANN: A: Oh, you're starting to stretch my  
12 recollection of this. I --

13 THE CHAIRPERSON: Could you inform yourself?

14 MR. REIMANN: A: Yes.

15 THE CHAIRPERSON: Thank you.

16 **Information Request**

17 MR. THRASHER: So we're going to do separate undertakings  
18 on those issues? Okay.

19 THE CHAIRPERSON: My next question, I think, goes to  
20 panel IR 24.2. Do you have that?

21 MR. REIMANN: A: We do.

22 THE CHAIRPERSON: And the reason I asked this IR is, I  
23 wanted to see -- trying to understand how the 50  
24 percent DSM policy and the 90 percent clean policy  
25 that come out of the 2000 Energy Plan might look in  
26 action. And I found a year, to F2014, when the DSM

1 was exactly half of the increase in load, and I  
2 wondered how the -- it would look on a monthly  
3 resolution if half of the increase in load came from  
4 DSM and the other half came from the Clean Call, which  
5 would you agree today looks like being 50 percent run-  
6 of-river and 50 percent hydro, roughly.

7 MR. REIMANN: A: Sorry, can you say 50 percent --

8 THE CHAIRPERSON: Run-of-river hydro.

9 MR. REIMANN: A: So what is 50 percent?

10 THE CHAIRPERSON: I said the Clean Call, if you look at  
11 the Clean Call volume, they look to be about 50/50,  
12 wind and water.

13 MR. REIMANN: A: Okay, subject to check.

14 THE CHAIRPERSON: All right. And nothing turns on it.  
15 But I mean, what we have here, is that the remaining  
16 1,000 megawatts is met -- gigawatt hours, I'm sorry,  
17 is met by small hydro and the Peace wind bundle.  
18 Okay? And you have pluses and minuses in every month,  
19 and of course the pluses tend to be in May, June and  
20 July, and the minuses tend to be in January, February,  
21 March, which I think you'd expect.

22 MR. REIMANN: A: Right.

23 THE CHAIRPERSON: And so I guess from a system planning  
24 point of view, what does this chart table tell you?

25 **Proceeding Time 11:01 a.m. T31**

26 MR. REIMANN: A: So I guess the -- when we're looking

1 at clean resources and we're looking at primarily the  
2 ones available currently are small hydro and wind, and  
3 certainly the small hydro tends to have a lot of  
4 energy available in the freshet period, and it becomes  
5 a question of, for us, of a pinch point. At what  
6 point have we turned our hydro facilities down to  
7 minimum flow where we won't be spilling water  
8 ourselves, we're serving all our load, but we still  
9 have more energy coming in? And that pinch point can  
10 vary depending on what our water inflows are, not as  
11 bad in a dry water year, very bad in a wet year. And  
12 so the more small hydro, the more frequent -- or the  
13 more probable that you get into a surplus situation in  
14 the freshet, then you're selling this at low cost.  
15 The wind, on the other hand, has the variability  
16 concerns that we talked about, and it needs capacity  
17 in order to shape it into the system.

18 So, those -- mix of those two, try to make  
19 sure that you can still operate the system  
20 appropriately.

21 THE CHAIRPERSON: But if you look at this table, it tells  
22 you that in the winter months the DSM and the B.C.  
23 clean aren't getting it done, in terms of --

24 MR. REIMANN: A: Correct. So when we do our system  
25 modeling within the LTAP, when we model those  
26 portfolios it does take these shapes in and select the

1 resources and show the trade impact. So within the  
2 portfolio analysis, at least, probably -- I think  
3 somewhere around 80 percent of the costs of doing that  
4 integration and shaping and impacts of trade are  
5 represented in those portfolios.

6 THE CHAIRPERSON: Does this tell you if you will need to  
7 advance the capacity options that you have, like Mica  
8 5?

9 MR. REIMANN: A: Yes. Yeah. So, we run a full  
10 economic dispatch of the system, and make sure that we  
11 have enough capacity. I mean, on peak, we have enough  
12 water in the reservoirs to meet the load. We set  
13 those as planning parameters, and then we run to see  
14 what the economics are. In order to meet the  
15 capacity, we're primarily looking at the  
16 December/January period to see are we meeting that  
17 system peak load with adequate level of resources, and  
18 then in terms of shaping it overall for the year, do  
19 we have enough energy to meet the load?

20 THE CHAIRPERSON: Yes, because my concern is that, over  
21 the long term, if DSM and clean are -- B.C. clean are  
22 the sources that this province is going to be relying  
23 on to meet its load growth, you're going to need Mica  
24 5 and 6 and Revelstoke 6. Those are the -- if you  
25 like, the capacity, the heavy capacity that backs up.

26 MR. REIMANN: A: Correct.

1 THE CHAIRPERSON: And there isn't a Mica 7, is there?

2 MR. REIMANN: A: So, we have as part of the resource  
3 options update this round, became aware of a couple of  
4 thousand megawatt pump storage facilities that could  
5 be available in the Lower Mainland region. So we  
6 haven't investigated that in any detail in terms of  
7 what the permitting or impacts of that would be, but  
8 that's another option. Ultimately if we eat our way  
9 through our capacity, some point in the future you may  
10 be looking at either trying to modify dam structures  
11 -- we haven't done any work on this, to try to add  
12 additional capacity or you'd be looking at gas-fired  
13 capacity.

14 THE CHAIRPERSON: And I guess when everyone talks about  
15 \$125, which is the levelized cost of the -- it's a  
16 proxy for the Clean Call, that really -- there's no  
17 Mica 5 in there, is there?

18 MR. REIMANN: A: So when we did that DSM Option A  
19 versus no DSM portfolio comparison, in the portfolio  
20 with no DSM in it we're doing supply-side resources  
21 and then we're adding Mica and Revelstoke units to  
22 meet the capacity requirement. Given the DSM programs  
23 that we've identified, you typically in those  
24 portfolios aren't meeting the Mica 5/6, Revelstoke 6,  
25 because the DMS programs are being forecast to have  
26 enough capacity to meet the needs.

1                   But, so the 125 is a full portfolio full  
2                   dispatch with capacity and major transmission  
3                   components -- transmission losses.

4   **Proceeding Time 11:06 a.m. T32**

5 THE CHAIRPERSON:    Okay. We might come back to that.

6                   I want to turn to Appendix F-11 of your  
7                   application. I apologize for leaping all over the  
8                   place.

9 MR. REIMANN:    A:    So this was updated --

10 THE CHAIRPERSON:   I don't think it's --

11 MR. REIMANN:    A:    It's okay.

12 THE CHAIRPERSON:   If the update affects anything we go  
13                   to, please tell me.

14                   You have a column entitled "Capacity Credit  
15                   Dollars/Megawatt Hour" and pages -- page 4?

16 MR. REIMANN:    A:    Right.

17 THE CHAIRPERSON:   And did that change at all, that  
18                   column, any of the values in that column?

19 MR. REIMANN:    A:    No.

20 THE CHAIRPERSON:   So correct -- see if I understand what  
21                   you've got. You've got -- all these bundles have  
22                   either got zero, minus 1, minus 2, or minus 3 as  
23                   credits.

24 MR. REIMANN:    A:    Correct.

25 THE CHAIRPERSON:   And obviously if you provided reliable  
26                   capacity 100 percent of the time, you've got a 3.

1           Because I see that the biogas, the geothermal and  
2           biogas again, and probably municipal solid waste and  
3           get to 3, and some get 0 and some get 1.

4                         And I'm wondering why it is that -- how you  
5           calculated the credit to be given to wind, which I  
6           would intellectually have thought probably wouldn't  
7           have merited a capacity credit?

8   MR. REIMANN:    A:    So let me just speak to it and then we  
9           can go to the location as needed.  We've done an ELCC  
10          calculation, effective load carrying capability, and  
11          so one of the practices that's evolved in the industry  
12          as wind has been added is to say, if the wind is there  
13          with a certain probability, and then it goes to that  
14          load duration curve that you're talking about, if it's  
15          there with a certain probability, then it should add  
16          some value to the system.  It won't be as reliable as  
17          a hydro or gas or coal-fired unit that's just out for  
18          forced outages.  But it should have some capacity  
19          contribution.  We've done that calculation for the  
20          wind and ended up with 21 percent, I think, onshore  
21          and 29 offshore.  So when you go through that whole  
22          loss of load expectation calculation, with a probably  
23          of wind and a load duration curve, it does add value  
24          to the system.

25   THE CHAIRPERSON:   That is a deterministic and rather  
26          looking at mechanical breakdowns and availabilities as

1       opposed to the ability of wind to meet, to provide  
2       dependable capacity, which you describe as the ability  
3       to run for three peak hours on two weeks of weekdays,  
4       two weeks of the coldest weather.

5       MR. REIMANN:    A:    Right.

6       THE CHAIRPERSON:   And you couldn't say that 21 percent --  
7       sorry, I'm putting words in your mouth.  I mean, if  
8       you were to apply those criteria to wind, what sort of  
9       dependable capacity do you come up with?

10      MR. REIMANN:    A:    Very low.

11      THE CHAIRPERSON:   Yes.  I'm sure you weren't on Texas on  
12      February the 13<sup>th</sup>, 2008, but are you aware what  
13      happened that day?

14      MR. REIMANN:    A:    I am not.

15      THE CHAIRPERSON:   Mr. Lauckhart, are you?

16      MR. LAUCKHART:    A:    I am aware of what happened that  
17      day.

18      THE CHAIRPERSON:   Well, you tell us what happened.

19      MR. LAUCKHART:    A:    Well, the press reports were a  
20      little misleading on that.  The press reports said,  
21      "Due to a sudden drop in wind, we nearly had a  
22      blackout in Texas."  Well, those -- what had happened,  
23      there was a frequency excursion because of a lack of  
24      generation that had happened, and it takes a little  
25      while to sort back through that.  And what it turns  
26      out is that there was actually an extreme increase in

1 load, the wind came down a little bit, and a thermal  
2 unit tripped off. So it was the combination of all of  
3 that.

4 One of the things that came out of that is  
5 that Erkott forecast their wind in the day ahead for  
6 all 24 hours, and then they don't change even if the  
7 wind is changing. And that contributed to the problem  
8 also. So one of their solutions is, well, we need to  
9 update the forecast of the winds, you know, the hour  
10 ahead basis too.

11 THE CHAIRPERSON: Thank you.

12 **Proceeding Time 11:11 a.m. T33**

13 THE CHAIRPERSON: Thank you.

14 Mr. Reimann, when you ran your Burrard --  
15 the portfolios with Burrard 3,000 in them, what sort  
16 of cap-ex did you input into the model?

17 MR. REIMANN: A: We -- well, my recollection is that we  
18 would have pulled that data from the AMEC report to  
19 show the cost of that.

20 THE CHAIRPERSON: So you'd have put the full 300 million  
21 in or just --

22 MR. REIMANN: A: 300 million being the arithmetic sum  
23 over the life of the plan?

24 THE CHAIRPERSON: Yes.

25 MR. REIMANN: A: Subject to check, I think so.

26 THE CHAIRPERSON: Okay. Could you confirm that?

1 MR. REIMANN: A: Yeah.

2 THE CHAIRPERSON: Thank you. And I think -- do you have  
3 another question?

4 MR. FULTON: Mr. Chairman, just for the record, we need  
5 an audible response from Mr. Reimann.

6 MR. REIMANN: A: Yes.

7 MR. THRASHER: So I think that those matters are going  
8 over to Panel 4, is what you're saying. I'm not --  
9 that's not an undertaking, I think, or you want to  
10 deal with it, you'll come up with the answer between  
11 now and this afternoon? Is that --

12 MR. REIMANN: A: Sure. Well, I just --

13 MR. THRASHER: I didn't know if we were talking about an  
14 undertaking, or --

15 THE CHAIRPERSON: Well, he said "subject to check" and, I  
16 mean, if you did otherwise, I expect you'll let us  
17 know. And you said you will let us know.

18 MR. REIMANN: A: Sorry? I will check.

19 THE CHAIRPERSON: You will check. Thank you.

20 Just one last question going -- staying  
21 with wind. I wonder if you could do me a couple of  
22 other things. On Table 2-10, I wonder if you could  
23 let me know, or let the Panel know, how much  
24 dependable capacity is assumed to be provided by wind  
25 each year.

26 Table 2-11, sorry, that's the -- of the

1 most up -- your B-10, I guess.

2 MR. REIMANN: A: We'd have to look those numbers up,  
3 yes.

4 THE CHAIRPERSON: Well, they're easily available?

5 MR. REIMANN: A: Yes.

6 THE CHAIRPERSON: And you will provide them?

7 MR. REIMANN: A: We will.

8 **Information Request**

9 THE CHAIRPERSON: Thank you. And Exhibit B-3, BCUC 157.1  
10 talks about B.C. Hydro doing more work, and I'm  
11 wondering what that work will entail, and where its  
12 status is.

13 And I guess this is on page 3 of 3. To  
14 save you reading through the whole lot.

15 MR. REIMANN: A: Right.

16 THE CHAIRPERSON: "B.C. Hydro is undertaking a wind data  
17 study to facilitate our understanding of the  
18 wind resource characteristics."

19 MR. REIMANN: A: Right, so we've commissioned a wind  
20 study, the initial phase of which was to develop a  
21 good database of the wind potential in the province,  
22 and so we've, just in the last couple of weeks,  
23 largely completed that work, and we went back out to  
24 intervenors and IPPs to vet the data. So we're at a  
25 point now where we have a dataset and, based on that,  
26 we're going to be undertaking additional operational

1 studies to confirm the wind integration cost adder,  
2 and benefits of diversity. We anticipate that might  
3 be done some time this year.

4 THE CHAIRPERSON: And is what you shared with the IPPs,  
5 is it on the record in this proceeding?

6 MR. REIMANN: A: I do not believe it is.

7 THE CHAIRPERSON: Could it be made available?

8 MR. REIMANN: A: Certainly.

9 **Information Request**

10 **Proceeding Time 11:16 a.m. T34**

11 THE CHAIRPERSON: Thank you.

12 Commissioner Milbourne has a --

13 COMMISSIONER MILBOURNE: Yes, sorry for coming back, and  
14 this really is an issue that was started in a  
15 discussion with Mr. Elton at Panel 1, but it was in  
16 the course of the last day or so that I received a  
17 response to my request for information, and it does  
18 have -- sorry, it occurs within the context of this  
19 panel, and that was specifically Exhibit B-27 was a  
20 response to the undertaking that Mr. Godsoe took from  
21 me as referred to at page 807 of the transcripts.

22 In any event, we've looked at the response  
23 to the undertaking, and as noted in that transcript  
24 discussion, that if it appeared that either the  
25 undertaking or the response to it wasn't clear, that  
26 we would come back and readdress it, and that's what

1 I'm proposing to do here.

2 And specifically this had to do with, for  
3 lack of a better expression, the net present value of  
4 the portfolio to meet -- portfolio required to meet  
5 Special Directive 10. That was euphemistically  
6 described as the cost of self-sufficiency.

7 So for clarification, what we're looking  
8 for is for the three portfolio approaches that seem to  
9 be drifting around in this application, one of which  
10 you recommend, right? The one you're recommending is  
11 the mix of DSM Burrard and the Clean Power Call,  
12 right? That's kind of your --

13 THE CHAIRPERSON: Base plan.

14 COMMISSIONER MILBOURNE: That's the base plan, right?

15 MR. REIMANN: A: Yes.

16 COMMISSIONER MILBOURNE: What we're interested in is the  
17 net present value of that, the net present value of  
18 the alternative -- an alternative, not the  
19 alternative, that would contemplate the capability  
20 requirements of SD 10 being met by Burrard being rated  
21 at 6,000 and /900 for planning purposes. And absent  
22 any kind of social licence costs or apprehensions.

23 And lastly, the third -- or the second  
24 alternative was referred to in the discussion here  
25 yesterday as piggybacking on Mr. Andrews's B double  
26 prime scenario on Option B double prime, where DSM was



1 Initiative document we looked at this morning, on page  
2 6, and you asked me about the \$10 REC price that  
3 showed up on the bottom of Table 1.

4 **Proceeding Time 11:21 a.m. T35**

5 THE CHAIRPERSON: Yes.

6 MR. LAUCKHART: A: And I first want to point out  
7 there's an asterisk there under what price, and you  
8 can read below it, it says:

9 "This assumes that REC prices in a mature  
10 market will tend to cover the difference  
11 between prevailing wholesale prices and the  
12 generation costs of renewable resources."

13 That's the exact same theory I used in my report.

14 What you can see, what we've done on this  
15 table is, we've assumed a levelized renewable  
16 generation cost is \$90 a megawatt hour, and he's  
17 assumed that the spot market price or the brown value  
18 is 80. So he's taken that difference and said, "So  
19 the REC price will have to be 10." Of course, we've  
20 been talking in here about renewables maybe that are  
21 \$120. And so if we have \$120 renewable cost and \$80  
22 brown price, then the REC has to be 40. This is one  
23 of the reasons I have a range in my table, because I'm  
24 dealing with these same uncertainties in some of these  
25 costs.

26 THE CHAIRPERSON: Thank you.

1 MR. FULTON: Mr. Chairman, I'm proceeding on the  
2 assumption at this point, that when we move to Mr.  
3 Thrasher with any re-examination he might have, that  
4 the other two sets of documents that I've provided to  
5 Mr. Thrasher are not going to be used, at least with  
6 this panel.

7 THE CHAIRPERSON: That is absolutely correct.

8 MR. FULTON: Thank you.

9 THE CHAIRPERSON: I just -- thinking it over last night,  
10 I saw no reason to bring them up in this hearing.

11 MR. FULTON: Thank you, Mr. Chairman.

12 MR. THRASHER: So, we have no re-direct at this time.

13 THE CHAIRPERSON: Thank you. This panel is excused.  
14 Thank you, gentlemen.

15 (PANEL ASIDE)

16 THE CHAIRPERSON: Do you want five minutes for recess to  
17 step this lot down? Thank you.

18 MR. THRASHER: Can we have ten minutes? Is it --

19 THE CHAIRPERSON: Yes. Then you can --

20 **(PROCEEDINGS ADJOURNED AT 11:23 A.M.)**

21 **(PROCEEDINGS RESUMED AT 11:31 A.M.)** **T36**

22 THE CHAIRPERSON: Please be seated.

23 Mr. Godsoe.

24 MR. GODSOE: Mr. Chairman, Commissioners. Good to be  
25 back. B.C. Hydro's last direct testimony witness  
26 panel is Panel 4, which we've referred to as the LTAP

1 action item panel. And just while they're getting  
2 settled in, I'll introduce them, although you've met  
3 some of these characters before.

4 As you know, the chair of the panel is Mr.  
5 Matheson. He's sitting in the middle. To his  
6 immediate right is Mr. Randy Reimann, who you've been  
7 introduced through Panel 3. To his far right is Mr.  
8 Scouras, closest to you. To Mr. Matheson's immediate  
9 left is Mr. Hobson, who again you've been introduced  
10 through Panel 3, and the far left is Mr. Savidant.

11 And Mr. Matheson and Mr. Reimann and Mr.  
12 Hobson all continue to be under oath, so I think the  
13 only two witnesses that need to be affirmed are Mr.  
14 Scouras and Mr. Savidant.

15 **B.C. HYDRO PANEL 4 - LTAP ACTION ITEMS**

16 **CAM MATHESON, Resumed:**

17 **RANDY REIMANN, Resumed:**

18 **STEVE HOBSON, Resumed:**

19 **JAMES SCOURAS, Affirmed:**

20 **MICHAEL JAMES SAVIDANT, Affirmed:**

21 **EXAMINATION IN CHIEF BY MR. GODSOE:**

22 MR. GODSOE: Q: And again, Mr. Chairman, Mr. Matheson,  
23 Mr. Reimann and Mr. Hobson have already adopted their  
24 respective direct testimony, and I think that leaves  
25 me with direct examination just for Mr. Scouras and  
26 Mr. Savidant.

1                   So I'll begin with Mr. Scouras. Mr.  
2           Scouras, could you please state for the record your  
3           name and your position with B.C. Hydro?  
4 MR. SCOURAS:    A:   Jim Scouras, I'm manager of major  
5           power calls.  
6 MR. GODSOE:    Q:   And your direct testimony can be found  
7           at Exhibit B-13, is that correct?  
8 MR. SCOURAS:    A:   That's correct.  
9 MR. GODSOE:    Q:   Are there any changes you believe are  
10          necessary to that testimony?  
11 MR. SCOURAS:    A:   No.  
12 MR. GODSOE:    Q:   And do you adopt it as your testimony  
13          in this proceeding?  
14 MR. SCOURAS:    A:   Yes, I do.  
15 MR. GODSOE:    Q:   Mr. Savidant, could you please state  
16          for the record your name and your position with B.C.  
17          Hydro?  
18 MR. SAVIDANT:   A:   Michael James Savidant, I'm the  
19          commercial manager with the Site C project.  
20 MR. GODSOE:    Q:   And your direct testimony can be found  
21          at Exhibit B-13, is that correct?  
22 MR. SAVIDANT:   A:   That's correct.  
23 MR. GODSOE:    Q:   Are there any changes you believe are  
24          necessary to that testimony?  
25 MR. SAVIDANT:   A:   No.  
26 MR. GODSOE:    Q:   Do you adopt your direct testimony as

1 your testimony in this proceeding?

2 MR. SAVIDANT: A: Yes.

3 MR. GODSOE: Mr. Chairman, B.C. Hydro Panel 4 is  
4 available for cross-examination.

5 THE CHAIRPERSON: Thank you. Mr. Ghikas.

6 MR. GHIKAS: Mr. Chairman, before I launch into it, I  
7 just wanted to advise that in speaking to my friend  
8 Mr. Godsoe, there was about 5 percent of my cross-  
9 examination that dealt with documents that aren't  
10 currently on the record, and in order to provide a  
11 little more time to Mr. Godsoe to review those  
12 documents, we had come to an agreement that it would  
13 be best if I deferred that portion, that 5 percent,  
14 over to -- overnight, and to take it up at some  
15 convenient time gap the following day. So my friend  
16 and I are in agreement and I've canvassed a number of  
17 people in the room and I think everybody's in  
18 agreement that my -- that that approach is  
19 appropriate.

20 THE CHAIRPERSON: Is this -- hearing no opposition to  
21 this, Mr. Ghikas, you may proceed on that basis.

22 **CROSS-EXAMINATION BY MR. GHIKAS:**

23 MR. GHIKAS: Q: Thank you, Mr. Chairman. Good morning,  
24 panel. My name is Matt Ghikas. Some of you have met  
25 me. I'm counsel for Terasen Gas.

26 I want to start off just by dealing with

1           some very simple matters. As part of the \$418 million  
2           DSM budget for F09 to F11, B.C. Hydro is investing in  
3           measures aimed at saving heat energy by encouraging  
4           insulation, for instance, Mr. Hobson.

5 MR. HOBSON:    A:    That would be one of the initiatives,  
6           yes.

7 MR. GHIKAS:    Q:    Okay. And very little of the 418  
8           million is for incentives directed at encouraging  
9           efficient choices with respect to the choice of fuel.

10 MR. HOBSON:    A:    Can you repeat that, please?

11 MR. GHIKAS:    Q:    Sure. Very little of the 418 million  
12           is for incentives directed at encouraging efficient  
13           choices with respect to the choice of fuel.

14 MR. HOBSON:    A:    I would characterize our plan as being  
15           more focused on conservation and efficiency of  
16           electricity.

17 MR. GHIKAS:    Q:    Right. So there's no funding in there  
18           with respect to the choice of fuel, dealing with  
19           natural gas, heat pumps, et cetera.

20 MR. HOBSON:    A:    Well, natural gas and heat pumps would  
21           be two different things, in terms of choice of fuel, I  
22           suppose, but --

23 MR. GHIKAS:    Q:    There's no incentive funding in the  
24           portfolio aimed --

25 MR. HOBSON:    A:    For fuel switching?

26 MR. GHIKAS:    Q:    For -- you call it fuel switching?



1 electric load related to this fuel switching question,  
2 and we've often answered information requests and  
3 talked about it in terms of B.C. Hydro's entire  
4 customer load related to heating and electric water  
5 heating. To me, that pushes the bounds of  
6 credibility, because it seems to me that most of our  
7 customers who already have electric heating, electric  
8 hot water heating, are very unlikely to switch.  
9 They're very unlikely to spend the kind of money it  
10 would take to install ducts in their homes, new  
11 furnaces and the like. So really this question turns  
12 on new accounts. And you know, if you look at the  
13 number of new accounts, it represents a very small  
14 proportion of our load growth.

15 MR. GHIKAS: Q: Based on your figures, as I understand  
16 it, it's about 5,000 new heating accounts per year.

17 MR. MATHESON: A: Our numbers are about 21,000 new  
18 customer accounts, residential customer accounts each  
19 year. Of those, we've -- you know, the trend has been  
20 20 percent, so that would roughly be, you know, 4200  
21 new accounts that would have electric heating. And if  
22 that number increased 10 percent, another 10 percent,  
23 so that instead of 20 percent it was 30 percent, the  
24 cumulative total that extra 10 percent represents is  
25 less than 9 gigawatt hours per year.

26 So it's really very small incrementally to

1 the kind of load growth in our system we're talking  
2 about. And even if all of those -- even if our entire  
3 new customer account load moved to electric space  
4 heating, even that amount is relatively small.

5 MR. GHIKAS: Q: Mr. Matheson, so I think we're saying  
6 the same thing, that targeting new accounts is an  
7 important consideration when considering the efficient  
8 choice of fuel.

9 MR. MATHESON: A: Well, important, I guess, is the  
10 relative term. Our point is that it represents a  
11 relatively small proportion of our overall new load  
12 growth. And so we can spend a lot of time arguing  
13 about to incent it and whether or should or shouldn't  
14 be incenting it, but the fact of the matter is it's  
15 such a small amount of incremental load growth that in  
16 my mind, it falls within the standard errors in (a)  
17 the overall load in the system that we have to  
18 forecast, and (b) the water supply in our system. And  
19 it certainly isn't anywhere near sizable enough to  
20 suggest that it would displace coal-fired generation  
21 in the United States. It's just not plausible. It's  
22 too small for that.

23 MR. GHIKAS: Q: Okay, let's break it down, Mr.  
24 Matheson. First of all, you've referred to the  
25 barriers that exist in incenting existing customers,  
26 and Mr. Ince referred to it yesterday dealing with the

1 presence of duct work. Is that a fair  
2 characterization of what you're saying with respect to  
3 existing customers?

4 MR. MATHESON: A: Well, yes, existing customers would  
5 have to spend enough money that they'd be retrofitting  
6 their homes in order to move from electricity to  
7 natural gas space heating. And to me, we've talked in  
8 the past -- the information requests that we've  
9 answered have sort of talked about what the total  
10 cumulative load in our existing customer base that  
11 that represents, some 300,000 customer accounts on the  
12 B.C. Hydro system. It's just not plausible to think  
13 that all or even a sizable portion of those would move  
14 toward natural gas because of the kind of incremental  
15 costs it would put on each of those individuals. And  
16 so really we're talking about new accounts here as  
17 being the -- as really being the key driver in these  
18 discussions.

19 **Proceeding Time 11:42 a.m. T38**

20 MR. GHIKAS: Q: Mr. Matheson, does B.C. Hydro  
21 anticipate that heat pumps will be used to a great  
22 extent in the future?

23 MR. HOBSON: A: I think there's some uncertainty with  
24 respect to heat pumps. We're certainly see a lot of  
25 additional interest in heat pumps currently, but I  
26 think they still represent a fairly small -- a small

1 percentage, and I think there's some uncertainty in  
2 terms of how it's going to unfold moving forward. So  
3 when you take a look at the cost-effectiveness of  
4 them, a lot of it depends on the baseline and what  
5 people were utilizing previously with respect to  
6 heating and cooling loads.

7 MR. GHIKAS: Q: But it has some future potential,  
8 doesn't it?

9 MR. HOBSON: A: I think it has a future potential. How  
10 big that is I don't think we know.

11 MR. GHIKAS: Q: Right. And heat pumps require duct  
12 work in the home, Mr. Hobson?

13 MR. HOBSON: A: Heat pumps can be put in in a number of  
14 different ways.

15 MR. MATHESON: Q: We're not seeing a large saturation  
16 of this. So I mean, it's speculation to suggest that  
17 heat pumps, as attractive as they might be, are all of  
18 a sudden going to start to saturate this level of  
19 load. I don't think there's any evidence to suggest  
20 that's the case.

21 MR. GHIKAS: Q: Right. My question is more specific  
22 than that. It's that the same argument that you've  
23 advanced with respect to switching from baseboards to  
24 gas heating, for example, the capital costs of that,  
25 that same argument would apply to heat pumps.

26 MR. HOBSON: A: In terms of the capital costs

1 associated with heat pump?

2 MR. GHIKAS: Q: Right.

3 MR. HOBSON: A: I think with any measure, and again I  
4 think that takes you back to what was the baseline in  
5 the comment I made earlier, in terms of is the  
6 customer looking for this just for heating or cooling  
7 load? And I think that goes a long ways to  
8 determining the type of investment that we'll see  
9 customers making over time.

10 MR. GHIKAS: Q: So I think we can agree then, Mr.  
11 Hobson, that to the extent that new houses are built  
12 without ductwork and with baseboard heating, that that  
13 will, for those households represent an obstacle for  
14 inputting either a natural gas furnace or a heat pump  
15 in the future.

16 MR. HOBSON: A: Depending on the type of home it is,  
17 it'll create some limitations, yes.

18 MR. GHIKAS: Mr. Chairman, do you want to take the break  
19 now? This is a fine time for me.

20 THE CHAIRPERSON: We'll break for an hour and a half.  
21 Thank you.

22 **(PROCEEDINGS ADJOURNED AT 11:45 A.M.)**

23 **(PROCEEDINGS RESUMED AT 1:18 P.M.)** **T39**

24 THE CHAIRPERSON: Please be seated.

25 MR. GODSOE: Mr. Chairman, I have two undertakings to  
26 enter as a preliminary matter. The first one is

1           undertaking number 25, response to a Terasen request  
2           for a calculation. The transcript reference is Volume  
3           9, page 1524, line 8, to page 1526, line 3. And I  
4           would ask that that be entered and marked Exhibit B-  
5           33.

6 THE HEARING OFFICER:    B-33.

7           (B.C. HYDRO UNDERTAKING NO. 25, VOLUME 9, PAGE 1524,  
8           LINE 8 TO PAGE 1526, LINE 3 MARKED EXHIBIT B-33)

9 MR. GODSOE:    And the second undertaking is B.C. Hydro  
10           undertaking number 45, with respect to JIESC and the  
11           island co-generation plant. And the transcript  
12           reference is Volume 9, page 1558, lines 1 to 4, and I  
13           would ask that be entered and marked Exhibit B-34.

14 THE HEARING OFFICER:    B-34.

15           (B.C. HYDRO UNDERTAKING NO. 45, VOLUME 9, PAGE 1558,  
16           LINES 1 TO 4 MARKED EXHIBIT B-34)

17 MR. GODSOE:    And those conclude my preliminary matters.

18 THE CHAIRPERSON:    Thank you, Mr. Godsoe.

19                            Mr. Ghikas.

20 **CROSS-EXAMINATION BY MR. GHIKAS (CONTINUED):**

21 MR. GHIKAS:    Q:    Thank you, Mr. Chairman. Mr. Matheson,  
22           before the break, I just wanted to follow up on  
23           something that you said, and I'm not sure whether I  
24           misheard you or not. You were referring to the annual  
25           amount added from space heating each year, and I  
26           wasn't sure whether you said it was 90 gigawatt hours

1 or nine.

2 **Proceeding Time 1:19 p.m. T40**

3 MR. MATHESON: A: What I said was that if 10 percent  
4 more new customers moved to electric space heating as  
5 opposed to the 20 percent that we assume has been the  
6 historical trend, that that incremental amount  
7 represents less than 9 gigawatt hours a year of  
8 additional load on our system.

9 MR. GHIKAS: Q: Okay. So if we wanted to -- what I  
10 took to be the --

11 MR. MATHESON: A: Sorry to interrupt, but what I was  
12 trying to propose was essentially we've had this  
13 historic 20 percent new customers moving to space --  
14 to heat their homes with electricity as opposed to  
15 natural gas. And I was just assuming that if we were  
16 going to see a larger take-up rate, that it was a  
17 relatively reasonable assumption to assume that that  
18 might go to 30 percent as opposed to 20 percent, and  
19 what would the incremental amount of load be on the  
20 B.C. Hydro system? And I worked it out so that it's  
21 8.9 gigawatt hours per year.

22 MR. GHIKAS: Q: Okay, and we also have to contend with  
23 the 20 percent that are being added each year as well,  
24 you'll agree.

25 MR. MATHESON: A: Well, yes, but I mean, it's so --  
26 even that amount is so small that again it's not --



1 MR. MATHESON: A: Yes, that's right. The numbers would  
2 suggest that.

3 MR. GHIKAS: Q: Okay. And the witness aid on the first  
4 page, the percentage of net new energy required  
5 between F2008 and F2027 that's attributable to the net  
6 new demand for space and water heating, the number  
7 that we're dealing with in percentage terms is 12.8  
8 percent. That's 12.8 percent of the net new load in  
9 that period.

10 MR. GODSOE: I think this was asked and answered on Panel  
11 2, Mr. Chairman.

12 MR. GHIKAS: Q: Mr. Matheson, the general tenor of your  
13 comments before the break, and you've reiterated here,  
14 would seem to suggest that B.C. Hydro isn't interested  
15 in taking steps unless they're very significant to  
16 meet the load resource gap. Is that what you're  
17 saying?

18 MR. MATHESON: A: No, not at all.

19 MR. GHIKAS: Q: Okay.

20 MR. MATHESON: A: No, I'm not saying that at all.

21 MR. GHIKAS: Q: So you're not trying to minimize the  
22 importance of the addition of this load?

23 MR. MATHESON: A: No, what I'm trying to suggest is  
24 that we've talked a lot about this issue in this  
25 proceeding, and we've couched it in terms of the  
26 entire amount of B.C. Hydro's customer accounts that

1 would move over to natural gas from electricity, and  
2 I'm suggesting to you that that's very implausible,  
3 and isn't all that helpful in terms of trying to  
4 determine in reality what kind of potential exists out  
5 there, and what it actually represents in terms of  
6 real load issues. And I was trying to put perspective  
7 around it, in the sense that here is -- you know, if  
8 you can leave aside existing accounts, on the basis  
9 that homeowners are very unlikely to spend the money  
10 to move toward natural gas space heating if they  
11 already have electricity, and there's roughly 300,000  
12 accounts that do, then what we're really talking about  
13 here is our new accounts, which roughly are 21-22,000  
14 new residential accounts each year, and trying to put  
15 some numbers around what that number actually  
16 represents even if you assume you're going to get a 10  
17 percent higher take-up rate of space heating by  
18 electricity than we have seen historically, trying to  
19 put some perspective around what those numbers  
20 represent. Because to me that's the realistic  
21 scenario here.

22 **Proceeding Time 1:24 p.m. T42**

23 MR. GHIKAS: Q: Okay, well, there's also, you'll agree,  
24 the case of the 80 percent of B.C. Hydro's current  
25 customers that use another fuel source for heating --  
26 MR. MATHESON: A: Right.

1 MR. GHIKAS: Q: -- that in the next 20 years a portion  
2 of those could be switching over to electricity,  
3 right?

4 MR. MATHESON: A: Well, we haven't seen any evidence,  
5 Mr. Ghikas, to tell us that that take-up rate is going  
6 to occur in any real fashion. So we can make  
7 speculations all we want to about the potential for  
8 that, but the bottom line is there's no evidence to  
9 suggest that's actually happening.

10 MR. GHIKAS: Q: Right, but you'll agree with me that  
11 that is a relevant consideration. You've  
12 characterized it as being an issue solely of  
13 electricity customers switching to gas, and I'm  
14 suggesting to you that the other thing, the opposite  
15 could occur. That's possible, isn't it?

16 MR. MATHESON: A: Yeah, that's possible.

17 MR. GHIKAS: Q: Okay. Now --

18 MR. MATHESON: A: But I would say that for existing  
19 homeowners that have natural gas systems, to switch to  
20 electricity, they're still faced with having to make  
21 expensive choices. And given the fact that we've  
22 talked many times in this hearing about the fact that  
23 we believe government's view is that we should be  
24 neutral with this proposition, and therefore aren't  
25 providing expensive incentives to cause people to do  
26 that, that we're not likely to see a big take-up

1 either way because of that expense.

2 MR. GHIKAS: Q: We're going to come to incentives in a  
3 little while, Mr. Matheson. We can talk about that.

4 First of all, if I can -- I think before we  
5 get to the next questions, it might be useful if we  
6 pull out a few materials here. The first one is  
7 Appendix K to the LTAP, and the part that I'm going to  
8 be referring to is also the summary report which was  
9 filed separately at Exhibit B1-4, but the instructions  
10 were to file at the back of Appendix K. So people may  
11 have it separately and may have it behind Appendix K,  
12 the summary report.

13 And the summary report, the pagination on  
14 the summary report should be a total of 58 pages.  
15 They're marked out of 58 pages. And there is a second  
16 exhibit which I'll be making reference to, which is  
17 Exhibit B-4, the response to BCSEA/SCBC IR 2.28.1,  
18 which is where all of the fuel switching reports from  
19 the CPR are attached. So that's Exhibit B-4, BCSEA IR  
20 2.28.1.

21 **Proceeding Time 1:27 p.m. T43**

22 MR. REIMANN: A: One more time, where in Appendix K are  
23 you looking?

24 MR. GHIKAS: Q: Appendix K, the instructions -- Exhibit  
25 B1-4 came after the application was filed, and it  
26 included a summary report from the CPR. And the

1 instructions from B.C. Hydro were that they would be  
2 included behind it, behind Appendix K of the LTAP. So  
3 people may have it --

4 MR. MATHESON: A: It's a 58-page document?

5 MR. GHIKAS: Q: That's right. That's right.

6 And so the second document, then, is  
7 Exhibit B-4, BCSEA 2.28.1.

8 MR. MATHESON: A: Okay, I think we have those.

9 MR. GHIKAS: Q: Okay. I'll just wait for everyone to  
10 get caught up.

11 All right. In Appendix -- well, in the  
12 summary report, page 26 of 58. Exhibit B1-4. On page  
13 26 of 58 there is a pie chart, Exhibit -- or, it's  
14 titled "Residential sector base year electricity use  
15 by end use". And can you just confirm for me that  
16 that pie chart is depicting the consumption by end use  
17 for all B.C. Hydro residential customers in 2006? I  
18 think it's indicated in footnote 6 at the bottom.

19 MR. HOBSON: A: Yes, I believe that's correct.

20 MR. GHIKAS: Q: Okay. So, given that the footnote says  
21 values are for all residential dwellings, space  
22 heating's share is much higher in electrical heated  
23 homes. What that is saying is that if this pie chart  
24 were to be recreated for electric space-heating  
25 customers, the portion of the pie allocated to space  
26 heating end use would be larger.

1 MR. HOBSON: A: That would be correct.

2 MR. GHIKAS: Q: Okay. Now, based on B.C. Hydro's  
3 billing data, the percentage of those customers  
4 relative to the entire customer base is 20 percent.

5 MR. HOBSON: A: I think in that ballpark, yes.

6 MR. GHIKAS: Q: Okay. Okay. It would be helpful, I  
7 would ask that B.C. Hydro prepare the equivalent pie  
8 chart for residential customers with electric space  
9 and water heating.

10 MR. GODSOE: Well, Mr. Chairman, I'm curious as to why  
11 that was not put in an Information Request. There  
12 were three rounds, and we're getting this request now.  
13 And what is the utility of that?

14 THE CHAIRPERSON: Mr. Ghikas?

15 MR. GHIKAS: Mr. Chairman, I'm personally of the belief  
16 that a picture is very helpful for comparison  
17 purposes. The issue that we're dealing with here is  
18 comparing what may be the current customer base to  
19 what is a potential future mix of customers, and the  
20 documents that I will be taking the panel to tomorrow  
21 deal with the total consumption of the population as a  
22 whole, and for comparison purposes, to have an apples-  
23 to-apples comparison, it would be helpful.

24 **Proceeding Time 1:32 p.m. T44**

25 THE CHAIRPERSON: Well, Mr. Ghikas, if this was a B.C.  
26 Hydro document I would probably be more willing to

1       accede to your request. But this is Marbek's  
2       document, it's not B.C. Hydro's document, and I think  
3       it's unfair at this stage to ask B.C. Hydro to  
4       replicate it. However, I'm sure you have a REUS or  
5       you have access to the REUS. You could probably do  
6       this, get one of your people at Terasen to do this  
7       graph yourself, pie chart or table, and put it to this  
8       panel.

9       MR. GHIKAS: Right.

10      THE CHAIRPERSON: And I haven't seen -- and I'm sure  
11      you're going to do that.

12      MR. GHIKAS: No, that's fine.

13      MR. GHIKAS: Q: And so what I'll do then is ask you,  
14      Mr. Hobson, the size of that piece of pie directed at  
15      space heating, that's going to depend on the type of  
16      dwellings that make up the 20 percent of B.C. Hydro  
17      customers that have electric space heating.

18      MR. HOBSON: A: I would expect the percentage would  
19      change based on dwelling type, yes.

20      MR. GHIKAS: Q: Right, so for example the larger the  
21      house footprint, for instance --

22      MR. GODSOE: Mr. Chairman, with all due respect, this is  
23      questions that should have been appropriately directed  
24      to Panel 2 and Load Forecasting. So I'm puzzled as to  
25      why this is going to this panel and I'd like an  
26      explanation from my friend.

1 MR. GHIKAS: Sure. Going based on B.C. Hydro's  
2 allocation of pieces of the application to the panel,  
3 Exhibit -- Appendix K was allocated to Panel 4, so I'm  
4 dealing with Appendix K.

5 MR. GODSOE: I don't disagree with that, but we're  
6 getting into load forecasting issues about types of  
7 dwelling, so --

8 THE CHAIRPERSON: This is in Appendix K, Mr. Godsoe, and  
9 --

10 MR. GODSOE: Well, I've noted my concern. We'll move on.

11 THE CHAIRPERSON: Thank you.

12 MR. GHIKAS: Thank you, Mr. Chairman.

13 MR. GHIKAS: Q: So the larger the house footprint, for  
14 instance, the greater the amount of energy used for  
15 space heating, all else equal.

16 MR. HOBSON: A: In absolute terms I would think that's  
17 a fair assumption.

18 MR. GHIKAS: Q: And so if the electric space heating  
19 customers added in the future are larger houses than  
20 the current housing mix reflected in the pie chart on  
21 page 26 of 58, that piece of pie will increase  
22 accordingly.

23 MR. HOBSON: A: Increase accordingly I think would be a  
24 bit of a stretch. I think it would depend on the  
25 housing practice and the equipment chosen to heat the  
26 home.

1 MR. GHIKAS: Q: Okay. And the size of that piece of  
2 pie devoted to space and water heating for a  
3 particular dwelling can also depend on other factors,  
4 such as the region and the province where it's  
5 located.

6 MR. GODSOE: This was all revisited with Panel 2, Mr.  
7 Chairman. I can pull the transcript up, but we're  
8 getting into duplication here, in my submission.

9 THE CHAIRPERSON: You've probably overstayed your welcome  
10 on this particular part of Appendix K, Mr. Ghikas.

11 MR. GHIKAS: Thank you, Mr. Chairman.

12 MR. GHIKAS: Q: I'd like to turn now to BCSEA 2.28.1,  
13 and it's Attachment 1 to that IR, which is the fuel  
14 switching, potential for electricity savings through  
15 fuel switching, residential sector for British  
16 Columbia. And if we can go to page 108 of 138, the  
17 first bullet on that page indicates that

18 "...there are a number of fuel switching  
19 measures...that have a positive measure TRC  
20 and a measure benefit/cost ratio that is  
21 equal to, or greater than one. This result  
22 suggests that from a provincial economic  
23 perspective, there are opportunities where  
24 switching from electricity to natural gas  
25 may be beneficial."

26 So, what I'd like to just ask first of all

1 is that if we're dealing with total resource costs, or  
2 TRC, in dollar terms, when we're assessing that --  
3 assessing measures against that standard, what we're  
4 looking for is for measures that have a positive  
5 dollar value, right?

6 **Proceeding Time 1:37 p.m. T45**

7 MR. HOBSON: A: In terms of a net present value  
8 concept? Yes, I would agree.

9 MR. GHIKAS: Q: Right, okay. And so when we're looking  
10 at it, the measure benefit/cost ratio, what we're  
11 looking for is a ratio that is greater than one.

12 MR. HOBSON: A: Yes, 1.0 or greater.

13 MR. GHIKAS: Q: And the TRC is -- well, let's put it  
14 this way. A positive TRC or a measure that has a  
15 benefit/cost ratio of greater than 1, what that's  
16 indicating is that the program will, over its  
17 lifetime, produce a net reduction in energy costs in  
18 the utility's service area.

19 MR. HOBSON: A: Yeah, the one thing we need to be  
20 careful with here is, you mentioned a program, and  
21 this is not looking at a program. This is maybe a  
22 unique situation. I think I touched on this either  
23 yesterday or Friday with respect to the approach taken  
24 within the CPR. Because within the fuel switching  
25 component the CPR couldn't utilize the methodology of  
26 simply using a cost of conserved energy, comparing

1 that then to a benchmark screen, because it was  
2 dealing with two different fuel types, it's needing to  
3 incorporate both the costs and benefits from  
4 electricity and gas into the equation. It's adopted a  
5 TRC conceptually in taking a look at the economic  
6 potential. But it shouldn't be confused with the idea  
7 of looking at it from a program perspective, in terms  
8 of what a program could achieve.

9 MR. GHIKAS: Q: And when we look at the footnote on  
10 that page, 108 of 138, the footnote indicates that  
11 whereas

12 "...retail prices are used to calculate simple  
13 payback (i.e., the customer's perspective)  
14 and the supply costs are used to measure --  
15 to calculate the measured TRC and the  
16 measure benefit/cost ratio (i.e., the  
17 economic screen)."

18 The supply costs that are being referenced there in  
19 the context of the economic screen, those are the  
20 costs of the resource to the utility.

21 MR. HOBSON: A: Yeah, I think it would be fair to  
22 represent them as sort of the wholesale cost, if you  
23 will, or the cost of the resource itself, without  
24 perspective with the customer in play. So that view  
25 is not taking a look at the retail cost to the  
26 customer itself, it's looking at the resource cost

1 specifically.

2 MR. GHIKAS: Q: Right, and when we focus in the inquiry  
3 on B.C. Hydro's costs, that's dealing with the  
4 marginal costs of B.C. Hydro's supply.

5 MR. HOBSON: A: Yeah, I think in general what's  
6 appropriate in this case is you're taking a look at  
7 the various costs and benefits, and if it's the  
8 avoided cost, and if that represents it at the margin  
9 or the average, it's what is being avoided is what  
10 counts.

11 MR. GHIKAS: Q: Now, if we go to the summary -- the CPR  
12 summary document, which is B1-4, and the page number  
13 I'm looking at is page 54 of 58.

14 MR. HOBSON: A: Sorry, which document are you in now?

15 MR. GHIKAS: Q: Sure. It's the conservation potential  
16 review summary report.

17 MR. HOBSON: A: I'm just going to ask you if you're  
18 going to be coming back to 2.28.1?

19 MR. GHIKAS: Q: Yeah, leave that open for the time  
20 being.

21 MR. HOBSON: A: Okay. And the page reference again,  
22 please?

23 MR. GHIKAS: Q: The page reference is 54 of 58.

24 So, you'll see the first full paragraph in  
25 that page, this is indicating that the total electric  
26 energy savings from fuel switching measures that pass

1 the economic screen would be between 6670 gigawatt  
2 hours per year and 3293 gigawatt hours per year in  
3 F2026 respectively, under the current and high natural  
4 gas supply cost forecasts.

5 So the current gas forecast, when that's  
6 plugged into the economic screen, what's yielded is an  
7 economic potential of 6670, right?

8 **Proceeding Time 1:42 p.m. T46**

9 MR. HOBSON: A: That was the result, and it would be  
10 dependent upon that specific forecast.

11 MR. GHIKAS: Q: Okay. And the high gas cost forecast  
12 produced the 3293.

13 MR. HOBSON: A: That was the result, yes.

14 MR. GHIKAS: Q: Yes. So two gas forecasts were used  
15 with respect to the fuel switching measures.

16 MR. HOBSON: A: Yes.

17 MR. GHIKAS: Q: Okay. Now, just to be clear before we  
18 go into achievable potential, none of the measures  
19 directed at the efficient fuel choice that passed the  
20 economic screen and are represented by those gigawatt  
21 hour per year figures were pursued by B.C. Hydro.

22 MR. HOBSON: A: If you are referring to our demand-side  
23 management plan as part of this LTAP --

24 MR. GHIKAS: Q: That's right.

25 MR. HOBSON: A: -- then the answer would be no. And I  
26 think we've outlined some of the reasons as to why

1           that did not occur. And I should point out that it's  
2           not dependent upon the results of this CPR as to the  
3           rationale as to why we chose not to move forward  
4           within our demand-side management plan.

5                        So I can tell you that even if the  
6           achievable potential results had been greater than  
7           zero from the CPR, I'm not sure that would have  
8           changed the decision that was made. And it was the  
9           decision that was made around that policy that  
10          prevented us from pursuing it within the DSM plan, not  
11          the CPR.

12 MR. GHIKAS:   Q:    Right. And I understand that and I  
13           appreciate the clarification.

14                        On page 54, just before we move on, looking  
15          -- I should actually, before we move on, just ask you.  
16          The measures that passed the economic screen, they  
17          also weren't identified for further study by B.C.  
18          Hydro.

19 MR. HOBSON:   A:    We haven't identified fuel switching  
20          concepts for further study at this point, again  
21          consistent with that policy position.

22 MR. GHIKAS:   Q:    And so looking at the bottom of the  
23          page now, there is a reference to study team members  
24          including those from the consultant team, B.C. Hydro  
25          and external review panel,

26                        "...reviewed the results of the fuel switching

1 economic potential forecasts, and based on  
2 the result of that review there was  
3 consensus that none of the fuel switching  
4 measures included in either of the two  
5 economic potential forecasts provided a  
6 practical opportunity for B.C. Hydro to  
7 pursue as part of the DSM initiatives.  
8 Hence there is no achievable potential for  
9 fuel switching under either of the supply  
10 cost forecasts."

11 Now, before we jump into the achievable  
12 potential aspect, I just want to deal with the issue  
13 of the consensus. And yesterday when Panel 3 was  
14 being examined by Mr. Andrews, there was some  
15 questioning about what was Terasen's view on this and  
16 you did your best to provide an interpretation of what  
17 Terasen's view was. And I thought for the clarity of  
18 the record it would be useful to have on the record  
19 Terasen's dissent that they filed with respect to the  
20 CPR.

21 MR. HOBSON: A: Right.

22 MR. GHIKAS: Q: So first of all will you just confirm  
23 for me that Terasen did file some material, some  
24 materials dissenting from aspects of the CPR approach?

25 MR. HOBSON: A: Maybe I should step back and clarify my  
26 understanding, but I will get to your point within

1           this.

2   MR. GHIKAS:   Q:    Sure.

3   MR. HOBSON:   A:    My read of the paragraph on the bottom  
4           of page 54 of 58 is the study team's view with respect  
5           to the position that they reached with respect to the  
6           various team members that were involved.  And I think  
7           that finding is what you see within their report.

8                    Terasen did come forward, and as part of  
9           our CPR approach there was an external review panel  
10          formed and Terasen was a part of that panel.  There  
11          was a report that was produced for the external review  
12          representing the views of the external review panel,  
13          in part for B.C. Hydro to learn for future studies.  
14          And it was at that point that a number of comments  
15          came forward, including comments from Terasen where  
16          they were registered their issues with it.

17                   So I think when I spoke of it yesterday I  
18          was talking in part about the methodology with respect  
19          to the economic potential and how that was developed.  
20          And I think those comments would still stand with  
21          respect to Terasen's view, and notwithstanding that, I  
22          think I also spoke a little bit about how Terasen felt  
23          with the overall result with the achievable.  And I  
24          think that's consistent with what's outlined in the  
25          external review panel report.

26

**Proceeding Time 1:47 p.m. T47**

1 MR. GHIKAS: Q: Yeah, and to be clear, Mr. Hobson, I'm  
2 not trying to criticize you for your valiant attempt  
3 at characterizing the views of Terasen, I just thought  
4 it would be useful to have this on the record, and so  
5 I think I provided to your counsel copies -- I believe  
6 you have a copy of this, and the Commissioners may  
7 also.

8 This is an excerpt from the external review  
9 panel consultative report on the 2007 conservation  
10 potential review. It's dated January 18<sup>th</sup>, 2008. And  
11 the excerpted pages, if we go over to page 5 on the  
12 bottom, in the middle of the page I think there's a  
13 reference to Terasen Gas's views on the CPR. And then  
14 the following two pages -- sorry, three pages of the  
15 excerpt, there is further pages from this report that  
16 provide the more detailed comments from Terasen.

17 So you'll agree with me that these are the  
18 comments that Terasen provided on the CPR.

19 MR. HOBSON: A: Again, though, I guess the distinction  
20 I'd like to make is, they are the comments that  
21 Terasen provided as part of the external review panel  
22 report, which came after the conclusion of the CPR.  
23 But they are indeed the comments from Terasen.

24 MR. GHIKAS: Q: Okay, thank you.

25 THE CHAIRPERSON: Can we have an exhibit number for this?

26 MR. GHIKAS: Yes, Mr. Chairman. Thank you. It's C13-11.

1 THE HEARING OFFICER: C13-11.

2 (DOCUMENT ENTITLED "EXTERNAL REVIEW PANEL CONSULTATIVE  
3 REPORT ON THE BC HYDRO 2007 CONSERVATION POTENTIAL  
4 REVIEW, JANUARY 18, 2008...", MARKED EXHIBIT C13-11)

5 THE CHAIRPERSON: And to help me, Mr. Ghikas, where in  
6 the CPR process does this document from which this  
7 excerpt --

8 MR. GODSOE: I think that's more appropriately addressed  
9 to the panel. I don't want my friend giving evidence.

10 THE CHAIRPERSON: No, well, then perhaps --

11 MR. GHIKAS: Q: Mr. Hobson, perhaps you could answer  
12 that.

13 MR. HOBSON: A: I'm sorry, I didn't hear the question.

14 THE CHAIRPERSON: I was just wondering, Mr. Ghikas has  
15 put a document in front of -- excerpts from it, that I  
16 don't think I've seen before, and I'm just wondering  
17 where in the 2007 CPR process this document is  
18 referenced and where it came from.

19 MR. HOBSON: A: I'm not sure it will be referenced  
20 within the CPR itself. But where it originated from,  
21 as I mentioned earlier, is part of the whole process  
22 with the CPR. An external review panel was formed to  
23 provide guidance to the CPR study team as we went  
24 through, and also to provide participation and  
25 information in the achievable workshops. And it was a  
26 facilitated process over a fairly lengthy study

1 period. At the conclusion of that, a report was  
2 drafted and it was a report from the external review  
3 panel, not from B.C. Hydro, to represent some  
4 learnings and comments and feedback to help assist  
5 B.C. Hydro for further study. And things that would  
6 be useful for us to consider in further study.

7 THE CHAIRPERSON: Okay, thank you.

8 MR. GHIKAS: Q: Now, Mr. Hobson, although the materials  
9 indicate that there was consensus that none of the  
10 fuel switching measures had achievable potential, the  
11 decision not to pursue further any of the measures  
12 that were identified as having economic potential,  
13 that was a decision -- a policy decision that rested  
14 with B.C. Hydro.

15 MR. HOBSON: A: That's correct, and as I mentioned  
16 earlier, the decision from the CPR, had it shown  
17 achievable potential, I'm not sure it would have  
18 changed certainly our view or our instruction with  
19 respect to how we pursued the DSM plan.

20 MR. GHIKAS: Q: Okay. And if we -- hopefully you still  
21 have the BCSEA IR in front of you. This is Attachment  
22 1 still, and we're dealing with page 108 of 138.

23 MR. HOBSON: A: I have that.

24 MR. GHIKAS: Q: Now, in the terminology of the CPR,  
25 which I believe is reflected in the third bullet on  
26 page 108, measures related to efficient fuel choice



1 to look at it from the customer perspective, you're  
2 referring specifically to a customer that's being  
3 targeted by a particular measure, as opposed to  
4 customers as a whole.

5 MR. HOBSON: A: No, I think you're needing to look at  
6 it from a customer that would be relevant to having  
7 that economic potential, I think would be your  
8 starting point.

9 MR. GHIKAS: Q: Okay. And the payback calculation, as  
10 we see in the footnote on page 108 again, the payback  
11 calculation that's done from the customer perspective  
12 is based on what are referred to as the retail prices,  
13 right?

14 MR. HOBSON: A: It would be based on the retail prices  
15 presumably the customer is facing.

16 MR. GHIKAS: Q: And so B.C. Hydro's cost to supply an  
17 individual customer's electric space and water heating  
18 load reflects a combination of the costs for existing  
19 Heritage resources and new supply.

20 MR. HOBSON: A: I'm not sure if it's following from  
21 your -- you started into that with a "so", and I'm not  
22 sure if you're trying to pick up on the logic of your  
23 previous statement. So maybe you could just rephrase  
24 it.

25 MR. GHIKAS: Q: Yeah, no, I've changed gears on your  
26 here. The "so" is misleading.

1                   B.C. Hydro's cost to supply, I think we can  
2           agree, is -- B.C. Hydro's cost to supply an individual  
3           customer's electric space and water heating load  
4           reflects a combination of the costs of existing  
5           resources and new resources.

6 MR. MATHESON:    A:    You're talking about B.C. Hydro's  
7           rates reflecting both the operational costs of the  
8           Heritage hydro resources, and whatever new costs for  
9           new supplier required in order to meet the load.

10 MR. GHIKAS:     Q:     That's right.

11 MR. MATHESON:    A:     That's our rates.

12 MR. GHIKAS:     Q:     And in the CPR, the marginal cost of  
13           supply that was used in the fuel switching section was  
14           \$88 per megawatt hour based on the 2006 Call.

15 MR. GODSOE:     This was asked by Mr. Andrews and answered  
16           by Panel 3.

17 MR. GHIKAS:     And Mr. Chairman, which I think is a proper  
18           matter for Panel 4.

19 MR. GODSOE:     My point is Panel 3 handled it, so why are  
20           we retreading this ground, Mr. Chairman? Let's have  
21           an effective and efficient hearing.

22 THE CHAIRPERSON:   Well, no one's going to dispute this.  
23           I mean, if Mr. Andrews has already established these  
24           facts, you should be building on those, Mr. Ghikas.

25 MR. GHIKAS:     I don't intend to reinvent the wheel, Mr.  
26           Chairman. I just want to get the starting place right

1 for my next series of questions.

2 THE CHAIRPERSON: Okay.

3 MR. GHIKAS: Q: Now, Mr. Hobson, if an individual  
4 customer who doesn't see the payback based on the  
5 retail rates installs electric space and water  
6 heating, as this customer's space and water heating  
7 load is added, all else equal, B.C. Hydro's customers  
8 as a whole will end up paying higher rates as a result  
9 of the higher marginal cost of supply, right?

10 MR. GODSOE: Again, Mr. Chairman, we have been over this  
11 with two panels now. My friend has his answer from  
12 both the Policy Panel and Panel 2 on this issue.

13 THE CHAIRPERSON: Mr. Ghikas, these questions do sound  
14 vaguely familiar, you know.

15 MR. GHIKAS: Thank you, Mr. Chairman.

16 **Proceeding Time 1:57 p.m. T49**

17 MR. GHIKAS: Q: If you can turn, panel, to Exhibit B-3,  
18 which is BCUC 1.50.2. And you can keep these books  
19 handy. I'm going to be coming back to them, I'm  
20 sorry.

21 MR. HOBSON: A: Are you still going to be coming back  
22 to the --

23 MR. GHIKAS: Q: I am.

24 MR. HOBSON: A: -- BCSEA reference?

25 MR. GHIKAS: Q: Yes, I believe so. Thanks.

26 THE CHAIRPERSON: Mr. Ghikas, what was the reference

1           again?

2   MR. GHIKAS:     Sorry, Mr. Chairman, it's Exhibit B-3, BCUC  
3           1.50.2.

4   THE CHAIRPERSON:   Thank you.

5   MR. GHIKAS:     Q:   Now, on page 3 of 10 of that response,  
6           I just had a question about the levelized cost of DSM  
7           --

8   MR. HOBSON:     A:   We must have the wrong reference, I'm  
9           sorry, because it's a one-page response there in front  
10          of us.

11   MR. GHIKAS:     Q:   Oh, I'm sorry. It's 50.3. Did I say  
12          --

13   THE CHAIRPERSON:   Yeah.

14   MR. GHIKAS:     Q:   Sorry.

15   MR. HOBSON:     A:   That's better.

16   MR. GHIKAS:     Q:   Page 3 of 10.

17   MR. HOBSON:     A:   I have that.

18   MR. GHIKAS:     Q:   Okay, thank you. The levelized cost of  
19          DSM Option A is \$49 per megawatt hour, as I understand  
20          it. Is that what I take from this -- the total line  
21          at the bottom of page 3 of 10?

22   MR. HOBSON:     A:   I don't think that would be  
23          representative of DSM Option A. I'd have to check,  
24          but I think this is just picking up the program piece.

25   MR. GHIKAS:     Q:   Okay. All right. Well, let's back up  
26          from that. I guess what I'm trying to understand here

1 is that you see in the right-hand column of that  
2 table, there's measures such as new homes, sustainable  
3 community and load displacement that have all  
4 ratepayer levelized costs, dollar per megawatt hour in  
5 the 101 to 108 range. So can we agree that, although  
6 we've been hearing about the levelized costs of the  
7 portfolio, that measures within the portfolio may have  
8 a significantly higher cost to them than just the  
9 levelized cost?

10 MR. HOBSON: A: Than just the average levelized cost?

11 MR. GHIKAS: Q: That's right.

12 MR. HOBSON: A: Certainly, we've got a range of  
13 different initiatives with a range of different  
14 levelized costs within the portfolio.

15 MR. GHIKAS: Q: If you can turn to transcript 10, page  
16 1779, one of the issues that I was going to ask about,  
17 and Mr. Andrews asked you about, and I have a  
18 clarifying question with respect to your response on  
19 page 1779. This is first of all, just as a starting  
20 question, the -- can you just confirm, first of all,  
21 that while the CPR analysis for fuel switching used  
22 \$88 per megawatt hour as the avoided cost of  
23 electricity, the CPR analysis with respect to the  
24 economic potential for increasing the efficiency of  
25 electrical end use appliances used \$130 per megawatt-  
26 hour?

1 MR. HOBSON: A: It did, in the sense that the other  
2 chapters of the CPR used a different methodology with  
3 respect to using cost of conserved energy. So as a  
4 benchmark screen, \$130 was chosen. But it shouldn't  
5 be confused with an assumption of an avoided cost of  
6 energy. It's really an economic screen or a line  
7 that's drawn to give some shelf life to a study. So,  
8 one of the things that needs to be considered in a  
9 study like this is if you choose an economic screen  
10 that's too low, you basically cast off everything  
11 above that, and it's no longer available for your  
12 study team to look at with respect to the achievable  
13 potentials and so forth you have been using in your  
14 numbers.

15 So typically an economic screen is taken as  
16 a higher but realistic view in terms of what you might  
17 want to narrow your study scope down to. So that's  
18 the purpose behind it but it shouldn't be interpreted  
19 as an avoided cost.

20 **Proceeding Time 2:02 p.m. T50**

21 When it comes to fuel switching, that  
22 chapter couldn't utilize that approach or that  
23 methodology for the reasons I outlined. So instead  
24 they took a look at the appropriate avoided costs and  
25 their view for each of the different types of energy  
26 forms. And that's what led them to a different

1 conclusion than using \$130.

2 MR. GHIKAS: Q: Right. And so on page 1779 you're  
3 saying at line 14:

4 "One of the issues I think the study team  
5 faced in taking a look at the fuel switching  
6 chapter was, what relative screen or  
7 increase would you apply to electricity  
8 versus gas? And so I think the standard  
9 assumption was that they were both going to  
10 increase over time. Increasing one without  
11 increasing the other really didn't get you  
12 anywhere."

13 So did I understand you -- do I understand  
14 you to be saying, Mr. Hobson, that in effect the gas  
15 and the electricity increases would be cancelled each  
16 other out, in the analysis?

17 MR. HOBSON: A: Well, I think again, if you take a look  
18 at it back to the idea of if we look at the other  
19 chapters within the CPR and you started with that same  
20 knowledge of an \$88 value, we still take a look at  
21 that and we say we want to increase the economic  
22 screen to provide us more room above that value to  
23 have within our study scope. And what I was trying to  
24 get across with this portion of the transcript was, if  
25 we took that same approach and we looked at it within  
26 the fuel switching, we'd be simply grossing up an

1 existing value for electricity and an existing value  
2 for gas, to provide more room within the analysis.  
3 And if you did it to both pieces, both electricity and  
4 gas, you'd really be netting each other out.

5 MR. GHIKAS: Q: Okay.

6 MR. HOBSON: A: So I think that was more the basis for  
7 why they didn't look to build that additional room on  
8 top of the values that they used. That's all I was  
9 trying to communicate.

10 MR. GHIKAS: Q: Okay. And so the assumption that they  
11 were both going to increase over time, it's really  
12 that they're both going to increase over time at the  
13 same rate, the gas and electricity.

14 MR. HOBSON: A: It's more -- again, if your purpose for  
15 wanting to increase in the other chapters is to  
16 provide a different screen, and you're trying to  
17 provide scope within your study as a result of doing  
18 that, if we applied just that same logic to increasing  
19 the values on the fuel switching chapter, you'd be  
20 making more of an arbitrary, I suppose, increase to  
21 increase both values to give you room. In the case of  
22 fuel switching, you're putting both values back into  
23 the same equation, and in that sense they're going to  
24 be cancelling one another out.

25 So if we had taken the same approach of  
26 trying to provide more study scope, if you will,

1 similar to what was done in the other fuel switching  
2 chapters, it really wouldn't have applied when we got  
3 to the fuel switching piece.

4 MR. GHIKAS: Q: What I'm having trouble understanding  
5 is that if that's the case, why the section on fuel  
6 switching used two gas forecasts and only looked at  
7 one electricity forecast using the \$88?

8 MR. HOBSON: A: I'm not certain, but I seem to recall  
9 that there was some discussion of that coming from the  
10 external review panel and concerns over whether or not  
11 the gas prices were an accurate reflection of what was  
12 going to occur, and there was some conversation around  
13 whether or not we should be including GHG impacts in  
14 the study methodology and approach in this area. And  
15 I think that may even be reflected in some of the  
16 comments you see in the external review panel  
17 document. But I think a lot of that came from that  
18 group in wanting to test the gas side a little  
19 differently when it looked at the fuel switching  
20 component.

21 MR. GHIKAS: Q: Yeah, it's not so much the gas side.  
22 What I'm trying to understand is that it seems like a  
23 disconnect if you're talking about, in effect, the gas  
24 and the electricity cancelling themselves out. To  
25 then go and do a current and a high gas forecast and  
26 then only use one electricity forecast rather than a

1 current \$88 and a high.

2 MR. HOBSON: A: Yeah, no, I understand. I'm just  
3 giving you my perspective. You asked me a question as  
4 to why that was done, and I think I've given you an  
5 answer in terms of why my recollection is that the  
6 study team chose to go in that direction.

7 MR. GHIKAS: Q: Now, with respect to the gas and the  
8 electricity cancelling each other out, that hasn't  
9 come to pass, has it?

10 MR. HOBSON: A: Again, don't take my comments for more  
11 than what I've just characterized them as. What I've  
12 given you is an explanation of my comments with  
13 respect to the approach that was taken out of the  
14 chapters of the CPR and why that same approach wasn't  
15 taken in the fuel switching chapter.

16 **Proceeding Time 2:07 p.m. T51**

17 MR. GHIKAS: Q: Right. And my question is more  
18 directed at what's happened since that point.

19 MR. GODSOE: And should have been directed to Panel 3.  
20 You're asking for a comparison between natural gas  
21 price forecasts and electricity price forecasts is  
22 what I'm hearing, and that was clearly Panel 3, Mr.  
23 Ghikas.

24 MR. GHIKAS: Actually, Mr. Chairman, I'm trying to figure  
25 out methodology used in the CPR which employs, as I'm  
26 told, gas prices and electricity prices, and is

1 clearly referenced in the summary report.

2 THE CHAIRPERSON: You're still in Appendix K?

3 MR. GHIKAS: I am indeed, sir.

4 THE CHAIRPERSON: I think that's -- you're fairly safe  
5 there.

6 MR. GHIKAS: Thank you, Mr. Chair.

7 MR. GHIKAS: Q: So, what we've -- the results of using  
8 the same \$130, Mr. Hobson, would be to significantly  
9 increase the economic potential identified for fuel  
10 switching.

11 MR. HOBSON: A: Directionally? I would say it would  
12 increase it. Significantly? I couldn't say.

13 MR. GHIKAS: Q: Okay, so let's talk for a moment about  
14 the simple pay-back measure. An increase in the  
15 retail electricity rate from the rates assumed in the  
16 CPR towards the marginal cost of supply would, all  
17 else equal, improve the simple pay-back calculation  
18 for the measure studied, right?

19 MR. HOBSON: A: For customers that would see that price  
20 signal, and as a result, nothing else changed, see a  
21 higher bill, I would expect that that would improve  
22 their pay-back, yes.

23 MR. GHIKAS: Q: Now, in the CPR itself, Appendix K, on  
24 page 15 --

25 MR. HOBSON: A: That was fifteen?

26 MR. GHIKAS: Q: One-five, yes. In the middle, the

1 largest paragraph in the middle of page 15, there is a  
2 discussion of policy and then it says, after that,  
3 right in the middle of that paragraph:

4 "B.C. Hydro will continue to monitor GHG  
5 legislative and policy developments, and  
6 will re-visit whether fuel switching should  
7 be targeted ..."

8 MR. HOBSON: A: Sorry, I'm not seeing where you're --

9 MR. GHIKAS: Q: Oh, I'm sorry. It's page --

10 MR. HOBSON: A: You're at 15 of 58?

11 MR. GHIKAS: Q: No, sorry. In 15 of 213, Appendix K.

12 Do you have that now, Mr. Hobson?

13 **Proceeding Time 2:12 p.m. T52**

14 MR. HOBSON: A: I do.

15 MR. GHIKAS: Q: Page 15, middle of the page, there's a  
16 paragraph that begins, "In the case of programs ..." and  
17 about halfway down that paragraph it says:

18 "B.C. Hydro will continue to monitor GHG  
19 legislative and policy developments, and  
20 will revisit whether fuel switching should  
21 be targeted as part of its next DSM plan."

22 Now, the next DSM plan, as I understand it, is in  
23 2011. Is that right?

24 MR. HOBSON: A: I believe that's --

25 MR. MATHESON: A: Well, that's the next --

26 MR. HOBSON: A: The next LTAP, perhaps?

1 MR. MATHESON: A: Our proposal for the filing of our  
2 next LTAP, yes.

3 MR. GHIKAS: Q: What I'm having trouble with is why the  
4 policy reason that's cited there would prevent B.C.  
5 Hydro from analyzing or even studying the potential  
6 for measures that have been identified as having  
7 economic potential for fuel switching.

8 MR. HOBSON: A: Can you repeat that, please?

9 MR. GHIKAS: Q: Sure. I'm -- what I'm struggling with  
10 is, B.C. Hydro has cited the policy reasons for not  
11 pursuing measures directed at the choice of fuel, and  
12 I understand that, we've covered that with many  
13 panels. And what I'm struggling with is why B.C.  
14 Hydro has taken the position that that policy reason  
15 would warrant not even studying the -- further any of  
16 the measures that were identified as having economic  
17 potential.

18 MR. HOBSON: A: I guess my first comment is, you know,  
19 I don't think that we should take that as we've  
20 completely closed our minds to the issue, and I've  
21 mentioned a couple of times on previous days that we  
22 continue to look at some of the data issues that  
23 resulted coming out of the CPR, and we continue to do  
24 some of that work with Terasen in trying to understand  
25 some of the differences with respect to what we would  
26 expect to see with the amount of energy being used in

1 a gas-heated versus an electrically-heated home, and  
2 tying that back to the actual data. So there is still  
3 a continuation, I think, of some work that moves  
4 forward in this area.

5 But I think we've just completed a DSM plan  
6 at this point. We do have a period of time before the  
7 next LTAP filing, and I don't read the statement to  
8 say that we wouldn't begin to look at the issue again  
9 prior to that filing. In fact, I would look at it  
10 that we may in fact revisit it prior to that filing  
11 date in order to be in a position to understand what  
12 we are going to take forward into that next DSM plan  
13 in that next filing.

14 MR. GHIKAS: Q: And would that include, Mr. Hobson, an  
15 investigation as to whether or not incentives could  
16 overcome some of the issues identified with respect to  
17 achievable potential?

18 MR. HOBSON: A: I think it could, but I think we would  
19 want to understand where we were going to be headed,  
20 and we wouldn't want to go too far down a path and  
21 spending a lot of money to develop new programs and  
22 program concepts, if we weren't going to be moving  
23 forward with them at some point.

24 MR. MATHESON: A: And I think we've heard numerous  
25 times over the course of these hearings that there are  
26 some important markers that have to be set down around

1 the cost of greenhouse gases, what that will  
2 represent, what provincial policy will represent when  
3 it becomes clearer. So, I don't think we're  
4 suggesting that we put this to bed forever. I think  
5 we're saying what we've said numerous times, and that  
6 is that we've got -- there are some important  
7 watershed moments in this. We need to understand  
8 those. We've developed a very large demand-side  
9 management program already. We've got a lot of work  
10 to do to implement that, assuming we have approval to  
11 proceed by this Commission. But that isn't to say we  
12 won't continue to look at these things.

13 MR. GHIKAS: Q: And I think it's fair to -- I think  
14 we're on the same page, that the more time that  
15 passes, the more customers are going to be added in  
16 the interim.

17 MR. MATHESON: A: Yeah, but we've been through that,  
18 Mr. Ghikas, and I think we've pointed out to you that  
19 the relative load that that represents is pretty  
20 small. And we don't have the same urgency that you  
21 obviously do to figure out how we might have to deal  
22 with that load. As I've said before, essentially it  
23 represents what I consider to be a standard deviation  
24 in the other major variables in our system.

25 MR. GHIKAS: Q: I just have one final minor matter, and  
26 that is if I can just get you to confirm for me, Mr.

1 Hobson, that a modern space heater operated on natural  
2 gas is rated as generally between 85 and 95 percent  
3 efficiency.

4 MR. HOBSON: A: That would be my understanding.

5 MR. GHIKAS: Thank you. Those are my questions, Mr.  
6 Chair.

7 THE CHAIRPERSON: Thank you.

8 MR. GHIKAS: And as I mentioned before, I will be back at  
9 some appropriate moment to finish off the last  
10 questions.

11 THE CHAIRPERSON: Very good. Thank you. Will you --

12 MR. GHIKAS: Pardon me?

13 THE CHAIRPERSON: Will you go last or -- I mean, have you  
14 arranged with Mr. Fulton where you will reappear in  
15 the order?

16 MR. GHIKAS: I'll be dealing with that after today's  
17 hearing, thank you.

18 THE CHAIRPERSON: Okay.

19 MR. FULTON: While Mr. Ghikas is standing down, I do have  
20 a correction to the last exhibit, Terasen exhibit. It  
21 should be Exhibit C13-12 rather than C13-11. C13-11  
22 was a witness aid.

23 THE CHAIRPERSON: It will be C13-12.

24 (DOCUMENT ENTITLED "EXTERNAL REVIEW PANEL CONSULTATIVE  
25 REPORT ON THE BC HYDRO 2007 CONSERVATION POTENTIAL  
26 REVIEW, JANUARY REMARKED AS EXHIBIT C13-12)

1 THE CHAIRPERSON: Mr. Wallace, good afternoon.

2 MR. WALLACE: Thank you, Mr. Chairman. Just for my  
3 guidance, when you be looking to take the afternoon  
4 break?

5 THE CHAIRPERSON: I'm completely messed up timewise  
6 today, but I imagine it'll be in about ten minutes.

7 MR. WALLACE: Okay, that'll be just fine. Thank you.

8 **CROSS-EXAMINATION BY MR. WALLACE:**

9 MR. WALLACE: Q: Mr. Scouras, I'd like to start out  
10 with a matter that I think has been referred to you.  
11 During the cross-examination of Mr. O'Riley, I was  
12 asking whether ICP, Island Cogen Project, was a fully  
13 dispatchable facility, and if not, what efforts were  
14 being taken to make it fully dispatchable. And that  
15 question was referred to you.

16 MR. SCOURAS: A: Right. So Island Cogen is not a fully  
17 dispatchable facility. It's operated generally as a  
18 baseload facility, and what we do have is a turndown  
19 rate, not a turnoff rate. Over the previous years  
20 we've been working to try to obtain more flexibility  
21 in respect to that, but as it stands right now it is  
22 not a fully dispatchable facility. We have a turndown  
23 rate that is subject to steam requirements as well as  
24 some other elements in respect to the steam host in  
25 the existing facility.

26 MR. WALLACE: Q: Okay. Now, my understanding is that

1 last fall the involvement of Catalyst as a steam host  
2 ceased when the kraft mill closed. Are you aware of  
3 that situation?

4 MR. SCOURAS: A: Yes.

5 MR. WALLACE: Q: And can you confirm that?

6 MR. SCOURAS: A: I'm aware of the situation at a broad  
7 sense, but I cannot confirm that Catalyst has provided  
8 any notification that there'll no longer be a steam  
9 host to that facility.

10 MR. WALLACE: Q: Okay. What is your involvement with  
11 that facility?

12 MR. SCOURAS: A: My personal involvement?

13 MR. WALLACE: Q: Yes.

14 MR. SCOURAS: A: My role in B.C. Hydro is I manage a  
15 group that design and implement various acquisition  
16 efforts. I can speak to that contract but I don't  
17 directly administer it.

18 MR. WALLACE: Q: Okay. And what is the turndown rate,  
19 or how far are you allowed to turn it down?

20 MR. SCOURAS: A: There are different confidentiality  
21 agreements that we have in place, and what I am aware  
22 of is I believe -- and I can't remember the previous  
23 proceedings. I believe that generally we can turn it  
24 down to about 150 megawatts of output. I'm not aware  
25 of what the full limit of that dispatch is, given the  
26 other information if there is no steam host.

1 MR. WALLACE: Q: That's more than satisfactory for my  
2 purposes.

3 Exhibit B-1, page 5-17 deals with this type  
4 of resource, and there's a statement there, it says:

5 "From an operations perspective, based on  
6 current forecasts of market prices, natural  
7 gas-fired generation located in B.C. would  
8 never be dispatched unless there was either  
9 a peak period capacity shortfall or a market  
10 access restriction."

11 Have you found that, or are you familiar with that?

12 MR. SCOURAS: A: What line again, sorry?

13 MR. WALLACE: Q: I don't have my line numbers,  
14 unfortunately.

15 MR. GODSOE: I've got it. It's lines 13 to 15.

16 MR. SCOURAS: A: Right. Yeah, I see it.

17 MR. WALLACE: Q: Okay. Do you agree with that  
18 statement?

19 **Proceeding Time 2:22 p.m. T54**

20 MR. REIMANN: A: I think that statement was made in  
21 reference to modeling new gas-fired generation that  
22 would be added into the province.

23 MR. WALLACE: Q: Sure. And I'm just taking a look at  
24 how modeling reflects reality. And sir, my question  
25 is, do you agree with that statement?

26 MR. REIMANN: A: We do.

1 MR. WALLACE: Q: Thank you. And I'd like you to turn  
2 to Exhibit B-34 that was filed by B.C. Hydro just  
3 through the lunch break.

4 MR. REIMANN: A: Sorry, what was the reference?

5 MR. WALLACE: Q: B-34. It was --

6 MR. SCOURAS: A: We don't have any copies ourselves  
7 right now.

8 MR. WALLACE: Q: Okay, that's fine. And it's stated as  
9 being a graph showing the hourly generation output for  
10 ICP for the period January, 2008 to December, 2008.  
11 And if you look at that graph, it looks like this  
12 facility is operating generally above 200 megawatts,  
13 and almost half the time at the full capacity of 250  
14 megawatts.

15 MR. SCOURAS: A: Yes.

16 MR. WALLACE: Q: And can you tell me why, given your  
17 more academic view expressed on page 5-17, that a  
18 facility generally wouldn't be dispatched, why this  
19 facility has been dispatched almost as a base load?

20 MR. SCOURAS: A: Well, maybe what I can start with is,  
21 the contract itself is more of a base load contract.  
22 And we dispatch it in accordance with those contract  
23 provisions. The actual decisions whether to dispatch  
24 it within a three-year time-frame fall underneath Mr.  
25 O'Riley's department in environmental, aboriginal and  
26 generation. So the actual dispatch against the

1 system, be it on-island needs, all different aspects,  
2 those decisions are made by generation.

3 Sorry, Mr. Reimann was just reminding me  
4 also that a lot of it -- up until recently, it was a  
5 base-run facility because there was a steam host  
6 accompanying it as well.

7 MR. REIMANN: A: I guess the other general observation  
8 to make is that the plant being located on the Island  
9 provides support to the loads, particularly up until  
10 the VITR project was completed.

11 MR. WALLACE: Q: Okay. Well, I suggest to you, Mr.  
12 Scouras, you've said that you thought you could  
13 dispatch down to 150. I tried to pursue this with Mr.  
14 O'Riley and I got referred to this panel, but I did  
15 say that I would leave it as an undertaking if you  
16 weren't able to answer. Accordingly, I'd like to toss  
17 it back to generation and ask that a -- that B.C.  
18 Hydro indicate in some detail why Island Cogen is  
19 being operated as a base load facility, what level it  
20 can be turned down to, and why it hasn't been  
21 dispatched in what would appear to be a manner that is  
22 not consistent with the statements at page 5-17 of  
23 Exhibit B-1.

24 MR. GODSOE: So we'll take that undertaking and, subject  
25 to the confidentiality agreement, but I think we can  
26 provide that information.

**Information Request**

1  
2 MR. WALLACE: Thank you.  
3 THE CHAIRPERSON: Thank you.  
4 MR. WALLACE: Q: I'd like to turn to BCTC and  
5 generation clusters. Actually, I have an exhibit. If  
6 we can pass this forward. It will be just a second  
7 before we get to the exhibit.  
8 Who's responsible for BCTC and addressing  
9 this issue?  
10 MR. GODSOE: It will likely be a combination of Mr.  
11 Scouras and Mr. Reimann.  
12 MR. WALLACE: Okay, thank you.  
13 MR. WALLACE: Q: You're aware that BCTC has ten million  
14 dollars in the current capital plan for definition  
15 phase for generation clusters? Approximately.  
16 MR. SCOURAS: A: Yes, we are.  
17 MR. WALLACE: Q: And that the total definition phase  
18 could amount to -- in the range of 50 to 70 million  
19 dollars over two to three years?  
20 MR. SCOURAS: A: Do you have a reference for that?  
21 MR. WALLACE: Q: Unfortunately, I don't. And if you  
22 don't, we can leave it at that, and --  
23 MR. SCOURAS: A: Yeah, I don't. I'm not aware of that  
24 number.  
25 MR. WALLACE: Q: Okay.  
26 THE CHAIRPERSON: Well, Mr. Wallace, I mean, we're about

1 to come up to the break. I mean, I'll give you an  
2 opportunity to find the reference.

3 MR. WALLACE: Well, that would be helpful. We'll see if  
4 we can. It is in the BCTC proceeding, so it may be  
5 difficult for me to, but I'll try to. Thank you.

6 THE CHAIRPERSON: Well, let's break for 15 minutes. When  
7 we come back, we'll --

8 **(PROCEEDINGS ADJOURNED AT 2:27 P.M.)**

9 **(PROCEEDINGS RESUMED AT 2:42 P.M.)**

**T55**

10 THE CHAIRPERSON: Please be seated.

11 MR. FULTON: Mr. Chairman, just a procedural matter. I  
12 have posted the orders of cross for Panel 4 and for  
13 the IPPBC Panel and the BCSEA Panel, including the  
14 time estimates, at the back of the room next to the  
15 speaker on the right.

16 THE CHAIRPERSON: Thank you.

17 Mr. Wallace, were you able to inform  
18 yourself?

19 MR. WALLACE: Yes, I was, thank you. I do have --

20 THE CHAIRPERSON: Isn't technology wonderful?

21 MR. WALLACE: It is, and I do have references -- I don't  
22 have copies of the documents, but I am going to put  
23 the references onto the record, ask the -- and just  
24 put the numbers we have and put them out there subject  
25 to check. And I think we can proceed from there.

26 I think you've -- well, the references for

1 the figures I'm about to put out are --

2 THE CHAIRPERSON: I'm sorry, before you do that, did this  
3 get a reference?

4 MR. WALLACE: It hasn't yet. It will be Exhibit C20-6.

5 THE CHAIRPERSON: Thank you.

6 MR. WALLACE: And that is, just for the record, B.C.  
7 Hydro's Information Request No. 1 to BCTC in the BCTC  
8 Transmission System Capital Plan proceeding.

9 THE CHAIRPERSON: Thanks.

10 THE HEARING OFFICER: Marked C20-6.  
11 (LETTER FROM B.C. HYDRO TO BCTC, DATED FEBRUARY 18,  
12 2009, WITH ONE-PAGE ATTACHMENT, MARKED AS EXHIBIT C20-  
13 6)

14 MR. WALLACE: Q: Panel, just stepping back for a  
15 minute, I think, Mr. Reimann, you confirmed that you  
16 are aware that BCTC has approximately \$10 million in  
17 the current capital plan for a definition phase with  
18 respect to generation clusters?

19 MR. REIMANN: A: Yes, that's correct.

20 MR. WALLACE: Q: Okay. I then asked if you are aware  
21 if the total definition phase could be as much as --  
22 and I was general, I'll now be more specific, 78.5  
23 million over two to three years, and the references  
24 I'll give and then ask you to take that subject to  
25 check, are Exhibit B-1 in the BCTC Capital Plan, 3 --  
26 oh, I'm sorry, Exhibit B-6, BCUC IR 1.10.1 in the BCTC

1 Capital Plan.

2 And the other question, and I'm hoping it's  
3 the same reference, is, are you aware that the total  
4 cost of clustering in the capital plan could be as  
5 high as in the \$2 billion range? And again reference  
6 being Exhibit B-6, BCUC IR 1.10.1.

7 **Proceeding Time 2:44 p.m. T56**

8 MR. REIMANN: A: And I am not familiar with those  
9 numbers.

10 MR. WALLACE: Q: Okay. Could you take that subject to  
11 check?

12 MR. REIMANN: A: Yes.

13 MR. WALLACE: Q: Thank you. My question is that those  
14 are obviously very substantial amounts, and the  
15 clustering is something that B.C. Hydro is involved in  
16 its acquisition program. And I'm concerned about the  
17 communication, which takes us to Exhibit C20-6. And  
18 you have seen that document before?

19 MR. REIMANN: A: Yes.

20 MR. WALLACE: Q: And if you look at the first  
21 information request, it is:

22 "Please identify how BCTC has determined its  
23 view with regard to how building  
24 transmission in advance to IPP clusters  
25 might impact B.C. Hydro's bidding process."

26 And question 1.1.1:

1 "Please confirm that there has been no  
2 discussion with B.C. Hydro regarding such  
3 impact on B.C. Hydro's bidding practices."

4 And 1.1.2:

5 "With regard to potential strategies for  
6 ensuring that ratepayers capture the  
7 benefits of lower-cost energy that might be  
8 used to justify IPP-driven TEP projects,  
9 please confirm that such potential  
10 strategies reflect BCTC's views and are not  
11 based on any discussions with B.C. Hydro."

12 Those two questions seem to infer a  
13 distinct lack of communication on this issue, and I  
14 wonder if you can elaborate.

15 MR. REIMANN: A: So let me start about our  
16 participation in the TEP process, and then Mr. Scouras  
17 can speak to the specific relationship to the  
18 acquisition.

19 **Proceeding Time 2:46 p.m. T57**

20 MR. WALLACE: Q: Okay. For the record, could you just  
21 identify what the TEP process is?

22 MR. REIMANN: A: The transmission expansion planning, I  
23 believe, is what it stands for.

24 MR. WALLACE: Q: Thank you.

25 MR. REIMANN: A: So, the BCTC had gone through a  
26 process that had a number of stakeholders looking at

1 where the resource potential was in the province, and  
2 trying to identify areas that were off the  
3 transmission system where there might be a bundle of  
4 these, and tried to identify across the province where  
5 those would exist, and what transmission line  
6 potential solutions would be out there. So we  
7 participated with them in terms of providing the  
8 resource options update information, and considering  
9 and reviewing those locations and sites, together with  
10 the broader group, and I think these materials are  
11 generally on their website.

12 What we did not get to was a point where we  
13 would -- had decided, or even understood necessarily  
14 the process of how you would determine that would  
15 necessarily be cost-effective to build one of these  
16 transmission lines, or when you would do it. So that  
17 was kind of the state of the participation in that  
18 process.

19 Mr. Scouras can speak with respect to these  
20 IRs.

21 MR. SCOURAS: A: Sure. Thank you. With respect to  
22 these, I think the point that we were trying to make  
23 in this is to ensure that there was no confusion with  
24 those folks that are participating in the Clean Power  
25 Call process. In our Calls for power, projects are  
26 studied for their interconnection impacts on a stand-

1 alone basis. And then what we do is we work with BCTC  
2 to identify where clusters within the Call should be  
3 studied, to understand if projects have an interaction  
4 amongst each other that could either drive up or drive  
5 down their relative price. Those aspects of doing  
6 that are covered in the Clean Power Call RFP.

7 We have made no commitments during any  
8 discussions with BCTC about sharing the information  
9 from the Clean Power Call or the relative cost-  
10 effectiveness of the different projects in respect of  
11 this transmission expansion policy or any other type  
12 of analysis that they care to undertake. So I think  
13 we wanted to make sure that the folks that were in the  
14 Clean Power Call understood that we were going to be  
15 abiding by the rules that we said we were going to,  
16 and didn't want to confuse that we were running two  
17 processes at one time.

18 MR. WALLACE: Q: Well, I guess my concern is that what  
19 appears to be a lack of coordination in long-term  
20 planning, which involves up to \$2 billion, affecting  
21 new resources and potentially affecting customers,  
22 what level of discussion does go on? And how do you  
23 integrate it from your end, clustering into your  
24 analysis?

25 MR. MATHESON: A: Maybe I can start. I think that,  
26 again, as Mr. Reimann alluded to, there's a level of

1 detail and there's a level of initial discussion.  
2 When BCTC began to develop its long-term plan, it  
3 certainly drew us in and we had discussions with them  
4 about direction, about assumptions, about the changes  
5 in the system that we would have to provide input to  
6 eventually, and now they've gone away and begun to  
7 develop the plan.

8 **Proceeding Time 2:41 p.m. T58**

9 That isn't to infer that we know exactly  
10 what they're going to do and that we've had very  
11 detailed discussions. Those are still yet to come,  
12 and I anticipate that we'll need to have those. But  
13 to suggest that there hasn't been any level of  
14 coordination at all is simply not correct. We've been  
15 talking to them about this plan, about the Section 5  
16 plan. We talked to them about their capital planning  
17 process in general. I think we've got a pretty good  
18 level of communication with them, and to the extent  
19 that they're going to begin to develop detail  
20 associated with, for instance, this issue, IPP  
21 clustering, I have full confidence that we will  
22 eventually get into it with them even though we  
23 haven't yet necessarily to date.

24 MR. WALLACE: Q: Well, I guess I still have a bit of a  
25 problem here. In terms of your long-term plan, your  
26 LTAP as you've presented it here, shows that with

1 effective DSM and with a minor amount of supply-side  
2 resources, 2100 gigawatt hours, you can be basically  
3 in balance out for 15-20 years. And B.C. Hydro -- or  
4 BCTC on the other hand has \$2 billion of potential  
5 facilities, and I'm wondering, are you saying to them,  
6 "BCTC, we are in balance. We don't need this. What's  
7 this about?" Is that discussion happening?

8 MR. MATHESON: A: I'd say, Mr. Wallace, generally  
9 speaking, that discussion is happening even if it's  
10 not happening exactly to your words. But the  
11 discussion is taking place. They also have a mandate  
12 now, given to them from the provincial government, to  
13 go ahead and look at what kind of prebilled options  
14 they might undertake related to a whole bunch of  
15 issues, not just the IPP clustering issue. We've  
16 certainly shared our concerns that in a world where  
17 most of our new need is going to be met through  
18 demand-side management, that puts a very different  
19 view on the need to build transmission infrastructure.  
20 Yes, absolutely we've had that discussion with them.

21 It hasn't brought us together in a perfect  
22 synergy. I expect that if we reach that, that that'll  
23 come at a later time. We're still in -- I'd say we're  
24 still in relatively early days here, and while you're  
25 quite appropriately red-flagging the amount of money  
26 that they're saying might be spent or may need to be

1 spent in order to develop infrastructure toward this,  
2 that doesn't mean all the same that we'll eventually  
3 get to that amount of money. There's lots of  
4 discussion that will need to occur, and a lot of  
5 regulatory proceedings that'll need to occur, I  
6 suspect, before we ever get there.

7 MR. REIMANN: A: I would add to what Mr. Matheson is  
8 saying, is we had explicit and detailed discussions  
9 and review of the LTAP application, and in fact the  
10 BCTC undertook to do transmission studies on all the  
11 portfolios we did. So we have -- they had those  
12 discussions and the BCTC is, I would say, intimately  
13 familiar with what's in it.

14 **Proceeding Time 2:52 p.m. T59**

15 MR. MATHESON: A: Just for the record, Mr. Wallace, I'd  
16 like to also add that I personally, when I began to  
17 work in the planning world with B.C. Hydro some three  
18 years ago, I came in with a fairly high degree of  
19 concern that we weren't doing enough integrated  
20 planning together, and I think we've -- in my opinion,  
21 we've come a long way since then. We share things on  
22 a regular basis with BCTC. We try to work toward  
23 figuring out how we can develop synergies in both our  
24 -- both of our respective regulatory applications in a  
25 way that I don't think we did before. And I think  
26 that we've taken the policy directives from the 2007

1 Energy Plan and, where there are apparent  
2 inconsistencies, we've tried to work with BCTC in a  
3 way that would alleviate those. And I think we've  
4 made a lot of good progress.

5 So, I don't want to leave anybody with the  
6 impression that we're not working hard to try to  
7 coordinate our activities, as difficult as it can be  
8 sometimes, given the fact that we're now two  
9 businesses serving the same customer.

10 MR. WALLACE: Q: Okay, and just to summarize it, and  
11 then I'll move on and leave it to the Section 5  
12 enquiry. You've made it very -- you've made very  
13 clear to BCTC your limited supply-side needs over the  
14 next while.

15 MR. MATHESON: A: Absolutely. In the context of our  
16 long-term planning, that's absolutely correct.

17 MR. WALLACE: Q: Thank you. I'd like to turn to  
18 another issue that was raised and referred to you, I  
19 think, Mr. Hobson, and that is potential changes in  
20 Tier 2 prices, and their impacts, or Step 2 prices and  
21 the residential rates.

22 MR. HOBSON: A: Okay.

23 MR. WALLACE: Q: You're aware that the proxy for the  
24 Clean Power Call has been put in this hearing at \$120  
25 a megawatt hour?

26 MR. HOBSON: A: That's correct.

1 MR. WALLACE: Q: And in Appendix K, what did you use as  
2 the marginal cost of supply?

3 MR. HOBSON: A: In Appendix K, with respect to energy,  
4 \$88 is what is used in the cost-effectiveness test  
5 analysis. So, when you take a look at the utility  
6 costs, the TRC, your all ratepayers cost and the non-  
7 participant test, \$88 would be used for energy.

8 MR. WALLACE: Q: And is that what you basically assumed  
9 for your pricing impacts analysis when you looked at  
10 Tier 2 industrial and Step 2 residential rates?

11 MR. HOBSON: A: Specific to the transmission services  
12 rates?

13 MR. WALLACE: Q: Yes. Well, let's take them one at a  
14 time. Either residential or industrial.

15 MR. HOBSON: A: There were different assumptions used  
16 for the different rates, and I'm not sure if it's  
17 helpful to you if we --

18 MR. WALLACE: Q: Now, why -- let's do residential  
19 first. What second step rate were you assuming there?

20 MR. HOBSON: A: In -- sorry, I thought I had the  
21 reference for the numbers in front of me, but I don't.

22 MR. WALLACE: Q: Maybe page 132 of Appendix K?

23 MR. HOBSON: A: Thank you. Yeah. So, on page 132 for  
24 the residential rate structure, there's a table, Table  
25 1, and it lays out by milestone year the second step  
26 or the Tier 2 rates that were used in the analysis.

1 MR. WALLACE: Q: Okay. And so 8.3 cents starting out  
2 for fiscal 2010.

3 MR. HOBSON: A: That's correct.

4 MR. WALLACE: Q: And since then, that's been raised in  
5 the RIB decision to, I believe, 8.27 cents on April  
6 1<sup>st</sup>, 2009?

7 MR. HOBSON: A: Subject to check, yes. This would  
8 reflect what was filed as part of that RIB  
9 application.

10 MR. WALLACE: Q: Okay. Now, if the relationship of the  
11 second step rate to the marginal cost of supply were  
12 maintained, and the marginal cost of supply went to  
13 \$120, what would the second step rate be?

14 MR. HOBSON: A: I don't know offhand what the second  
15 stepped rate would be, but it would be a decrease, or  
16 you would see a change in the threshold presumably to  
17 maintain revenue neutrality.

18 MR. WALLACE: Q: Well, that would be your base rate,  
19 but surely your second step rate would go up.

20 MR. HOBSON: A: Oh, sorry, your second step. I thought  
21 you were referring to the first.

22 MR. WALLACE: Q: Okay.

23 MR. HOBSON: A: Can you repeat your question? I  
24 thought your question assumed that the second step  
25 went to the 120, sorry.

26 MR. WALLACE: Q: Okay, no. Well, it -- would that be



1       respect to thresholds.

2 MR. WALLACE:   Q:   I think that's --

3 MR. HOBSON:    A:   And the amount of load that would be  
4       exposed to the different steps.

5 MR. WALLACE:   Q:   And I understand those concerns.  Is  
6       there any -- can you make any assessment of what would  
7       happen to load in terms of conservation, if the second  
8       step marginal rate was moved to 12 cents?

9 MR. HOBSON:    A:   I'm not trying to be difficult with it,  
10       but I think to make that type of assessment we would  
11       have to make assumptions with respect to the  
12       threshold.  And in turn, that would direct a different  
13       assumption on the Tier 1 rate.  And the amount of load  
14       that would be exposed and the various rates that would  
15       materialize from that, in terms of Tier 1 and Tier 2,  
16       would then dictate, based on the elasticities, what we  
17       would see.  So it would be a modelling exercise to try  
18       to understand that.

19 MR. WALLACE:   Q:   And are your models capable of doing  
20       that without too much difficulty?

21 MR. HOBSON:    A:   The models would be capable, I would  
22       suggest.  It does take time to run those models, and  
23       they are complicated models to run.  The key, I think,  
24       would be it would force some assumptions with respect  
25       to where the threshold would move.

26 MR. WALLACE:   Q:   Yeah.  And it's a long-term planning

1 exercise and people have to make assumptions. I guess  
2 what I'm asking you is can you make your best  
3 assumptions and give some indication of what -- if the  
4 marginal cost of supply, instead of being set based on  
5 an 88, or if the -- I'm sorry, if the Step 2 rate for  
6 residential, instead of being based on a \$88 marginal  
7 cost of supply, was based on \$120 marginal cost of  
8 supply, what would the impact be from a conservation  
9 perspective?

10 MR. GODSOE: And I just wanted to check with -- maybe  
11 over the break -- well, actually it won't be a break.  
12 I can get back to my friend. I just wanted to figure  
13 out the amount of time that took. I think we'd be  
14 prepared to take that undertaking if it wasn't going  
15 to be three weeks of work.

16 THE CHAIRPERSON: Perhaps Mr. Hobson can comment on the  
17 three weeks.

18 MR. HOBSON: A: The rate modelling does not occur with  
19 my area, unfortunately, but I do know the rate  
20 modelling is quite complex. I don't imagine it would  
21 take three weeks, but I do think it's quite involved.  
22 So I don't have a response for you at this point in  
23 terms of the amount of time.

24 MR. GODSOE: -- and contact the rate people to find that  
25 out, and I can advise my friend off --

26 THE CHAIRPERSON: You missed your chance, Mr. Wallace. I

1 saw Dr. Orans leave for the airport.

2 MR. WALLACE: I don't know if he runs this model anyway.

3 THE CHAIRPERSON: I think he probably does.

4 MR. WALLACE: He probably does, okay.

5 MR. WALLACE: Q: In any event, just in case I don't get  
6 the detailed response, a change of that nature would  
7 presumably lead to increased conservation, not reduced  
8 conservation.

9 MR. HOBSON: A: Well, that's the part I'm not certain  
10 of, because I think it would really depend on the  
11 amount of load that was exposed to the higher rate  
12 signal, and if you had a corresponding drop-off on the  
13 Tier 1, depending on the relative amounts of load that  
14 we're seeing in the Tier 2 versus the Tier 1 loads,  
15 I'm not sure how it would turn out within the  
16 modelling.

17 MR. WALLACE: Q: Okay. Well, what I am asking when you  
18 do the modelling is to make your most intelligence  
19 decisions about it in terms of having a marginal cost  
20 right now at \$88, a marginal cost at \$120, what would  
21 you do and what would the impacts be?

22 MR. HOBSON: A: Okay.

23 THE CHAIRPERSON: And if I may add, read the Commission's  
24 decision, because I don't think the Commission in its  
25 decision envisaged that it would move at a single  
26 movement. It would move over time.

1 MR. WALLACE: Yes.

2 MR. WALLACE: Q: No, and I understand that, and yes,  
3 please take that into account. I'm looking at this  
4 simply as we had a long-term exercise at \$88, we got a  
5 long-term exercise at \$120, and simply do want your  
6 best input. I am not trying to direct it in a  
7 particular way.

8 Similarly, with the industrial Tier 2 rate  
9 it's \$73 and six --

10 MR. HOBSON: A: Sorry, when you refer to industrial  
11 you're talking about the transmission services right  
12 now?

13 MR. WALLACE: That's right, I am, and the stepped rate  
14 there.

15 MR. HOBSON: A: Okay. Yes.

16 **Proceeding Time 3:02 p.m. T61**

17 MR. WALLACE: Q: And the Tier 2 rate is \$73.60?

18 MR. HOBSON: A: That's correct.

19 MR. WALLACE: Q: And that was based on the marginal  
20 cost of supply at that level?

21 MR. HOBSON: A: I believe that's the basis for it, yes.

22 MR. WALLACE: Q: And have you studied at all what the  
23 impact would be on the industrial loads, in terms of  
24 energy and capacity, if the Tier 2 price went to \$120  
25 a megawatt hour?

26 MR. HOBSON: A: No, it would be the same answer, I

1 think. It's confined to this analysis.

2 MR. WALLACE: Q: Okay, and again, then, I would ask you  
3 simply to undertake the same exercise, if you can, as  
4 I asked with respect to the residential step.

5 MR. GODSOE: So again, we'll just check back with the  
6 rates folks on how long that would take, and how  
7 involved that would be, and I'll get back to my friend  
8 on that.

9 THE CHAIRPERSON: Very good.

10 MR. WALLACE: Thank you.

11 MR. WALLACE: Q: I'd like to turn now to Appendix K, if  
12 I could, Table 9.

13 MR. HOBSON: A: That's in sub-appendix C? Is that  
14 where you're --

15 MR. WALLACE: Q: Appendix Table 9 --

16 MR. HOBSON: A: Page 117?

17 MR. WALLACE: Q: Yes, I believe that's correct. Let me  
18 -- no, actually it wasn't Table 9, I'm sorry. I'd  
19 like you to turn to Tables 3, 4 and 5 immediately  
20 preceding that. It is Appendix C, and it is page 105,  
21 107, I think, and 109.

22 MR. HOBSON: A: Okay, I have that.

23 MR. WALLACE: Q: Okay. And in those tables,  
24 particularly starting with Table 3, you show the non-  
25 incentive costs. In Table 4, you show the incentive  
26 costs, and in Table 5, you show total B.C. Hydro

1 costs.

2 MR. HOBSON: A: That's correct.

3 MR. WALLACE: Q: And I'm wondering if it would be  
4 possible to provide similar tables showing the actual  
5 costs in the same form for fiscal 2008 and fiscal  
6 2009, so that we can see how those actual costs are  
7 tracking your forecast costs.

8 MR. GODSOE: We can take that undertaking.

9 **Information Request**

10 THE CHAIRPERSON: Thank you, Mr. Godsoe.

11 MR. WALLACE: Thank you.

12 MR. WALLACE: Q: I would like to now turn to Table 9,  
13 which is at page 117 of 213. And there, you show the  
14 various benefit-to-cost ratios for the various  
15 components of the DSM program. Am I correct that  
16 those are based on a supply-side cost of \$88?

17 MR. HOBSON: A: For the energy? It would be a supply-  
18 side cost of \$88. There are capacity benefits that  
19 are also factored in.

20 MR. WALLACE: Q: Okay. And if the supply-side energy  
21 costs were \$120, then those ratios would be even more  
22 attractive in favour of DSM.

23 MR. HOBSON: A: Yes. Now, the one thing, it's not a  
24 complete apples-to-apples comparison in that the 120  
25 does include some capacity value already, with respect  
26 to generation and bulk transmission.

1 MR. WALLACE: Q: For comparability, are you able to  
2 break out the 120 in -- so that it's comparable with  
3 the 88?  
4 MR. HOBSON: A: It might be easier to approach it in a  
5 different fashion, where we were actually taking it  
6 out of this analysis for the comparison. I'm not sure  
7 how you're looking to approach this, I guess.  
8 MR. WALLACE: Q: Well, I understood Table 9 was based  
9 on the energy of \$88.  
10 MR. HOBSON: A: That's right.  
11 MR. WALLACE: Q: And I'm wondering what's the energy  
12 component of 120.  
13 MR. HOBSON: A: I see.  
14 MR. WALLACE: Q: Is that possible?  
15 MR. REIMANN: A: So, the 120 was based on a portfolio  
16 that we ran with all the operating costs and the  
17 economic dispatch. So it was truly the supply-side  
18 avoided cost if we didn't do DSM Option A. Comparison  
19 of those two portfolios. I'm not sure off-hand,  
20 notionally, how we'd go about removing just the  
21 capacity cost. But --  
22 MR. WALLACE: Q: Okay. I'll leave it, then. That's  
23 fine. I think we've got a general direction in any  
24 event, that with the marginal costs of supply going  
25 up, those ratios will improve.  
26 MR. HOBSON: A: I would suggest that's correct, yes.

1 **Proceeding Time 3:07 p.m. T62**

2 MR. WALLACE: Q: Thank you.

3 I would like to turn to Table 1, Appendix

4 K, and I want to talk about industrial DSM a bit, and

5 I --

6 MR. HOBSON: A: I'm sorry, Mr. Wallace, you're on --

7 maybe if you give me a page reference.

8 MR. WALLACE: Q: Page 101 of 213.

9 MR. HOBSON: A: Thank you.

10 MR. WALLACE: Q: And a large portion of the DSM savings

11 come from the industrial section, sector, and they're

12 set out about two-thirds of the way down the page?

13 MR. HOBSON: A: You're speaking specifically of the

14 programs?

15 MR. WALLACE: Q: Yes.

16 MR. HOBSON: A: Yes. Yeah, it's hard, the binder goes

17 the other way. Yeah, of the program component,

18 industrial would make up a significant portion, about

19 half of the program component.

20 MR. WALLACE: Q: And you are projecting very rapid

21 growth through the first four years there, from 169

22 gigawatt hours to 309 to 433 to 588?

23 MR. HOBSON: A: No, those are cumulative values.

24 MR. WALLACE: Q: Oh, okay. Thank you.

25 MR. HOBSON: A: So the growth would best be represented

26 as the incremental difference between each year,

1 accounting for persistence of savings and so forth.

2 But they are cumulative values.

3 MR. WALLACE: Q: Okay. And it would still appear to be  
4 very significant growth on a year-over-year basis.

5 MR. HOBSON: A: I think that's fair, yes.

6 MR. WALLACE: Q: How are the actual industrial  
7 expenditure -- well, I guess I'll get that from the --  
8 no, I won't, from my previous question. Yes, I will.  
9 The expenditures are tracking.

10 How is the industrial DSM tracking those  
11 numbers at this point? Can you provide that?

12 MR. HOBSON: A: We're tracking fairly well against plan  
13 for the industrial sector.

14 MR. WALLACE: Q: Okay, and where do the industrial  
15 programs stand at this point? What have you got  
16 underway?

17 MR. HOBSON: A: Pretty much what's represented here.  
18 Now, some of it's only come forward recently. So with  
19 respect to PowerSmart Partners transmission, that's an  
20 initiative that's been in place for a lengthy period  
21 of time but has undergone a lot of changes with  
22 respect to the introduction of the transmission  
23 services rates, and more recently the reintroduction  
24 of a capital project incentive component along with  
25 that rate. PowerSmart Partner distribution is a new  
26 initiative that's come forward within this last year.

1 And new plant design, same thing, is something that's  
2 come forward within this last year.

3 Mechanical pulping is a new initiative that  
4 will come online. It's still currently a component  
5 within PowerSmart Partners transmission, but the  
6 intent here is to draw it out as a specific initiative  
7 and put a different lens or focus on the opportunity  
8 because of the size of the opportunity. And that step  
9 has not been taken at this point.

10 MR. WALLACE: Q: Okay. On Table 4 you show B.C. --  
11 page 107, you show B.C. Hydro incentive costs, and for  
12 the industrial sector you show over the three-year  
13 total, fiscal 2009 to 2011, a total of \$62 million.

14 MR. HOBSON: A: Let me just catch up with you, Mr.  
15 Wallace. Table 4, page 107?

16 MR. WALLACE: Q: Page 107, the cumulative for the  
17 industrial sector, three-year total \$61.9 million?

18 MR. HOBSON: A: Yes, I see that.

19 MR. WALLACE: Q: How much of that have you got out in  
20 the way of incentives to industrial so far?

21 MR. HOBSON: A: That's been slower. So since  
22 reintroducing the incentive portion for the  
23 transmission portion, the PowerSmart Partners  
24 transmission, we've been relying more on enabled  
25 savings. So things were going in and we're working  
26 through energy management studies, energy managers

1 monitoring and verification work that would help  
2 industrial customers move forward in conjunction with  
3 the rate, has been the basis for more of the energy  
4 savings.

5 So with the reintroduction of the incentive  
6 portion for transmission services customers, we've put  
7 that back in place within this last year, and we've  
8 received a fair bit of feedback from customers at this  
9 point, ranging from complications with CBL  
10 adjustments, customer baseline adjustments that occur  
11 with respect to the transmission services rate at the  
12 point they take an incentive, the level of the  
13 incentive that's offered, the process for the  
14 incentive, as well as the state of the industry, in  
15 particularly forestry, and the general economic  
16 conditions. And so we're doing a review of where  
17 we're at with that, and whether or not we need to make  
18 adjustments, whether that's to any one of a number of  
19 things ranging from process to level to move forward.

20 **Proceeding Time 3:12 p.m. T63**

21 MR. WALLACE: Q: And would it be fair to say at this  
22 point you do not have incentive programs that are  
23 attractive and being taken up by industrial customers?

24 MR. HOBSON: A: For transmission services rates, I  
25 think that's true. I think we've got a number of  
26 things starting to materialize on the distribution

1 side, and I think we also have a number of indicators  
2 on the transmission side that are quite positive, so  
3 we're seeing -- I think it's about nine energy  
4 managers that are currently placed now within our  
5 transmission services customers and that represents  
6 our transmission services load. If you say as a  
7 ballpark of 15,000 gigawatt hours, we've got nine  
8 energy managers now managing about 2700 gigawatt-hours  
9 of that load, and bringing forward a number of  
10 opportunities. So already they've identified  
11 something in the neighbourhood of about 500 gigawatt  
12 hours, implemented or acted upon about 70 of it, and I  
13 think we're at a stage now where we're trying to get a  
14 gauge or understanding of whether or not our incentive  
15 offer is going to be able to move some of those  
16 identified projects through.

17 MR. WALLACE: Q: Okay. I understand your funding  
18 studies, I understand you've put energy managers in  
19 mills. I really do want to focus on incentive  
20 programs.

21 MR. HOBSON: A: Right.

22 MR. WALLACE: Q: And what I would like to know is,  
23 first, I think you've confirmed for me that you do not  
24 have effective incentive programs in place that are  
25 being taken up by transmission rate customers at this  
26 time.

1 MR. HOBSON: A: Well, I think where we're at is, we've  
2 got an incentive offer that's gotten back into  
3 marketplace. We've received a lot of feedback. We  
4 don't have a lot of take-up on the offer, I would  
5 acknowledge that and agree with that. And I think  
6 we're trying to assess what the issues are that would  
7 require an adjustment to that, and whether or not it's  
8 a state of what's going on within the marketplace, in  
9 the industry, whether or not it's time and time  
10 required for customers to come forward with projects,  
11 recognizing that they have to go through a stage of  
12 identification of the projects and moving it through a  
13 process internally for them, or whether or not we need  
14 to make adjustments to that offer.

15 MR. WALLACE: Q: Okay. Now, the programs you have out  
16 there, am I correct, at an incentive level of \$20 a  
17 megawatt hour, levelized by B.C. Hydro?

18 MR. HOBSON: A: That's correct. For the transmission  
19 services for PowerSmart Partners.

20 MR. WALLACE: Q: Okay, and would it be fair that, on an  
21 unlevelized basis, that started out at \$13 a megawatt  
22 hour?

23 MR. HOBSON: A: That I'm not sure, and I don't know  
24 what point you'd be going back to to draw that from.  
25 But I know it is two cents levelized.

26 MR. WALLACE: Q: And when do you anticipate having

1 programs out there that will be attractive?

2 MR. HOBSON: A: Well, again, I think we have a program  
3 out there, and I think our program is attractive in  
4 the sense that we're getting a lot of participation  
5 through the program. Whether or not the incentive  
6 portion of it needs to be adjusted, I think we'll be  
7 making that assessment over the next few months.

8 MR. WALLACE: Q: Okay. Are you revisiting the two  
9 cents?

10 MR. HOBSON: A: We would be revisiting the two cents,  
11 along with the process, along with feedback from  
12 industry in terms of what's going on within their  
13 markets. We're hesitant to just go and change the  
14 level of the offer without understanding if that's  
15 what the issue is.

16 MR. WALLACE: Q: Have you considered putting out a Call  
17 for DSM?

18 MR. HOBSON: A: We've considered it --

19 MR. WALLACE: Q: In a sense you put it out for supply.

20 MR. HOBSON: A: Yeah. We've considered and looked at  
21 it in the past. One more comment I should make on the  
22 incentives. When we put the incentives together, and  
23 I'm speaking across industrial now, the incentives are  
24 set on the basis of, you know, anywhere ranging from  
25 about 25 percent to 85 percent of the incremental net  
26 capital costs required for the energy savings project.

1           And so it's a significant amount and it's designed to  
2           draw paybacks back into a one- to two-year time frame.  
3           So, that's our starting point in terms of what we put  
4           in the market, and we think it's an attractive offer  
5           that should motivate customers to move forward, in  
6           combination with the other things that we've put on  
7           the table.

8   MR. WALLACE:   Q:   The two cents is well below the 41 --  
9           or the four cents that, on average, you put out for --  
10          or your average DSM cost.

11   MR. HOBSON:   A:   You're taking the incentive portion  
12          specifically and again, when we take a look at setting  
13          that incentive level, we're taking a look at what  
14          should be required to move customers forward. And I  
15          think we're at a very early stage with that in terms  
16          of putting this offer back in market, but when we take  
17          a look at the basis for setting the incentives that we  
18          have put forward, and we look at the percentage they  
19          make of those capital costs, and the paybacks that  
20          they should be driving, that's our starting point in  
21          terms of why we think those are an appropriate level  
22          of incentive to put out the door. And that doesn't  
23          mean we don't take a look at them and adjust them over  
24          time. Not unlike any other DSM initiative. We would  
25          monitor its performance and we'd make adjustments as  
26          needed.

1 MR. WALLACE: Q: Okay. How much of your DSM that  
2 you're targeting for industrials is related to the  
3 incentives? Are you able to isolate that out?

4 **Proceeding Time 3:17 p.m. T64**

5 MR. HOBSON: A: I don't know if I can isolate that off  
6 the top of my head. I don't know what that number  
7 would be.

8 MR. WALLACE: Q: Not off the top of your head. Can you  
9 look at the DSM that is to come from the industrial  
10 sector, and indicate, not now but my undertaking, the  
11 quantity of DSM out to 2024, I guess, that is to come  
12 from incentives to industrials?

13 MR. HOBSON: A: I would have to check within the  
14 specific way it's built up within the model, but my  
15 assumption is that it could be isolated, yes.

16 MR. WALLACE: Q: Okay, then I would ask you to do that.

17 MR. GODSOE: So we'll take that undertaking subject to  
18 what Mr. Hobson said.

19 **Information Request**

20 MR. WALLACE: Q: And do I take it that your intent --  
21 or your hope at this point, is that you will have  
22 revised industrial programs out within the next two to  
23 three months?

24 MR. HOBSON: A: If needed, and again I think we're  
25 going through a period of trying to understand if  
26 that's required, and I think specifically we're

1 talking about not a change of program but potentially  
2 looking at an incentive component within a broader  
3 program.

4 MR. WALLACE: Q: Yeah. But surely some changes are  
5 needed. Your incentives haven't been taken up to this  
6 point, have they?

7 MR. HOBSON: A: Some changes may be needed. But again,  
8 lag times within industrial are lengthy, and I think  
9 there's some unique circumstances within that market  
10 currently going on that we'd want to make sure we  
11 understood before we just changed the incentive level.

12 MR. WALLACE: Q: Okay, and how long have you been  
13 working on incentives?

14 MR. HOBSON: A: Pardon me?

15 MR. WALLACE: Q: I suggest to you you've been working  
16 on trying to come up with methodology for incentives  
17 for industrials since the Tier 2 rate was put in  
18 place.

19 MR. HOBSON: A: I'm not sure that's accurate. We put  
20 an incentive offer back into the marketplace earlier  
21 within this year, as a result of taking a look at this  
22 plan in a new direction with respect to what we're  
23 trying to achieve with demand-side management.

24 MR. WALLACE: Q: When did you start working on incent  
25 -- trying to design incentives for industrial  
26 customers, DSM incentives?

1 MR. HOBSON: A: Well, certainly as part of this  
2 planning process. But prior to the transmission  
3 services rate, we were in marketplace with capital  
4 project incentives --

5 MR. WALLACE: Q: Yes.

6 MR. HOBSON: A: -- for industrial customers at that  
7 point as well.

8 MR. WALLACE: Q: And then when the stepped rate came  
9 along, you got out of incentives for a while.

10 MR. HOBSON: A: That's correct.

11 MR. WALLACE: Q: And then when did you start back into  
12 designing incentives for industrial -- large  
13 industrial transmission rate customers?

14 MR. HOBSON: A: It would have been through the process  
15 of redesigning this plan.

16 MR. WALLACE: Q: Okay.

17 MR. HOBSON: A: And at the point that we put the plan  
18 forward, we took a look at implementing that component  
19 of it.

20 MR. WALLACE: Q: And when did that design effort start,  
21 in terms of a month and year?

22 MR. HOBSON: A: A month I couldn't say, but year it  
23 would have -- you know, we would date back well over a  
24 year in terms of when we were putting this plan  
25 together prior to filing it, certainly.

26 MR. WALLACE: Q: Okay. And as I say, you still don't

1 have plans that are being taken up.

2 MR. HOBSON: A: What I would characterize it as if we  
3 put an incentive offer back into the market earlier  
4 this year. The uptake has not been there, we  
5 understand that. We're looking at the various reasons  
6 and we've heard a variety of feedback from customers.  
7 And whether or not it requires a change to the  
8 incentive level is one of those things that we're  
9 looking at.

10 MR. WALLACE: Q: Okay, we'll move on.

11 In sub-appendix L of Appendix K, there are  
12 a number of models that are used. What I would like  
13 to know is, in coming to the conservation potential,  
14 how the probability of product failure, which we see  
15 as particularly important -- or product failure,  
16 technological failure, which is particularly important  
17 with long payback technologies and new technologies,  
18 was incorporated into the estimate of the capital  
19 costs for the efficient technologies.

20 MR. HOBSON: A: That I couldn't say off the top of my  
21 head, no.

22 MR. WALLACE: Q: Can you take that by way of  
23 undertaking?

24 MR. GODSOE: We'll take that undertaking.

25 **Information Request**

26 MR. WALLACE: Q: And as a second part of that, could



1        achievable potential and an economic potential, and  
2        one of the reasons you'll see our DSM plan targeting a  
3        level that will be lower than the economic potential  
4        is because of different barriers that occur within a  
5        marketplace. One of those barriers -- there's  
6        typically five of them that are used, but one of the  
7        barriers, and it's outlined in our Appendix K DSM  
8        plan, is an acceptance barrier. And the acceptance  
9        barrier, I think, would speak to your issue with  
10       respect to how people view an efficient product versus  
11       an inefficient product. And at the point that we've  
12       put in place an offer for a demand-side management  
13       plan that is attractive enough to encourage a customer  
14       to move forward, and we've incorporated the cost of  
15       the measure that they're acting upon, then those costs  
16       are reflected with respect to the values you're  
17       talking about, because presumably they've overcome  
18       whatever acceptance issue or barrier is there.

19                    And that's not to say that the CPR looks at  
20       that issue, because the CPR, when it's looking at the  
21       economic potential, isn't concerning itself with those  
22       barriers. It's looking purely on the costs with  
23       respect to the measure itself.

24 MR. WALLACE:    Q:    Okay.

25 MR. HOBSON:    A:    The achievable potential, in arriving  
26       at those estimates, is making a judgment in terms of

1           how much of that could be achieved, and so recognizing  
2           that you'll likely not overcome all of the barriers  
3           within the marketplace, including that acceptance  
4           barrier, then you're going to have a gap between your  
5           achievable potential and your economic potential.

6 MR. WALLACE:   Q:   Okay, so you're, I think, saying that  
7           the CPR does not incorporate perceived values?

8 MR. HOBSON:    A:   That's correct. The economic potential  
9           would not. I would suggest that that's considered in  
10          arriving at an achievable potential.

11 MR. WALLACE:   Q:   Okay.

12 MR. HOBSON:    A:   In terms of the limited number of  
13          participants that you could potentially get versus  
14          that economic potential.

15 MR. WALLACE:   Q:   Okay, and where do I see the  
16          calculation of how that -- those perceived values are  
17          removed from the CPR?

18 MR. HOBSON:    A:   You won't see it. It won't be removed.  
19          What you'll see, I guess, the closest you would come  
20          is it's somewhat implicit within arriving at an  
21          achievable potential. The very fact that you don't  
22          think that you can get 100 percent of the economic  
23          potential as your achievable potential suggests that  
24          there's some barrier that's preventing it from moving  
25          forward. But the costing of it would only materialize  
26          in the manner that I outlined for the DSM plan.

1 MR. WALLACE: Q: Okay. And is there anywhere I could  
2 look and see what parameter was put in for the various  
3 programs in making that difference from economic value  
4 to achievable value?

5 MR. HOBSON: A: No, and I don't think that you would  
6 find within a DSM plan that you're going to have  
7 something that's going to precisely put a dollar value  
8 on something like that, that you're trying to  
9 overcome. So it's not like you're going through and  
10 you're identifying each of the individual market  
11 barriers, and what the cost of each of those market  
12 barriers are. And then in turn what it is you're  
13 putting in place to make that go away.

14 MR. WALLACE: Q: But if I were to look at a program, or  
15 at your modeling, or whatever, and say, for lighting,  
16 and replacement of normal home lighting --

17 MR. HOBSON: A: Right.

18 MR. WALLACE: Q: -- with CFTs. Would I see something  
19 that says, "customer acceptance minus 20 percent"?

20 MR. HOBSON: A: No.

21 MR. WALLACE: Q: On the economic achievement.

22 MR. HOBSON: A: No, what you'll see is an offer we put  
23 in place, and we make estimates around what  
24 participation we believe we can achieve off of those  
25 offers. Interestingly, you use the example of  
26 residential CFLs, and when B.C. Hydro first got

1 involved in this market, and we went forward with it,  
2 we expected to have customers having issues with the  
3 acceptance of the product, and what we got back was  
4 kind of a 50/50 split. For as many customers that  
5 said they didn't like the quality of the light or the  
6 type of light, we had just as many customers saying  
7 the opposite, that they actually liked the light.

8 So, the acceptance issues or the values  
9 that you talk about can cut both ways when it comes to  
10 an efficient product.

11 MR. WALLACE: Q: Yeah, I understand that. But you  
12 don't -- obviously those who accept it are already  
13 included in your economic potential, and you're  
14 cutting back from there to reach your achievable. And  
15 I think what you're telling me is, nowhere in your  
16 program studies or in your modeling can I look and --  
17 look at your judgment and see if I think that's a  
18 reasonable judgment.

19 **Proceeding Time 3:27 p.m. T66**

20 MR. HOBSON: A: Not with numbers. Where you'll see our  
21 judgment coming in is you'll take a look at the amount  
22 of savings that we're estimating we'll achieve through  
23 our offer, and you could compare that to the economic  
24 potential and come to your own conclusions with  
25 respect to our judgment as to whether or not our offer  
26 will be an attractive enough offer to capture that

1 amount of the economic potential.

2 MR. WALLACE: Q: Thank you. I'd like to change  
3 subjects right now and turn to Chapter 6 of Exhibit B-  
4 1, page 6-8. What I want to look at now is  
5 measurement and responsiveness milestones, and what I  
6 understand from the material that's gone before, there  
7 is, even in Plan A, a certain degree of subjectivity  
8 and risk, and that it is necessary --

9 MR. MATHESON: A: Sorry, Mr. Wallace, would you mind  
10 Mr. Hobson --

11 MR. WALLACE: Q: Sorry.

12 MR. MATHESON: A: -- Mr. Hobson is still trying to find  
13 the page.

14 MR. WALLACE: Q: Exhibit B-1, page 6-8.

15 MR. HOBSON: A: I'm with you now, thank you.

16 MR. WALLACE: Q: Okay. Sorry, maybe I should have got  
17 started first. In Chapter 6 you're talking about  
18 mitigation and milestones, and on page 6-8 you state:

19 "B.C. Hydro will manage and mitigate DSM  
20 deliverability risks to the extent  
21 practical, by tracking a number of key  
22 milestones and indicators, and implementing  
23 several mitigation strategies. The  
24 following is a summary of milestones and  
25 indicators."

26 And before we go to those more

1 specifically, you're doing that because there's  
2 uncertainty in what results you will get with DSM on  
3 what is perceived as an achievable but aggressive  
4 program.

5 MR. HOBSON: A: I think that's fair, yes.

6 MR. WALLACE: Q: And I'm interested particularly in  
7 programs, although I think it would apply to others.  
8 In terms of your milestones, do you have overall  
9 milestones for DSM first, and then program-specific  
10 and area-specific milestones?

11 MR. HOBSON: A: So if I understand your question,  
12 overall for our DSM plan, what would our milestones be  
13 that we would tend to look at?

14 MR. WALLACE: Q: Yeah.

15 MR. HOBSON: A: Without getting into the specific  
16 components?

17 MR. WALLACE: Q: First, yes. I would have thought you  
18 would have summary level milestones and you would have  
19 individual level milestones for key areas.

20 MR. MATHESON: A: You are speaking of point-in-time  
21 milestones, presumably.

22 MR. WALLACE: Q: Yes. And I would be thinking in terms  
23 of dollars and time -- and results, expenditures and  
24 achieved gigawatt hours.

25 MR. HOBSON: A: So we do track at a bottom line in  
26 terms of our overall expenditures on demand-side

1 management and the overall energy savings, and we  
2 track that quite closely, and we track it at a total  
3 level and we also track it at an individual initiative  
4 level.

5 MR. WALLACE: Q: Okay. And do you have strategies  
6 outlined in advance with respect to those? I mean, I  
7 think of a milestone that, if we on F2010 we've got to  
8 be at Level X, and if we're not we have a strategy  
9 that does something. Is that what exists?

10 MR. MATHESON: A: We are looking very carefully at that  
11 right now. I can't give you specific dates and the  
12 strategies that we would employ if we didn't reach a  
13 certain level of savings by those dates. But we  
14 recognize that we need to have those in place. What  
15 we wanted first to do was outline the broad program,  
16 speak to what we considered to be, as you put it, the  
17 achievable level of DSM, understanding that there are  
18 delivery risks associated with that, and that once we  
19 got Commission approval to go ahead and make these  
20 expenditures and work toward this plan, that we would  
21 then need to very carefully outline those point-in-  
22 time milestones and what strategies we would then  
23 employ as far as other, for instance, supply options  
24 that we'd need to undertake if we didn't reach those  
25 savings by a certain point in time. I can't give you  
26 the specifics, Mr. Wallace of that right now because

1 we simply don't have them, but we're looking very  
2 carefully at them right now.

3 MR. WALLACE: Q: Okay. So when you say at page 6.8:

4 "B.C. Hydro will manage and mitigate  
5 deliverability risk to the extent  
6 practicable by tracking a number of key  
7 milestones and indicators and implementing  
8 several mitigation strategies."

9 How you will manage that and how you will mitigate has  
10 not yet been determined.

11 **Proceeding Time 3:32 p.m. T67**

12 MR. MATHESON: A: Not to the degree of identifying a  
13 point in time, for instance a year, where we would  
14 expect to have a certain level of savings and if we  
15 didn't have it, then we would employ other strategies,  
16 that's correct.

17 MR. WALLACE: Q: Okay. When do you expect to have that  
18 overall one, in particular, in place?

19 MR. MATHESON: A: My expectation is that we'll have  
20 something concrete within this year.

21 MR. WALLACE: Q: Okay. Now, taking it down a level,  
22 clearly in deciding cost-effectiveness of the various  
23 programs you have, when do you expect to have a  
24 management plan and a mitigation plan in place with  
25 respect to those programs?

26 MR. HOBSON: A: So, with respect to individual

1 initiatives --

2 MR. WALLACE: Q: Yes.

3 MR. HOBSON: A: -- what we've laid out here is an  
4 overall portfolio or a plan, but within each of those  
5 initiatives, we move forward with a separate business  
6 case, and that business case goes through governance  
7 within B.C. Hydro in terms of approval of it. And  
8 then ongoing management of it. And within those  
9 business cases, they'll have key indicators or  
10 milestones that they'll be tracking, and they'll be  
11 reporting back to that governance group to ensure that  
12 it's staying on track. And it's somewhat dependent  
13 upon what the performance is, and what may be straying  
14 off-track that would determine what strategies you  
15 would take to potentially make adjustments to that  
16 offer, or that plan, or to move in a different  
17 direction from that particular business case or offer.

18 MR. WALLACE: Q: But are you suggesting to me that at  
19 this time, there are milestones in place that are  
20 reviewed and strategies in place that are written that  
21 one could look and say, "If it doesn't make this, we  
22 know what B.C. Hydro's likely to do?"

23 MR. HOBSON: A: Within the individual programs, and I  
24 think Mr. Matheson spoke to it overall, but what I'm  
25 speaking to is within individual programs, and I'd say  
26 that there aren't the strategies, because it's

1 somewhat dependent upon what the information is as to  
2 what's not tracking well within given initiatives.  
3 But there are specific milestones or leading  
4 indicators that program managers would monitor within  
5 those given initiatives.

6 MR. WALLACE: Q: Okay. So, just to summarize, then, on  
7 programs, there are milestones and indicators, but not  
8 mitigation strategies.

9 MR. HOBSON: A: Not to the form that you've spoken of,  
10 I think, or what you're looking for. And again, I  
11 think it would be somewhat dependent upon what the  
12 information was that would suggest we're tracking off  
13 of those indicators.

14 MR. WALLACE: Q: How frequently -- well, how frequently  
15 does B.C. Hydro -- are your milestones set out year by  
16 year, or month by month, or how frequent are those  
17 milestones?

18 MR. HOBSON: A: Are you talking about the program?

19 MR. WALLACE: Q: Let's first take overall.

20 MR. MATHESON: A: Well, I don't -- I think overall it  
21 would be -- I don't think it would be that useful,  
22 overall, to set month-by-month indicators. I think  
23 this demand-side management program is new enough and  
24 big enough for our company that doing that could be  
25 misleading and would cause us to do things that it  
26 might turn out that we didn't need to do, or in fact

1           went in a wrong direction. So I would suggest to you  
2           that we should set milestones that conform to a year,  
3           and probably to begin with we need to give ourselves a  
4           couple of years to see how these programs are going to  
5           take, and the other components of the plan are going  
6           to take, and then decide equally as importantly at  
7           what point in time do we need to begin to employ other  
8           measures if the deliverability risks turn out to be  
9           the case, and we aren't believing that we can get to  
10          this level of demand-side management savings, and by  
11          that, I mean, obviously, the year 2016 will be  
12          important to us, because that's the year we need to  
13          become self-sufficient, and so we'll need to back up  
14          and figure out at what point in time we need to begin  
15          to look at other options to make sure that we achieve  
16          self-sufficiency if the demand-side management isn't  
17          tracking to the degree that we think it needs to.

18 MR. WALLACE:    Q:   Haven't you done that yet?

19 MR. MATHESON:   A:   Well, we haven't -- have we not put  
20           in place our mitigation strategies?

21 MR. WALLACE:    Q:   Have you not put in place your  
22           milestones so that you will know when you're off-  
23           track?

24 MR. MATHESON:   A:   No, we haven't. And I'd suggest to  
25           you that we're starting out this demand-side  
26           management program looking to the Commission to

1 endorse the level of savings we need to have. We've  
2 got contingency resource plans already put in our  
3 long-term plan that we can employ on a relatively  
4 short-term basis if we need to. No, we haven't  
5 developed them.

6 MR. WALLACE: Q: Well, how do you know when to trigger  
7 the contingency plan if you haven't got the milestone?

8 **Proceeding Time 3:37 p.m. T68**

9 MR. REIMANN: A: So, Mr. Wallace, I just wanted to  
10 point out that we do track the DSM savings that we  
11 get, at least on an annual basis, and we continue to  
12 update our forecasts and our portfolios just to see  
13 where the load resource balance is. And I think Mr.  
14 Hobson has indicated that within the programs, if  
15 those programs aren't tracking to getting the savings  
16 that they're anticipating at least on an annual basis,  
17 that they make adjustments to those and then consider  
18 other programs. And we do have as well, on a large  
19 scale, the contingency resource plans if things go  
20 largely wrong, that we can't recover from it.

21 MR. WALLACE: Q: But I understood Mr. Matheson to say  
22 you don't have the milestones in place yet for the  
23 overall program. Isn't that what you said, Mr.  
24 Matheson?

25 MR. HOBSON: A: I think the area that we were starting  
26 to think about and look at is things like what sort of

1       lead indicators could you start looking at to get some  
2       more advanced indicators, other than the savings  
3       actually showing up. And I think it's in that area  
4       that we're starting to spend a bit more time to say  
5       what should we be seeing out in the marketplace?

6 MR. HOBSON:    A:    One thing to add, too, is on an annual  
7       basis we do a small update of our DSM plan, we reflect  
8       the historical results from the past year, and we take  
9       that information and different learnings and we cast  
10      out what we think we're going to see moving forward.  
11      On that basis we put ourselves in a position to  
12      understand if we're going to be deviating, or believe  
13      we're going to be deviating significantly from where  
14      we've been.

15                    Every two years as it's proposed, we would  
16      do a more major undertaking of that DSM plan as part  
17      of an LTAP filing, and we would again, I think, be in  
18      a position to understand if we're looking like we're  
19      starting to tilt a little ways away from where we  
20      would like to be.

21 MR. MATHESON:   A:    We do, we do a load forecast every  
22      year, where we actually assess demand-side management  
23      and where it goes, and we take it off the load  
24      forecast and we look at our load resource balance and  
25      we make adjustments to our plan. And I think you know  
26      that. And that gives us a very good look on an annual

1 basis of whether we need to begin to think about  
2 employing contingency resources that we've kept the  
3 options available for and so on.

4 So what I thought you were getting to was  
5 drilling down as to whether -- what specific things  
6 within the demand-side management plan we needed to  
7 see by a certain year, in order to begin to employ  
8 other options that might be available to us. And I'm  
9 saying to you we haven't got to that level of  
10 granularity, but there's no question that we look  
11 broadly at our ability to meet our customer load on an  
12 annual basis, and more frequently, in fact, and we  
13 have options available to us to respond to that if we  
14 need to.

15 MR. WALLACE: Q: I think we understand each other and I  
16 think the record is clear.

17 I think -- or I'd ask you to look at page  
18 6-9. You say:

19 "Further details and risk mitigation  
20 strategies are provided in section 4.4 of  
21 Appendix K, and Sub-Appendices D, E and F  
22 attached to Appendix K."

23 And I looked at section 4.4 and I couldn't find any  
24 details of risk mitigation. Can you?

25 MR. GODSOE: The answer should read "section 5.4, page 32  
26 of 213," and I'll take responsible for that. My

1 proofreading wasn't up to snuff. I think that's the  
2 right reference.

3 MR. WALLACE: Section 5.4, page --

4 MR. GODSOE: 32 of 213 of Appendix K, title "Risk  
5 Management".

6 MR. WALLACE: I'm sorry, the page number again. I was  
7 looking at the wrong document --

8 MR. GODSOE: 32. Page 32 of 213.

9 MR. WALLACE: Okay. Okay, thank you. I think Mr. Godsoe  
10 has answered my question on that one.

11 MR. WALLACE: Q: Another reference was sub-appendice D  
12 of Appendix K, and I looked at that and found nothing  
13 about risk mitigation, and that's page 118 of 213.  
14 Can you see anything?

15 **Proceeding Time 3:42 p.m. T69**

16 MR. HOBSON: A: I think what that's trying to draw out  
17 is more detail on some of the milestones connected  
18 with some of the specific codes and standards. So I'm  
19 looking at Appendix D, specifically, and it goes  
20 through a fairly detailed breakdown of each of the  
21 regulations, or codes, that's part of the overall  
22 codes and standards component.

23 MR. WALLACE: Q: Yes?

24 MR. HOBSON: A: And I think, when I read that sentence  
25 from page 6-9, that's talking about further details  
26 and risk mitigation strategies, I think the intent is

1 in part that Appendix D is providing you with  
2 significantly more details with respect to each of the  
3 regulations and codes, and the specific time frames.

4 MR. WALLACE: Q: Okay, but it -- first, it doesn't  
5 provide anything in Appendix D with respect to risk  
6 mitigation strategies, does it?

7 MR. HOBSON: A: Like I say, I think it's more the  
8 intent is to provide greater detail with respect to  
9 the milestones.

10 MR. WALLACE: Q: Okay. And the -- okay, but you would  
11 agree with me there is nothing on risk mitigation.

12 MR. HOBSON: A: Subject to check, I think that's  
13 correct. Again, I think the intent of that sentence  
14 in pointing you towards Appendix D was more to give  
15 you a lot more detail with respect to individual  
16 milestones, and that we're not looking at a big  
17 collective number of codes and standards without a  
18 fair bit of detail with what's in behind each, and an  
19 understanding of the specific time periods that we're  
20 anticipating each of these things materializing. And  
21 also recognizing that there's specific milestones that  
22 have to happen with each of these regulations and  
23 codes for them to materialize. And we have the  
24 ability to be involved and aware of where they're  
25 progressing against those individual milestones.

26 MR. WALLACE: Q: Okay, and those milestones that are

1           there, I'm assuming you mean like in Section 2.1,  
2           "Stand-by power, milestones for this regulation are",-  
3           and it sets out certain regulations that are required?

4 MR. HOBSON:    A:    That's what I'm referring to, yes.

5 MR. WALLACE:   Q:    Okay.  And they're not milestones in  
6           the sense that a certain regulation must be passed by  
7           a certain date.

8 MR. HOBSON:    A:    No, but what it's giving us, I think,  
9           is a bit better of an understanding that there is a  
10          process to getting to the point that a regulation is  
11          passed, and if we were, as an example, to see that,  
12          you know, a standard that we knew needed to be adopted  
13          in order to put ourselves in a position to have a  
14          regulation hit the planned date that we put forward,  
15          and that that standard had not been developed based on  
16          the timeline, then we would have reason to be  
17          concerned potentially about the planned time period of  
18          the regulation taking effect itself.

19 MR. WALLACE:   Q:    Once you get a timeline.

20 MR. HOBSON:    A:    Precisely.

21 MR. WALLACE:   Q:    And similarly, I looked at sub-  
22          appendix E, which was mentioned on page 6-9, and found  
23          no details of risk mitigation there.  And would you  
24          agree with that?  And you can take that --

25 MR. HOBSON:    A:    Again, subject to check, but I think  
26          again, I think this was more intended to provide some

1 time frames for the specific -- the specific rate  
2 structures.

3 MR. WALLACE: Q: Well, in terms of time frames, I mean  
4 the time frame I see is the results for F2020, and  
5 that's not a milestone, is it? That's an ultimate  
6 target.

7 MR. HOBSON: A: I think that's right. I think what  
8 this does provide, perhaps, and I could be wrong, but  
9 I think it provides some of the assumptions around the  
10 start dates.

11 MR. WALLACE: Q: Okay.

12 MR. HOBSON: A: So, as an example, if I turn to page  
13 133, it's purely putting forward the idea that it's  
14 assuming that the rate structure itself is going to be  
15 introduced by fiscal 2010.

16 MR. WALLACE: Q: Okay, and I would have -- I might have  
17 missed that as a milestone, but thank you.

18 MR. GODSOE: And if it's of help, page 136, rate design  
19 implementation activities, I think lays out timelines  
20 equivalent to what we've been discussing, codes and  
21 standards, if it's of help to my friend.

22 MR. WALLACE: Q: Well, again, Mr. Hobson, if you can  
23 help me, but I do see on page 136 a number of  
24 activities, but I don't see any quantitative or time  
25 metrics associated with them. Do you?

26 MR. HOBSON: A: No, I would agree, those have not been

1 included within this.

2 MR. WALLACE: Q: Okay. And so again, it -- this  
3 doesn't tell you if something doesn't happen by a  
4 certain date, what step you're going to take.

5 MR. HOBSON: A: No, it doesn't provide us what step  
6 would be taken. And again, I think it would somewhat  
7 depend on what's happening with the overall plan  
8 itself, and what's caused something to go off-track.

9 **Proceeding Time 3:47 p.m. T70**

10 MR. WALLACE: Q: Okay, and finally, again with  
11 reference to page 6-9, I looked at sub-appendix F,  
12 page 137 of 213, which is the program summaries. And  
13 again, I didn't find milestones or mitigation  
14 measures. Would you agree with me?

15 MR. HOBSON: A: Subject to check, yes, I would agree  
16 that there's not mitigation, but again there's some  
17 limited timeframes with respect to program launch  
18 dates, anticipated program launch dates.

19 MR. WALLACE: Q: Okay, thank you. Thank you, I have no  
20 further questions.

21 THE CHAIRPERSON: Dare I say it, Mr. Wallace, whether the  
22 BCUC Commission provides the order in time specified.

23 MR. WALLACE: I didn't go for that one, sir.

24 THE CHAIRPERSON: That's fine.

25 MR. WALLACE: Thank you.

26 THE CHAIRPERSON: Thank you, Mr. Hobson.

