

1 (9:30 a.m.)

2 MR. NOSEWORTHY, CHAIRMAN: Good morning. Thank
3 you and good morning everybody. Beautiful morning out
4 there. As I indicated yesterday afternoon, I would like to
5 take a brief opportunity this morning just prior to the
6 continuation of Newfoundland Power's cross-examination
7 of Mr. Henderson to have a discussion around the travel
8 arrangements beginning on Monday and extending over a
9 two-week period for our public participation days. The
10 interest has been indicated, I guess, and circulated, and a
11 schedule, that was distributed yesterday ... I think there's
12 limited, no interest in a couple of locations, and I believe,
13 given the time and the cost, it at least begs at this point in
14 time some re-visiting to see if there's any need to change
15 the schedule. Certainly there are planes and venues that
16 have been booked and it's incumbent on the panel at this
17 point in time to decide one way or another. It's Wednesday
18 and we're scheduled, I believe, to leave on Sunday for St.
19 Anthony. So I thought I'd like to take a brief period this
20 morning to discuss this matter and prior to asking counsel
21 to review where we are at this stage, I think Mr. Browne
22 committed yesterday to follow up with I think others that
23 he would have had discussions with over the last little
24 while, both in respect of St. Anthony and in particular
25 Labrador, and that might assist us in contemplating what
26 we might do over the next couple of weeks. Mr. Browne.

27 MR. BROWNE, Q.C.: Yes. I can give you an update.

28 MR. NOSEWORTHY, CHAIRMAN: Thank you.

29 MR. BROWNE, Q.C.: Yesterday I spoke with ... in reference
30 to St. Anthony, I'll start with St. Anthony. Yesterday I
31 spoke with Trevor Taylor, the Member for there, and this
32 morning I spoke with Curtis Richards, he is the Town
33 Manager of the Town of St. Anthony, and I also faxed
34 some material to the Town of Roddickton. Mr. Richards
35 informs me that Council is aware in St. Anthony that the
36 Board is visiting St. Anthony on October 15th and they do
37 intend to make a presentation. There is a meeting of the
38 Chamber of Commerce today in St. Anthony and he is
39 raising the topic with business people there to ensure that
40 they make presentations as well. I mentioned to him that
41 we had no formal intervention and the Board had well
42 within its options not to go there. His message was, tell the
43 Board to come on to St. Anthony, so ... there will be people
44 there. So that's St. Anthony. I will have ... Mr. Taylor, Mr.
45 Trevor Taylor I'll be speaking to later this evening again.
46 He is going to attempt to give me a list of intervenors as is
47 Mr. Richards, so now that we're in proximity to going there,
48 I suspect we might have that in short order, so I'll see if we
49 can fill in those gaps on the public participation people for
50 St. Anthony in the next few days, but from what I can
51 understand they want us to come and there will be
52 presenters.

53 In reference to Wabush, that's well organized there
54 as far as we can determine. I've made no contact with
55 anyone in Wabush because they've had, Labrador City has
56 their own counsel and that seems to be well in hand.

57 In reference to Goose Bay itself, we've had
58 representations from Rigolet, Nain and Makkovik. All
59 these people intend to send someone there. I spoke with
60 Mr. Wally Anderson's executive assistant yesterday
61 afternoon and they are preparing a list of people to go to
62 Goose Bay. They were wondering a little bit about the
63 logistics. I spoke to Ms. Greene about that last night. So
64 there will be people from Nain, Makkovik and Rigolet and
65 indeed the northern coastal area of Labrador presenting to
66 us, those who have diesel-generated systems.

67 In reference to southern Labrador, I spoke with
68 yesterday as well Ms. Yvonne Jones, the Member for there.
69 There will be people there from Mary's Harbour and other
70 communities within her district. She is preparing a list for
71 me and they fully intend to travel to Goose Bay. And the
72 Town of Goose Bay is represented itself, so I think in
73 reference to Goose Bay there will be a fair representation
74 there.

75 I've done nothing further in Stephenville. I think
76 the industrials seem to have that well in hand. In reference
77 to the Town of Grand Falls-Windsor, I spoke this morning
78 with Mayor Walwin Blackmore. The issue was raised at
79 Council last night. He mentioned that there are new
80 councils that have just been sworn in and part of the
81 problem was the old council wasn't addressing the issue
82 and the new council is, and they fully intend to make a
83 presentation, the Council does, on behalf of the Town of
84 Grand Falls, and they are coordinating some efforts there
85 with the paper mill, so they certainly want an opportunity
86 there in the Town of Grand Falls to speak.

87 And in reference to St. John's, some other people
88 have contacted me over the last few days and I think we
89 can anticipate having more than Mr. Pierce (phonetic) from
90 the Conservation Corps who wants to give a full
91 presentation to the Board in reference to conservation
92 issues, and I've asked some people to give notification
93 through electronic mail to Ms. Blundon so she can put
94 these people down on the list for St. John's. And that is
95 the update.

96 MR. NOSEWORTHY, CHAIRMAN: Thank you very much,
97 Mr. Browne. Just in respect of Ms. Yvonne Jones, your
98 discussions with her, would the communities or people
99 from her district, particularly from L'Anse-au-Clair to Red
100 Bay, be contemplating, are you aware, going to Goose Bay
101 versus St. Anthony?

102 MR. BROWNE, Q.C.: I raised that specifically with her and
103 she said no, they would be going to Goose Bay, and she

1 said it in no uncertain terms so I didn't question her further.
2 (*laughter*) I don't know what the politics are there.

3 MR. NOSEWORTHY, CHAIRMAN: I can only wonder
4 why. (*laughter*) Thank you. Mr. Kennedy, do you have
5 any comments, please?
6 (*9:45 a.m.*)

7 MR. KENNEDY: Well, I guess in light of the update from
8 the Consumer Advocate, I'm not sure if it's much point in
9 discussing the alternatives of flight arrangements and the
10 like if it's now the intention of the panel to proceed on with
11 the schedule as was determined by the procedural order.

12 MR. BROWNE, Q.C.: Mr. Chairman, I should mention that
13 I will try to raise the issue publicly in the media over the
14 next few days that the Board is travelling and people who
15 have concerns, now is the time to make them known and to
16 contact the Board or to give notification through my office
17 that they intend to present.

18 MR. NOSEWORTHY, CHAIRMAN: I think that will be
19 most useful. Thank you very much. There are no further
20 ... this schedule here is complete, I understand. Thank you.
21 Are there any other particular comments on this matter?

22 MS. GREENE, Q.C.: Not on this particular matter, the public
23 presentation days, but it had to do with the schedule as
24 well. I just wanted to confirm that we are proceeding with
25 the schedule as laid out in the procedural order, and that
26 when we re-convene in St. John's, the cost of capital
27 experts will be the next expert starting October 29th. I just
28 wanted to ensure that all the parties were aware the plan
29 would be that Hydro would call its two cost of capital
30 witnesses followed by the other two parties who have cost
31 of capital witnesses, so there will be a break in Hydro's case
32 at that point.

33 MS. BUTLER, Q.C.: Perhaps to just clarify, Mr. Chairman,
34 in the event that there's insufficient public interest to
35 consume two full days on October 25th and 26th in St.
36 John's, then will Hydro be making available its next internal
37 Hydro witness?

38 MS. GREENE, Q.C.: That will depend on the number of
39 participants. I would like to see the list. It's very difficult
40 to start Mr. Budgell until Friday afternoon if he's then
41 going to have a full-week break and then he'll be back for a
42 week and off again. It's ... so I would reserve on that till we
43 see. If it's only, for example, Thursday morning that we
44 have public participation, yes, I could see us starting as a
45 possibility, but I would like to reserve on that till we know
46 the number of participants who actually will come and how
47 long that will occupy Thursday and Friday.

48 MR. NOSEWORTHY, CHAIRMAN: Is that fair enough?
49 I think later on during the week we might be in a position to

50 at least have a firmer fix on the numbers.

51 MS. GREENE, Q.C.: That's perfectly fine and, you know, as
52 the week develops we may in fact start Mr. Budgell this
53 week. I don't know.

54 MR. NOSEWORTHY, CHAIRMAN: Sure. Optimistic but
55 hopefully you're right. (*laughter*)

56 MS. GREENE, Q.C.: I make no comment on the schedule
57 any more.

58 MR. NOSEWORTHY, CHAIRMAN: Anyway, if there are
59 ... are there any other preliminary matters, counsel, that
60 you'd wish to raise?

61 MR. KENNEDY: Not that I'm aware of, Chair.

62 MR. NOSEWORTHY, CHAIRMAN: Okay. Thank you. If
63 I could ask Ms. Butler to continue with her cross-
64 examination of Mr. Henderson. Good morning, Mr.
65 Henderson.

66 MR. HENDERSON: Good morning.

67 MS. BUTLER, Q.C.: Thank you, Mr. Chairman. Good
68 morning, Mr. Henderson.

69 MR. HENDERSON: Good morning.

70 MS. BUTLER, Q.C.: Can I ask you, sir, if you're familiar
71 with the benchmarking study of Hydro's, Hydroelectric
72 Generation, which was performed by Hadden (phonetic)
73 Jackson Associates?

74 MR. HENDERSON: Yes, I am.

75 MS. BUTLER, Q.C.: And a copy of this report, at least a
76 copy of the study summary of the full report, was provided
77 in response to **NP-31**. Can we just look at the question?
78 Unfortunately the summary of the report is not stored
79 electronically so we need to obtain a hard copy. The
80 question of course was to provide copies of all
81 benchmarking studies performed since '92 relating to
82 electrical system or generating station performance, and the
83 answer given was that the only benchmarking study
84 performed was this one and that Hadden Jackson
85 Associates had been engaged in 2000 to do a
86 benchmarking study of all hydroelectric generation,
87 referred to as Bay D'Espoir in your report. In relation to the
88 report, I wonder if I could refer you first to page 21? Mr.
89 Henderson, I wonder could you read for us what's noted
90 under the heading "Performance"?

91 MR. HENDERSON: "Operations costs for the Bay D'Espoir
92 station group was poorer than expected, exceeding the
93 expected cost by about 50 percent. There are special
94 circumstances for both the Bay D'Espoir stations, however,
95 not all the stations in the Bay D'Espoir station group are
96 fully automated. It is recognized that the Bay D'Espoir

1 station itself has operators in the control room. HJA's
2 regression models for operations predict costs based on
3 four primary drivers, automated operations versus fully-
4 staffed on-site control room, number of units, average unit
5 size and megawatt hours generated."

6 MS. BUTLER, Q.C.: And of course I'm interested in the
7 first bullet which references the operations cost for the Bay
8 D'Espoir station group, which is all your hydroelectric
9 plants, correct?

10 MR. HENDERSON: That's right. I'm not sure how much
11 they would have looked at Roddickton mini hydro or the
12 Snooks and Venom's bight, but it would have been all the
13 large plants.

14 MS. BUTLER, Q.C.: Okay. Well the answer on the screen
15 at line seven says, "Study of all hydroelectric generation
16 referred to as Bay D'Espoir in the study."

17 MR. HENDERSON: Right.

18 MS. BUTLER, Q.C.: In any event, "Operations costs for
19 the Bay D'Espoir station group are poorer than expected,
20 exceeding expected costs by about 50 percent." Now since
21 this report was provided to you in 2000, can you tell the
22 Board, please, what Hydro has done relative to that
23 finding?

24 MR. HENDERSON: Just to correct on one statement, this
25 was done based on 2000 data and provided to us in 2001.

26 MS. BUTLER, Q.C.: Can you tell us specifically when?

27 MR. HENDERSON: It would have been February/March
28 time frame.

29 MS. BUTLER, Q.C.: Okay. So since that date can you tell
30 us then what initiatives or other actions Hydro has taken
31 relative to that finding on performance?

32 MR. HENDERSON: What we're doing is we've, we're
33 obviously reviewing this and giving it serious
34 consideration. Part of the problem with benchmarking, and
35 I want to sort of let everybody know, this circumstance
36 occurs when you have benchmarking is that you're in a
37 difficult situation in comparing apples to apples because all
38 hydroelectric facilities are different and where our ... what
39 we did here is we combine all of our generation together,
40 and that brings about the comment there about not all
41 stations in the Bay D'Espoir station group are fully
42 automated, and when they do a comparison here they
43 compare us to automated plants as opposed to just man
44 plants. There's a series of stations out there that are
45 manned, if you like, or staffed 24 hours a day, and then
46 there's another group that would be automated. Our group
47 is a mixture and for that reason it makes it difficult to get
48 a real good apples to apples comparison, so we're looking at
49 that and trying to see how, where we have a mix, how we

50 can apply these benefits, so we've been looking at that.
51 We're looking at our maintenance practices, our staffing
52 levels in different areas. We have not made, come to any
53 conclusion. We're just basically at this point studying this
54 report and we would be expecting to start implementing
55 some changes as a result of this in the next year or two.
56 There are implications potentially for staffing levels and
57 with respect to what they are talking about here and we
58 have to look at those carefully to make sure that it's
59 appropriate for our circumstances where these plants are so
60 critical to our system versus what may be the
61 circumstances in other plants that are a part of the
62 benchmarking study, so we have to be very careful how we
63 proceed and we're reviewing this and taking this study
64 quite seriously to see how we can improve our
65 performance.

66 MS. BUTLER, Q.C.: Okay. You've answered my question
67 in a more general fashion perhaps than I had anticipated.
68 Can I ask you when you say we are looking at our
69 maintenance practices, we are looking at our staffing levels,
70 we are reviewing it, I mean, is there a committee? Has this
71 been assigned to a particular group? Can you refer us to a
72 specific program?

73 MR. HENDERSON: There isn't a specific group. This right
74 now is being addressed by the management in the
75 Production Division and the Manager of our hydro
76 generation facilities. That manager is in Bay D'Espoir. He
77 will be ... he's using this and reviewing this with his staff,
78 which would be his managers, as well with his, who he
79 reports to, which is the Vice-President of Production. I
80 guess one of the things too on this issue is that we've had
81 some staffing changes in Production Division that impact
82 a little bit on how fast we move on this. Both the Vice-
83 President of Production and the Director of Generation
84 Operations retired in March and April time frame this year
85 and we now have a new Vice-President of Production who
86 has moved into that position in the summer, and so now
87 that he is into that position, we would expect this to be
88 moving along much quicker.

89 MS. BUTLER, Q.C.: On the same page under
90 "Improvement Opportunities," the authors indicate that,
91 "The Bay D'Espoir station group appears to have
92 opportunities for improvement and other leaders have
93 shown that," and then they list two only indicators of where
94 improvement can be made. Can I ask you, looking at this
95 specific reference to improvement opportunities, whether
96 Hydro has taken advantage of these suggestions since the
97 report was given to you in early 2001?

98 MR. HENDERSON: We haven't taken any specific action
99 yet. As I said, that we're carefully reviewing the results of
100 the benchmarking study and we expect to address them in
101 the next year or two. The specific point, elimination of

1 routine technical operator, staffing at automatic remote
2 facilities, that we have to look at carefully. Where we, our
3 system is so dependent on hydro generation and a failure
4 of a unit can have a major impact to our customers, we want
5 to make sure that we balance the, having operators ready to
6 respond for an outage, and when you look at somebody
7 who is in the middle of the US in a large interconnected
8 system it doesn't have the same impact, so we have to be
9 careful that we don't take these and say let's go and do it
10 right off the bat because our circumstances are different
11 than many others.

12 MS. BUTLER, Q.C.: That seems to be caught though by
13 the second recommendation in the sense that if operators
14 must be present, then they're suggesting that the operator's
15 role be multi (unintelligible), multi-functional.

16 MR. HENDERSON: Right, and that would be the type of
17 thing that we would be looking at.

18 MS. BUTLER, Q.C.: But not yet.

19 MR. HENDERSON: No. We haven't taken any action yet.

20 MS. BUTLER, Q.C.: On the next page the authors address
21 plant maintenance, and in the section of "Performance"
22 there they again conclude that, "The Bay D'Espoir station
23 group cost performance in the small to medium, less than 45
24 years old segment, was poorer than expected with costs
25 about 28 percent above that predicted by the model.
26 Service level measure was about average and placed just
27 about in the middle of the group when ordered from high to
28 low. The results in an overall performance score were
29 poorer than expected." So you're aware of this conclusion
30 on the performance of plant maintenance?

31 MR. HENDERSON: Yes.

32 MS. BUTLER, Q.C.: And then in "Improvement
33 Opportunities" here, the authors indicate that, "Overall
34 plant maintenance staffing levels are higher than the
35 leaders, resulting in higher overall costs. Leaders have
36 reduced maintenance costs with the following strategies."
37 And he lists or they list three. Can I ask you whether any
38 of the strategies referred to there have been considered by
39 Hydro since this report was prepared for you?

40 MR. HENDERSON: They are being considered, as I
41 mentioned, but there has been no action taken on these
42 other than the fact that we are reviewing them, and with our
43 new Vice-President in position, this is one of his items that
44 he has to address with the Manager of Hydro Generation,
45 to look at what of these we can implement.

46 MS. BUTLER, Q.C.: So there are no potential savings
47 reflected in the test year from any initiatives that may be
48 taken from this report.

49 MR. HENDERSON: No.

50 MS. BUTLER, Q.C.: Mr. Henderson, the discrepancy of
51 \$929,000 between system equipment maintenance as it
52 appeared in the October 2000 budget and the May 2001
53 budget, both for the 2001 year, was deferred to you by Mr.
54 Reeves, and ...

55 MR. HENDERSON: That ... at least part ...

56 MS. BUTLER, Q.C.: Or at least a portion of it.

57 MR. HENDERSON: Part of it, yes.

58 MS. BUTLER, Q.C.: And you entered an exhibit yesterday
59 that is of assistance there. Can you look at **RH-1**, please?
60 Mr. Henderson, **RH-1** is the summary of net operating
61 expenses for the Production Division and in the area of
62 system equipment maintenance, which is shown actually as
63 materials maintenance on the exhibit, there is an increase of
64 \$687,000, and that is almost to the dollar the amount that
65 was deferred to you by Mr. Reeves to explain.

66 MR. HENDERSON: That's right.

67 MS. BUTLER, Q.C.: So your footnote one applies to that.

68 MR. HENDERSON: Yes.

69 MS. BUTLER, Q.C.: And you indicated yesterday in
70 answer to Ms. Greene's question that this related to
71 additional maintenance at the Holyrood plant, higher cost
72 of services as per manufacturer's partnering agreement plus
73 other miscellaneous. So the one I want to ask you about is
74 the higher cost of services as per manufacturer's partnering
75 agreements of \$290,000. What are these manufacturer's
76 partnering agreements?

77 MR. HENDERSON: In 1997, I believe it was, we entered
78 into agreements with the original equipment manufacturers
79 for certain parts of the Holyrood generating station to
80 enhance our ability to reliably maintain the units. What we
81 had, the original manufacturer for the boiler, for valves, and
82 for the turbine, went into agreements with us whereby they
83 would do, oversee and take care of the annual overhauls on
84 that, those pieces of equipment, and they would also
85 provide us technical support throughout the year in order
86 to improve our reliability. Through a partnering
87 arrangement we would be able to get higher reliability, more
88 reliable maintenance done in the overhauls, getting them
89 done on time, and generally improve the reliability of the
90 Holyrood station. So that was in 1997 that we entered into
91 those agreements and they had, they expired, the
92 agreements expired either this year or late last year and then
93 we renewed them, and the renewal of those is what's
94 brought the increase in cost. In particular in those
95 agreements there is a labour component related to the, I'm
96 going to say building trades who do the overhaul. These
97 original equipment manufacturers use those trades to do
98 the overhaul work, and there was a significant wage

1 renegotiation for those building trades, causing their wage
2 rates to go up, and we, through the partnering agreement,
3 would end up incurring higher labour costs, if you like, for
4 those because of those wage increases. Now we had no
5 involvement in that negotiation of wage increases that was
6 for those construction trades or building trades, so that is
7 a large part of this. There is also inflationary increases, if
8 you like, in the partnering agreements themselves that also
9 contributed to that \$290,000.

10 (10:00 a.m.)

11 MS. BUTLER, Q.C.: Okay. So between October of 2000
12 and May of 2001, when two separate forecasts were done
13 for the 2001 year, the manufacturers' partnering agreements
14 on those pieces of equipment at Holyrood had increased
15 themselves by \$290,000?

16 MR. HENDERSON: That's right.

17 MS. BUTLER, Q.C.: What is the general value of the
18 partnering agreements themselves, do you know?

19 MR. HENDERSON: Just a second now, see if I can find the
20 note on that.

21 MS. GREENE, Q.C.: And I don't know if it would be helpful.
22 This is what Mr. Reeves spoke about as one of the
23 initiatives of materials management. It was the first
24 initiative, the ... he called it the strategic alliance of partners.
25 So he also gave the contracts, the dates and the values.

26 MS. BUTLER, Q.C.: Refresh my memory on values, it'd be
27 helpful.

28 UNIDENTIFIED SPEAKER: \$5 million and \$2 million
29 (inaudible) numbers.

30 MS. GREENE, Q.C.: I can't remember either but it was in the
31 transcript for that day.

32 MS. BUTLER, Q.C.: Okay. Mr. Henderson, that's fine. We
33 can find the reference to that in the transcript.

34 MR. HENDERSON: Okay.

35 MS. BUTLER, Q.C.: I want to go back now, Mr.
36 Henderson, if I might, to talk about, a little bit more about
37 the survey which is referred to in your supplementary
38 evidence and the **NP-304 to 310**. Can we look first at your
39 **supplementary evidence** on page three? Thank you. Lines
40 5 to 21 is basically where we're going to go. The question
41 that you were addressing here in your supplementary
42 evidence was whether Hydro was recommending a change
43 to a 30-year rolling average, which of course was the
44 approach taken by Mr. Brockman on behalf of
45 Newfoundland Power in his expert report. And the answer
46 that you gave there was, "No. Hydro believes it's prudent
47 to use and reflect all reliable inflow records in determining
48 average hydraulic generation. If we did not use all years of

49 record we would be" ... and then you've got three reasons
50 listed there. I'd like to take them individually, if I could. So
51 the first one is that if you didn't use all reliable inflow
52 records, you would be planning operation of the power
53 system, ignoring the driest period of inflows, which would
54 place energy supply at an increasing risk. Correct?

55 MR. HENDERSON: That's right.

56 MS. BUTLER, Q.C.: Now, when we got that supplementary
57 evidence, Newfoundland Power asked you a question
58 about that specific item, and it's **NP-310**. Let's look at the
59 question first, which is at line six. We asked, "If you could
60 quantify the increased risk to the system of setting rates
61 based on a 30-year average of inflows rather than a 51-year
62 average" ... can you read your answer at lines 17 to 23 for
63 me?

64 MR. HENDERSON: "Regarding the risk that is imposed in
65 using a 30-year average, it is difficult to quantify the risks
66 associated operating the system under one set of rules and
67 setting rates under a different set. However, as noted in
68 Part B below, introducing inconsistency between the
69 averages used to estimate hydraulic production as used in
70 rate-setting and those used for operating poses problems
71 and may introduce systemic uncertainty into the operation
72 of the power system."

73 MS. BUTLER, Q.C.: Okay. So in answering that you've
74 said, "as noted in Part B below," etcetera, "may introduce
75 systemic uncertainty." So is the systemic uncertainty
76 you're describing described in Part B below?

77 MR. HENDERSON: Yes.

78 MS. BUTLER, Q.C.: Okay. Well then we have to look at
79 Question B first. Scroll up. "B" was, "How will the setting
80 of rates based on a 30-year average affect how Hydro plans
81 the operation of the system?" And the answer was, "It will
82 not have a significant impact upon the system." Now we'll
83 go into the detail, but that was your answer, correct?

84 MR. HENDERSON: That's right.

85 MS. BUTLER, Q.C.: Well then I'm a little uncertain what's
86 meant by the systemic uncertainty, so let's read on and
87 maybe take it in very small pieces.

88 MR. HENDERSON: Sure.

89 MS. BUTLER, Q.C.: The first answer you, or the first part
90 of the answer you give at line 25 is, "However, rates are a
91 key input into the determination of the load forecast.
92 Higher rates discourage consumption and hence reduce the
93 amount of energy to be generated. Assuming that rates are
94 based upon the 30-year average, the expected hydroelectric
95 production used in the rate-setting process will be higher,
96 assumedly reducing the general rate level to customers.
97 Everything else being equal, load will be marginally higher

1 than if Hydro's existing methodology were used." Can I
2 take from that, Mr. Henderson, that you're suggesting that
3 there's a price elasticity concept at work here?

4 MR. HENDERSON: That would be the right terminology,
5 yes.

6 MS. BUTLER, Q.C.: And if the price goes down,
7 consumers use more?

8 MR. HENDERSON: They are ... yes, I guess that would be
9 right in that if the price goes down there would be a
10 tendency for people not to be so concerned about
11 conservation as opposed to when it goes up they will be
12 concerned about that impact on their finances and would
13 tend to be conserving their electricity, yes. That's the
14 concept here.

15 MS. BUTLER, Q.C.: Okay. In terms of the concept which
16 you've given to us now, in answer to the specific question
17 though, I wonder whether you can describe the price
18 elasticity effects for the Board and whether you can
19 quantify the price elasticity effects for the Board?

20 MR. HENDERSON: I can't quantify them but my
21 understanding of them is, as we just said, was that as price
22 of a commodity, if it's electricity or whatever, goes up,
23 there'll be a tendency to use less of it, and as the price goes
24 down there'll be a tendency not to conserve to the same
25 degree as if it was going up, and that is my simple
26 understanding of that price elasticity. I couldn't quantify
27 that.

28 MS. BUTLER, Q.C.: Okay. I accept that you can't quantify
29 the effects generally but can I ask you whether you can
30 provide us with the test year, that's the 2002, impacts that
31 you're addressing, because remember now you're giving
32 the Board your reasons for not going to a 30-year moving
33 average and you're suggesting price elasticity as one of
34 them. So for the test year 2002, can you provide us the
35 impact?

36 MR. HENDERSON: I can't. When you ... you have to take
37 into account all of the various impacts on rates. That
38 would require Newfoundland Power to re-do their forecast,
39 being the larger customer that we have, and I believe that
40 Newfoundland Power forecasting people do take price
41 elasticity into consideration when they do their load
42 forecast and that perhaps they may be able to answer how
43 much their load would be impacted by a variance here, but
44 I certainly can't do that. For rate-setting purposes we use
45 Newfoundland Power's forecast.

46 MS. BUTLER, Q.C.: Can you just scroll back to page one
47 of two there? You did say it will not have a significant
48 impact upon the system. That's line 25. Can I suggest to
49 you that the impact would be extremely small?

50 MR. HENDERSON: I don't know how small it would be but
51 it would be small.

52 MS. BUTLER, Q.C.: Going back to page two, the second
53 element of the answer that you're giving here in Part B
54 starts at line six, and you say, "In operating the system,
55 Hydro would continue to use its full historic record in order
56 to plan and dispatch its various generating units." Okay,
57 I understand that. The next sentence is, "The average
58 expected production for operating purposes would be less
59 than that currently envisaged for the 30-year average." I
60 think we saw that yesterday because yesterday what you
61 told me was that Hydro's calculation of the 30-year average
62 including 2000 figures was 4,425 gigawatt hours.

63 MR. HENDERSON: Yes.

64 MS. BUTLER, Q.C.: But Hydro's operating average and the
65 one that you've presented in your case is 4,285.

66 MR. HENDERSON: Yes, that would be the revised number.

67 MS. BUTLER, Q.C.: Right.

68 MR. HENDERSON: Yes.

69 MS. BUTLER, Q.C.: So I understand that sentence then.
70 The average expected production for operating purposes
71 will be 4,285, the 30-year average would be 4,425.

72 MR. HENDERSON: That's right.

73 MS. BUTLER, Q.C.: But then the next sentence, "In turn
74 then Hydro would operate its reservoirs higher in order to
75 maintain more storage to meet the additional loads, thereby
76 relying upon more thermal production." Are you telling the
77 Board something different from your original testimony,
78 which in fact you addressed with me in the very opening of
79 your evidence yesterday, and that was that Hydro
80 dispatches its energy so that the maximum load in energy
81 possible is met by the hydroelectric generation.

82 MR. HENDERSON: That's right. That's what we do.

83 MS. BUTLER, Q.C.: Excuse me, then my question was, is
84 this saying something different?

85 MR. HENDERSON: No.

86 MS. BUTLER, Q.C.: Okay. Can you explain the
87 inconsistency that I see?

88 MR. HENDERSON: What we do, part of operating the
89 power system is to ensure that we maintain a high enough
90 storage in our reservoirs to ensure that we are able to meet
91 our loads going into the future, and our hydroelectric
92 facilities have a very defined capability under very onerous
93 water conditions. The dry period that we have experienced,
94 which was the 19-, late 1950s, early '60s, we have to
95 maintain enough storage so that if we have that sequences
96 of inflows repeat (*sic*), that we have enough water to get

1 through to meet our loads into the next three years, so we
2 have to maintain that storage level high enough to get
3 through that period. If our load is higher, then we have to
4 bring our water storage levels up high enough so that if we
5 do have a repeat of that dry period we will get through and
6 meet all our loads. So as our load grows, we have a
7 tendency, and we do, raise our reservoirs higher and
8 operate them higher to ensure that if we have a repeat of
9 the dry that we have enough water in storage to get
10 through to meet our loads. So as load grows, the reservoir
11 level goes up. And so what this is saying is that if we have
12 a higher load because of the price elasticity impact, then we
13 would have to keep our reservoirs marginally higher, by
14 however much that impact is, to ensure that we can meet
15 that higher load. In order to get the reservoir up higher we
16 have to put in or produce more from thermal to get it to go
17 up.

18 MS. BUTLER, Q.C.: I understand what you're saying
19 because you're tying this back to the price elasticity reason
20 which was basically the first component of the answer.
21 You're saying that if the price to consumers is lower on the
22 basis of the 30-year average, using price elasticity theories,
23 the load will increase and you will store more water in your
24 reservoirs and run the risk of spillage.

25 *(10:15 a.m.)*

26 MR. HENDERSON: We have ... because we have no
27 opportunity to go buy our power from anybody else, we
28 have to manage our water so that we can meet all of our
29 firm load commitments, and therefore we have to raise the
30 reservoir up in order to be prepared for that dry period, and
31 the higher you operate the reservoir, the greater your risk
32 of spill is, so in the extreme you, what would happen, and
33 this happens primarily immediately prior to a new
34 generation source coming in service, we would have our
35 reservoirs nearly at (phonetic) full at the end of the spring
36 run-off, if you like, and have it there ready in case we hit a
37 dry period after that spring run-off. So as we get closer to
38 a new generation source, our reservoir gets higher. Each
39 spring we try to get it higher or in the fall we'll have it
40 higher, and then when the new source comes on we can
41 relax that criteria and let the reservoirs fall a bit because we
42 now have extra capability in the system to meet future
43 loads, and then we sort of go through this cycle of prior to
44 a new source coming on line we bring our reservoirs up, so
45 to the extent that you have additional load, the reservoir
46 has to come up a little bit higher.

47 MS. BUTLER, Q.C.: Okay. I'm just going to go ... I'm going
48 to leave that screen for a moment. I will come back to it but
49 perhaps we can look at **slide number six** on the slide show
50 you gave yesterday, **RH-5**, I think it was labelled. Thank
51 you, that's the slide there. This is the large reservoir
52 system that you're describing. Now, bearing in mind that

53 you've already told me that you feel the effects would be
54 very small ...

55 MR. HENDERSON: That's right.

56 MS. BUTLER, Q.C.: ... your total storage capability is 2,400
57 gigawatt hours.

58 MR. HENDERSON: That's right.

59 MS. BUTLER, Q.C.: So are you actually suggesting to the
60 Board that this very small increase would cause you to
61 exceed your storage capability and result in spillage?

62 MR. HENDERSON: No. What will happen is if you add
63 more load to the system, you have to operate the reservoir
64 higher. When you're up higher you won't be exceeding
65 your storage capability. You'll just be higher. But what
66 happens if you hit a wet period, a large storm comes
67 through, because you are higher you have less room in the
68 reservoir to store that large amount of rain that you get and
69 therefore you would end up having to spill if you had that
70 large rain storm. The lower you are able to operate the
71 reservoir, the more room you have to store that large
72 rainfall. So it's a marginal increase that we have to store our
73 water. We won't be up to full capability. We'll be
74 something less than that but we'll be higher than we
75 otherwise would be, therefore, there's less storage space to
76 take a major rainfall event and therefore when the major
77 rainfall event occurs, you have a higher probability of
78 spilling.

79 MS. BUTLER, Q.C.: The major rainfall event
80 notwithstanding, we were talking about the difference
81 between forecast on a 30-year average versus Hydro's
82 method, and you've indicated to me the price elasticity
83 effects and therefore the load effect as a result of that
84 would be very small. What I'm suggesting to you is that
85 the evidence you've given suggests that the increase
86 would cause you to not be able to manage to store the
87 excess water in your reservoirs.

88 MR. HENDERSON: That's not the intent of the evidence.
89 The evidence is to indicate that there is a higher risk, not
90 that there's, we can't handle it. It's just that if you do
91 operate the reservoir higher, you have less room to store,
92 therefore you have a higher risk of spilling. So to the extent
93 that the load is higher, there is a marginal requirement of
94 raising your storage levels. That marginal increase of
95 storage level will give you a marginal increase in probability
96 of spilling.

97 MS. BUTLER, Q.C.: Okay. Let's look back then to your
98 answer where we were, the last slide, and then you've given
99 the third reason here starting at line 18. "As reservoirs are
100 operated higher, there's less flexibility in accommodating
101 significant precipitation. Hydro may be unable to
102 accommodate the water, resulting in a spill, and thereby

1 additional thermal production."

2 MR. HENDERSON: Right, and that's what we ... that there
3 is saying is that where you are operating your reservoirs
4 marginally higher, then you don't have as much room to
5 handle a significant rainfall event, so you will have a higher
6 probability of spill, and a higher probability of spill, that
7 means more water spill. If you lose that water for your use
8 in the future, you will have to make up for that loss of water
9 by using thermal generation.

10 MS. BUTLER, Q.C.: Mr. Henderson ...

11 MR. HENDERSON: Again, all of this is ... and that's why
12 the whole answer was qualified by it has not a large or
13 significant impact but it is a marginal impact and this is an
14 attempt to describe that marginal impact.

15 MS. BUTLER, Q.C.: The answer specifically was, at **NP-**
16 **310**, "It will not have a significant effect on the system."

17 MR. HENDERSON: That's right.

18 MS. BUTLER, Q.C.: But this long answer was given
19 relevant to that.

20 MR. HENDERSON: Right.

21 MS. BUTLER, Q.C.: The second reason that you gave,
22 because these three elements were all given in relation to
23 your first reason, and that was price elasticity, we have to
24 go back to ... let me find my question here. Page three, lines
25 5 to 21, the supplementary evidence, Mr. O'Rielly. I will be
26 going back to that screen but I want to look at the
27 supplementary evidence first. Page three, there you go.
28 The second reason that you gave is at line 15, and here you
29 say you don't want to use the 30-year moving average
30 because it would introduce additional volatility in the
31 forecast as indicated by the increase in the 30-year rolling
32 average of 55 gigawatts by simply moving the average
33 period by one year." What you're getting at here of course
34 is what we saw yesterday, that by moving, by simply
35 including 2000 in your calculations, Hydro's figure went
36 from 4,271 gigawatt hours to 4,285 gigawatt hours.

37 MR. HENDERSON: Right. That's a 13 gigawatt hour
38 increase.

39 MS. BUTLER, Q.C.: Okay. And a 55 gigawatt hour
40 increase is the difference between 4,425.

41 MR. HENDERSON: That's right. That 55 gigawatt hours
42 comes about by having a 30-year average ending in 2000 as
43 opposed to ending in 1999.

44 MS. BUTLER, Q.C.: So that's the volatility that you're
45 speaking of.

46 MR. HENDERSON: That's right.

47 MS. BUTLER, Q.C.: By increasing the ... by adding one

48 year, the last year, 2000, in the method referred to by Mr.
49 Brockman, Hydro's own calculations go up by 55 gigawatt
50 hours. By adding the year 2000 using your calculation, the
51 figure only goes up by 13 gigawatt hours.

52 MR. HENDERSON: That's right.

53 MS. BUTLER, Q.C.: Okay. Less of an increase, that's the
54 13 gigawatt hours, would suggest some stability.

55 MR. HENDERSON: That's right.

56 MS. BUTLER, Q.C.: And the RSP exists to address
57 stability, or instability, correct?

58 MR. HENDERSON: That's right.

59 MS. BUTLER, Q.C.: So my question on this would be, how
60 can it be a reason not to go to a 30-year rolling average
61 simply on the basis of the fact that it introduces volatility
62 in the system when the RSP takes care of that volatility for
63 consumers?

64 MR. HENDERSON: I guess, as I said yesterday in my
65 suggestion of a shell game, I mean, that is true that the, it
66 will be taken in the RSP. What we are trying to do here by
67 us putting forward our proposal is to have an average
68 where we think over time our hydro production will tend
69 towards that point, and by having a long period of time in
70 that average you will get some stability but it will change
71 by the addition of years but it will give a very good
72 estimate of where hydro generation will tend over the long
73 term to end up. If you go with 30-year average, that
74 number will go up and down all over the place and it's not
75 necessarily going to reflect where your hydro generation
76 will tend to be over the long term. The idea of the RSP is to
77 have a number in there that you'll tend towards so that the
78 pluses and minuses in the plan do not get high. They tend
79 towards that middle or normal number. So that's why we
80 feel that there's a need for stability there because this is a
81 number that you're tending to see or go towards in the long
82 run. We also introduced this stability issue because Mr.
83 Brockman had raised it in his evidence that a 30-year
84 average provided sufficient stability, and we looked at this
85 and said that, no, it doesn't, because 55 gigawatt hours is
86 a significant swing. When we do this at the end of 2002,
87 we could see it swing right back to where it was the year
88 before, because this year we're having, experiencing a year
89 that is our tenth lowest, up to the end of September, is the
90 tenth lowest inflow in our 50 years of record for Bay
91 D'Espoir, and so when you add that in and drop the 1971
92 number, you may very well see a big swing back the other
93 way, so we see this as not being very stable.

94 MS. BUTLER, Q.C.: But the Rate Stabilization Plan takes
95 care of swings quite more significant than 55 gigawatt
96 hours. I mean, lets just look at **NP-45**, which is one of the
97 first exhibits I showed you yesterday, pages two to four.

1 In 1992 you had a low of 4,221 gigawatt hours and two
2 years later in 1994 you had the high of 5,043 gigawatt
3 hours, so 821 gigawatt hours in that two-year period, and
4 the Rate Stabilization Plan took care of the effects of that.

5 MR. HENDERSON: Oh, absolutely, I agree.

6 MS. BUTLER, Q.C.: Okay. Back to the **supplementary**
7 **evidence, page three**. The third reason that you gave for
8 not wanting to go to Mr. Brockman's methodology was that
9 you would be forecasting Hydro's power system energy
10 supply under conditions contrary to accepted practices of
11 other predominantly hydroelectric power-producing
12 utilities in Canada. Correct?

13 MR. HENDERSON: That's right.

14 MS. BUTLER, Q.C.: Now this is where we need to look
15 more closely at your survey, which was in **NP-304**, pages
16 one and two, and bear in mind that you're talking about
17 predominantly hydroelectric power-producing utilities in
18 Canada. The first contact is Alcan Primary Metal. That's
19 not a hydroelectric power-producing utility, is it?

20 MR. HENDERSON: No. They are not a utility per se, I
21 guess. They are a very large producer of hydroelectric
22 power and I'm not sure how much they sell but I would say
23 that they, suggest to you that they do but they also use
24 primarily their generation to support their production.

25 MS. BUTLER, Q.C.: But remember now, you're tying this
26 back to the answer you've given to the Board in your
27 supplementary evidence, which was, "Contrary to accepted
28 practices of other utilities."

29 MR. HENDERSON: Right.

30 *(10:30 a.m.)*

31 MS. BUTLER, Q.C.: Just onto the next page, as the list
32 went on, the last one, Louise (unintelligible), with Alcan
33 Smelters and Chemical Limited. That is also not a utility,
34 correct?

35 MR. HENDERSON: That's right. Again they operate in
36 Quebec, producing electricity for their Alcan smelters and
37 chemicals operations but they also would be selling their
38 excess power to Hydro-Quebec.

39 MS. BUTLER, Q.C.: Okay. And while we're on that page,
40 you have two references to Hydro-Quebec. No, scroll the
41 other way. Thank you. Both Louis Carbalotta (phonetic)
42 and Roger Lambert are with Hydro-Quebec.

43 MR. HENDERSON: That's right.

44 MS. BUTLER, Q.C.: Okay. Back to page one, the survey,
45 then basically when we're addressing the utilities, has Brian
46 Sast (phonetic) from B.C. Hydro, Mark Peters of Sask
47 Power, Harold Siminsky (phonetic) of Manitoba Hydro,

48 Don Ferko (phonetic) of Ontario Power Generation, and
49 then, as we saw on page two, two different contacts but
50 both with Hydro-Quebec.

51 MR. HENDERSON: That's right.

52 MS. BUTLER, Q.C.: Okay. Can you tell us how it was that
53 these utilities and not others were a part of your survey?

54 MR. HENDERSON: These people are members of a CEA
55 interest group that we participate in that, it's called the
56 Hydraulic Integrated Resource Management Interest
57 Group.

58 MS. BUTLER, Q.C.: Yes. That's referred to in your
59 evidence.

60 MR. HENDERSON: Yes.

61 MS. BUTLER, Q.C.: But surely they're not all the members,
62 are they?

63 MR. HENDERSON: I don't know all the members. I, myself,
64 am not on that committee, but one of my people in my staff
65 is on the committee, and he contacted these people. I am
66 not aware ... I can ... I'm looking at these and I'm trying to
67 think who the other hydroelectric generators are in Canada
68 that would be anywhere near as large as these, and in
69 Alberta there is some hydroelectric generation but it's not
70 significant to that system, and in Nova Scotia again there
71 is some hydroelectric that's not significant to their system,
72 and Nova, and New Brunswick, there is some hydroelectric
73 again. It's not a significant part of their system. So I don't
74 know if they participate in this. They may but I wouldn't be
75 surprised if they don't because of the, the hydro generation
76 is not so significant to their system.

77 MS. BUTLER, Q.C.: Okay. When you address Alberta,
78 Nova Scotia and New Brunswick and you say you believe
79 that their hydroelectric generation would not be significant,
80 can you tell me what's your threshold for not significant?

81 MR. HENDERSON: My threshold would be, I'm thinking
82 through all of these and I think in Ontario it's probably
83 around 30 percent. Saskatchewan, I'm not sure. It may not
84 be as high as 30 percent.

85 MS. BUTLER, Q.C.: No, but you've eliminated Nova Scotia,
86 New Brunswick and Alberta on the basis that they're not
87 significant. So are you suggesting to me ...

88 MR. HENDERSON: No. What I'm suggesting is that I
89 wouldn't be surprised that if those utilities didn't, weren't
90 participating in this interest group because of that. I have
91 had my own personal contact with these people in working
92 through the CEA in the past on different hydraulic research
93 projects and so on and those utilities generally had less
94 interest in the results of the studies because it was less
95 significant to the operation of their system, so I am not ...

1 I would suggest that they may not be members of this
2 interest group. I can find out for you if they are members
3 but I would not be surprised if they're not because of those
4 reasons, because I know from my past experience, I know
5 Nova Scotia has very little and it's highly seasonal, same
6 with New Brunswick, it's highly seasonal, because theirs is
7 primarily on the Saint John River which is ... they get a lot
8 of production in the spring but the rest of the year they
9 don't. They don't have large reservoirs. And in Alberta
10 again it's, they have a lot of mountain run-off type of
11 production. They're predominantly thermal generation, a
12 lot of coal, and coal-fired plants and steam, and gas-fired
13 plants and their generation mix. Saskatchewan are a
14 member of this group. I don't know that their hydro
15 generation is that big in their system, certainly not as big as
16 ours is in proportion.

17 MS. BUTLER, Q.C.: Okay. What I ... I will follow up on
18 your suggestion that maybe you can give me an
19 undertaking. Now I'll (inaudible) that with Ms. Greene now
20 in a moment. But I want you to remember that I'm going
21 back to the term that you used in your supplementary
22 evidence, and you're talking about, excuse me, I'll re-word
23 that, you're suggesting that you can't move towards Mr.
24 Brockman's suggestion because it would be contrary to
25 accepted practices of other predominantly hydroelectric
26 power-producing utilities in Canada.

27 MR. HENDERSON: Right.

28 MS. BUTLER, Q.C.: So are you telling us that
29 Saskatchewan Power is a predominantly hydroelectric
30 power-producing utility?

31 MR. HENDERSON: They have a large amount of
32 hydroelectric generation.

33 MS. BUTLER, Q.C.: Predominantly.

34 MR. HENDERSON: I don't know as far as predominant but
35 certainly if you were ... you could drop Saskatchewan from
36 the list and you could add, you could have B.C., Ontario,
37 Quebec, are certainly very, have very large hydroelectric
38 generation.

39 MS. BUTLER, Q.C.: Okay. Well let's deal with Ontario. Is
40 Ontario predominantly hydroelectric power?

41 MR. HENDERSON: They have a large amount ...

42 MS. BUTLER, Q.C.: No, Mr. Henderson, please. I'm giving
43 you back your supplementary evidence, okay,
44 predominantly hydroelectric power-producing. Is Ontario
45 power generation, to your knowledge, predominantly
46 hydroelectric power-producing ...

47 MR. HENDERSON: It's ...

48 MS. BUTLER, Q.C.: ... or is it nuclear and fossil (phonetic)?

49 MR. HENDERSON: I would say it's about equal, all three
50 of them approximately.

51 MS. BUTLER, Q.C.: So 30/30/30.

52 MR. HENDERSON: Something like that.

53 MS. BUTLER, Q.C.: So that's not predominantly ...

54 MR. HENDERSON: Predominant to ...

55 MS. BUTLER, Q.C.: ... hydroelectric power-producing.

56 MR. HENDERSON: ... their operation, but they are a
57 predominant hydroelectric generating utility in Canada.
58 They are a large hydroelectric generating utility. I think
59 you're taking issue with my words and what we're trying to
60 do here is identify utilities in Canada that have a large
61 amount of hydroelectric generation and trying to find out
62 what their practices are and whether they use 30-year
63 rolling averages or whether they use their full historic
64 record, and what we've found ...

65 MS. BUTLER, Q.C.: Well you see exactly what they used,
66 to be fair.

67 MR. HENDERSON: And what we've found out is that they
68 all use as much of a record as they can when they come to
69 determining their average capability of their facilities.

70 MS. BUTLER, Q.C.: What I'm trying to follow through with
71 is giving you a definition of the group that you felt you
72 wanted to compare yourself to, why you would include
73 Saskatchewan Power on the one hand and exclude Nova
74 Scotia or New Brunswick who might, when we accept your
75 undertaking in a moment, have in fact the same percentage
76 of hydroelectric power producing.

77 MR. HENDERSON: I think it's a matter of the size of their
78 hydroelectric facilities that they own. The amount that is
79 owned by Nova Scotia Power is not very large relative to
80 ours and New Brunswick may be ... I don't know how much
81 New Brunswick has but I know that from my past
82 experience in research that they are not impacted a large
83 amount by their hydro generation and how they ... they
84 don't have large reservoirs and that sort of thing for
85 operating their hydro.

86 MS. BUTLER, Q.C.: Well could I ask you then, relevant to
87 your suggestion that perhaps this information can be
88 obtained, to tell me the proportion of hydroelectric power
89 producing these utilities, and that's B.C., Saskatchewan,
90 Manitoba, Ontario, Nova Scotia, New Brunswick, Alberta,
91 actually produce?

92 MR. HENDERSON: How much they produce?

93 MS. BUTLER, Q.C.: Yeah, in terms of the predominantly
94 hydroelectric power-producing utilities, 25 percent, 20
95 percent.

1 MR. HENDERSON: That's ... I'm sure we can get that for
2 you. I mean, that's ... but I don't think that that's relevant to
3 the issue here. It's ... what's relevant is the amount of
4 hydroelectric generation that they have.

5 MS. BUTLER, Q.C.: Well except that that's not the way
6 that you put your answer.

7 MR. HENDERSON: Okay.

8 MS. BUTLER, Q.C.: Okay. When I asked you some
9 questions about this yesterday, you did tell me that you
10 weren't able to say that the utilities contacted used their full
11 historic reliable data record to impute their average
12 hydraulic forecast for rate-making purposes.

13 MR. HENDERSON: As you can see on the list of those
14 that were contacted, are not in the rates departments. We
15 did not contact the public utility commissions. The public
16 utility commissions may be using something different than
17 what these people use in determining their averages.
18 Through this process here, the Public Utilities Board could
19 decide to go with something different than what would be
20 recommended by other people who operate power systems
21 in their hydroelectric facilities, because that's ... the Board,
22 I guess, has that power to make that decision, but our
23 recommendation is to stick with a long-term average for the
24 reasons that we've stated. We did canvass these other
25 utilities and ask them if they were determining their average
26 energy capability of the facility, how do they do it, do they
27 use the full record or do they use a subset of it to reflect
28 climate change or recent experience, and they, no, they do
29 not. They use as much record as they can. I've also had
30 experience with other projects in Newfoundland that we've
31 investigated and in all cases when we hire consultants they
32 want to get as high, as long a record as they can to
33 determine the average capability of a facility, and that,
34 because that gives you a good indication of where that
35 plant will be able to produce before you go off and invest
36 money in developing that plant. When we're looking at
37 Labrador projects, we do the same thing. We go for as
38 long a record as we can, and that, we found that consistent
39 when we went back through other utilities, that they use as
40 a long a record as you can in determining the average.

41 MS. BUTLER, Q.C.: Mr. Henderson, again yesterday when
42 I put this to you, and I can give you the transcript for
43 reference, I don't think we need to see it on the screen, but
44 it is page 32 at line 82, I said, "For rate-making purposes,
45 Mr. Henderson, is that your evidence that they do that for
46 rate-making purposes?" And you said, "I can't say for
47 certain."

48 MR. HENDERSON: That's right because the public utility
49 commissions in those jurisdictions may have not followed
50 what would have been the recommendation of the people
51 who operate the plant. They ... that's within the purview of

52 the public utilities commission to make a change, and I can't
53 tell you whether the public utility commissions have ... I tell
54 you that what I would recommend is what's in our
55 evidence.

56 MS. BUTLER, Q.C.: In fairness though, Mr. Henderson, I
57 don't want to enter into a debate with you, but you don't
58 know because you didn't ask.

59 MR. HENDERSON: We asked these people what the
60 averages are used for. They said that these averages are
61 used for financial planning, rate-setting purposes, a whole
62 range of things, okay ...

63 MS. BUTLER, Q.C.: Well ...

64 MR. HENDERSON: ... and that's the way they answered it.
65 We did not ask them specifically what, because we weren't
66 talking to rates people, as to what was in ... the specific
67 question that you gave to me yesterday, we did not ask
68 that specific question, but they did say that they use these
69 in rate-setting purposes.

70 MS. BUTLER, Q.C.: In **NP-304**, page three of four, line 16,
71 you said, "Of the seven organizations contacted" ... now
72 we know that two of these weren't utilities, so I want to
73 restrict that now just to the utilities because of the way that
74 you've given your answer. Okay, line 16. "Of the" ... 14
75 actually. "Of the seven organizations contacted, five
76 indicated that the basis for estimating average energy
77 capability was a maximum reliable hydraulic, hydrologic
78 record."

79 MR. HENDERSON: Right.

80 MS. BUTLER, Q.C.: Okay. So let's just talk about the five
81 utilities. Of the five utilities contacted, how many of them
82 indicated to you that the basis for estimating average
83 energy was the maximum reliable hydrologic record?

84 MR. HENDERSON: They all did. They all use full record.

85 MS. BUTLER, Q.C.: So you're telling me then that the
86 seven, the five of the ...

87 MR. HENDERSON: There was one, which is what's
88 referenced there as, "Six respondents indicate that multiple
89 average energy estimates were developed depending on
90 the purpose for the estimate."

91 MS. BUTLER, Q.C.: Which is ...

92 MR. HENDERSON: That's one ...

93 MS. BUTLER, Q.C.: ... exactly what I'm talking about.

94 MR. HENDERSON: ... one of the utilities.

95 MS. BUTLER, Q.C.: That was one of the five utilities.

96 MR. HENDERSON: That's one of the five utilities. They
97 do multiple average energy estimates, but in all cases they

1 use their full hydraulic record in determining those
2 averages but they do different averages because of the
3 nature of their system, agreements that they have in their
4 system with other users of the river. There's certain
5 nuances in that system that require development of
6 different averages for agreements that they have for the
7 rivers in their system. So we're trying to say here that they
8 do more than one average because they have multiple
9 rivers that use different averages, but they indicate to us
10 that they use their full record. If they had more years to
11 use, they would use more years.

12 *(10:45 a.m.)*

13 MS. BUTLER, Q.C.: Okay. And was that British Columbia?

14 MR. HENDERSON: I don't want to say who it was because
15 we were asked not to indicate the respondents and I'm
16 trying to hold true to that.

17 MS. BUTLER, Q.C.: Okay, I won't push that issue for you,
18 but you're aware, Mr. Henderson, that Newfoundland
19 Power did their own due diligence after they got this
20 evidence from you.

21 MR. HENDERSON: I understand that there were multiple
22 people from Newfoundland Power calling all across Canada
23 to all these utilities, calling the people we contacted, we
24 understand they contacted other people, there was a lot of
25 phone calls. We also understand that there was contact
26 from somebody in Boston contacting these people as well.
27 So the result of our trying to find out the length of
28 hydraulic record, Newfoundland Power did go through and
29 made an awful lot of calls to a lot of people.

30 MS. BUTLER, Q.C.: Okay. But in fairness, Mr. Henderson,
31 Newfoundland Power provided to you directly some
32 information they had from B.C. Hydro.

33 MR. HENDERSON: Newfoundland Power did send me a
34 three, I think it was a three-page fax.

35 MS. BUTLER, Q.C.: From B.C. Hydro.

36 MR. HENDERSON: It came from Newfoundland Power.

37 MS. BUTLER, Q.C.: Yeah, but it related to B.C. Hydro as
38 opposed to Saskatchewan Power.

39 MR. HENDERSON: It related to B.C. Hydro, yes.

40 MS. BUTLER, Q.C.: So subsequent to the filing of this **NP-**
41 **304**, which we see on the screen, you may have, well you
42 do have some additional information.

43 MS. GREENE, Q.C.: Does Ms. Butler intend to file an e-mail
44 from Newfoundland Power? If so, I think she should do so
45 at this time.

46 MS. BUTLER, Q.C.: Mr. Chairman, I can.

47 MS. GREENE, Q.C.: Well I think it would be helpful if all
48 the parties saw what she was actually referring to, if she's
49 going to cross-examine the witness on it.

50 MS. BUTLER, Q.C.: If that's preferable. Yeah, we did
51 circulate it to all counsel last week.

52 MS. GREENE, Q.C.: Well I think it'd be helpful for the
53 Board as well ...

54 MS. BUTLER, Q.C.: Sure.

55 MS. GREENE, Q.C.: ... to see what you're talking about.

56 MR. NOSEWORTHY, CHAIRMAN: Could you do that,
57 Ms. Butler?

58 MS. BUTLER, Q.C.: We have it copied.

59 MS. GREENE, Q.C.: And I'd like Newfoundland Power to
60 indicate if they have received other information from any of
61 the other contacts they've made.

62 MS. BUTLER, Q.C.: About other information at all?

63 MS. GREENE, Q.C.: If there's anything ... you're providing
64 us with one, from one utility. I assume that ... that's my
65 understanding of what you're saying. We know that
66 you've made contact with other utilities. I assume because
67 you haven't provided it to us, there's no other information
68 that would be inconsistent, as you interpret it, with the
69 supplementary evidence?

70 MR. ALTEEN: Mr. Chairman, we're here trying to sort out
71 what the intent of this survey was in the supplementary
72 evidence. We have made contacts with a number of
73 utilities across the country. It's a complex issue, as the
74 testimony indicates. Once we have it ascertained to a
75 position that we feel comfortable we know how it works so
76 we don't get into a situation of not having asked enough
77 questions or the right questions, which is a very, very big
78 pitfall in this, we'll be able to come forward with other
79 practices. We do know that Nova Scotia has a certain
80 practice, we do know New Brunswick has a certain practice,
81 however, when you get into what the regulators do and
82 how it plays out in rates, it is somewhat more complex. So
83 we are ...

84 MS. GREENE, Q.C.: Is Newfoundland Power saying they're
85 going to file supplementary evidence? Is that what I'm ...

86 MR. ALTEEN: I fully expect that before this is done we will
87 be required to file supplementary evidence, Mr. Chairman,
88 to address the issue, and it will be filed in a time line to give
89 the parties notice, however, we are not at position today,
90 we've only had this for ten days or so, a week, to be able to
91 say that we can or that it would be material or helpful to the
92 Board, but we are doing extensive due diligence on the
93 issue. It's \$5 million in rates.

1 MS. GREENE, Q.C.: So we'll wait to see if there is additional
2 evidence filed. In that case I may need to re-call Mr.
3 Henderson or another witness with respect to ... which is
4 fair.

5 MS. BUTLER, Q.C.: The question I want to ask Mr.
6 Henderson about is going to be a Hydro exhibit, which you
7 all have in front you, is actually very simple, Mr. Chairman,
8 if I might proceed. On page one where the author
9 addresses average water assumption for rate-setting
10 purposes, the indication here is that, "For rate
11 determination purposes B.C. Hydro consolidated net
12 income must include an amount for electricity trade.
13 Methodology for determining electricity trade income for
14 rate-setting purposes is currently based upon special
15 direction and precedent. The average water assumption
16 utilized in establishing electricity trade income for rate-
17 setting purposes is different from assumptions used to plan
18 system operations that implement actual operations and
19 actual electricity trade. The forecast income difference
20 between the two methodologies can be significant." I just
21 want to ask you, Mr. Henderson, whether you accept that
22 at least in the British Columbia, the methodology for doing,
23 for determining electricity trade for rate-setting purposes is
24 different than for planning system operations.

25 MR. HENDERSON: That's what it says. I accept that.

26 MS. BUTLER, Q.C.: Okay.

27 MR. HENDERSON: And I would like to add that in
28 Newfoundland and Labrador Hydro we do similar items. I
29 think I mentioned this yesterday, that if we're, during the
30 winter time, we do not use averages. We take into account
31 our water levels, our snow pack and so on, and I would
32 expect that B.C. Hydro does a similar but probably much
33 more complex analysis because of the ability of them to
34 export into the US and make large amounts of money. It
35 warrants a very sophisticated system on their behalf, and
36 that's what they would be doing.

37 MS. BUTLER, Q.C.: The second portion of the B.C. Hydro
38 letter that I wanted to address was at page two, lines 28 to
39 31, and this is the reference that we see to hydrologic
40 conditions and domestic load uncertainty being
41 considered. Weather conditions are used to correlate
42 variations. A model typically incorporates 26 weather
43 sequences, 1973 through 1998. My question there is how
44 this relates to your statement that you felt all utilities
45 surveyed used their full historic record.

46 MR. HENDERSON: My understanding of this is that this
47 26 weather sequences that they are relating to here goes
48 back to 1973 which relates back to one of their large
49 reservoirs on which they have inflow records, reliable
50 inflow records for that large reservoir starting in 1973 and
51 moving forward, and when we ask them the question

52 whether, if they had records going back prior to 1973,
53 would they be using them, they said they would. The 1973
54 to 1998 period is reflective of their available record in ...
55 they have extensive precipitation monitoring, they have
56 inflow records and many other things, I guess, that they
57 use in developing this (inaudible) variables, but we were
58 told that if they had more, if they could go back prior to
59 1973 and they had reliable data prior to 1973, they would go
60 back further.

61 MS. BUTLER, Q.C.: And this exchange between
62 yourselves and B.C. Hydro was either in an e-mail or
63 telephone conversations or was something that we
64 obviously haven't seen because in terms of questions that
65 you put to them of that nature, I don't see that reflected in
66 your evidence of ...

67 MR. HENDERSON: No. What happened is when we
68 received this, we asked B.C. Hydro if our response to their,
69 our questions to them were inconsistent with what this
70 says, and they said no, it is not inconsistent. If they ...

71 MS. BUTLER, Q.C.: But again you're referring to
72 something I haven't seen, are you?

73 MR. HENDERSON: Pardon?

74 MS. BUTLER, Q.C.: You're referring now to something that
75 I haven't seen.

76 MR. HENDERSON: This is a telephone conversation that
77 we had with B.C. Hydro after this because we were very
78 puzzled as to what Newfoundland Power were trying to say
79 because when we read this we didn't see the inconsistency
80 and so we called B.C. and asked them is there an
81 inconsistency, and they said, no. They said if they had
82 records going back prior to 1973, they would use them, but
83 they don't have reliable, and I believe it's, you know, it's
84 inflow and they also use precipitation and they, in their
85 model, and if they had more they would go back more.
86 That was the ... so all I'm saying is it was showing that this
87 was not inconsistent with our conclusion that they use the
88 longest reliable record that they have in developing their
89 averages or their forecasts.

90 MS. BUTLER, Q.C.: Okay, so there is some suggestion
91 from British Columbia to Hydro that records predating 1973
92 are not, for their purposes, considered reliable. They
93 clearly have records prior to '73.

94 MR. HENDERSON: I would suggest that they don't have
95 enough records or information that they need in order to
96 develop stochastic variables for their hydraulic model.

97 MS. BUTLER, Q.C.: Okay, so the survey that you did was
98 five utilities in total, and I think you've indicated to me that
99 there is no clear industry standard in the sense of no two
100 utilities forecast alike.

1 MR. HENDERSON: No, the only thing that we felt that was
2 important to get on the record is that the utilities use as
3 much information as they can developing their average.
4 They go back with as long a history as they can to end up
5 with a reliable average number. Our concern and focus in
6 the survey was the suggestion of a 30 year rolling average,
7 and we wondered whether this was, there was a precedent
8 in Canada for that, and we, that was the purpose of our
9 survey, and what we found is that, no, everybody was
10 using as long a record as they could in developing their
11 averages, determining the capabilities of their facilities, and
12 they may use those long-term records in various ways, but
13 they all ... nobody indicated to us that they would cut it
14 short to 30 years and they certainly indicated that there's
15 climate change, it was an interesting topic, but they did not
16 see that they were going to change their way of predicting
17 the average capability of their hydroelectric facilities based
18 on climate change.

19 MS. BUTLER, Q.C.: And you didn't ask them specifically
20 if they used that methodology for rate making purposes. I
21 think we've made that clear.

22 MR. HENDERSON: Right.

23 MS. BUTLER, Q.C.: Now Mr. Brockman, of course, is not
24 questioning Hydro's planning of the operation of the power
25 system. His point was that production forecast in the test
26 year is significant because it affects the rates the
27 consumers will pay for years to come.

28 MR. HENDERSON: Well, at least until 2004 when we have
29 our next rate case goes forward.

30 MS. BUTLER, Q.C.: Okay, and I gather though, having
31 gone through this **NP-304** with you, that you were
32 suggesting that it would be inconsistent to use a 30 year
33 moving average, or whatever plan it was going to be, for
34 one purpose, namely rate making, and your other
35 methodology for system planning operations.

36 MR. HENDERSON: Right, there is small, as we talked
37 about this morning, impacts that that could have, and so
38 that's basically ... you can, and we do, operate using
39 different numbers that are set in rates.

40 MS. BUTLER, Q.C.: Okay, but you were essentially saying
41 that you saw that as being inconsistent.

42 MR. HENDERSON: Yes.

43 MS. BUTLER, Q.C.: That's how I read it.

44 MR. HENDERSON: Because in particular, the dry period in
45 the 1960's was a significant component of our hydroelectric
46 capability and to ignore the impact that has on our
47 averages was ignoring a known fact of a dry period in the
48 1960's, and we think that when you're producing an
49 average, you should try to accumulate as much of the

50 variability to get the full impact of how that impacts on
51 where your average production could be. We could be
52 entering into a dry period now and show that, you know,
53 that average will come back down, but the thing is we don't
54 know what's going to happen into the future, but we do
55 know what happened in the past and we're trying to come
56 up with an average or a normal based on what the past told
57 us, and the past told us that we can have a dry period like
58 we had in the late 1950's and early 1960's.

59 MS. BUTLER, Q.C.: The inconsistency though between
60 having one plan or method for one purpose, and one plan
61 or method for another is what I wanted to just quickly
62 address with you, and did you sit through Mr. Wells'
63 testimony, Hydro's President?

64 MR. HENDERSON: Yes, I did.

65 MS. BUTLER, Q.C.: Okay, so you're aware that he said and
66 specifically it was on September 28th in the transcript if you
67 want to have a look at that, page 11, lines 38 to 42, under
68 questioning, I think, from Commissioner Saunders. Now
69 the lines may be a little different on the electronic copy.
70 Yeah, line 35, he said, "the five year financial plan we're
71 talking about now in this case, which was filed with the
72 Board is for financial planning purposes, and we took
73 assumptions after the, you know, the 2002 period. That is
74 not a basis for setting rates, and everybody should be clear
75 on that". So Mr. Wells is saying that the financial plan was
76 for a different purpose other than setting rates, and that
77 there was a separate plan, of course, that went forward for
78 this application for setting rates, so it seems to me that
79 your President is suggesting that you can have two
80 different plans for two different purposes without being
81 inconsistent, so can't you have a 30 year moving average
82 used for setting rates, and a different method for planning
83 system operations without being inconsistent?

84 MR. HENDERSON: I think I've said that you can, but it's
85 not what I would recommend.

86 MS. BUTLER, Q.C.: Okay, and I'll just quickly finish with
87 this then, Mr. Henderson, the Granite Canal project which
88 is planning to be on stream, I think, mid 2003.

89 MR. HENDERSON: That's correct.

90 MS. BUTLER, Q.C.: Will give Hydro 224 additional
91 gigawatt hours per year in hydraulic production.

92 MR. HENDERSON: Approximately.

93 MS. BUTLER, Q.C.: Approximately, okay.

94 MR. HENDERSON: Again, that is like a long-term average
95 that was developed for numbers going back into the 1950's.

96 MS. BUTLER, Q.C.: Yes, okay, but the addition of Granite
97 Canal will clearly improve hydraulic production in 2003, and

1 every year after that.

2 MR. HENDERSON: Yes, and the impact will depend on
3 what the water conditions are in 2003.

4 MS. BUTLER, Q.C.: Okay, thank you, Mr. Henderson.
5 Those are my questions, and Mr. Chairman, thank you.
6 Thank you for being so forthright, Mr. Henderson.

7 MR. HENDERSON: You're welcome.

8 MR. NOSEWORTHY, CHAIRMAN: Thank you, Ms

9 MR. KENNEDY: Chair, just before we break there are a
10 couple of exhibits that needed to be labelled arising from
11 some of the questions. I didn't want to interrupt counsel
12 during the cross there. Two of them were ones handed out
13 yesterday. One is the **NP-44**, page 4 of 4, with the
14 revisions of the column numbers written on top of the ...
15 and seeing how it's an amendment to an existing exhibit, I
16 felt that we should label that as an additional exhibit, so
17 that's **NP-2**.

18 **EXHIBIT NP-2 ENTERED**

19 The second one is the combined reservoir energy flows,
20 which is again an exhibit from **LBB No. 1**, I believe, but this
21 also had additional calculations on it, so we're calling that
22 **NP No. 3**.

23 MS. GREENE, Q.C.: I'm sorry, could you just indicate
24 which one? There was two yesterday.

25 MR. KENNEDY: There's one with the average 1950, 1966,
26 and average 1967, 2000.

27 COMMISSIONER SAUNDERS: What was that last one
28 numbered as?

29 MR. KENNEDY: NP No. 3.

30 MS. HENLEY ANDREWS, Q.C.: I'm completely lost.

31 MR. KENNEDY: Okay, sorry, let me start again.

32 MS. HENLEY ANDREWS, Q.C.: Okay, that's okay.

33 MR. KENNEDY: I have the benefit of the Clerk sitting next
34 to me, so that's why I appear to be organized.

35 MS. GREENE, Q.C.: It's just that there was two sheets
36 distributed yesterday with similar data.

37 MR. KENNEDY: Are we okay there now.

38 MS. HENLEY ANDREWS, Q.C.: Yeah, I was finding NP-2
39 and you had moved on to NP-3.

40 MR. KENNEDY: Okay, I beg your pardon, and then the
41 last document is the one that was just handed out by
42 Newfoundland Power's counsel and it's just NP-4. Thank
43 you, Chair.

44 **EXHIBIT NP-4 ENTERED**

45 MR. NOSEWORTHY, CHAIRMAN: Thank you, Mr.
46 Kennedy. Thank you, Ms. Butler, Mr. Henderson, for that
47 cross-examination. We will break now and return with
48 cross-examination by the Industrial Customers, and I
49 noticed, Mr. Hutchings, you're in the centre seat, and will
50 be conducting the ...

51 MR. HUTCHINGS: That has a small but some significance.

52 MR. NOSEWORTHY, CHAIRMAN: We'll break until 10
53 after.

54 *(break)*

55

56 *(11:30 a.m.)*

57 MR. NOSEWORTHY, CHAIRMAN: I'll ask Mr. Hutchings
58 to begin the cross-examination of the Industrial Customers
59 with Mr. Henderson please.

60 MR. HUTCHINGS: Thank you, Mr. Chair. Good morning,
61 Mr. Henderson.

62 MR. HENDERSON: Good morning.

63 MR. HUTCHINGS: I am going to get away from water for
64 a little while *(laughter)*. We are going to go up north a
65 little ways. Referring initially to your pre-filed evidence at
66 page 3, around line 20, you're speaking there about
67 additions to capacity on the system, and you refer to an
68 addition to total capacity of 10.2 megawatts due to the
69 interconnection of the St. Anthony diesel plant, the
70 Roddickton mini-hydro and the mobile diesel units in
71 Roddickton.

72 MR. HENDERSON: Right.

73 MR. HUTCHINGS: Okay. I am having a bit of trouble
74 trying to reproduce your number there of 10.2 and I've
75 referred to **NP-122** and I wonder if you can tell me basically
76 how that 10.2 breaks down, where the different units fit into
77 that?

78 MR. HENDERSON: Okay. I believe we have 1.7 for the
79 mobile diesel units at Roddickton and St. Anthony I am
80 going to have to look. Did you say there is something in
81 **NP-122**?

82 MR. HUTCHINGS: **NP-122** provides the capacity factors
83 for all of the units in the system as I understand it and the
84 Roddickton mini-hydro, or the Roddickton diesel is shown
85 on page 6 of 7, at the bottom so the forecast there is 1.7
86 megawatts, as you say, for 2002. The average is 1.85. The
87 Hawke's Bay diesel, I guess that was on the system
88 previously, wasn't it?

89 MR. HENDERSON: Yes, it was.

90 MR. HUTCHINGS: So that's not included in your 10.2.

- 1 MR. HENDERSON: No. I've got 8 for St. Anthony, so that
2 brings us to 9.7 and then the difference is .5.
- 3 MR. HUTCHINGS: Yeah, and the Roddickton mini ...
- 4 MR. HENDERSON: And that's probably rounding for the
5 Roddickton mini-hydro which is at actually .4, I think.
- 6 MR. HUTCHINGS: Yes, the Roddickton mini-hydro is on
7 page 4 of 7 of that response that's up there now ...
- 8 MR. HENDERSON: Yeah, .4.
- 9 MR. HUTCHINGS: Okay, so what it looks ...
- 10 MR. HENDERSON: So the difference there appears to be
11 in the rounding. I'd have to dig way back to find out when
12 I was preparing the evidence, the numbers I added up. I
13 don't have them right here but it could be that St. Anthony
14 may be marginally more than 8. You know, when you add
15 up the kilowatts you might get a different number when
16 you round.
- 17 MR. HUTCHINGS: Okay. No that explains it. The pre-filed
18 evidence refers to that as additional capacity, of course,
19 but in terms of the net effect of adding that capacity, you
20 were also, of course, adding load, were you not, at the time
21 of the interconnection?
- 22 MR. HENDERSON: That's right.
- 23 MR. HUTCHINGS: And the load was quite considerably
24 larger than the capacity that was added.
- 25 MR. HENDERSON: I am not sure.
- 26 MR. HUTCHINGS: If you want to look at **IC-77** ...
- 27 MR. HENDERSON: It would be since the woodchip plant
28 has been decommissioned but prior to interconnection that
29 system was running to meet the load in that system, so all
30 the capacity was there to meet that load. So that's why I am
31 hesitating to say that it didn't add as much generation as
32 there was load because there was more than enough
33 generation there prior to interconnection to meet the load
34 in that area because it was isolated, but since that time the
35 Roddickton woodchip plant has been taken out of service
36 so the 5 megawatts there reduces it, but I think there was a
37 reserve criteria on that isolated system that would have
38 allowed the load to have been met with the Roddickton
39 thermal plant out of service. But now also there's be a 2
40 megawatt plant, or a little over 2, for the old Roddickton
41 diesel plant taken out of service. So when you take those,
42 I would say the answer is yes. At this point in time the
43 generation in that area is less than the load.
- 44 MR. HUTCHINGS: Okay. If we could just go to page 2 of
45 2 of **IC-77**, this shows us the loads North Deer Lake and we
46 are looking at for 2002 a projection of 39 megawatts.
- 47 MR. HENDERSON: Right.
- 48 MR. HUTCHINGS: Okay. Now I grant you, of course, that
49 that could also be met in part by the Hawke's Bay diesel
50 which is another 5 megawatts.
- 51 MR. HENDERSON: That's right. Yes.
- 52 MR. HUTCHINGS: Okay. But that's still only brings it up
53 to 15 and we are talking about a load of 39.
- 54 MR. HENDERSON: That's right.
- 55 MR. HUTCHINGS: Okay.
- 56 MR. HENDERSON: The question you asked me was when
57 we interconnected, the load that was interconnected, and
58 the two are probably close to equal, the additional load.
- 59 MR. HUTCHINGS: Okay, but from where we are today
60 obviously all the generation on the Northern Peninsula
61 doesn't come close to meeting half of the load. Correct?
- 62 MR. HENDERSON: That's right. That's peak load.
- 63 MR. HUTCHINGS: Yes, uh hum.
- 64 MR. HENDERSON: I think these are peak load forecasts
65 here so this would be the, the kilowatts there would be the
66 peak on the Great Northern Peninsula and the generation
67 on the Northern Peninsula would not be able to meet the
68 peak.
- 69 MR. HUTCHINGS: Okay. And in terms of the energy
70 requirements?
- 71 MR. HENDERSON: I would suggest that it's certainly
72 similar but I am not exactly one to one because the energy
73 is, on average, quite a bit lower than the kilowatt capacity
74 so there would be times that the plants on the Northern
75 Peninsula, if you were to run, continually run the, all those
76 diesel units and the hydro units, there may be times that
77 they could meet the load, but they wouldn't be able to meet
78 all of that.
- 79 MR. HUTCHINGS: No. Okay. And then from what they
80 are actually run now, they are actually providing less than
81 one percent of the energy for the Peninsula.
- 82 MR. HENDERSON: Oh, I would say, yes, because we
83 wouldn't use those because of the cost of operating.
- 84 MR. HUTCHINGS: Okay. Dealing with the Roddickton
85 mini-hydro, the same answer we have there on page 1, talks
86 about, at line 9, the Roddickton mini-hydro and it is a run-
87 of-river facility. Do you regard a run-of-river facility as
88 providing firm capacity?
- 89 MR. HENDERSON: I think you would have to ask Mr.
90 Budgell exactly on the firm capacity issue. I am not sure
91 why he uses the Roddickton mini-hydro but it would, there
92 would be an element certainly of that capacity that is
93 available to meet system peaks but generally a run-of-river

1 plant, like it says here, is run when the water exists, so you
2 can't, if there is no water you can't put it on and get it on to
3 meet a particular demand. But depending on the water, that
4 plant is probably on around the time of the peak.

5 MR. HUTCHINGS: Depending on water.

6 MR. HENDERSON: Depending on how much water.

7 MR. HUTCHINGS: Yeah. Okay. The answer in **IC-77** goes
8 on to say that the mini-hydro operates primarily as an
9 energy source and reduces fuel costs at Holyrood.

10 MR. HENDERSON: That's right.

11 MR. HUTCHINGS: Would you agree with me that that
12 benefit to the entire system of reduction in fuel costs at
13 Holyrood doesn't require that there be a transmission line
14 from Roddickton to the grid in order to get that benefit?

15 MR. HENDERSON: The plant has to be connected to the
16 system in order to get that benefit. If it is not there it's not
17 going to displace Holyrood. You have to have a line
18 connecting ...

19 MR. HUTCHINGS: But it is not necessary in order for this
20 benefit to be effected that any power or energy be
21 transmitted from Roddickton to any other part of the grid.

22 MR. HENDERSON: No, what it would do is displace
23 energy that would otherwise be going up ... if that plant
24 wasn't there, there would be more energy going up the lines
25 to the Northern Peninsula than with the plant there.

26 MR. HUTCHINGS: Exactly.

27 MR. HENDERSON: So that plant displaces the load and
28 thereby, that's going up the Northern Peninsula, and
29 thereby there is less from Holyrood required.

30 MR. HUTCHINGS: Yes. Uh hum. So the transmission line
31 up the Northern Peninsula serves its purpose of delivering
32 power up the Northern Peninsula. Correct?

33 MR. HENDERSON: And also allowing this plant to
34 displace Holyrood. If the line wasn't there, as I already
35 said, you wouldn't get any benefit from this plant with
36 respect to Holyrood so you do need a line there to get the
37 benefit of that energy.

38 MR. HUTCHINGS: Once the line is there you get the
39 benefit by whatever generation is up there. Correct?

40 MR. HENDERSON: Once the line is there, yes.

41 MR. HUTCHINGS: Yeah. You would certainly never build
42 a line to Roddickton for the purpose of this .4 megawatts.
43 Would you?

44 MR. HENDERSON: You certainly wouldn't build the lines
45 that are there because the lines were built there for
46 interconnection of the St. Anthony ... well all of the lines

47 were basically built to meet all of the load in the area not for
48 the sole purpose of tying in a small hydro plant.

49 MR. HUTCHINGS: Yeah, okay. Alright. At line 17
50 through 20 of **IC-77** there is mention of the event of the
51 failure of a hydro unit and it says that the diesel units,
52 including the ones presumably at Hawke's Bay, St.
53 Anthony and Roddickton, would be called upon to supply
54 power depending upon system load and availability of
55 lower cost generating units. Can you just tell us from an
56 operations point of view in terms of the production of
57 electricity what would happen in the event of an outage?
58 How would those diesel units actually be used?

59 MR. HENDERSON: Well it depends on the magnitude of
60 the loss of the generation. If you are under a circumstance
61 where you don't have many alternatives, you would go to
62 operate these diesel units to meet the shortfall. For
63 instance, if you lost during the winter, during the peak load
64 hours of the day, lost a unit at Holyrood which is a
65 considerable large amount of generation, you quite likely
66 could be into operating everything that you can on the
67 system to meet the load demand during that cold winter
68 day and at that time, we would start up the Hawke's Bay
69 and St. Anthony diesel plants. They are operated as, as it
70 says there in that answer, from the control center so we can
71 start them from the control center and start them up to help
72 meet the load. We have, in the past, called upon the
73 Hawke's Bay plant to be used to help with system peak.
74 Now in the past the Hawke's Bay plant was not remotely
75 controlled from the control center so, therefore, we had to
76 get somebody in. The timing and use of it was not as good
77 as it is now where we can have it start in a matter of
78 minutes to get it up and meeting the system load. So in the
79 future for those shortfalls we now have these plants that
80 we didn't have in the past to respond quite quickly to a loss
81 of generation.

82 MR. HUTCHINGS: And effectively if those diesel units
83 were started they would serve that part of the load on the
84 Northern Peninsula which would otherwise be provided by
85 the grid.

86 MR. HENDERSON: What they will do is they will displace
87 the load that would have otherwise been provided on the
88 grid in that, on a cold winter day, as we have already
89 established, they would not be able to meet the peak load
90 on their own. They still need power from the grid to supply
91 the Northern Peninsula but they lessen the amount of
92 power going up the Northern Peninsula.

93 MR. HUTCHINGS: Sure. Okay. Alright. If we could go
94 back to your pre-filed evidence at page 2. Okay, no, I'm
95 sorry I've got the wrong reference. Let's move on then to
96 **IC-147**. On page 2 of that answer at line 7 to 8, you are
97 talking again about the Hawke's Bay diesels and the use of

1 them. Could you just read the sentence at line 7 through 9
2 and explain what you are intending to convey by that
3 information?

4 MR. HENDERSON: "The Hawke's Bay diesels have been
5 used to maintain acceptable voltages to Hydro rural
6 customers during schedule or forced outages on the Great
7 Northern Peninsula". What is meant there is the ... I have
8 just got to read to myself anyway the other words around
9 this to make sure I get the context.

10 MR. HUTCHINGS: Sure. Uh hum.

11 MR. HENDERSON: Okay, the Hawke's Bay diesels, in the
12 past and they continue to be used to supply the ... maintain
13 acceptable voltages that supply load on the Great Northern
14 Peninsula when there are outages on the lines. For
15 instance, the line that goes down to Hawke's Bay, I believe
16 it is TL-221, if it went out of service then the Hawke's Bay
17 diesels would be put in service because it is down near the
18 communities, so that would maintain the load in that area.
19 Also, if we have transmission lines such as TL-259 which
20 is a line that goes from Berry Hill up to Peter's Barron, it's a
21 138 kV transmission line, and maybe I'll just show you that
22 on the map, it runs from here to here. There is a 66 kV line
23 in parallel with it and that 66 kV line cannot carry the full
24 load all the way up to St. Anthony and maintain acceptable
25 voltages so when that line is out we would put the Hawke's
26 Bay diesels on to maintain acceptable voltages over the
27 whole Northern Peninsula, while that line ... you know, to
28 support the voltage. You may not produce a lot of power
29 but it would be on enough to keep and maintain an
30 acceptable voltage level. So, in that way it enhances our
31 ability to schedule outages on the Great Northern
32 Peninsula.

33 MR. HUTCHINGS: Okay, and that would maintain your
34 voltages between Hawke's Bay and St. Anthony?

35 MR. HENDERSON: It would maintain ... it depends on the
36 load at the time. You could use it alone and it would
37 supply ... support the voltage enough to not have the St.
38 Anthony diesel plant on but there maybe, if the load is
39 higher you could have the St. Anthony diesel plant on as
40 well to support the voltages.

41 MR. HUTCHINGS: Uh hum. Okay. Following down there
42 on that same answer to lines 12 to 14, you refer to a
43 particular day on January 2, 1996 when the Hawke's Bay
44 diesels were used supply generation requirements for the
45 entire system. I take it that would have been the peak day
46 of that year?

47 MR. HENDERSON: I don't think it was actually. It was just
48 that that was a day in which we had generation problems
49 on the system and because of that it was a peak day but
50 not the highest day. I think the peak for 1996 was around

51 1316, or something like that, marginally higher, and on that
52 particular day we probably didn't need to put the Hawke's
53 Bay diesel units on because we had a sufficient capability
54 from other means.

55 MR. HUTCHINGS: Yes, okay, but it would be fair to say
56 that on January 2nd, probably in any year, all of the
57 generation on the Northern Peninsula would not be
58 sufficient to meet the load on the Northern Peninsula.

59 MR. HENDERSON: That's right.

60 MR. HUTCHINGS: If we could turn briefly then to **IC-125**,
61 this may be a matter that Mr. Budgell will have to speak to
62 as well, but I am taking from the answer that has been
63 provided there that this answer provides a complete list of
64 the customer classes who were benefited by the
65 interconnection to the Great Northern Peninsula.

66 MR. HENDERSON: These are the customers that would
67 have been previously not interconnected and became
68 interconnected. That's the way I would read that.

69 MR. HUTCHINGS: Yes and question number one was
70 which customer classes benefited from the interconnection
71 and they are listed there as the rate classes 1.2, 1.23, and
72 2.5.

73 MR. HENDERSON: I would suggest that it's not complete
74 from the extent that we have had this discussion where
75 there has been a minor benefit, if you like, or some benefit
76 of the diesel plants benefiting others when we do have a
77 capacity problem. There is that benefit that we have been
78 talking about but these are the primary customers that
79 benefited from the interconnection.

80 *(11:45 a.m.)*

81 MR. HUTCHINGS: Okay. Mr. Henderson, if would refer
82 back to your pre-filed evidence now that, page 7. At line 15
83 you are talking about the nugs, and hydro's small
84 hydroelectric plants that have little or no storage capacity
85 and their operation cannot be scheduled. Which plants do
86 you refer to as the small hydroelectric plants there?

87 MR. HENDERSON: That would be Snook's Arm, Venom's
88 Bight, and the Roddickton mini-hydro. The Paradise River
89 plant has a small amount of storage and we can make use
90 of it to a degree to schedule its operation. It's sort of ... it's
91 got enough storage that what we can do is that we can turn
92 it off and make sure that it is available for meeting peak
93 requirements. Although it is a run-of-river, it has little
94 storage. But we do get a benefit from it. The other three,
95 I guess too, is that we don't have remote control of those
96 to the extent that you might be able to schedule them.
97 You'd have to have that kind of control to do it.

98 MR. HUTCHINGS: Yeah, I guess it was primarily Paradise
99 River that was causing me some confusion because I had

1 thought that it had been referred to as a run-of-river plant
2 but, again, there was a reference to storage. So, is it neither
3 fish nor fowl?

4 MR. HENDERSON: Paradise River does assist us in
5 meeting peak. We do schedule it but it's because we have
6 that very good control of that plant that we can ... on days
7 that ... we anticipate cold days. When we see it in the
8 forecast we will ask our operators to not put that unit on
9 line even though there may be sufficient water to be
10 running it, say in the middle of the night. We would say
11 hold off and save the water for the day time and use it so
12 they will carefully operate the plant so that it is on and
13 available for meeting peak loads. There's enough water
14 there. The storage probably can give, I don't know,
15 something like a day, at least a day, of operation. If there
16 is no water going in, there's enough water in the reservoir
17 that you store it and run that plant for a day at least. But
18 that's small storage but that's enough to allow scheduling.

19 MR. HUTCHINGS: Yeah, okay, I mean is the storage
20 capacity ever used in connection with the scheduled
21 maintenance to provide capacity when something else is
22 going to be off?

23 MR. HENDERSON: At Paradise River?

24 MR. HUTCHINGS: Uh hum.

25 MR. HENDERSON: At Paradise River, because it is small
26 storage it gives us limited benefit for a long-term outage.
27 It can only, like I say, it has something like a day's storage
28 so you could use it for, sparingly over a number of days to
29 help with the peak. You would run it, say four hours every
30 day and then over six days you've used up all the water.
31 Assuming it is 24 hours that you ...

32 MR. HUTCHINGS: I see.

33 MR. HENDERSON: You would get four days out of it,
34 right, to help. So you could, in that sense, help to reduce
35 the requirement for other generation on peak by judiciously
36 scheduling its operation.

37 MR. HUTCHINGS: Yeah, I mean you say you could do
38 that. I mean is that, in fact, what's done or is it so
39 insignificant that it's not worth the effort? (*laughter*)

40 MR. HENDERSON: Generally, when we schedule outages
41 we have sufficient reserve on the system that that kind of
42 operation would not be necessary. We would try to
43 schedule all of our outages so that we have a large unit in
44 reserve. We usually schedule it such that whenever we
45 have a unit out we can lose the next largest unit that's
46 operating and still be able to meet the load with the
47 remaining capacity. Paradise River would serve to meet
48 part of that.

49 MR. HUTCHINGS: Okay. I take it, given the way that

50 Paradise River operates, it's not really of any value as an
51 emergency source in case of any unexpected outage.

52 MR. HENDERSON: We would use it.

53 MR. HUTCHINGS: If the water was there.

54 MR. HENDERSON: To the extent that we have water, we
55 would run it.

56 MR. HUTCHINGS: Okay. But you can't plan ... it's not
57 really a reliable standby in the sense that, you know, one of
58 your regular plants with storage would be, one of your
59 regular hydro plants.

60 MR. HENDERSON: It can't produce 24 hours a day
61 continuously like any of the other units would be in that
62 sense because it has a limited amount of water. But as far
63 as meeting emergencies, we would be able to operate it for
64 short periods to get us through peaks.

65 MR. HUTCHINGS: Unless you had just done that the day
66 before for some other reason.

67 MR. HENDERSON: Yeah, or we had been doing it for the
68 last four days or something.

69 MR. HUTCHINGS: Yes, yeah, okay. Can we look now at
70 the answer to **IC-152**? This question asked for your
71 experience with respect to water and energy conversion
72 factors since the implementation of energy management
73 system in 1989 and just looking at the table that is there, it
74 strikes me that in connection with both Hines Lake and Cat
75 Arm, your best conversion factors were in 1990.

76 MR. HENDERSON: Yes.

77 MR. HUTCHINGS: That makes it look as though you've
78 had a negative impact from your (*laughter*) energy control
79 system. Can you explain that?

80 MR. HENDERSON: Yes, what happened prior to 1990
81 when these ... we went to using economic dispatch through
82 the EMS, Hines Lake and Cat Arm were operated
83 differently. They didn't share in regulation of the power
84 system and share in meeting ... like adjusting them up and
85 down to meet the system load. When we put them on
86 economic dispatch they were joined in with the Bay
87 D'Espoir and Upper Salmon plants to do a full regulation of
88 the system. And what we used to do with Hines Lake and
89 Cat Arm is we would put them on and put them on at their
90 most efficient load and leave them there sitting at their most
91 efficient load, so they didn't move off that most efficient
92 load, so you got a very good conversion factor for Hines
93 Lake and Cat Arm. But once we put in the economic
94 dispatch we said let's bring all our plants together so that
95 they all share in meeting load swings on the system. And
96 Hines Lake and Cat Arm started doing that and once they
97 started doing that they were no longer operating always

1 right at their most efficient load. They were moving off
2 their most efficient load in the same way that Bay D'Espoir,
3 well Bay D'Espoir always had to move off it most efficient
4 load, because the Bay D'Espoir plant was moving up and
5 down as the system load went up and down and it was the
6 only plant doing that. The other plants were sitting at their
7 most efficient load. When we brought in the economic
8 dispatch all of the plants now move up and down which
9 changes the system load. The economic dispatch does it
10 such that it does it in a most efficient manner. That way we
11 get gains at Bay D'Espoir by having the other plants there
12 but we have losses at those plants. So, in a sense, what ...
13 you know, there is losses in Cat Arm and Hines Lake and
14 Upper Salmon actually and gains at Bay D'Espoir and the
15 next effect is that you got a positive gain.

16 MR. HUTCHINGS: Okay. Has there been numbers
17 produced that show the net effect?

18 MR. HENDERSON: We haven't done that analysis. What
19 we have done is we said let's use the numbers since the
20 EMS went in place to reflect the operation. The difficulty
21 in doing the type of analysis that you are suggesting is the
22 load required to be met by the hydro plants varies from
23 year to year depending on the water conditions, system
24 load, and all those things, so every year is different and
25 because of that the point at which you operate the plant off
26 from its most efficient load, every year is different. So the
27 impact is not easily identified because no two years are
28 comparable. So if you want to try to say well let's look at
29 how we've done from 1991 to 2000 versus what we did from
30 1981 to 1990, you don't really have an apples-to-apples
31 comparison because of the significant changes in system
32 load, load distribution, amount of water you had and that
33 sort of thing. They all have large impacts on the
34 conversion factors so you can't do that kind of apples-to-
35 apples comparison. We did make an attempt at that in the
36 early nineties and we were frustrated because you could
37 not get to the point of having an apple-to-apple
38 comparison to show the improvement.

39 MR. HUTCHINGS: How do satisfy yourself then that the
40 net effect is, in fact, a benefit?

41 MR. HENDERSON: The economic dispatch uses unit
42 efficiency curves that we have built into the computer
43 program. We use, I guess, tried and true methods of
44 economic dispatch that are used in other utilities where
45 these benefits have been found and it certainly is ... it's
46 somewhat, I guess, intuitive to somebody that operates the
47 power system that if you use your efficiency curves and
48 have a computer program that is designed for the most
49 efficient operation, would give you a better answer than
50 trying to have a manual operation which is what it was at
51 Bay D'Espoir before. We used to have the operators
52 actually went over; they saw the frequency file and they

53 would go over to every unit and give it a twig to get the
54 speed on the system going back up again and it was a
55 manual operation not considering economics. I should say
56 that there was a consideration of economics but certainly
57 not to the degree where a computer can constantly be
58 looking at it and making those changes.

59 MR. HUTCHINGS: So what your program is intended to do
60 is distribute the inefficiencies throughout the four plants in
61 such a way as to minimize them.

62 MR. HENDERSON: That's right because the system load
63 doesn't exactly match your unit's most efficient load. It just
64 cannot be so. So you have to spread it out.

65 MR. HUTCHINGS: Okay, I have a few questions, Mr.
66 Henderson, dealing with the efficiencies at Holyrood, and
67 Ms. Butler had talked to you a bit about this yesterday. If
68 we could look at **NP-259**. The table at the bottom of the
69 first page there gives us the monthly fuel efficiency factors
70 used to develop the 609.6 kilowatt hours per barrel for the
71 year 2000, can you explain for me ... I think I probably know
72 the answer to this, but I'd just like to get on the record the
73 significance of the negative numbers in June, July, and
74 August, for net production.

75 MR. HENDERSON: The significance is during those
76 months the plant was shut down, and what we're showing
77 here is the net production which is the amount produced
78 by the plant, less the energy consumed by the plant, and
79 what you're seeing there, because the plants were off for
80 June and July, but not all of August by the looks of the
81 amount of fuel that was consumed, the plant used more
82 than was produced, so you've got a negative number.

83 MR. HUTCHINGS: Okay, but given that its fuel
84 consumption was zero, is it fair to say that it actually
85 produced no energy and used energy from another source?

86 MR. HENDERSON: That's right.

87 MR. HUTCHINGS: Okay, which presumably would be
88 hydro?

89 MR. HENDERSON: It would have been, yes.

90 MR. HUTCHINGS: Yeah.

91 MR. HENDERSON: Yeah.

92 MR. HUTCHINGS: Okay, can you explain for me then why
93 you include those numbers in your total for the purpose of
94 developing an efficiency factor?

95 MR. HENDERSON: The efficiency factor we are using us
96 net, therefore, it was considered correct to use the station
97 service to come up with the net.

98 MR. HUTCHINGS: Uh hum, so these amounts, the kilowatt
99 hours that are totalled there ... it looks like 1.7 million, or

1 something ... maybe a little more than that ... these were not,
2 in fact, amounts that were produced by Holyrood at all,
3 correct?

4 MR. HENDERSON: They were required by Holyrood, so
5 when you're talking about efficiency, if you like, of a plant,
6 you have to take into consideration the amount of energy
7 the plant uses.

8 MR. HUTCHINGS: Uh hum.

9 MR. HENDERSON: So what we're looking at is the net
10 efficiency, so that plant does require a certain amount of
11 energy when it's shut down, and that's part of the
12 efficiency of that plant. What you are presumably trying to
13 do is minimize the amount of energy that you use when it's
14 shut down to improve the efficiency of the plant, and that
15 would be one of the things that we do try to do.

16 MR. HUTCHINGS: Uh hum, but ...

17 MR. HENDERSON: But that's all part of looking at the
18 overall plant efficiency, the net impact of it on the power
19 system.

20 MR. HUTCHINGS: Yeah, does that amount of power
21 represent fuel consumed at some point?

22 MR. HENDERSON: It should at some point. The fact that
23 you took it from the water ... eventually, well there's a finite
24 amount of water, so eventually you would have to make it
25 up from thermal.

26 MR. HUTCHINGS: Uh hum, and isn't that thermal found in
27 the subsequent months of 2000, in that net production, and
28 the barrels already there?

29 MR. HENDERSON: I don't know when the thermal would
30 have been actually used to produce (inaudible). I mean to
31 say it's in the next few months, or the next year, or the next
32 ten years, or whatever, it's an amount of water that got
33 taken out of the reservoirs to meet that load in June, July,
34 and August. When that water was put back, you know, it
35 could be at any time in the future.

36 MR. HUTCHINGS: No, but ...

37 MR. HENDERSON: And that amount of energy actually
38 would be, you wouldn't be able to measure it in the
39 reservoir.

40 MR. HUTCHINGS: No, no, I understand that, but I mean in
41 terms of the theory, whatever comes out of Bay d'Espoir
42 ultimately causes you to burn extra fuel in Holyrood,
43 correct?

44 MR. HENDERSON: I agree.

45 MR. HUTCHINGS: Okay, but I would suggest to you that
46 given that you count all the barrels of fuel that you burn in
47 Holyrood anyway, you're double counting by taking out

48 what effectively amounts to the barrels representing the
49 water taken out of Bay d'Espoir to provide the station
50 service in June, July, and August.

51 *(12:00 noon)*

52 MR. HENDERSON: I wouldn't look at it that way. What
53 we're looking at here is the net efficiency of the plant and
54 the impact it has on the system, so this is part of it. There
55 may be periods during February and March when the plant
56 ... or May, say, that the plant was down too, in which the
57 station ... you know, it stands out here in June, July, and
58 August, because the plant was completely down for the
59 whole of the month.

60 MR. HUTCHINGS: Uh hum.

61 MR. HENDERSON: To go through and net out those types
62 of things is not something we've ever done because what
63 we're looking at here is the net impact of the plant on the
64 system, and that's what net production is meant to convey,
65 and that's the way we use it in the, coming up with the
66 average net efficiency is to take the station service over all
67 the time, and the production over all the time, and the fuel
68 consumption over all the time, or the time that you choose,
69 to get the net impact of that plant in terms of converting
70 fuel into net energy to the system.

71 MR. HUTCHINGS: No, I understand the theory behind
72 what you're saying in terms that it is net production, and
73 this was energy that was used. My suggestion to you is
74 that you're double counting the oil that's associated with it.

75 MR. HENDERSON: I don't think so. I don't see it.

76 MR. HUTCHINGS: You don't see it, okay.

77 MR. HENDERSON: No.

78 MR. HUTCHINGS: Would you agree with me that what
79 you're trying to get to for when you're going to develop the
80 fuel efficiency factor that you use, is your best estimate of
81 what that efficiency is going to be in the test year?

82 MR. HENDERSON: What we're trying to do is we're not
83 forecasting a conversion factor. I think I mentioned this
84 yesterday. What we're doing is trying to come up with a
85 somewhat normalized efficiency factor that would apply
86 over a wide range of circumstances which would be wet
87 and dry years, low and high level production at Holyrood,
88 so for that reason this is an average over a number of
89 years, not focused on a particular production schedule. So
90 we don't forecast the Holyrood efficiency for the test year.
91 What we do is we present an efficiency which is the
92 historical average of what we experienced at Holyrood
93 which, if you have a long enough period of time, should
94 reflect what you would do at Holyrood under a variety of
95 circumstances, high production years, low production
96 years, and so on.

1 MR. HUTCHINGS: But I mean the purpose for which we're
2 here now is to determine, among other things, how much
3 money Hydro needs to pay for fuel in the year 2002,
4 correct?

5 MR. HENDERSON: That's right.

6 MR. HUTCHINGS: And how much you're going to have to
7 pay is going to depend in part on how many barrels you
8 use?

9 MR. HENDERSON: Yes.

10 MR. HUTCHINGS: And how many barrels you use is
11 going to depend largely on the efficiency factor at
12 Holyrood?

13 MR. HENDERSON: That's right.

14 MR. HUTCHINGS: Okay, so for the purpose for which we
15 are here, it make a difference what efficiency factor in
16 Holyrood is going to be in 2000, isn't that correct?

17 MR. HENDERSON: What we're ... this efficiency factor is
18 used in the Rate Stabilization Plan to normalize, or to come
19 up with adjustments for hydraulic production variances,
20 and load variances, and what we want to have here is a
21 number that's representative of a variety of hydraulic and
22 load circumstances to go into the Rate Stabilization Plan,
23 because the Rate Stabilization Plan is meant to operate over
24 a wide range of hydraulic production.

25 MR. HUTCHINGS: Yeah, but ...

26 MR. HENDERSON: So what this number is indicating the
27 appropriate number to put in the Rate Stabilization Plan in
28 which, to sort of normalize your hydro production.

29 MR. HUTCHINGS: Okay, but the number ...

30 MR. HENDERSON: To get the cost, because this number
31 is used and multiplied by the \$20.00 per barrel number, and
32 all that sort of thing.

33 MR. HUTCHINGS: I know the number is used in the Rate
34 Stabilization Plan, but it's also used, is it not, to determine
35 how many barrels of oil you need to burn to meet your load
36 in 2002?

37 MR. HENDERSON: That's right, it was used to come up
38 with the base amount of fuel that goes into our costs.

39 MR. HUTCHINGS: It goes directly into your revenue
40 requirement.

41 MR. HENDERSON: Yes.

42 MR. HUTCHINGS: And it's also used in the RSP for
43 another purpose, correct?

44 MR. HENDERSON: That's right, but the two are
45 consistent.

46 MR. HUTCHINGS: Well, they certainly have been
47 consistent in that you've always used the same number,
48 and I may or may not suggest to you whether or not you
49 should use a different number, but for the purpose of
50 determining the revenue requirement, that is to say the
51 amount you have to spend for fuel in 2002, what we need
52 to get is your best estimate of the efficiency for 2002,
53 correct?

54 MR. HENDERSON: And that number will depend on what
55 the water turns out to be, what our hydraulic production
56 turns out to be in the final analysis. We are predicting an
57 average hydraulic year for rate setting purposes, and what
58 we're trying to do then, is we end up with a thermal amount
59 that meets the difference, and we are using an average
60 efficiency factor, again, to be appropriate for that balancing
61 that goes into the Rate Stabilization Plan, and it also is used
62 to come up with the amount of fuel that goes into the base
63 rates.

64 MR. HUTCHINGS: Yes, so for the purpose of the revenue
65 requirement, again, we need to have the best number that
66 we can forecast for the year 2002.

67 MR. HENDERSON: What we're suggesting is that 610 is a
68 good estimate of what would apply under average
69 conditions.

70 MR. HUTCHINGS: Okay, your actual experience in the last
71 eleven months, if we go back to September of 2000, and up
72 to July of 2001, is actually closer to 620, isn't it?

73 MR. HENDERSON: Yes.

74 MR. HUTCHINGS: Can you update the table on page 2 of
75 2, of 259, and do you know what the efficiency factors have
76 been since July?

77 MR. HENDERSON: I don't have the September numbers,
78 but in August our efficiency was 613.

79 MR. HUTCHINGS: Uh hum.

80 MR. HENDERSON: And the year to date number then
81 turns into 622.0.

82 MR. HUTCHINGS: Okay, and would you expect that the
83 efficiency of 605.7 in July is likely to be your lowest for the
84 year?

85 MR. HENDERSON: I hope so. We're always striving to be
86 better, and I hope that we are, but what will happen is if we
87 ... I think, if we have a major rain storm that changed our
88 hydraulic conditions, such that we're producing more from
89 our hydro plants, we will back down the Holyrood plant to
90 minimize the use ... as we always do, to minimize the use of
91 the thermal, and if we have to do that, that efficiency factor
92 will fall. I think, as an example, if you look at the previous
93 page, if I may, on page 1 of 2 there, looking at October last

1 year.

2 MR. HUTCHINGS: Uh hum.

3 MR. HENDERSON: You can see that the number of 644.8,
4 and in November it was 588.9.

5 MR. HUTCHINGS: Uh hum.

6 MR. HENDERSON: In October last year we had a major
7 rainfall event. I think we had over 100 millimeters in a few
8 days. It caused us to change our production and,
9 therefore, the efficiency fell substantially in the next month.

10 MR. HUTCHINGS: Uh hum, but ...

11 MR. HENDERSON: So I guess what we're trying to do with
12 the 610 is to come up with some kind of average to take the
13 impact of all these variances that we end up with in
14 hydraulic.

15 MR. HUTCHINGS: What you've used to come up with the
16 610, of course, is the past five years, is that correct?

17 MR. HENDERSON: That's right, I think '96 onward.

18 MR. HUTCHINGS: Yeah, and I think from your
19 discussions with Ms. Butler earlier on, we've already
20 agreed that those are probably five of the wettest years?

21 MR. HENDERSON: That's right.

22 MR. HUTCHINGS: That you've experienced?

23 MR. HENDERSON: Yes, they certainly are.

24 MR. HUTCHINGS: So how does averaging five wet years
25 give you a good proxy for average water conditions?

26 MR. HENDERSON: Well, that is a difficulty, that is a
27 conundrum, I guess, that we get into, because we've
28 changed Holyrood operations to be more efficient. We put
29 in certain systems, I think I have put into my evidence that
30 we are able to run Holyrood more efficiently since about
31 1996, so we wanted to reflect the most recent experience.

32 MR. HUTCHINGS: Uh hum, but we know the most recent
33 experience is not typical, correct?

34 MR. HENDERSON: No, but I guess the, what you can do,
35 if you go back even longer in time and try to pick out more
36 of a variance, back in 1980 is when we have records of
37 good running, good operation of Holyrood, and go back
38 that far, I'm going to pull out a number now ... '81 to 2000,
39 our average is 606.7, and that reflects a much more broader
40 variety of hydraulic conditions, so if we hadn't made any
41 changes at Holyrood in '96 to try to be a little more efficient,
42 we would be proposing that '81 to 2000 number which
43 would show 606.7. But the more recent experience shows
44 that we're doing better than that, and that's why we shifted
45 it up from the previous 605, to 610, so that 606.7 does show
46 a variety of hydraulic conditions but, again, we wouldn't

47 put that forward because of the issue that was brought
48 forward in previous hearings where the Board wanted us to
49 reflect our most recent operations, so we went and moved
50 it up to 610.

51 MR. HUTCHINGS: So you've moved it four points which
52 would imply that your increased efficiency at Holyrood is
53 .0067 percent? That's four points on your 606 that you
54 started from?

55 MR. HENDERSON: I'd have to ... I don't know the math
56 there.

57 MR. HUTCHINGS: I mean it's 4 over 600, so it's not very
58 much, is it?

59 MR. HENDERSON: No, it would be ... it's something less
60 than one percent.

61 MR. HUTCHINGS: Yeah, yeah, and was that your goal in
62 doing your efficiency operations in Holyrood, to increase
63 efficiency by less than one percent?

64 MR. HENDERSON: Our goal is to try to be as efficient as
65 we can. We never had a percent number but that's what
66 the results show us to date, but we will review that
67 continuously and try to, and see how we can do better.

68 MR. HUTCHINGS: Are you saying that that is, in fact, the
69 result, this .006?

70 MR. HENDERSON: I think the net result will be seen as we
71 have more periods of high production, we'll get to see the
72 true benefit by having more experience, and I'd be hesitant
73 in making grandiose assumptions as to how far we can go,
74 but what we've done, and our past practice is to wait until
75 we get some experience to see how much we actually do
76 before we put forward a conversion factor for the future,
77 and that's what we've done here, is we've taken the most
78 recent five years and try to show some improvement. If we
79 do have the benefit of dry years in the future, we should
80 see better than 610 in terms of the benefit to Holyrood
81 efficiency.

82 MR. HUTCHINGS: Yeah, it's the first time I've heard it said
83 that there's a benefit to dry years, but you do agree with me
84 that in your effort to come up with a good average
85 efficiency rating that covers both wet and dry years, what
86 you've done is average five wet years?

87 MR. HENDERSON: That's right, but there are some good
88 production months in those years that help to move the
89 number up, but certainly they were predominantly wet, and
90 the evidence certainly is seen in this year where we're not
91 having a wet year, our production levels are higher at
92 Holyrood and our efficiency is indeed better.

93 MR. HUTCHINGS: Uh hum, so isn't it fair to say that the
94 622 is probably a better measure of your current efficiency

1 than the average you've taken?

2 MR. HENDERSON: 622 would be a number to use for a dry
3 year. Maybe 580 is what you'd use in a wet year.
4 Somehow you've got to balance all these wet and drys out
5 to get a good average, and 610 is what we've put forward
6 from the information that we have available to us now to
7 indicate what our experience is, and like I said, if we have
8 dry years and we have higher production at Holyrood, we
9 will get these numbers like we're seeing, and I think I
10 suggested yesterday to Ms. Butler, that if it's appropriate
11 we could review the number later this year to incorporate
12 the results of 2001.

13 MR. HUTCHINGS: Uh hum, okay, we'll leave that from an
14 evidentiary point of view, I guess, where it is at this time,
15 Mr. Henderson, and if we have additional numbers for 2001
16 later on we can see whether or not it's appropriate to make
17 some change in that. Could you turn now please to
18 **Schedule 7 of your pre-filed evidence?** This is showing
19 your actual 2000 fuel purchase prices for your
20 interconnected systems, and I'm particularly interested,
21 obviously, in No. 6 fuel oil at Holyrood. Can you briefly
22 explain for us how you manage fuel oil purchases and to
23 what extent you attempt to take advantage of market
24 conditions in doing that?

25 *(12:15 p.m.)*

26 MR. HENDERSON: What we do to manage our oil
27 deliveries is we project out ... what we have to do, first of
28 all, under our oil purchase contract is we have to provide
29 firm shipments, delivery requirements, to our supplier one
30 month in advance, so as an example, right now, at the
31 beginning of October we would be indicating what our
32 requirements are for November. And we also give an
33 indication to them what we need in December and January,
34 but they are not firm requirements, they're an indication of
35 what we anticipate. And what we would do then is we, in
36 coming up with, determining how much fuel we need is we
37 would look at a number of operating scenarios to make sure
38 that we had sufficient oil to meet our load requirements if
39 things went bad on the water side of things, and we ended
40 up into high thermal production, and we also make sure
41 that we don't have so much oil ordered that we don't have
42 room to store it if it turns into being a wet period and we
43 have to turn back Holyrood, so there is a balance there, and
44 we also look at what we would consider a normal or
45 average condition to come up with an idea of how much oil
46 we require. So we do that on a monthly basis, make a
47 determination of how much we need based on where we
48 see our Holyrood production requirements in the next
49 while, and that's the way we manage that month by month.
50 Now we also have a finite amount of storage out there, so
51 there's only so much we can do with manipulating the
52 storage from month to month, but one thing that we do do

53 is in the late winter, in the February period, and March, we
54 attempt to fill our storage to the top, as close to the top as
55 we can, in case we end up with ice problems in Conception
56 Bay, because all our oil deliveries are made to the Holyrood
57 plant, through ships, and we have to ensure ourselves that
58 we have enough oil in storage to get us through an
59 extended ice blockage in Conception Bay, so we use our
60 storage there to that advantage, if you like, to make sure
61 that we have a sufficient ... so there is, that sort of dictates
62 our pattern of shipments. Now ...

63 MR. HUTCHINGS: What is the capacity of your storage in
64 Holyrood?

65 MR. HENDERSON: 840,000 barrels.

66 MR. HUTCHINGS: And how much do you get in a typical
67 delivery?

68 MR. HENDERSON: A typical delivery is between 250,000
69 and 300,000 barrels.

70 MR. HUTCHINGS: Okay, sorry, I interrupted you. Carry
71 on.

72 MR. HENDERSON: I think I was done.

73 MR. HUTCHINGS: Oh, okay, alright. You had said that
74 you tried to top your tanks toward the latter part of the
75 winter period with respect to the ice problem. I guess one
76 of the reasons for my question in looking at the schedule
77 that's before you, is that there is a purchase in May of 2000
78 at \$32.83, and then the next purchase is in October at
79 \$40.00, and I'm just wondering what the state of your
80 storage was in between and whether there had been
81 consideration given to earlier purchases and whether prices
82 would have been better?

83 MR. HENDERSON: We don't normally look at the price in
84 determining our shipment because the difficulty is
85 speculating where the oil prices are going and you're
86 invariably wrong as to your predictions so we typically
87 don't buy based on an assumption of ... like if you look at
88 this particular year you would have said, well if you had
89 capability ... assuming the price was going up in a straight
90 line from May to October, then you could assume that if we
91 had bought in September, August, July, June, we would
92 have gotten a better price than October. But that would
93 have been an assumption that you knew that the October
94 price was going to go that much higher than it was back in
95 June or July, and that's a very difficult thing to predict, and
96 so we would not normally make that kind of a purchase, but
97 we do at times look at it, and if we see very favourable
98 market conditions, we will have a discussion as to whether
99 it might be appropriate to take advantage of a lower price.

100 MR. HUTCHINGS: So when is your price fixed, at the time
101 that you put in your order a month ahead, or at the date

1 that you take delivery, or sometime in between?

2 MR. HENDERSON: The price is a monthly average price
3 for the month in which delivery is received.

4 MR. HUTCHINGS: So it will not be affected, or it may or
5 may not be affected by the price on the day that you order.
6 It probably won't be.

7 MR. HENDERSON: It won't be.

8 MR. HUTCHINGS: It won't be, okay. Do you have anyone
9 providing you with price information on a monthly basis?

10 MR. HENDERSON: Yes, we have updated forecasts pretty
11 well monthly from the Perra Group that I think I mentioned
12 in my evidence is who provides us with fuel price forecasts.

13 MR. HUTCHINGS: Right.

14 MR. HENDERSON: And they do have a monthly
15 newsletter or publication that they provide to our economic
16 analysis department and some months they do have
17 updated prices by month on No. 6 fuel, some months I
18 think they may not do No. 6 fuel price projections.

19 MR. HUTCHINGS: And if I understand your evidence, you
20 say that you basically simply purchase when you have a
21 requirement to purchase, as opposed to purchasing based
22 upon the price at the time.

23 MR. HENDERSON: Unless we see a particular opportunity,
24 that's what we normally do.

25 MR. HUTCHINGS: When is the last time you saw such an
26 opportunity?

27 MR. HENDERSON: This past summer we, I think it was in
28 August we bought, asked for an extra shipment for
29 September because the price that we were seeing from the
30 Perra Group at that time was showing that the price was
31 well below what we were forecasting or budgeting for this
32 year, so we attempted to do that to try to take advantage of
33 that. As you know, things went a little bit crazy in
34 September because of September 11th. How much we will
35 benefit from that, I guess, remains to ... actually, the
36 delivery occurred in October, so at the end of October that
37 price will be set and we'll see. Again, you've got these very
38 volatile things that can occur that cause you ... and then
39 you're always ... you have your critics who say in hindsight
40 that was a poor choice, a poor decision, and that's the
41 difficulty because you're speculating on where the price is
42 going, and we have traditionally tried not to speculate
43 because of all these variabilities, and we've tried to stick
44 with what are our requirements and getting it when we need
45 it.

46 MR. HUTCHINGS: I mean do you have available to you on
47 a regular basis the amount that you would have to be
48 saving on a per barrel basis in order to justify the interest

49 cost of an early purchase? I mean are those numbers that
50 you have available to you regularly?

51 MR. HENDERSON: No, what we would do, like we did in
52 August, is we looked out at that time because we saw
53 where the market price ... and it was suggested that this
54 might be an opportune time. We looked at it and felt that
55 there was, you know, certainly there was a savings on ...
56 well there would be an interest cost, but we felt that the
57 savings, if the forecast held through, was well worth the
58 expense.

59 MR. HUTCHINGS: So that's just done on an ad hoc basis
60 when an opportunity presents itself?

61 MR. HENDERSON: Yes.

62 MR. HUTCHINGS: Okay. Just turning to another topic
63 very briefly, Mr. Henderson, before we break. I understand
64 you have some connection, not principally responsible for
65 the RSP but do we have figures for the September 30th RSP
66 balance at this stage?

67 MR. HENDERSON: I don't know if they're available yet.

68 MR. HUTCHINGS: I mean is ...

69 MR. HENDERSON: That's not an area that I have any
70 involvement in producing it so I don't know what the
71 schedule is for producing that, but I would think that it
72 would probably be a week or two before it's available, but
73 I can find that out during the break and let you know after
74 the break.

75 MR. HUTCHINGS: Obviously, the September 30 number is
76 significant for the Industrial Customers, because that's the
77 basis for the change for next year. Related, I guess, to the
78 questions affecting the oil purchases are questions
79 affecting the exchange rates, and can you tell us what
80 monitoring you do with respect to exchange rates, or do
81 you simply rely on Perra to give you a Canadian dollar
82 price?

83 MR. HENDERSON: No, Perra gives us a US dollar price.
84 Our treasury department looks at the exchange rates and, I
85 guess, in contact with, I'll say financial houses, their
86 advisors, to get their latest thoughts on exchange rates,
87 and they use that, I guess, in determining, based again on
88 our oil shipments and that sort of thing, they may make
89 decisions regarding buying US money or that type of thing.
90 I really am out of my league in getting into this, but I just
91 know that in a general sense that they are looking at the
92 exchange rates and looking at opportunities again for
93 trying to ensure that we, I guess, try to get our price of oil
94 in net effect as low as possible by using the exchange rate,
95 forecast and so on.

96 MR. HUTCHINGS: I would assume that the biggest impact
97 that exchange rates have on Newfoundland and Labrador

1 Hydro is in its purchases of No. 6 fuel.

2 MR. HENDERSON: I don't know. I guess it depends on
3 whether we have, what other things we're buying in the US
4 and whether we have any outstanding loans in US dollars,
5 and I don't ... I'm not familiar with that to know. I would say
6 that Mr. Osmond is the one that's closest to that if you
7 want to get into that area.

8 MR. HUTCHINGS: You're responsible for the managing of
9 fuel oil purchases.

10 MR. HENDERSON: Yes.

11 MR. HUTCHINGS: And I mean, let's be generous and say
12 that at least a third of that in terms of Canadian dollars is
13 going to be an exchange rate effect.

14 MR. HENDERSON: Yes.

15 MR. HUTCHINGS: Okay, but you don't direct your
16 attention to that exchange rate effect at all, do you?

17 MR. HENDERSON: No, mine is, like I say, it's looking at
18 what our needs are to meet our load requirements. That's
19 my primary focus. If it's brought to my attention through
20 somebody else about the fuel prices and maybe it's an
21 opportune time to take advantage of a fuel price in the
22 market, and presumably that's also looking at exchange
23 rates, then I would have a look at it to see whether our
24 storage capability can take the shipment when they need it
25 and what, you know, when our next shipment would be and
26 that type of scheduling. I'm more into the practical side of
27 scheduling shipments for meeting our production needs.

28 MR. HUTCHINGS: So any questions relating to the
29 question of the exchange rates you would defer to Mr.
30 Osmond?

31 MR. HENDERSON: That's right.

32 MR. HUTCHINGS: Okay, alright, thank you. That's
33 probably a good time to take the lunch break, Mr. Chair.

34 MR. NOSEWORTHY, CHAIRMAN: Thank you, Mr.
35 Hutchings. Thank you, Mr. Henderson. Mr. Hutchings, do
36 you have any idea or notion at this point in time of how
37 long you might be?

38 MR. HUTCHINGS: Perhaps another hour, Mr. Chair.

39 MR. NOSEWORTHY, CHAIRMAN: That's fine. Thank
40 you very much. We'll reconvene at 2:00.

41 (break)

42 (2:00)

43

44 MR. NOSEWORTHY, CHAIRMAN: Thank you and good
45 afternoon. You should share your levity with us all,

46 counsel, we need a laugh.

47 MS. BUTLER, Q.C.: Actually, it wasn't levity, Mr.
48 Chairman. Counsel was giving me a little bit of advanced
49 notice that maybe we might get Mr. Budgell a little earlier
50 than I had thought. I was hoping to have the night off for
51 a change.

52 MR. NOSEWORTHY, CHAIRMAN: Oh, I see. We'll see.

53 MR. KENNEDY: But I re-thought the matter and perhaps
54 not.

55 MR. NOSEWORTHY, CHAIRMAN: Any preliminary
56 matters, counsel?

57 MR. KENNEDY: No.

58 MR. NOSEWORTHY, CHAIRMAN: Okay. Ms. Greene,
59 yes.

60 MS. GREENE, Q.C.: Mr. Chair, traditionally at 2:00 will be
61 the update on the undertakings previous to today.

62 MR. NOSEWORTHY, CHAIRMAN: Undertaking, yeah,
63 exactly.

64 MS. GREENE, Q.C.: And I wanted to record that there were
65 no undertakings that were provided yesterday so we have
66 none to respond to.

67 MR. NOSEWORTHY, CHAIRMAN: Okay. Thank you,
68 very much. If there are no other items then we'll proceed
69 with Mr. Hutchings' cross-examination of Mr. Henderson,
70 please.

71 MR. HUTCHINGS: Thank you, Mr. Chair. I have to say,
72 it's a sad commentary as to where we're getting our
73 amusement during the course of this hearing.

74 MR. NOSEWORTHY, CHAIRMAN: You're right there.

75 MR. HUTCHINGS: Anyway, Mr. Henderson, I just want to
76 go back, for a moment, to your Schedule 7, which shows
77 the actual fuel purchase prices for the year 2000. Can you
78 tell me whether, after the purchase for No. 6 fuel oil that
79 was recorded in May of 2000, the storages were full or
80 nearly full at that time?

81 MR. HENDERSON: They would have been on the fuller
82 side, I'd say, more than half full, okay. But I wouldn't be
83 able to guess, right now, as to whether they were full. But
84 looking at, as I recall, we had very little production in June
85 and not much in September. So ... and then we bought in
86 October, so that would indicate to me that we were fairly
87 full because we needed shipment in October.

88 MR. HUTCHINGS: Okay. I wonder if you could get for us
89 the amount of fuel that you had, No. 6 fuel that you had in
90 storage after the May, 2000 purchase and, as well, whatever
91 information you had from Perra between May and

1 September of 2000 with respect to prices during that
2 period?

3 MR. HENDERSON: So that's the May ... I'll say the end of
4 May because our inventory would be end of month.

5 MR. HUTCHINGS: Uh hum.

6 MR. HENDERSON: So I'll say May 31st inventory for 2000.
7 And then you'd like the Perra forecast of No. 6 fuel for the
8 month of May?

9 MR. HUTCHINGS: May, June, July, August and
10 September.

11 MR. HENDERSON: For which forecast?

12 MR. HUTCHINGS: Whatever ...

13 MR. HENDERSON: Like, if they do one each month, do
14 you want ...

15 MR. HUTCHINGS: Yeah. Whatever one you got ...
16 whatever ones you've got during that period.

17 MR. HENDERSON: I'm jotting down here the Perra forecast
18 for each month for May, June, July and August?

19 MR. HUTCHINGS: Yes. The ones that you received in
20 those months. I guess, to make the picture complete, we'd
21 probably also need the exchange rates for those months, as
22 well. I understand you probably have to go to someone
23 else to get that, but if that could be retrieved then we might
24 have some comparable numbers.

25 MR. HENDERSON: Did you want exchange rate forecasts
26 or exchange rates actual? I'm not sure if the forecasts
27 would be in.

28 MR. HUTCHINGS: I mean, if you have the forecasts by
29 month, you know, as to what you were forecasting in May
30 for the upcoming months that would be the best data, if
31 not, we can go by the actuals.

32 MR. HENDERSON: Okay.

33 MR. HUTCHINGS: Okay. Mr. Henderson, I wonder if we
34 could turn to page 7 of your pre-filed evidence at line 19?
35 Could you just read for us that paragraph beginning at line
36 19?

37 MR. HENDERSON: "Hydro's and Newfoundland Power's
38 gas turbine plants and diesel plants and the interruptible
39 contract with ACI in Stephenville are rarely used due to the
40 relatively high cost of use. They are used only for peaking,
41 that is, when other available sources are near their limit, or
42 for an emergency such as when there is a limited
43 transmission capability to the area where the plant is
44 located."

45 MR. HUTCHINGS: Okay. So, for your purposes on the
46 production side of things you would treat Newfoundland
47 Power's generating capacity and the interruptible contact
48 with ACI in Stephenville in much the same way?

49 MR. HENDERSON: That's right. They're both treated more
50 or less as a resource, like a generation source. Although,
51 the ACI Stephenville isn't a generating source we treat it
52 the same as a generating source that we can call upon for
53 peaking requirements.

54 MR. HUTCHINGS: So its impact on the system, from a
55 production point-of-view is essentially the same as the
56 Newfoundland Power generation?

57 MR. HENDERSON: The impact on the system is the same.

58 MR. HUTCHINGS: Okay. In answer to a request for
59 information we didn't get much comfort as to the future for
60 the interruptible contract. Is there any plan, of which
61 you're aware, to change the way that Newfoundland Hydro
62 utilizes Newfoundland Power's generation?

63 MR. HENDERSON: I'm aware of no plan to change that.

64 MR. HUTCHINGS: Okay. Is there any reason, of which
65 you're aware, that these two sources of peaking capacity
66 should be treated differently from a rate perspective, one
67 from the other?

68 MR. HENDERSON: I think there is a difference. For ACI in
69 Stephenville, we pay an amount every year. It's about \$1.3
70 million for the right to interrupt. So there's an amount that
71 ACI (inaudible) Consolidated receives from Hydro for our
72 right to do that interruption, and we have a contract, a ten-
73 year contract covering that. And with Newfoundland
74 Power we do not pay them anything for that right to call
75 upon their generation. They, in a sense, get a similar
76 benefit by the fact that they get a credit in our rate structure
77 for their generation. So they get a credit on their demand,
78 whatever demand costs are allocated to them, on their
79 demand, they get a credit for having that generation
80 available. So they get their payment, if you like, through
81 that credit, which ACI gets a direct payment as a credit on
82 their invoice from Hydro of a total of \$1.3 million a year,
83 which is split into four payments for the peak months,
84 December through to March.

85 MR. HUTCHINGS: And why should the two things be
86 treated differently, why is one a credit and the other a
87 payment?

88 MR. HENDERSON: Well, I guess the circumstances in
89 which the two historically arose in that ACI, we spoke to
90 them specifically about entering into this agreement and
91 this is the way we negotiated with them and came up with
92 the pricing structure for us to pay for the right to interrupt
93 them. While Newfoundland Power has, certainly, a much
94 longer history and the way they are, their demand is
95 treated, is through the rate structure and the demand credit,

1 which is, you know, been in existence for quite awhile.

2 MR. HUTCHINGS: There's no reason, in principal, why
3 you could not, for instance, have provided the credit to
4 ACI as opposed to sending them a cheque?

5 MR. HENDERSON: The difficulty in that sense, that I
6 would be aware of, is that the industrial class has all one
7 rate. And how you would structure a credit to one of the
8 industrial customers in that rate class, then ACI, if the
9 benefit is worth \$1.3 million, and that's what Hydro has
10 determined, through negotiation, that benefit is worth, if
11 you were to put in a credit in the rate structure then I guess
12 that 1.3 million would get shared amongst all industry
13 rather than just ACI, because it's an industrial class that the
14 rate is structured on, so you'd take that 1.3 million and give
15 a credit to the class and then that 1.3 would get shared by
16 them all. But we entered into a specific arrangement with
17 ACI and they are the direct beneficiaries of that
18 arrangement and that credit.

19 MR. HUTCHINGS: You could certainly put a rate in your
20 rate structure which would be available to any customer
21 that would reflect the same provisions, would it not?

22 MR. HENDERSON: That is a possibility in rate design.

23 MR. HUTCHINGS: And that could equally apply to
24 Newfoundland Power?

25 MR. HENDERSON: Oh, I'm sure there is a way, I guess. I'm
26 not into the rate experts or anything. I'm not sure how you
27 design all these interruptible rates. But I know that you can
28 design an interruptible rate for Newfoundland Power or for
29 industry. For Newfoundland Power the difficulty would be
30 the fact that there is no demand charge, and therefore, the
31 interruptible tends to be a credit on your demand and if
32 there is no demand charge how do you credit it. That's a
33 complication, I guess, but in theory you could.

34 MR. HUTCHINGS: So essentially, the two things are
35 treated differently now for historical reasons?

36 MR. HENDERSON: Well, they are different in the fact that
37 we pay Abitibi the 1.3 million directly and Newfoundland
38 Power gets it indirectly through the rate design.

39 MR. HUTCHINGS: But the two things are of a similar
40 nature and should be valued in a similar way, would you
41 agree with that?

42 MR. HENDERSON: They have the same effect on the
43 operation of the system in that when we call ACI and ask
44 them to reduce their demand they reduce, when we ask
45 Newfoundland Power to put on their generation it's the
46 same as the net reduction in the amount of power that we
47 have to supply Newfoundland Power at that time. So, from
48 an operating standpoint it has the same effect.

49 (2:15)

50 MR. HUTCHINGS: Okay. Just going back to page 2 of
51 your pre-filed evidence. At the bottom, line 28 to 29, you
52 note there that Hydro's hydroelectric plants represent
53 about 59 percent of Hydro's total average energy
54 producing capability. In fact, in terms of actual system
55 generation recent experience has been about 70 percent, is
56 that fair?

57 MR. HENDERSON: Well, it varies from year to year. I
58 don't remember the exact numbers for each year, but 70
59 percent seems reasonable.

60 MR. HUTCHINGS: Uh hum, okay. Does your system
61 include a gas turbine at Holyrood?

62 MR. HENDERSON: Yes, it does.

63 MR. HUTCHINGS: Okay. Is there some reason that's not
64 shown on your Schedule 2?

65 MR. HENDERSON: Schedule 2. Well, it's at the Holyrood
66 plant, so ...

67 MR. HUTCHINGS: Okay. It's underneath the little blue
68 dot?

69 MR. HENDERSON: ... it's in that big blue dot there.

70 MR. HUTCHINGS: Alright. And that's a ten megawatt
71 plant?

72 MR. HENDERSON: It has ten megawatt capability.

73 MR. HUTCHINGS: Okay. If we could look, now, to **IC-**
74 **256**? This answer shows total energy supply system
75 losses and system loss percent for the years 1992 to 2000
76 and is significant in terms of the use of system losses in the
77 calculation of the wheeling rate?

78 MR. HENDERSON: That's right.

79 MR. HUTCHINGS: And I don't think we need to bring it
80 up, but you told us, in the answer to **IC-118** that you used
81 four percent losses to come up with the wheeling rate that's
82 charged. And that was based upon the losses in 1999?

83 MR. HENDERSON: That's right.

84 MR. HUTCHINGS: Okay. Why did you choose 1999?

85 MR. HENDERSON: What we were doing was being
86 consistent with the wording that was in the contract that
87 we had with ACI for wheeling, from Grand Falls to
88 Stephenville. In that contract the wording was is that we
89 would take in account for losses based on the previous
90 years losses and round it to the next full percentage point.
91 So in 2000, looking back, you would pick 1999 as the
92 previous year, 3.65 we rounded to four percent. In 2001
93 you would look back and pick 2000 and again, you would
94 end up rounding it up to four percent. There hasn't ... in

1 looking at every year back to '92 it would have all rounded
2 to four percent.

3 MR. HUTCHINGS: I think if you round 3.43 you'll round to
4 three, won't you?

5 MR. HENDERSON: No. In the contract the way it was
6 stated was to round it up to the next full percentage point.
7 That's why we were being consistent with that wording
8 that was agreed to in that contract, which is to round it up
9 to the next whole.

10 MR. HUTCHINGS: Okay. And is that wording included in
11 the proposed new contract, to your knowledge?

12 MR. HENDERSON: No, it's not. The losses, I believe, are
13 in the rate schedule now. And we put forward four percent
14 as the number to be used in the rate schedule because it
15 basically hasn't changed from four percent, historically, so
16 we figured it would ... four percent would hold ... would be
17 a valid loss figure to use going forward until the rate is next
18 reviewed.

19 MR. HUTCHINGS: Okay. Looking at 256, **IC-256**, would
20 you agree with me that the average over the nine-year
21 period is 3.48 percent?

22 MR. HENDERSON: That seems like a reasonable number,
23 looking at those values there.

24 MR. HUTCHINGS: Okay. And the average is not
25 significantly different if you only go back five years, as you
26 do for certain things, I understand it's 3.47 percent?

27 MR. HENDERSON: I haven't done the calculation, I'll
28 accept your word.

29 MR. HUTCHINGS: Yeah, okay. And on five of the nine
30 occasions that we have here the number is actually closer
31 to three than it is to four, isn't it?

32 MR. HENDERSON: One, two ... I guess three would be
33 above ... four would be above three and a half and the
34 remainder would be below three and a half.

35 MR. HUTCHINGS: Yes, uh hum. Okay. Now, in terms of
36 the system losses that you use here, are these all of the
37 system losses or just the system losses that are assigned
38 to common?

39 MR. HENDERSON: These losses are the losses that are, I'll
40 call it transmission losses. They exclude distribution
41 losses. These losses would be from the point of metering
42 our sales to our customers and to the generation, the loss
43 between the generation and the point of delivery to our
44 customers. With the Hydro rural areas we do it at the point
45 at which the transmission system, if you like, ties into the
46 Hydro rural specifically assigned system as existed prior to
47 this hearing, because one of the changes is the Great
48 Northern Peninsula. Up until this hearing the Great

49 Northern Peninsula has been specifically assigned, I'd like
50 to say, to Hydro rural customers, and the metering is at
51 Deer Lake for the purposes of calculating these losses. So
52 the losses on the Great Northern Peninsula are not included
53 in these losses here.

54 MR. HUTCHINGS: Okay. In terms of what you speak of as
55 your point of sale to your customer, in which case would
56 these losses, under the current proposal, include
57 transformer losses?

58 MR. HENDERSON: If the transformer losses are billed to
59 a customer then they would be in the load side, they
60 wouldn't be in the losses side.

61 MR. HUTCHINGS: Okay. So, under the current proposal,
62 as I understand it, there will be transformer losses that will
63 be assigned to the Industrial Customers and to
64 Newfoundland Power?

65 MR. HENDERSON: That's right.

66 MR. HUTCHINGS: So that should reduce the number that
67 you're using here for system losses?

68 MR. HENDERSON: Yes, I think it will, yeah.

69 MR. HUTCHINGS: Now, perhaps somewhat reluctantly,
70 Mr. Henderson, we need to look at some hydrology. I was
71 interested in what you were telling us as to how you
72 determined reservoir levels and the source of the
73 information that has been produced and has showed up in
74 exhibits like **LBB-4** and exhibit **NP-3**. Do you know the
75 actual source of the data in terms of who put it together
76 prior to 1967 for the Bay d'Espoir system, for instance?

77 MR. HENDERSON: Who put it together?

78 MR. HUTCHINGS: Yeah.

79 MR. HENDERSON: The data, from my understanding, was
80 data ... I'll call Water Survey of Canada or their predecessor
81 for the rivers on the south coast for the Bay d'Espoir
82 system. And they would have been used by our
83 consultants, I'll say our and Hydro's consultants or
84 Newfoundland and Labrador Power Commission or the
85 government's consultants or whoever was looking at it
86 back in those days, for the development of the Bay d'Espoir
87 system. They would have used those to develop the
88 inflows that we used at that time.

89 MR. HUTCHINGS: And if I'm understanding what you said
90 yesterday correctly, these would actually be gauges which
91 would be placed in the particular three rivers that you
92 spoke of?

93 MR. HENDERSON: That's right.

94 MR. HUTCHINGS: Which would measure the flow of water
95 through those rivers?

- 1 MR. HENDERSON: That's right.
- 2 MR. HUTCHINGS: Okay. So that would be cubic feet per
3 minute or whatever?
- 4 MR. HENDERSON: Right.
- 5 MR. HUTCHINGS: Okay. So how do you then come to a
6 volume of water in the reservoir based on that information?
- 7 MR. HENDERSON: That flow information is then
8 accumulated over time so you'd have readings that were
9 taken on those rivers. And I'm not sure right now what the
10 frequency of those readings were. But basically, you
11 would take those readings and they would give you a
12 pattern or whatever of inflow, so you can just add up the
13 numbers. Say, for every day you would take that day's
14 reading and add it to the previous day and so on and you
15 can then add up all the numbers and you've got a volume.
16 You just have to do the conversion from cubic feet per
17 second to a volume. Because you're adding up over time,
18 you get your volume by adding up those readings.
- 19 MR. HUTCHINGS: Okay. And was there anything added
20 to that, other than the three rivers? I mean, I presume there
21 are more than three rivers that flow into this watershed?
- 22 MR. HENDERSON: No, they're the three primary rivers that
23 were dammed. There are some others, minor rivers. At that
24 time there would have been additional studies that were
25 done to ensure validity by comparison to other rivers that
26 had records at the same time. I believe that the Exploits
27 River, where there is a long record, they would have been
28 used to validate that the records were good. And the
29 engineering studies at the time, and to be honest, it's been
30 awhile since I had a look at those, a long, long while,
31 actually, but that's the basic premise is that you would take
32 the readings from these rivers, you would then use them,
33 compare them to other rivers to make sure that you do have
34 a valid set and you have good correlation with other rivers
35 to ensure validity there in developing those inflows.
- 36 MR. HUTCHINGS: Okay. It was suggested to me that
37 what could be done would be to determine a flow for a
38 certain number of square miles involving the particular
39 river, and then extrapolate that to the entire watershed. Is
40 it your evidence that nothing like that was done?
- 41 MR. HENDERSON: I couldn't say for certain, because, like
42 you say, every ... I'm trying to think of the main rivers that
43 are there. And certainly, the Grey River, the White Bear
44 River and the Salmon River are the three main rivers. There
45 is a river, and I'm not even sure of the name of it, that would
46 have flown out of, into Bay d'Espoir, and I'm not sure that
47 that one was gauged, but that would have been a small
48 river that would have run out of Long Pond, I think, or a
49 lake in that area. So there may have been some
50 interpolation, if you like, of saying that we got this much
- 51 run-off for this drainage area of the Salmon River, which is
52 a very large drainage area, and assumed a similar
53 relationship for the very nearby rivers which were much
54 smaller.
- 55 MR. HUTCHINGS: So, you don't really know how that was
56 done, is that your evidence?
- 57 MR. HENDERSON: I don't know the detail of it, because I
58 have not studied that detail. When I first started with
59 Hydro I did review the feasibility studies where those
60 numbers were put together. And they were certainly put
61 together with very sound engineering judgment at that
62 time, based on the fact that they were used to commit to
63 that development at Bay d'Espoir. And I know that the ...
64 again, I think it's in evidence. I'm not a hydrologist or
65 whatever, so I don't know all the right technical terms to
66 use to explain to you how that would have been done by
67 the engineers that put together those inflows back in the
68 early 1960s.
- 69 MR. HUTCHINGS: Do you know what percentage of the
70 land area of the entire watershed is drained by these three
71 rivers?
- 72 MR. HENDERSON: Not off the top of my head, I don't, but
73 it would be the large percentage of it. Maybe I can just
74 show you on the map to give you an idea. The Salmon
75 River is right here, and the Salmon River would have taken
76 into account this drainage area here. The one river that I
77 wasn't sure about is a small river here that runs into the
78 head of Bay d'Espoir that would have had a small drainage
79 area up here. I'm not sure about that one. But this one, all
80 this whole area here drains into the Salmon River that
81 would have been coming down through here. The Grey
82 River is over here, and that would have taken in the bulk of
83 this drainage area. The White Bear River is over here ...
84 and the Board might not be able to see. And that would
85 have taken in the bulk of this drainage area here. Now, the
86 other area is the Victoria River which, that one I did not
87 actually mention. That's this drainage area here. And that
88 one is actually part of the Exploits River, was part of the
89 Exploits River system prior to the development. So that
90 one is a different river, and that river would have had some
91 gauging on it by Abitibi's predecessors.
- 92 (2:30)
- 93 MR. HUTCHINGS: Okay. So the numbers that you've
94 provided for the inflows from 1950 onwards are basically
95 taken from the engineering studies that were done prior to
96 the decision to proceed with Bay d'Espoir, is that correct?
- 97 MR. HENDERSON: That's correct.
- 98 MR. HUTCHINGS: Okay. And that's as much of a
99 background of where those numbers came from as we have
100 available at this point, is it?

1 MR. HENDERSON: That's right, that is where they came
2 from. Now, the Victoria River ones, I'm not sure, like I said,
3 whether there was water survey at Canada Instrumentation
4 or it would have been Abitibi Consolidated Instrumentation
5 or how ... I can't tell you. I can't remember that.

6 MR. HUTCHINGS: I guess my question, as well, is in
7 relation to the way the data is presented here. It talks
8 about combined reservoir, Bay d'Espoir, plus Cat Arm, plus
9 Hines Lake. But that's actually three different watersheds,
10 isn't it?

11 MR. HENDERSON: It is, yes.

12 MR. HUTCHINGS: Yeah, okay. Is there more predictability
13 or consistency in the numbers if you break them out for the
14 different watersheds, or have you ever looked at that?

15 MR. HENDERSON: I'm not sure what you mean by
16 consistency.

17 MR. HUTCHINGS: I'm told that there's a rather high
18 standard deviation in respect of these numbers that you
19 have here, and I'm wondering whether the deviation would
20 be less in the individual watersheds or is there some effect
21 of all three of them being put together that we're seeing?

22 MR. HENDERSON: I couldn't tell you. I haven't done a
23 standard deviation or a statistical analysis on those.

24 MR. HUTCHINGS: Okay. So, in terms of the derivation of
25 those numbers, I take it there was no direct input in respect
26 of precipitation, as such?

27 MR. HENDERSON: No.

28 MR. HUTCHINGS: Okay. These are purely measured flows
29 and some degree of manipulation of those numbers, is that
30 the idea?

31 MR. HENDERSON: It's purely flow data. And, as you
32 suggest, there would have been some engineering analysis
33 done on the flow data to develop the full volume inflow
34 data.

35 MR. HUTCHINGS: Okay. But you don't know whether or
36 not that went beyond the three rivers that we spoke of, or
37 are you saying now that the Victoria River is in there too?

38 MR. HENDERSON: The Victoria River is in these numbers.

39 MR. HUTCHINGS: Okay.

40 MR. HENDERSON: What I'm saying is I can't recall how
41 the Victoria River inflows were developed. My thought is
42 is that they were probably taken from records for the
43 Exploits River, because prior to the Bay d'Espoir
44 development the water flowing from the Victoria River
45 flowed into the Exploits River and would have been used
46 by Abitibi Consolidated in their mill operations.

47 MR. HUTCHINGS: Yeah, okay. So, whereas yesterday we
48 assumed these to be the results of three rivers, you're
49 telling us now this is, in fact, four rivers?

50 MR. HENDERSON: Right. I neglected to mention Victoria.

51 MR. HUTCHINGS: Okay. No, that's fine. I just wanted to
52 be clear as to how much we did have there. Okay. In terms
53 of the way you're measuring inflows now, as I understand
54 it, you're not relying, at all, on the type of gauge that ... the
55 run of river type of gauge that was used in the past?

56 MR. HENDERSON: No. That's right. It's a different
57 method, as I explained yesterday.

58 MR. HUTCHINGS: Okay. And I wasn't clear from your
59 evidence yesterday as to what I understood to be sort of
60 two types of measurements that were going on, one which
61 related to water passing through the generators, and
62 another that seemed to be related in somehow to the
63 volume of water in the reservoir itself. Can you just try to
64 explain that for me again?

65 MR. HENDERSON: Well, the inflows is to the volume of
66 water coming into the reservoir from the surrounding land,
67 if you like.

68 MR. HUTCHINGS: Yes.

69 MR. HENDERSON: And from rainfall right on top of the
70 lakes. In order to get that water that came in, what we do is
71 we measure how much water came out.

72 MR. HUTCHINGS: Okay.

73 MR. HENDERSON: And we also measure how much did
74 the storage volume change, okay. So you know how much
75 went out and you know how much your storage volume
76 changed, that gives you your inflows.

77 MR. HUTCHINGS: Alright. So there's no actual effort
78 made now to measure water coming in?

79 MR. HENDERSON: No, because there'd be hundreds of
80 streams coming off the hills all around these lakes. It would
81 be impractical to measure that.

82 MR. HUTCHINGS: Okay. Now, your measurement of the
83 change in storage level, I presume, is purely a mechanical
84 one in the sense of how high is the water in the reservoir at
85 a particular time?

86 MR. HENDERSON: That's right. And we have what I
87 would call storage volume curves, which give us the
88 relationship of the volume in the reservoir to the elevation
89 of the reservoir.

90 MR. HUTCHINGS: Yes, okay. Your measurement of water
91 leaving the reservoir, did I understand it correctly that you
92 rely, in doing that calculation, upon basically an efficiency
93 factor of the generators themselves?

1 MR. HENDERSON: There is a relationship that's
2 developed by the manufacturers of the units that gives the
3 flow through the unit, verses the output of the unit for
4 various head conditions, because the higher ... you know,
5 as the head on the plant changes it has an impact, also, on
6 the amount of water that has to be put through the unit to
7 generate a kilowatt of electricity. So that curve is
8 developed by the manufacturers, actually developed
9 through model tests of the turbine. And then, through
10 those ... these are very precise model tests that are done
11 and then when the unit is put in service we do further
12 testing to make sure that what the model said it was is
13 what, in fact, we got. So it's a test that's done to make sure
14 that that is so. So then we have a validated set of numbers
15 that gives us the amount of water that goes through the
16 unit verses the output of a unit.

17 MR. HUTCHINGS: Okay. I'm curious about how you test
18 that once the unit is installed. I mean, would you not have
19 to have some way of measuring the volume of water going
20 through in order to validate the numbers?

21 MR. HENDERSON: What we do is we do what's called ...
22 well, we do various tests, but the one that's done
23 predominately is an index test, it's called. And an index
24 test, what it does, is it measures the ... it doesn't measure
25 precisely the flow going through the unit. It measures the
26 ... it's basically the pressure differential through the unit.
27 You get an idea of the flow by the pressure differential,
28 measuring pressure differentials around the penstock. I'm
29 hesitant to get into too technical a discussion here on this,
30 but basically that you get a proxy for flow, because you
31 don't measure precisely the flow. Generally, when you do
32 an index test you wouldn't do that. So that proxy of flow
33 then is equated back to the model and then you end up
34 developing a curve, a shape that shows how the flow
35 through the unit changes verses the power that comes out
36 of the unit. So you have a relationship of change in flow to
37 power output. Okay. And that ... so that all relates back to
38 the model tests that were done on the turbine. So that's
39 how you do that. Now, for Bay d'Espoir we did some
40 absolute efficiency tests to validate these. An absolute
41 efficiency test does, actually measures the flow. And there
42 are methods of measuring the flow. There's ultrasonic
43 measurements, there's thermodynamic measurements,
44 there's a number of different ways. And again, this is
45 getting a bit out of my area of expertise, but I just know,
46 generally, that these different methods are there. And
47 mechanical engineers for Hydro would have been involved
48 with doing that testing. So we did absolute testing on the
49 units at Bay d'Espoir only. The other ones were all done
50 based on index testing.

51 MR. HUTCHINGS: Okay. Now, one of the reasons for my
52 questions is that on one of the exhibits we looked at there,

53 the answers that we looked at this morning, you showed
54 efficiency factors for the various Hydro plants, and I
55 presumed those to have been derived by using the other
56 two variables, which would be the amount of water flowing
57 through and the electricity generated. And if you're telling
58 me that you get the amount of water flowing through by
59 assuming a certain efficiency factor, then we have a circular
60 situation developing here.

61 MR. HENDERSON: What you have is you have a
62 relationship that was developed through the test, the index
63 test or the absolute efficiency test. That relationship says
64 when the unit is producing this many kilowatts this is how
65 much volume of water is going through. So the water
66 going through the unit is determined from that curve.

67 MR. HUTCHINGS: But I mean, how, then, do you get your
68 efficient ... are you just using the efficiency one that came
69 out of the model?

70 MR. HENDERSON: And so what you do ... we do that.
71 The energy management system at the control centre does
72 that calculation every, I'm going to say it's something like
73 every four seconds or maybe a little bit less frequent than
74 that. It calculates how much flow is going through the unit,
75 based on the output of the unit, at that moment in time.
76 And what it does then is over the course of the day it
77 accumulates all those readings and gets a volume of water
78 that went through the unit for that day, based on those
79 curves that were developed back in the model test and
80 validated through the efficiency test. So that's how you
81 get the volume of water that went through the unit. Using
82 that curve, and that curve gives you the volume of water
83 for each ... and the unit is not at a fixed megawatt level or
84 kilowatt level all day long, it's constantly changing. So you
85 do the calculation frequently to calculate the volume of
86 water going through the unit. Then, at the end of the day,
87 you have a total volume that went through the unit, and
88 then at the end of the month you got the total volume that
89 went through the unit and so on. So you end up with a
90 total volume of water. So when we talked yesterday about
91 the ratio of the energy produced to the volume of water,
92 that's how the volume of water is derived. The energy
93 produced is taken from the meters on the terminals of the
94 unit.

95 MR. HUTCHINGS: Yes. I still see a difficulty in the sense
96 that your inputting an efficiency factor into a loop which
97 ultimately brings you out with an efficiency factor.

98 MR. HENDERSON: You're using an efficiency curve to
99 derive the volume of water that's used. That, you don't
100 have a loop here, you've got a curve, a relationship that's
101 known, that's used, then, to show how much water is going
102 through the unit. The way we operate the unit will cause
103 the unit to be at different loads. The more often you are at

1 the most efficient load, the higher your conversion factor
2 will be.

3 MR. HUTCHINGS: Have these efficiency curves been
4 recalculated since the units were put into service?

5 MR. HENDERSON: The only ones that were ... well, no, I
6 guess not really, because the ones at Bay d'Espoir were
7 done when the runners were recently replaced. They were
8 done in the '90s. The other plants would have been done
9 within a year or so after they first went in service.

10 MR. HUTCHINGS: So there were new efficiency curves
11 created at that time?

12 MR. HENDERSON: A year after they went in service?

13 MR. HUTCHINGS: Yes.

14 MR. HENDERSON: A year after they went in service the
15 curves that were done in the model test were validated or
16 they were adjusted, based on what we found in those tests.

17 MR. HUTCHINGS: Is there a margin of error associated
18 with those calculations?

19 MR. HENDERSON: Sure.

20 MR. HUTCHINGS: Do you know what it is?

21 MR. HENDERSON: In all testing there is a margin of error.
22 There's a margin of error, certainly, in that calculation.

23 MR. HUTCHINGS: Do you know what it is?

24 MR. HENDERSON: No, I don't. I haven't done an analysis
25 on the error. The error ... you have to go all the way back
26 to the model test, in some instances, or the absolute
27 efficiency test. The absolute efficiency tests that we had
28 done when we did the runner replacements at Bay d'Espoir
29 in the '90s, there was some calculation done on the
30 accuracy of those absolute efficiency tests at that time, and
31 at that time I think the error may have been around one
32 percent, so we're talking plus or minus one percent.

33 MR. HUTCHINGS: Okay. Now, if we can look, for a
34 moment, at **NP-44**, page 4. One of the amounts that's
35 deducted in the calculation of the use for water here is the
36 average spill?

37 MR. HENDERSON: That's right.

38 (2:45)

39 MR. HUTCHINGS: And as I understand it, those average
40 spill figures go back to 1975, is that correct?

41 MR. HENDERSON: That's right.

42 MR. HUTCHINGS: Alright. How frequently, over the past
43 10 to 15 years, have spills occurred, let's say at Bay
44 d'Espoir?

45 MR. HENDERSON: It depends on where in Bay d'Espoir
46 you're talking about, because we have more than one
47 spillway.

48 MR. HUTCHINGS: Uh hum.

49 MR. HENDERSON: There's several. And in one particular
50 case we spill almost every year in one area. In the main
51 spillway that's down next to the Bay d'Espoir plant it's
52 much less frequent. And in my years in system operations
53 at Hydro there's only been a couple of years that we've
54 spilled.

55 MR. HUTCHINGS: And remind me how many years your
56 experience would be in this?

57 MR. HENDERSON: My experience goes back to 1984.

58 MR. HUTCHINGS: So the average spill that's shown here
59 for Bay d'Espoir, is that essentially reflective of this one
60 area where you spill essentially every year?

61 MR. HENDERSON: No. That includes the ... it includes all
62 spill that we've had.

63 MR. HUTCHINGS: Yes, I understand that. But, I mean,
64 you know, if you're only spilling twice every 16 or 17 years
65 in the other area, unless those spills are huge this ...

66 MR. HENDERSON: They were huge.

67 MR. HUTCHINGS: They were huge?

68 MR. HENDERSON: They were huge.

69 MR. HUTCHINGS: Okay. Can you give us an order of
70 magnitude in terms of a comparison to the spill that you do
71 annually?

72 MR. HENDERSON: They're probably 20 times. I'm
73 guessing. When we spilled back in 1999 it was a huge
74 volume of water that we spilled.

75 MR. HUTCHINGS: Uh hum.

76 MR. HENDERSON: And much more than what we normally
77 spill each year.

78 MR. HUTCHINGS: And what caused you to spill in 1999?

79 MR. HENDERSON: Very high inflows.

80 MR. HUTCHINGS: Uh hum.

81 MR. HENDERSON: On top of the high water levels that we
82 carried from 1998 into 1999, which was caused by the strike
83 by ACI in Grand Falls and Stephenville and their ... Grand
84 Falls, in particular. They continued to generate when the
85 strike was on, as we had agreed to them that they should
86 do, so that we took delivery of energy from them
87 throughout 1998 when the strike was on, and in doing so,
88 we backed off our own generation at Bay d'Espoir, Cat Arm,
89 Hines Lake. And as a result, our reservoir levels were

1 higher than they would have been if it wasn't for that strike
2 and the energy that Abitibi, Grand Falls delivered into our
3 system. So then, when it came to the spring run-off in 1999
4 we were high going in and we ended up spilling a large
5 volume of water, actually spilling every bit of water we put
6 into our reservoirs that came from ACI in Grand Falls, and
7 more on top of that.

8 MR. HUTCHINGS: And that was why ACI didn't get paid
9 for any of that power?

10 MR. HENDERSON: That's right.

11 MR. HUTCHINGS: Yeah, okay.

12 MR. HENDERSON: I should hasten to mention here that in
13 this spill calculation we took that fact into account and we
14 actually did not include, in that spill, the amount we spilled
15 that was due to ACI putting extra water into our system.

16 MR. HUTCHINGS: So that didn't go into the calculation of
17 your average spill?

18 MR. HENDERSON: No, because that was an unusual
19 circumstance that wouldn't warrant being put into the
20 average.

21 MR. HUTCHINGS: You mentioned on two occasions in
22 recent times when there had been large spills. When was
23 the other?

24 MR. HENDERSON: In 1999 we spilled and in 2000 we also
25 spilled.

26 MR. HUTCHINGS: And ...

27 MR. HENDERSON: '99 being much larger than 2000.

28 MR. HUTCHINGS: Okay. And was there anything
29 unusual about the 2000 spill in terms of its causes?

30 MR. HENDERSON: No. 2000 was just because it was wet.

31 MR. HUTCHINGS: Alright. Were there any other
32 alterations or adjustments made to your actual spills over
33 the past 25 years in calculating the numbers that appear
34 under average spill on **NP-44**?

35 MR. HENDERSON: I can't recall any others.

36 MR. HUTCHINGS: So, as far as you're aware, it was just
37 this one question with the Abitibi ...

38 MR. HENDERSON: That's right.

39 MR. HUTCHINGS: ... amount? Okay. And that ... other
40 than that, it's a straight 25 year average?

41 MR. HENDERSON: Yes.

42 MR. HUTCHINGS: Okay. What's the effect, then, of the
43 fact that we've had ten of our wettest years in the midst of
44 that 25 year average?

45 MR. HENDERSON: The effect?

46 MR. HUTCHINGS: Uh hum.

47 MR. HENDERSON: It would have increased your average
48 energy capability, but it also would have increased your
49 average spill.

50 MR. HUTCHINGS: Okay. So, to the extent that you'd want
51 to get a balance of wet and dry years in respect of
52 calculating an average spill the average spill is quite
53 possibly overstated here, is that correct?

54 MR. HENDERSON: I'm not sure how much it is, because I'd
55 have to look at the years prior to 1975 to see ... make a
56 guess, and that's what it would be, as to how much we may
57 have spilled in a repeat of those years, because there were
58 wet years prior to the most recent wet years.

59 MR. HUTCHINGS: Uh hum. But, as I understood, from
60 1975 looking backwards, you were spilling regularly
61 because of load restrictions?

62 MR. HENDERSON: That's right.

63 MR. HUTCHINGS: Okay.

64 MR. HENDERSON: But there were also wet years.

65 MR. HUTCHINGS: Uh hum.

66 MR. HENDERSON: And if we hadn't had the load
67 restrictions in those years there may have been spill,
68 anyway. And we have not done an analysis back in those
69 years.

70 MR. HUTCHINGS: So you're not able to tell us by how
71 much that average spill is overstated as a result of the wet
72 years?

73 MR. HENDERSON: I'm not sure that it's overstated.

74 MR. HUTCHINGS: I mean, you're not ...

75 MR. HENDERSON: I'd have to look at the numbers to see,
76 to make that judgment that it overstates it.

77 MR. HUTCHINGS: But, I mean, you're more likely to spill
78 in wet years than you are in dry years, obviously?

79 MR. HENDERSON: Yes, you would.

80 MR. HUTCHINGS: You're more likely to spill in wet years
81 than you are in average years?

82 MR. HENDERSON: Yes.

83 MR. HUTCHINGS: And this average is composed, largely,
84 of wet years?

85 MR. HENDERSON: It's composed of a couple of very wet
86 years in the recent times. But we ...

87 MR. HUTCHINGS: Well, we've had ten wet years in the

- 1 past ten, have we not?
- 2 MR. HENDERSON: Yeah, the ten, they have been above
3 average, but we didn't spill in all those years.
- 4 MR. HUTCHINGS: No, no, I understand that. What I
5 suggested to you is you're more likely to spill in a wet year?
- 6 MR. HENDERSON: Yes, yes, oh, yeah.
- 7 MR. HUTCHINGS: Okay. And you did, in fact, have two
8 significant spills in that period?
- 9 MR. HENDERSON: Yes.
- 10 MR. HUTCHINGS: Okay. The fisheries release
11 requirements that show on that same exhibit, would I be
12 correct to take the conversion factor, for example, for Bay
13 d'Espoir, and multiply it by the amount of water listed in the
14 fisheries release requirements to come up with a number of
15 gigawatt hours that could have been generated if this
16 requirement was not in existence?
- 17 MR. HENDERSON: Yes.
- 18 MR. HUTCHINGS: Okay. And if I did that for each of the
19 three plants which has a fisheries release requirement I
20 come up with a little over 30 gigawatt hours of energy that
21 is not being generated because of the need to spill,
22 basically spill this water for fisheries purposes, is that
23 correct?
- 24 MR. HENDERSON: That's right.
- 25 MR. HUTCHINGS: Okay. And that power would be worth
26 to ratepayers probably \$1 million?
- 27 MR. HENDERSON: That sounds like a reasonable
28 estimate.
- 29 MR. HUTCHINGS: Okay. And that's while as taxpayers,
30 perhaps, we all have an attachment to salmon and want to
31 preserve that, that's really a contribution by the ratepayers
32 to the taxpayers of \$1 million, isn't it?
- 33 MR. HENDERSON: I don't see that. This is a requirement
34 by the Department of Fisheries and Oceans to support the
35 salmon in the rivers that this is released into. I don't see
36 how ...
- 37 MR. HUTCHINGS: It's a government imposed requirement,
38 correct?
- 39 MR. HENDERSON: It's a Federal Government imposed
40 regulation, if you like.
- 41 MR. HUTCHINGS: Yes, yeah. And the ratepayers and
42 taxpayers are two different classes of people, as Mr. Wells
43 tells us?
- 44 MR. HENDERSON: They are different, yes.
- 45 MR. HUTCHINGS: Yeah. It's all the taxpayers who are
46 getting the benefit of that, correct?
- 47 MR. HENDERSON: It's all the taxpayers that get the
48 benefit of it. I don't know. The salmon definitely get a
49 benefit of it.
- 50 MR. HUTCHINGS: And I don't think they pay taxes.
51 That's an incidental benefit.
- 52 MS. GREENE, Q.C.: I guess it depends on whether you're
53 a salmon fisherman.
- 54 MR. HUTCHINGS: Okay. I think I'm just about at the end,
55 Mr. Chair, and I may, in fact, be finished, but perhaps we'll
56 take the break now and I can ...
- 57 MR. NOSEWORTHY, CHAIRMAN: Okay. Thank you.
58 We'll reconvene at ten after.
- 59 *(break)*
- 60 *(3:15 p.m)*
- 61 MR. NOSEWORTHY, CHAIRMAN: Mr. Hutchings, have
62 you completed your cross or do you require some more
63 time?
- 64 MR. HUTCHINGS: I just have one or two more short
65 questions, Mr. Chair. Mr. Henderson, we're back to a
66 certain extent in the area of hydrology. Just looking at the
67 exhibit that was marked this morning as **NP-4**, and the
68 description of how B.C. Hydro deals the issue of average
69 water conditions, I want to try to make, make the
70 comparison and there are probably reasons why things are
71 quite different here, but in terms of the numbers that we've
72 been looking at for average inflows and hence average
73 production from your hydro plants, essentially what we've
74 been talking about is simple averages of the inflows, is that
75 correct?
- 76 MR. HENDERSON: That's right.
- 77 MR. HUTCHINGS: I have the impression, and I'm not sure
78 that I have a complete picture of what B.C. Hydro does, but
79 I have the impression that this is a much more
80 sophisticated system that they use in terms of coming up
81 with their expected hydro production, is that a fair
82 comment?
- 83 MR. HENDERSON: It would be more sophisticated, yes.
- 84 MR. HUTCHINGS: Yeah, and you know I see that, for
85 instance, as the system as described at the bottom of page
86 1 of this exhibit, the first page of the three page attachment
87 to the e-mail, there are inputs which are apparently related
88 to current reservoir levels latest expected run-off forecasts
89 and then a run-off forecast for a period up to 30 September,
90 reflecting snow pack conditions. Now am I correct in
91 assuming that that's something that Newfoundland Hydro
92 just doesn't do? You don't forecast run-off based on snow

1 pack or anything else?

2 MR. HENDERSON: That is not true, no we do. I thought
3 I'd pointed out we do do forecast based on snow pack. We
4 do do a snow survey in the winter and we measure the
5 volume of snow that's on the ground and we do a forecast
6 for our run-off and our run-off period fairly short. It begins
7 in April and ends in June. Its not like in B.C. where it
8 carries on for several months because of the mountains, I
9 guess. So for ours, we would do this in the winter period
10 and so we start in December when the snow starts to
11 accumulate, start keeping track of how much snow is
12 accumulating and then we predict, try to come up with an
13 estimate of what our snow melt will be in the spring. So we
14 do plan through the winter, taking into account how much
15 snow is accumulating and do an inflow forecast, if you like.
16 I would suggest to you that it is nowhere near as
17 sophisticated as B.C. Hydro does, because of the impact it
18 has on their system. For us, our main focus is to ensure
19 that we have enough storage room in our reservoir to
20 handle what we see as snow melt to make sure that we
21 don't spill. So we use that during the winter period to
22 determine what level of operation we should have in
23 Holyrood in order to keep the reservoir level under control
24 so that when the snow does melt we'll have sufficient room
25 to store it.

26 MR. HUTCHINGS: Your snow pack survey, I take it, say
27 for 2001 for January to March say of 2001, doesn't impact
28 your projected production for 2002 from hydro?

29 MR. HENDERSON: No, no because 2002 is so far out that
30 it's not impacted by the snow pack in the winter of 2001.
31 The reservoir levels in that time period do not impact on
32 what our production will be in the following year. For B.C.
33 that may not be the case. Now I'm reading between the
34 lines here, that they have a very large reservoir in their
35 system that greatly impacts their operation over a period of
36 time that is not just for that current year, so their storage
37 position is very critical in maybe looking at a year or two,
38 while for us our storage position is more critical for the
39 shorter term, so that may explain why they for their, I'll say,
40 year out type of forecast would take into account their
41 current storage position as well again as the snow pack,
42 and again they indicate that their snow stops melting in
43 September, so that obviously takes a long while for the
44 water to get off the mountains. So that would change their
45 way of looking at, but when you get far enough out that
46 the current situation really doesn't, there's so many random
47 variables between now and out in the future then you
48 would tend to go to an average number for that far out and
49 that's what we do. So we would use this type of
50 methodology, but in a simplified form for the short term in
51 a two or three month period or the winter period, but
52 beyond that we would assume averages, going out into the

53 following year. So, for instance, when we do our budgets
54 in June, we would assume that the following year will be
55 average because the current position in that June will not
56 impact on what we're going to do the next year. What's
57 going to impact how the next year turns out will be the
58 amount of rain that we have between the end of June and
59 beginning of the following year. That may influence where
60 our starting storage is going into a year. But we don't, can't
61 predict with any accuracy what the rainfall is going to be a
62 month, two months, even next week.

63 MR. HUTCHINGS: Is there any point during a particular
64 calendar year that you have any data which will give you
65 a better forecast for the following calendar year of what
66 Hydro production is going to be?

67 MR. HENDERSON: We probably late in the year, like in
68 December, can give a little bit different picture as to what
69 that following year will be, because when we get into early
70 December we know what our storage position is, and we
71 know, and we have a fairly good sense as to whether we're
72 going to be above our minimum target or below our
73 minimum target going into the following year and thereby
74 would get a sense that we may not be producing thermal as
75 quite as high as we would have otherwise. But again
76 there's a large variable there which is how much snow are
77 we going to get, how much rain are going to get, so it's still,
78 at that point, a guess, but the fact that your storages may
79 be high, certainly like in 1998 when we were really high after
80 the ACI strikes we knew that going into 1999 we were
81 going to have a low thermal production year because we
82 were just so high, but if you're only marginally above the
83 minimum, you wouldn't make a prediction that you were
84 going to have a particularly low thermal year or not,
85 because there are so many variables in our precipitation.

86 MR. HUTCHINGS: Have you looked at any other methods
87 of forecasting the projected hydro production in a given
88 year other than the simple average of what you've done in
89 the past?

90 MR. HENDERSON: No, we use that average inflows.

91 MR. HUTCHINGS: I understand you use that, I'm asking
92 you if you've ever looked at anything else, is there any
93 other alternative that you've considered at any time?

94 MR. HENDERSON: No, because the difficulty is that you
95 don't know what the future will hold, so the only thing to
96 use would be some basis of what on average happened in
97 the past and that's why we go with averages, because we
98 just don't know. We can't see, like I said, what the
99 precipitation is going to be next month, so we assume
100 averages. So we have not, to answer your question, gone
101 looking at some other method of forecasting inflows.
102 That's what you're talking about here.

1 MR. HUTCHINGS: Okay, thank you, Mr. Henderson.
2 Those are all my questions, Mr. Chair.

3 MR. NOSEWORTHY, CHAIRMAN: Thank you Mr.
4 Hutchings. Thank you, Mr. Henderson. We do have 35
5 minutes, I'll ask Mr. Browne, Consumer Advocate, to begin
6 his cross examination please.

7 MR. BROWNE, Q.C.: Thank you Mr. Chairman. Mr.
8 Henderson, can you go the transcript of yesterday,
9 October 9, 2001, on page 16, where our colleague, Ms.
10 Butler, was examining you on hydraulics and on **NP-204**,
11 and if you look at over that entire quote, go to line 14, Ms.
12 Butler puts this question to you, "And again assuming the
13 math to be correct, you can certainly take the time to check
14 me on it, what possible reason could there be for the
15 significant difference in the averages pre-'67 and post-'67",
16 and then you read your answer, I'll read it for you, "The
17 weather probably is the most influencing factor on this.
18 The weather we had. I wasn't very old back then. Actually,
19 I didn't exist a good part of it, but I do recall the early sixties
20 being dry and people talking about it. I know that we had
21 a large forest fire in the northern part of St. John's in the
22 early '60's so it was a dry period back then. So I think that's
23 the explanation, as back then, there was, we had some
24 extended dry periods". In presenting this evidence to the
25 Board, is that what your asking the Board to rely upon, is
26 your statements there in response to Ms. Butler's questions
27 concerning the significant difference in the averages pre-'67
28 and post-'67, is that what we got going for us here?

29 MR. HENDERSON: Not my memory, because I was very
30 young. What I'm saying is that back then it was dry.

31 MR. BROWNE, Q.C.: How do you know that? Where,
32 you're making all kinds of general statements here. You're
33 referring to studies that go back to the 1950's and it's
34 classic heresay, where is the evidence. How do you know
35 it was dry? Because this is an important area now. Ms.
36 Butler examined you on it for a length of time, as did Mr.
37 Hutchings on behalf of the Industrials, we consider it a
38 critical area, so we're looking for hard evidence on these
39 numbers.

40 MR. HENDERSON: I guess the evidence is that in the
41 records, our inflow records, based on the flow gauges that
42 were on those rivers back in those years indicated low
43 inflows. So that's the evidence that they were low and
44 that's what I am relying on as the evidence, per se, to say
45 that it was low at that time and those numbers back then
46 were developed by engineers using very good engineering
47 judgement as to what the inflows were for that area and
48 that's what we're relying on is the work of those engineers
49 back in the 1960's.

50 MR. BROWNE, Q.C.: Well where did you get the
51 information to put it in this chart? Where does it come

52 from? Does it come from a study? Is there a basic
53 document?

54 MR. HENDERSON: Those numbers are, they originate in
55 the feasibility work done for the Bay d'Espoir development.
56 That's where they came from originally. We have not
57 tabled it.

58 MR. BROWNE, Q.C.: Have you looked at them yourself to
59 verify for the Board that these are accurate numbers? Did
60 you go back and look at all those feasibility studies to
61 show, yes, I can testify to these?

62 MR. HENDERSON: I didn't look at them prior to the
63 hearing, no. These numbers we had in our possession and
64 have been using them for a number of years and they
65 originally came from those studies.

66 MR. BROWNE, Q.C.: So there are feasibility studies that
67 are there, have they been filed with the Board as a
68 document to verify **NP-204**?

69 MR. HENDERSON: Aah, well the **NP-204**, there's a lot of
70 calculations in the background behind that one, but
71 probably the one that you want to refer to is another
72 question, another information request which had all the
73 inflows by month for all our records and I ...

74 MR. BROWNE, Q.C.: And this is a summary of that.

75 MR. HENDERSON: And with calculations and everything
76 else. I couldn't go to a feasibility study that produces
77 these numbers. What I'm saying is that you'd have to go
78 to, and I'll give you the reference, its **IC-155**, has tables of
79 numbers.

80 MR. BROWNE, Q.C.: Now those tables and numbers that
81 you're referring to **IC-55**, you start with the year 1950, why
82 do you start with the year 1950?

83 MR. HENDERSON: Because that's the first full year that
84 came from the information from those old records.

85 MR. BROWNE, Q.C.: Was there a year prior to 1950? Was
86 there any records?

87 MR. HENDERSON: My recollection is is that we may have
88 had partial in 1949. That's just my recollection.

89 MR. BROWNE, Q.C.: You're telling us that in 1950 there
90 were gauges on rivers measuring inflows in Bay d'Espoir,
91 in Cat Arm and in Hines Lake. Is that what you're telling
92 us?

93 MR. HENDERSON: No. There was gauges in 1950 on ...
94 again I have to refer to another document here because we
95 did, I think, provide this ... **NP-308**. These are the sources.
96 The Salmon River starting in 1949; Grey River, '58; White
97 Bear, '64; Exploits, 1928; Upper Humber, 1929; Torrent
98 River, 1959; Hines Lake Brook, 1956; and Cat Arm River,

1 1968. So all of these gauge streams were use to rely on
2 developing the inflow data.

3 MR. BROWNE, Q.C.: So the Hines Lake you have starting
4 in '56 and the Cat Arm in '68?

5 MR. HENDERSON: That's right.

6 MR. BROWNE, Q.C.: But your figure here starts with 1950.
7 Does 1950 relate solely to Bay d'Espoir?

8 MR. HENDERSON: No. In developing the inflow records
9 for Cat Arm and Hines Lake, in the earlier periods of time,
10 the Upper Humber, Torrent River values would have been
11 relied on, and in the engineering studies, and they would
12 have done some studies to see that the Upper Humber and
13 Torrent River were valid numbers to use to develop an
14 inflow series for the Cat Arm and Hines Lake
15 developments.

16 MR. BROWNE, Q.C.: And how was the gauging done then
17 in say, I'll just pick a year there, the Hines Lake Brook
18 starting in 1956, what was the process that was employed?

19 MR. HENDERSON: I couldn't tell you the detail of that.

20 MR. BROWNE, Q.C.: Was the process consistent for all
21 these rivers or were there different methods? Do you know
22 that?

23 MR. HENDERSON: Probably, more than likely there were
24 different methods over that period of time.

25 MR. BROWNE, Q.C.: So there may be some inconsistency
26 in the way the figures were calculated from the beginning,
27 would you offer me that.

28 MR. HENDERSON: In the way that the stream flow was
29 determined there may be variances in the frequency of
30 measurements, the method of measurement, but then all of
31 that would have been taken into account in the engineering
32 feasibility studies for the developments when these inflow
33 series were developed, so that, and again ...

34 MR. BROWNE, Q.C.: How do you know that?

35 MR. HENDERSON: Because that the numbers that we have
36 came from those engineering feasibility studies that were
37 used to rely on the development of these projects.

38 MR. BROWNE, Q.C.: But how do you know that they
39 would have taken into account inconsistencies in the
40 gauging of these particular rivers. How do you know that
41 as fact?

42 MR. HENDERSON: What I would say that they were
43 developed using a very competent engineering study from
44 a competent consultant and they developed the inflows ...

45 MR. BROWNE, Q.C.: But do you know. Have you, I mean
46 you're telling us that, you're saying I would say, have you
47 looked at it and can you testify with accuracy and tell the
48 Board without any shadow of doubt that this is what was
49 done?

50 MR. HENDERSON: I can't, I don't, I haven't read those
51 studies to know in detail what those engineers did. All I
52 can say is that they were reputable engineering firms used
53 by Hydro in determining the energy capabilities for these
54 facilities before we went ahead with the developments.

55 MR. BROWNE, Q.C.: Now what year did you move from
56 the gauge system to the other system you're referring, is
57 that the index test?

58 MR. HENDERSON: That would have occurred that the
59 plant went in service.

60 MR. BROWNE, Q.C.: So at the time the plant went in
61 service, so in the case of Bay d'Espoir, it would have
62 happened in 1967?

63 MR. HENDERSON: That's right.

64 MR. BROWNE, Q.C.: And in the case of Cat Arm in 1985?

65 MR. HENDERSON: That's right.

66 MR. BROWNE, Q.C.: And Hines Lake, in 1980?

67 MR. HENDERSON: Right.

68 MR. BROWNE, Q.C.: And which method is preferable, the
69 gauge system or the system that you now have?

70 MR. HENDERSON: I don't know that, you only can do
71 with a gauging station on an uncontrolled river and we
72 only can do it through the back routing method of
73 calculation like I conveyed to you yesterday once the
74 development goes in place. So you can't chose, one exists
75 before, and one exists after. You don't have the option of
76 going to a gauging method after the plant goes into
77 service.

78 MR. BROWNE, Q.C.: So after the plant is in service would
79 you say that there's more accuracy and that it's within a
80 controlled environment?

81 MR. HENDERSON: I wouldn't say that there's, like I said
82 yesterday, I don't know the detailed accuracy of the two,
83 but the two would have in them inherent errors, both of
84 them, so which is precisely more accurate, I wouldn't be
85 able to tell you. All I can say is that they both have
86 inherent errors.

87 MR. BROWNE, Q.C.: Just leave that, we may come back to
88 it. Mr. Henderson, in your pre-filed evidence you outline
89 your qualifications and experience in page 1, and in line 8,
90 you state you're a professional engineer, now there are
91 different types of engineers, what kind of engineer are you?

92 MR. HENDERSON: I'm an Electrical Engineer.

- 1 MR. BROWNE, Q.C.: You're an Electrical Engineer, and
2 you graduated in what year?
- 3 MR. HENDERSON: In 1982.
- 4 MR. BROWNE, Q.C.: And you have your B.Eng. and
5 P.Eng. as they say in your business?
- 6 MR. HENDERSON: That's right.
- 7 MR. BROWNE, Q.C.: And so in 1982 you commenced work
8 with Hydro, did you commence work with Hydro as an
9 Electrical Engineer?
- 10 MR. HENDERSON: Yes.
- 11 MR. BROWNE, Q.C.: And what position did you assume
12 then as an Electrical Engineer?
- 13 MR. HENDERSON: I went into the graduate development
14 program that Hydro had in place at the time for engineering
15 graduates and so I had work placements for about a six
16 months period for each and I did that until 1984 and for
17 those work placements I worked during the commissioning
18 of Upper Salmon, as part of it I worked in our Engineering
19 Design Department, and I worked in our Distribution
20 Planning Department and our Protection and Control.
- 21 MR. BROWNE, Q.C.: As an Electrical Engineer?
- 22 MR. HENDERSON: Oh yes, as an Electrical Engineer.
- 23 MR. BROWNE, Q.C.: What, I'm completely ignorant as to
24 this profession, it's probably not my only ignorance, but
25 anyway what does an Electrical Engineer do? Can you give
26 us the general purview of what an Electrical Engineer does.
- 27 MR. HENDERSON: Well, that's a very broad category.
28 There's many areas that Electrical Engineers are involved
29 with. They are involved with electrical power generation,
30 distribution, like we are at Hydro. There's communications,
31 there's computer design, there's a whole lot of areas that
32 Electrical Engineers can be involved with. I don't know if
33 we have enough time, and I don't know if my memory, how
34 good I can at pulling up all of them, but there are a very,
35 very wide range of areas that Electrical Engineers work in.
- 36 MR. BROWNE, Q.C.: But you were working within the
37 parameters of an Electrical Engineer up to 1984, is that what
38 you're telling us?
- 39 MR. HENDERSON: I've worked within the parameters of
40 Electrical Engineer since.
- 41 MR. BROWNE, Q.C.: And you're now the Systems, the
42 Manager of System Operations, what jobs did you hold
43 down prior to that in Hydro?
- 44 MR. HENDERSON: I, my title changed a few times, but as
45 I recall when I first started in 1984 I was a System Engineer,
46 and somewhere along the way, and I'm not sure exactly
47 what year, I became an Operations Planning Engineer, and
48 then I became Senior Operations Planning Engineer and
49 then I became the Manager of System Operations.
- 50 MR. BROWNE, Q.C.: Now Systems Engineer, is that the
51 same as an Electrical Engineer?
- 52 MR. HENDERSON: Yes, a Systems Engineer is, I was an
53 Electrical Engineer. I was an Electrical Engineer and still am
54 an Electrical Engineer in each one of these positions. That
55 the position required an Electrical Engineer to be in it.
- 56 MR. BROWNE, Q.C.: And the Operations, you're an
57 Operations Engineer, you stated. Is that an Electrical
58 Engineer as well?
- 59 MR. HENDERSON: An electrical engineering degree is
60 required to manage and operate the electrical power system.
- 61 MR. BROWNE, Q.C.: So in all the jobs that you had, you're
62 using your professional training as an Electrical Engineer.
63 Is this true?
- 64 MR. HENDERSON: My professional training as an
65 Electrical Engineer, my experience that I gained on the job
66 over that period of time as well. So there's a combination of
67 training on the job, training before I graduated, and also
68 on-the-job experience. All of those were drawn on every
69 day when I do my job.
- 70 MR. BROWNE, Q.C.: As an Electrical Engineer?
- 71 MR. HENDERSON: As an Electrical Engineer, yes.
- 72 MR. BROWNE, Q.C.: And your responsibilities, let's go
73 down to that. In the first bullet there the operation of
74 Hydro's transmission and generation equipment on the
75 interconnected power systems controlled by the Energy
76 Control Centre. Are you using your professional
77 designation when you're doing that particular work?
- 78 MR. HENDERSON: Yes.
- 79 MR. BROWNE, Q.C.: And in the next bullet, planned and
80 unplanned outages to system equipment. Is that the work
81 of an Electrical Engineer?
- 82 MR. HENDERSON: Yes.
- 83 MR. BROWNE, Q.C.: And the economic operation of
84 system equipment, is that the work of an Electrical
85 Engineer?
- 86 MR. HENDERSON: Yes.
- 87 MR. BROWNE, Q.C.: And fuel budgets for all
88 interconnected system plants, is that the work of an
89 Electrical Engineer?
- 90 MR. HENDERSON: Well that one I would say that you
91 need an Electrical Engineer to provide you inputs in that
92 process, but fuel budgeting per se could be considered

1 maybe an accounting area. I, you need an Electrical
2 Engineer and operating experience to determine your
3 requirements for fuel and the requirements of the operation
4 of the system and then ...

5 MR. BROWNE, Q.C.: Why would you need an Electrical
6 Engineer to determine your requirements for fuel? Why
7 would that be within the purview of an Electrical Engineer?

8 MR. HENDERSON: In our system the way its operated the
9 requirement for generation is determined by engineers, if
10 you like, to determine what levels of production at different
11 plants you require. The levels of production at different
12 plants will dictate the amount of fuel that you need and
13 then the, that amount of fuel need is what we determine and
14 then that goes into the budgeting process determining how
15 much, well you put in how much fuel you need each month
16 and then there's purchases and everything else that gets
17 into that equation.

18 MR. BROWNE, Q.C.: Where did you get your training in
19 fuel budgets? You're trained as an Electrical Engineer,
20 where do you get your training in fuel budgets. Did you
21 take any courses in economics or budgeting, or anything
22 like that?

23 MR. HENDERSON: No, I would have gained that through
24 my experience at work and through interaction with my
25 boss, if you like, prior to getting into it myself.

26 MR. BROWNE, Q.C.: And how long did you have training
27 in fuel budgeting? Where did you first come in contact
28 with training in fuel budgeting as an Electrical Engineer?

29 MR. HENDERSON: I was first exposed to fuel budgeting
30 when I went into operations, working in the System
31 Operations Department in 1984.

32 MR. BROWNE, Q.C.: And what was your job then in 1984
33 in fuel budgeting?

34 MR. HENDERSON: My job at that point would have been
35 doing forecasting, if you like, or what we call hydro thermal
36 split which is determining the split between our hydro and
37 thermal generation required for the upcoming year, and so
38 that would have been, my input would have been doing
39 hydro thermal split, or determining how thermal, how much
40 hydro we need.

41 MR. BROWNE, Q.C.: That must have been an interesting
42 time, if you're assisting in fuel budgeting in 1984 because
43 that was before the Rate Stabilization Plan came into effect,
44 was it not?

45 MR. HENDERSON: It was.

46 MR. BROWNE, Q.C.: Well how did you budget for fuel in
47 1984, can you tell the Board that?

48 MR. HENDERSON: I don't know that it was much different

49 than we do now, which was we had a look at what our
50 hydroelectric resources could be able to produce and the
51 difference between what our hydroelectric resources could
52 produce and the load would have to be met from our
53 thermal sources, and the thermal sources then would be
54 scheduled, if you like, into a forecast for different months
55 of the year and then from that using the conversion factor
56 that we talked about earlier the 610 kilowatt hours per barrel
57 and back then it was 600 kilowatt hours per barrel if my
58 memory, you'd come back into how much volume of fuel
59 you required and you'd have a requirement for each month
60 of the year through that calculation which is a fairly basic
61 straight forward calculation. That would have gone into the
62 budgeting process, from there I don't know how, I can't say
63 in any certainty how it was treated as far as rates and when
64 you get into the rate stabilization plan, that part of it I was
65 not involved with back then. I would have just been part
66 of the process of developing the budget, not knowing the
67 full end result of it.

68 MR. BROWNE, Q.C.: So you got involved in 1984, prior to
69 the Rate Stabilization Plan in fuel budgeting and are we
70 talking now and you used the term fuel budgets, are we
71 talking about financial fuel budgets or budgeting in terms
72 of the quantity needed at a particular location?

73 MR. HENDERSON: Right now the fuel budget is part of my
74 responsibility.

75 MR. BROWNE, Q.C.: The financial fuel budget or the
76 quantity budget?

77 MR. HENDERSON: The dollars that are budgeted, I take
78 the fuel price forecast that I'm provided and apply it to the
79 volume of fuel that we've identified to be required to be
80 used and come up with a dollar value of the fuel, the cost
81 of fuel used in our production. So I have that
82 responsibility.

83 MR. BROWNE, Q.C.: And was that your responsibility in
84 1984? Did you budget financially for the fuel requirements?

85 MR. HENDERSON: No, 1984, that would have been my
86 predecessor's responsibility. At that time my focus was on
87 determining the split between our hydro and thermal
88 resources.

89 MR. BROWNE, Q.C.: And when did you take the
90 responsibility then, the financial responsibility for the fuel
91 budget. When did this become your bailiwick?

92 MR. HENDERSON: In 1995 I became Manager of System
93 Operations and became ...

94 MR. BROWNE, Q.C.: So you're totally responsible since
95 1985?

96 MR. HENDERSON: I'm sorry, 1995.

1 MR. BROWNE, Q.C.: In 1995. Okay, so you're totally
2 responsible since 1995 and prior to that you were assisting
3 someone, I gather.

4 MR. HENDERSON: That's right.

5 MR. BROWNE, Q.C.: And it's your evidence that you'd
6 make no change in the way you budgeted for the fuel, I
7 want you to be careful now in responding to this, you made
8 no change in the way you budgeted for fuel prior to the
9 Rate Stabilization Plan coming into effect and after the Rate
10 Stabilization Plan came into effect. Is that what you're
11 telling the Board?

12 MR. HENDERSON: What I'm saying is is that the way we
13 determine our fuel requirements through the hydro thermal
14 split has not changed. And once you determine your fuel
15 requirements, applying the conversion factor and coming
16 up with a volume of oil, that method has not changed.
17 What happens on the financial side of things, as far as the
18 way we make our purchases, that side of things I wasn't
19 involved with. We came up with an estimate of the amount
20 of fuel was required, there was others then that did the
21 ordering of the fuel, did the contracts for the fuel, and
22 would have taken into account how that, the financing of
23 those purchases and what it meant to Hydro's bottom line,
24 if you like. That part of it, I had no involvement. So I can't
25 say how that process changed over that timeframe.

26 MR. BROWNE, Q.C.: Have you any involvement with it
27 now, the listing that you just gave?

28 MR. HENDERSON: Yes.

29 MR. BROWNE, Q.C.: When did you have involvement?

30 MR. HENDERSON: That would have been in 1995 for sure.
31 I think before 1995, I was more involved with that process,
32 but in 1995 I became Manager of System Operations and
33 became responsible for it at a higher level than I was prior
34 to that, but I, in the early nineties I did have some
35 involvement, more on the dollar side, if you like, than I did
36 prior to that.

37 MR. BROWNE, Q.C.: And when you took your courses at
38 the university as an Engineer, were any related to finances?
39 Did you take any economics courses or financial planning?

40 MR. HENDERSON: I did take some economics courses.
41 Not very much and that's all I can say.

42 MR. BROWNE, Q.C.: And now you're administering how
43 much of a budget in reference to fuel purchases?

44 MR. HENDERSON: Fuel purchases is about 100 million
45 dollars.

46 MR. BROWNE, Q.C.: I think Mr. Wells mentioned that it is
47 one of the three pillars, fuel budget.

48 MR. HENDERSON: Yes.

49 MR. BROWNE, Q.C.: What fuels are included in that
50 budget? What types of fuels are you including?

51 MR. HENDERSON: I am involved with the estimate of our
52 requirement for, excuse me, all the fuels for our plants on
53 the Island interconnected system, which would be the
54 diesel plants that we talked about on the Northern
55 Peninsula, the gas turbine at Stephenville, at Hardwoods,
56 and at Holyrood.

57 MR. BROWNE, Q.C.: Now the gas turbine, what kind of
58 fuel propels that?

59 MR. HENDERSON: It's No. 2 fuel.

60 MR. BROWNE, Q.C.: Does Newfoundland Power have any
61 gas turbines?

62 MR. HENDERSON: Yes, they do.

63 MR. BROWNE, Q.C.: In terms of diesel, it is your evidence
64 that you do fuel budgeting for diesel.

65 MR. HENDERSON: Does Newfoundland Power have any
66 requirement to purchase diesel?

67 MR. HENDERSON: I would say they do.

68 MR. BROWNE, Q.C.: Have you had any discussions with
69 Newfoundland Power in reference to the method you
70 budget for the purchase of diesel and the method that they
71 use?

72 MR. HENDERSON: No, I haven't.

73 MR. BROWNE, Q.C.: Have you had any discussions with
74 Newfoundland Power in reference to No. 2 fuel you use for
75 gas turbines and the No. 2 fuel they use?

76 MR. HENDERSON: No, I haven't.

77 MR. BROWNE, Q.C.: Have you given any consideration to
78 doing any kind of bulk ordering in terms of diesel fuels or
79 fuels, No. 2 fuels for gas turbine with Newfoundland Power
80 in order to attract any discount that may be available for
81 such purchases?

82 MR. HENDERSON: No we haven't.

83 MR. BROWNE, Q.C.: Have you had any discussions with
84 your counterparts at Newfoundland Power in reference to
85 this subject matter at all?

86 MR. HENDERSON: No, I haven't.

87 MR. BROWNE, Q.C.: And yet according to your
88 responsibilities, if we look back to page 1, you do have
89 some day to day involvement with Newfoundland Power
90 officials, is that true?

91 MR. HENDERSON: That's right.

1 MR. BROWNE, Q.C.: And to what does that pertain?

2 MR. HENDERSON: That pertains to the operation of the
3 power system in deciding outages, when we're planning
4 outages to transmission lines, transmission equipment,
5 even planning outages to some of our generation facilities,
6 we will co-ordinate that with Newfoundland Power to
7 ensure that we're providing as reliable and as secure a
8 supply power to their customers and our customers, so that
9 requires a close liaison and constant contact.

10 MR. BROWNE, Q.C.: Did you ever use, or have occasion
11 to use any of Newfoundland Power's fuel, its diesel fuel or
12 have they had occasion to use yours because of a
13 situation?

14 MR. HENDERSON: I'm not aware of any occasions where
15 we have used their fuel, and I don't know that, of any
16 occasions that come to the top of my head, that they used
17 our fuel. The only exception to that, I'm going back now in
18 time, Newfoundland Power used to have a steam plant on
19 the Southside in St. John's, and as I recall we used to
20 provide them some No. 6 fuel for use in that plant when it
21 was required.

22 MR. BROWNE, Q.C.: You're involved, according to your
23 evidence, in a 100 million dollar fuel budget, given the
24 nature of the commodity have you ever been sent on a
25 course or on any training pertaining to the purchasing and
26 acquisition of fuels?

27 MR. HENDERSON: The purchasing is taken care of
28 through our Purchasing Department and I don't do the
29 contact with supplier, that type of arrangement. My contact
30 is with our Purchasing Department to say we require a
31 shipment of fuel at a certain date and they make the
32 arrangements. I have not had any training on that kind of
33 process of purchasing and that sort of thing.

34 MR. BROWNE, Q.C.: But yet it is ultimately your
35 responsibility your responsibility, the 100 million dollars?
36 You're the spender.

37 MR. HENDERSON: I'm the spender in a sense. I'm the one
38 that determines when we require it.

39 MR. BROWNE, Q.C.: No one bothered to send you for any
40 kind of training, given that that's one of the three pillars
41 that Mr. Wells referred to?

42 MR. HENDERSON: I haven't been sent on any training on
43 how to, the process of determining when you need oil does
44 not require training. I'm not sure what training I would
45 have to have or what training courses are out there for
46 doing that. I'm not sure what you're suggesting I would
47 have gone on, because I don't know what benefit it would
48 have been.

49 MR. BROWNE, Q.C.: The evidence that you are

50 presenting, you're not dealing with the Labrador non-
51 connected power system, the diesels in Labrador.

52 MR. HENDERSON: No, I'm not.

53 MR. BROWNE, Q.C.: But do you order fuel for Labrador?
54 Is that part of your responsibility?

55 MR. HENDERSON: No, I don't. Well, the only part that
56 would be part of my budget responsibility is the gas
57 turbine in Happy Valley which is part of the interconnected
58 in Labrador. All of the isolated diesel systems, that's taken
59 care of in Mr. Reeves' shop.

60 MR. BROWNE, Q.C.: So who orders the fuel for Labrador?

61 MR. HENDERSON: For the Labrador isolated system?

62 MR. BROWNE, Q.C.: For the isolated system, the diesel
63 generated.

64 MR. HENDERSON: That would be done by somebody in
65 Mr. Reeves' shop, in conjunction with our Purchasing
66 Department, of course.

67 MR. BROWNE, Q.C.: But is there any discussion with you,
68 is it part of your 100 million dollar budget, that purchase?

69 MR. HENDERSON: No, I don't get involved with the
70 purchase of fuel for the isolated systems.

71 MR. BROWNE, Q.C.: So you have someone separate
72 doing the purchasing of fuel for Labrador.

73 MR. HENDERSON: For the isolated systems. When you
74 say Labrador, there's isolated systems on the Island too.
75 Yes.

76 MR. BROWNE, Q.C.: What about the isolated systems on
77 the Island. Do you deal with the isolated systems on the
78 Island?

79 MR. HENDERSON: No, I don't. No.

80 MR. BROWNE, Q.C.: So who deals with that?

81 MR. HENDERSON: Again, that's Mr. Reeves' department.

82 MR. BROWNE, Q.C.: Does the fuel come from the same
83 source, do you know? The diesel fuel that is used in the
84 non-interconnected system, the isolated systems.

85 MR. HENDERSON: I don't know the details of the isolated
86 system and non-interconnected diesel systems, I don't
87 know the details of their purchasing and how they contract
88 the fuel.

89 MR. BROWNE, Q.C.: Even within your own organization
90 you're not quite certain as to how they do it.

91 MR. HENDERSON: No, I don't have that responsibility so
92 I haven't gotten into it. Our Purchasing Department would
93 be the common thread and the people, I would suggest

1 to you that there's one person or a couple of people in our
2 Purchasing Department that

3 handles all fuel ordering and they would bring that
4 commonality into it and determine whether there is benefits
5 to going to the bulk ordering of diesel fuel. It could be, and
6 again I don't know the details, it could be that the diesel
7 fuel that's supplied for our Hawke's Bay plant is supplied
8 by the same supplier in the, for the L'Anse au Loup which
9 is across the strait in Labrador. I don't get involved with
10 that. That's our Purchasing Department. They get
11 involved with that side of things, so it wouldn't be right to
12 say there is no commonality, one doesn't know what the
13 other is doing, the purchasing

14 MR. BROWNE, Q.C.: But you don't know what.

15 MR. HENDERSON: The Purchasing Department does that.

16 MR. BROWNE, Q.C.: But you have no idea with your 100
17 million dollar budget what Mr. Reeves is doing in terms of
18 his fuel budget. Is that fair to say?

19 MR. HENDERSON: To say I have no idea wouldn't be fair.
20 I'm generally aware, but I don't have a detailed knowledge
21 that I would be able to provide evidence on.

22 MR. BROWNE, Q.C.: Why would there be two
23 organizations or two systems within one organization for
24 the purchase of fuel? Anyone every discuss that with
25 you?

26 MR. HENDERSON: Well the Purchasing Department does
27 all the purchasing of fuel. I determine the requirement for
28 fuel as the operator of the power system, as Mr. Reeves in
29 transmission and rural operations determines the need of
30 fuel in those systems. Those needs are all conveyed to our
31 Purchasing Department that then would go out and get the
32 fuel.

33 MR. BROWNE, Q.C.: I'll leave it at that for today Mr.
34 Henderson. It's four o'clock. Thank you very much.

35 MR. HENDERSON: You're welcome.

36 MR. NOSEWORTHY, CHAIRMAN: Thank you Mr.
37 Browne. Thank you Mr. Henderson. Do you have any
38 idea Mr. Browne of how long you might be tomorrow, at
39 all?

40 MR. BROWNE, Q.C.: Well Mr. Fitzgerald has an area he
41 wants to delve into and I have some other questions
42 myself, so we'd probably be about two hours I would think.

43 MS. GREENE, Q.C.: That raises an interesting question
44 which hasn't come up before. The right of cross-
45 examination of a witness. If we all get two kicks at it we will
46 have two lawyers cross-examining every witness and Mr.
47 Browne, due to the Consumer Advocate who doesn't
48 participate as a lawyer, or Mr. Fitzgerald does, I don't think

49 it's appropriate for one witness to be cross-examined by
50 two different lawyers for the same party, and I will be
51 making an objection if that is the intent.

52 MR. BROWNE, Q.C.: Thank you for notifying of that, but
53 I know at this Board that has been done previously. We
54 don't have the organization of the Newfoundland Power or
55 of Newfoundland Hydro to have fifteen accountants
56 behind us or a team of lawyers. We have two people and
57 one secretary who is also doing our legal work there and I
58 think that's a small objection in the circumstances, but let's
59 deal with it in the morning.

60 MS. GREENE, Q.C.: I understand the process and it's the
61 same process in judicial proceedings where you have a
62 party there and if that is the intent does that mean that
63 Newfoundland Power has to use two lawyers to cross-
64 examine the witness on different topics or even the same
65 topic and similarly with industry, Industrial Customers.
66 The practice to date has been for one lawyer to cross-
67 examine. That had been my understanding of what the
68 process was and that I think is the correct process. If
69 you're saying that each of us

70 MR. BROWNE, Q.C.: We're doing different topics I should
71 say. We're not taking two kicks. One is taking one
72 particular end of it and I'm taking another approach to it.
73 It's not redundant. Put it that way.

74 MR. NOSEWORTHY, CHAIRMAN: Okay, we'll deal with
75 it, given that it is four o'clock, we'll deal with it in the
76 morning. Thank you.