

1 (9:30 a.m.)

2 MR. NOSEWORTHY, CHAIRMAN: Thank you and good
3 morning everybody. I trust you enjoyed the weekend as
4 much as possible with the world events that are unfolding
5 as they have been over the past few days. When we
6 concluded, I guess, on Friday afternoon the Consumer
7 Advocate had raised objections in relation to three issues,
8 one being the daily sitting schedule, the second item being
9 the role of the Board and role of Board counsel, and I think
10 each party had the opportunity on Friday to speak to these
11 objections and I indicated I would address them briefly on
12 Tuesday morning following consultation with my fellow
13 panel members. As I noted on Friday, I thought the daily
14 sitting hours, quite frankly, were set resulting from a
15 consensus and were deemed to be beneficial in all in
16 relation to the expected length of the hearing and to some
17 degree its continuous nature. Certainly I don't think there
18 are many tribunals that sit for this period of time at one
19 stretch and on balance the panel sees no reason to change
20 the schedule at this stage and no compelling comments
21 were made on Friday supporting such a change that I could
22 recall, in any event. Notwithstanding, if the parties feel
23 extended hours, sitting hours may prove beneficial to the
24 overall conduct of the hearing and a consensus is
25 forthcoming on this issue, the panel would consider such
26 a proposal.

27 With regard to the past two weeks, the panel feels,
28 I think, that matters have progressed reasonably well.
29 Referral to evidence electronically is possibly saving, I'd
30 say, a half hour a day, thanks to Mr. O'Reilly's expertise,
31 and this in itself should serve to reduce the schedule, the
32 otherwise schedule measurably at the end of the day.

33 We must also remember that this is the first rate
34 application of Hydro before the Board in some ten years
35 and while we would all like the process to be shorter,
36 ratepayers are also expecting us to be thorough and
37 diligent in considering the many complex issues contained
38 in the application and I believe this point was
39 acknowledged by everybody generally speaking in their
40 opening remarks.

41 With regard to the role of the Board and the role
42 of the Board's counsel, as I indicated on Friday the Board
43 considered its role carefully prior to the commencement of
44 the hearing. The approach you see is the path of choice.
45 Above all else we have a responsibility to hear all the
46 evidence surrounding this application and render a
47 decision which is fair to Hydro and all ratepayers in the
48 province. In order to deliver on this mandate we reserve
49 the right to ask any questions that are appropriate while
50 not duplicating or infringing on the evidence placed before
51 us by the parties. The panel supports, also supports the
52 role adopted by Board counsel for this hearing and I think

53 it was Ms. Henley Andrews who commented on Friday that
54 in her experience she's probably seen as many roles of
55 Board counsels as she's seen tribunals over time.

56 While the panel appreciates the cautions of the
57 Consumer Advocate, and I read with interest, Mr. Browne,
58 your article and I thank you for it, the panel acknowledges
59 that no such concerns were expressed by the other parties
60 regarding either the role of the Board or its counsel. In
61 light of this and given that Mr. Browne is seeking no
62 remedy or motion on these points at this time, I believe
63 indeed we can move on to the next witness.

64 In closing, the fundamental principle which will
65 guide me throughout these hearings is common sense. It
66 has served me well throughout my past experiences and I
67 see no reason to change in this job. As I said in my
68 opening remarks, I would like to keep the rhetorical
69 exchange and unnecessary disruptions to a minimum and
70 stay focused on the facts. I am sure that ratepayers are a
71 patient and tolerant people as long as we stay focused on
72 the job at hand and complete it in the most thorough and
73 efficient manner possible, and again I would appreciate
74 your cooperation in this regard as we move throughout the
75 hearing.

76 I'd ask Mr. Kennedy now if there are any
77 preliminary matters before moving on to the next witness.
78 Mr. Kennedy?

79 MR. KENNEDY: Yes, Chair, there are a couple of
80 preliminary matters. Perhaps the first thing to do with this,
81 it's a further follow-up from Friday's discussion and I guess
82 in, specifically relating to the role of the Board counsel. I
83 canvassed, and I thought that this would be helpful in light
84 of the article that was filed by the Consumer Advocate, the
85 role of independent counsel at the tribunal, which I think if
86 you have read through, you'll see that it attempts to try to
87 provide a template for Board counsel for all tribunals. It
88 doesn't distinguish between the different types of tribunals
89 that there are at law, and clearly there's many references in
90 the article to the role of counsel as a prosecutor or the
91 working of counsel with the prosecutor, and so it's in
92 relation, I suggest, to tribunals that are perhaps tribunals of
93 a disciplinarian nature and therefore it raises different
94 issues at law than a tribunal like our own, so I thought that
95 it might be beneficial if I looked to the processes employed
96 by some of the other utility boards across the country, and
97 it was of course the weekend so I couldn't actually speak to
98 anybody, so I just canvassed web sites to see what I could
99 find on those, and of the two web sites for utilities that did
100 provide sort of detailed information, I did find some
101 information which I think would be beneficial, and I'm going
102 to give these to the Clerk and ask her to hand them out.
103 One is a briefing note of the public hearing process issued
104 by the National Energy Board and the other one is the

1 public hearing process document which is on the British
2 Columbia Utilities Commission web site.

3 MR. NOSEWORTHY, CHAIRMAN: Thank you, Mr.
4 Kennedy. Are there any other items which you have?

5 MR. KENNEDY: I just wanted to draw specific attention,
6 Chair, to the two sections in those documents that are
7 relevant. I'll just wait for the parties to get a copy of them.
8 In the **National Energy Board** document, Chair,
9 Commissioners, on page three of this information bulletin,
10 right at the top there, there's Board counsel. It states,
11 "Board counsel has two main functions. The first is to
12 advise the Board on legal matters including the conduct of
13 the hearing. The second is to cross-examine the applicant's
14 and intervenors' witnesses in order to establish clearly the
15 evidence needed for the Board to arrive at a decision.
16 Board counsel does not play an adversarial role and does
17 not oppose or support either the applicants or any
18 intervenor. Board counsel is available to assist all parties,
19 especially those not represented by a lawyer."

20 In the **Public Utilities Commission** document, it's
21 on page three of four, and see Commission's counsel, same
22 thing, "Commission's counsel has two main functions, to
23 advise the Commission panel on legal matters and the
24 conduct of the hearing; (2) to cross-examine the applicant
25 and intervenors in order to bring about clearly the evidence
26 needed for the Commission panel to arrive at a decision."
27 It goes on to state about the hearing process not being
28 overly formal but ... so I wanted to bring the panel to the
29 attention of those two documents. Again, it's the only two
30 I could actually get information specifically in this regard
31 off the internet over the weekend, and I'd suggest the
32 National Energy Board sets the sort of benchmark, if you
33 will, for an acceptable standard and practice before
34 tribunals of this nature and I clearly would indicate that the
35 role that I've defined as being the role for Board counsel in
36 this utility is not atypical.

37 MR. NOSEWORTHY, CHAIRMAN: Thank you, Mr.
38 Kennedy. Any other items?

39 MR. KENNEDY: Yes, Mr. Chair. There was reference both
40 on May 31, 2000 ... it's in the, during the hearing. It's in the
41 transcript, page 13, beginning at line 43, and as well on
42 October the 5th, page 30, line 64, to a document known as
43 the **Maintenance Program Review** using the Reliability
44 Centered Maintenance, RCM process, and this is the one
45 which was indicated of whoever found it first would be the
46 one that would file it, and I'm not sure if we bet Hydro to
47 the punch but, in any event ...

48 MS. GREENE, Q.C.: You definitely did. The Board
49 Secretary had it before the close of that, the day it was
50 mentioned, and we didn't get back to the office.

51 MR. KENNEDY: So we will distribute that now in
52 furtherance of the references in the transcript and
53 references in the transcript have also been, excerpts have
54 also been provided so people can see what the document
55 is in reference to.

56 MS. BUTLER, Q.C.: Mr. Chairman, if I might while that's
57 being handed out, for the purposes of Mr. Henderson's
58 cross-examination this morning, I wonder if it's satisfactory
59 to the Board if we have Newfoundland Power's water
60 resources engineer sit with me at the counsel table. I know
61 it's unusual.

62 MR. NOSEWORTHY, CHAIRMAN: That's fine.

63 MS. BUTLER, Q.C.: Thank you.

64 MR. NOSEWORTHY, CHAIRMAN: Is there any exhibit
65 numbers to be put on this, Mr. Kennedy?

66 MR. KENNEDY: Yes, we should label that, Chair, sorry. I
67 don't think we need to label the transcript excerpts. They're
68 just part of the Board documentation anyways. The **RCM**
69 **Report** we can call ... I have to wait for the Clerk to give me
70 the numbers. We can label that **Consent No. 5**, Chair.

71 **EXHIBIT CONSENT NO. 5 ENTERED**

72 MR. NOSEWORTHY, CHAIRMAN: Thank you.

73 MR. FITZGERALD: Sorry, I didn't catch that.

74 MR. NOSEWORTHY, CHAIRMAN: Consent No. 5.

75 MR. KENNEDY: Consent No. 5.

76 MR. NOSEWORTHY, CHAIRMAN: Anything else, Mr.
77 Kennedy?

78 MR. KENNEDY: No, that's all the preliminary matters I
79 have, Chair. Thank you.

80 MR. NOSEWORTHY, CHAIRMAN: Thank you very much.
81 Ms. Greene, are you in a position to call your next witness,
82 please?

83 MS. GREENE, Q.C.: Yes, thank you, Mr. Chair.

84 (9:45 a.m.)

85 MR. FITZGERALD: Mr. Chairman, if I might, just to speak
86 to those matters that were raised this morning briefly, we
87 hear you loud and clear with your, we should be navigated
88 by common sense and we certainly concur with that. Just
89 a couple of statements for the record. The first thing is, Mr.
90 Browne's, the nature of his comments Friday afternoon
91 were not objections per se, they were cautions as you've
92 correctly indicated this morning. The issue of the seating
93 schedule, there's some confusion there. I think some
94 comments were made that there was a consent arrived at in
95 relation to that procedural matter. Just for the record, we
96 didn't consent, we weren't consulted. The four o'clock time

1 period appeared, (phonetic) although at the very least I
2 suppose you could say there was some sort of consent by
3 acquiescence but no more than that. And finally the matter
4 of the role of counsel, I'm sure Mr. Kennedy is familiar with
5 the old adage about the lawyer who defends himself, but
6 we've accepted this, these documents that have been
7 submitted this morning but we would still reserve our right
8 to deal with that issue by way of motion if need be as the
9 hearing goes on.

10 MR. NOSEWORTHY, CHAIRMAN: On the matter of the
11 schedule, certainly it's, I think it's reflected by counsels
12 generally speaking on Friday. It's certainly up to the Board
13 to set its seating, sitting schedule, and we certainly
14 attempted to reach that through consensus, and as I
15 indicated this morning, if there's a consent around another
16 time, we'll consider the matter. Thank you very much, Mr.
17 Fitzgerald. Ms. Greene, are you in a position to introduce
18 your next witness, please?

19 MS. GREENE, Q.C.: Thank you, Mr. Chair. Hydro's next
20 witness is Robert Henderson, the Manager of System
21 Operations. We are ready to proceed with his direct
22 evidence.

23 MR. NOSEWORTHY, CHAIRMAN: Good morning, Mr.
24 Henderson.

25 MR. HENDERSON: Good morning.

26 MR. NOSEWORTHY, CHAIRMAN: I wonder could you
27 take the Bible in your right hand, please? I think it's just
28 under the monitor there as I recall. Do you swear that the
29 evidence you give before this Board is the truth, the whole
30 truth, and nothing but the truth, so help you God?

31 MR. HENDERSON: I do.

32 MR. NOSEWORTHY, CHAIRMAN: Thank you very much,
33 Mr. Henderson. You can be seated. Ms. Greene.

34 MS. GREENE, Q.C.: Mr. Henderson, on May 31st, 2001,
35 evidence was filed in the name of Robert Henderson. Do
36 you adopt this pre-filed evidence as your own for the
37 purpose of this hearing?

38 MR. HENDERSON: Yes, I do.

39 MS. GREENE, Q.C.: On September 26th, 2001,
40 supplementary evidence was filed in the name of Robert
41 Henderson. Do you adopt the supplementary evidence as
42 your own evidence for the purpose of this hearing?

43 MR. HENDERSON: Yes, I do.

44 MS. GREENE, Q.C.: At this time, Mr. Chair and panel
45 members, we have a copy of the **2001 and 2002 Operating**
46 **Budget for Production** to file and to review with Mr.
47 Henderson. You will recall that Newfoundland Power had
48 asked for this to be filed for the TRO Division and we have

49 prepared a similar document for the Production Division
50 and I have copies to circulate to the Board at this time and
51 Board counsel. Other counsel were provided with a copy
52 just before the hearing started this morning. I guess this
53 would need to be marked.

54 MR. KENNEDY: Yes. You're putting it in through Mr.
55 Henderson?

56 MS. GREENE, Q.C.: Yes.

57 MR. KENNEDY: Mr. Henderson's first initial is?

58 MS. GREENE, Q.C.: R.

59 MR. KENNEDY: R. **RH-1**.

60 **EXHIBIT RH-1 ENTERED**

61 MS. GREENE, Q.C.: Everyone has a copy now. Mr.
62 Henderson, do you have a copy?

63 MR. HENDERSON: Yes, I do.

64 MS. GREENE, Q.C.: I'd like you to explain the headings first
65 that are on the schedule.

66 MR. HENDERSON: The headings, this is for Production
67 Division and the first column is the expense groups which
68 we've previously seen. The next column is the approved
69 2001 budget, which was the figures that were approved by
70 Hydro's Board of Directors in the fall of 2000.

71 MS. GREENE, Q.C.: That would have been and has been
72 previously referred to as the budget approved in October
73 of 2000?

74 MR. HENDERSON: That's right, yeah. That's the October
75 approved budget. The next column is the 2001 as filed,
76 which is part of the evidence that was filed on May 31st.
77 Then the next column is the, showing the changes between
78 those two. Then we have the 2002 as filed, which is used
79 in the cost of service, and then finally the column which
80 shows the increase and decrease in that relative to the 2001
81 as filed.

82 MS. GREENE, Q.C.: Looking first then at the third column
83 which explains the changes in the May, what was filed in
84 May 2001 versus what had been approved in October of
85 2000 for 2001, the first significant change there is under the
86 category of "Maintenance Materials." Could you please
87 explain the reason for the increase in that category, please?

88 MR. HENDERSON: The increase is \$687,000 and it's all
89 related to the Holyrood thermal plant and there were a
90 number of items that were identified in late 2000 after the
91 annual maintenance of the units at Holyrood in 2000 that
92 required action in 2001, and so that resulted in some
93 changes. The explanations, I think, are on a second sheet
94 that you have. In particular there was air heater repairs of
95 \$254,000, higher cost of services as per manufacturer's

1 partnering agreements of \$290,000, and there's the
2 installation of insulating blankets on unit number three
3 costing \$81,000, and there were some other smaller amounts
4 in the vicinity of \$40,000.

5 MS. GREENE, Q.C.: The subscript (inaudible), 5687, could
6 you ... they just mention that the explanation is provided on
7 the second page, and that's what that subscript is there to
8 explain, is it?

9 MR. HENDERSON: That's right.

10 MS. GREENE, Q.C.: Okay. And I think you indicated that
11 these increases in maintenance materials came about as a
12 result of work that had been done on the units but not
13 finalized at the time of the budget being approved in
14 October. Is that correct?

15 MR. HENDERSON: That's correct.

16 MS. GREENE, Q.C.: Moving then to the next column,
17 which is 2002, and then the last column which explains the
18 changes from 2002 as filed to 2001 as filed, and here again
19 I'm only going to ask you to explain the amounts over
20 \$100,000. The first one here would be hourly wages. Could
21 you explain that one please, Mr. Henderson?

22 MR. HENDERSON: The hourly wages amount is down due
23 to lower requirement in both the Hydro Generation and
24 Thermal Generation in terms of hiring temporary staff for
25 the maintenance program. In particular at Holyrood in 2001
26 we did a major overhaul on unit number three and would
27 have required some additional labour as part of that
28 overhaul, major overhaul.

29 MS. GREENE, Q.C.: Moving down to the next category, the
30 decrease in maintenance materials of \$1.1658 million, could
31 you explain the reason for the decrease, please?

32 MR. HENDERSON: Again it's related to the major overhaul
33 at Holyrood on number three. There's a major overhaul
34 every two years. There was one in 2001, there would have
35 been one in 1999 and another in 2003, and in 2002 there
36 won't be so there's a reduction in the maintenance material
37 there for Holyrood in that year.

38 MS. GREENE, Q.C.: The next change or variance relates to
39 lubricants and chemicals where the decrease is \$150,000.
40 Could you explain the reason for that decrease, please?

41 MR. HENDERSON: That decrease is due to basically lower
42 chemical requirements at the Holyrood plant and that's due
43 to the new water treatment facility we have out there which
44 is more efficient and it doesn't require as much use of
45 chemicals. In addition there has been some efficiency
46 gains in the operation of the generating units that again
47 has resulted in a lower chemical requirement.

48 MS. GREENE, Q.C.: And the last one that, variance that

49 exceeds \$100,000 is with respect to the category of expense
50 called "Travel." Could you explain the reason for the
51 increase in 2002 in that category, please?

52 MR. HENDERSON: That increase is mainly related to our
53 IS and T Department or our Information Systems and
54 Telecontrol, and it comes about from a requirement for
55 greater emphasis in support in our regional offices for the
56 IS infrastructure. As we now have greater utilization of
57 information technologies in our regional departments,
58 there's a need for further or additional support, and this is
59 travel-related costs for providing that support.

60 MS. GREENE, Q.C.: Thank you, Mr. Henderson. The next
61 document that I have to review with Mr. Henderson arises
62 from a request of Board counsel to Mr. Reeves with respect
63 to the TRO Division and it was to normalize the 2000
64 system equipment maintenance budget to indicate the
65 implications of the code of account changes, and I have a
66 copy of that schedule to circulate at this time.

67 MR. NOSEWORTHY, CHAIRMAN: Mark this, Mr.
68 Kennedy?

69 MR. KENNEDY: Yes, **RH-2**.

70 **EXHIBIT RH-2 ENTERED**

71 *(10:00 a.m.)*

72 MS. GREENE, Q.C.: Mr. Henderson, could you please
73 explain what **RH-2** is, that has just been circulated?

74 MR. HENDERSON: This is a schedule I put together to
75 indicate the change in coding as a result of the property
76 maintenance primarily now falling into the system
77 equipment and maintenance, our materials maintenance
78 category and that change occurred in 2000 and this
79 schedule is meant to indicate the amount that's in the 2000
80 year related to those expenses. You can see that the, a
81 larger portion of this is the property maintenance costs of
82 over \$1 million.

83 MS. GREENE, Q.C.: And that if, excluding the impact of the
84 code of account changes, the 2000 system equipment
85 maintenance for Production reduces to approximately \$7
86 million, is that correct?

87 MR. HENDERSON: That's right.

88 MS. GREENE, Q.C.: And that would be the number to
89 compare with previous years, system equipment
90 maintenance expense categories, would it?

91 MR. HENDERSON: That's right. This would be
92 appropriate for comparing to the earlier years where this
93 was coded separately, while the number on the top of the
94 page would be more comparable to the 2001/2002 years
95 when that, after that coding was made, that coding change
96 was made.

1 MS. GREENE, Q.C.: The next document that I have to
2 distribute at this time arises as a result of a request of Board
3 counsel and the financial consultant to the Board. I have
4 a copy of the system equipment maintenance budget for
5 2000, 2001 and 2002 for the Production Division to circulate
6 at this time. I would like to point out that this has not been
7 reviewed by Mr. Kennedy or Mr. Brushett but it is our
8 understanding of their request to us to break down the
9 system equipment maintenance category of expense for
10 each of those three years for each of the departments that
11 compose the Production Division. And again we would
12 need to mark this.

13 MR. KENNEDY: **RH-3.**

14 **EXHIBIT RH-3 ENTERED**

15 MS. GREENE, Q.C.: Mr. Henderson, could you please
16 explain **RH-3**, which has just been circulated?

17 MR. HENDERSON: This schedule is to give a break-out of
18 the system equipment maintenance for the Production
19 Division by department. There is six departments listed.
20 There's Holyrood, or Thermal Generation we sometimes
21 refer to that, Hydro Generation, IS and T, Generation
22 Engineering, Generation Operations, and System Planning.

23 MS. GREENE, Q.C.: Mr. Henderson, what do the initials IS
24 and T stand for?

25 MR. HENDERSON: Information Systems and Telecontrol
26 or Telecommunications. Again we have a column here
27 that's 2000 actual cost and 2001 as filed.

28 MS. GREENE, Q.C.: So that would be as filed May 31st, is
29 that correct?

30 MR. HENDERSON: That's correct, and then 2002 as filed
31 on May 31st. There are footnotes for, against many of the
32 numbers in the table and there's explanations provided in
33 the bottom of the front sheet and again on the second
34 sheet that's attached to explain what was included in the, in
35 those departments, system equipment and maintenance
36 costs or budgets for those years.

37 MS. GREENE, Q.C.: To explain how this exhibit works I will
38 take you through the Holyrood section only, which is the
39 first line. Holyrood or Thermal Production, could you
40 please explain how the \$6.5 million shown there for 2000,
41 what are its components?

42 MR. HENDERSON: In 2000 for Holyrood, and this really
43 applies for most of the ... well, actually the Holyrood
44 Department and the Hydro Generation Department, there is
45 a large amount of expenses in maintenance for routine and
46 breakdown maintenance during the year and in Holyrood
47 in 2000 it was \$4 million, or just a little over \$4 million, and
48 then in addition to that every year there are projects that
49 are taken on by the people in the departments to correct

50 sort of one, items that would arise, say, one of a kind, and
51 that they would designate as a project. It wouldn't be part
52 of the routine process. And in Holyrood in 2000 there was
53 approximately \$2 1/2 million worth of non-routine projects.
54 Under that **Note 1** there's a listing there of the larger items
55 which were part of the projects or the non-routine projects
56 in 2000. So we have general service cooling system of
57 \$500,000, unit number three retained earning purchase of
58 \$270,000, asbestos removal program, \$105,000, and coating
59 interior liner panels of \$100,000, and, like I said, these are
60 the larger ones. They don't add up to the \$2 1/2 million.
61 There are approximately 50 different projects that are carried
62 out during the year and it would be impractical to list them
63 all here, so what we've tried to do is highlight some of the
64 larger ones.

65 MS. GREENE, Q.C.: And the description of non-routine
66 projects, could you explain what is meant by that?

67 MR. HENDERSON: Non-routine projects are projects that
68 are identified by the Engineering and Maintenance staff in
69 that department, in Holyrood in particular. They would
70 identify a number of items that may have come up through
71 maintenance checks or there may be projects, items that
72 were identified because of operating problems that they
73 would put forward to correct the problems, and these
74 things come about particularly as the plant ages. There'll
75 be pieces of equipment that are, I guess, getting worn and
76 they need some extra work and the Engineering and
77 Maintenance staff would identify those and they would be
78 special projects that would be managed as a project item
79 by, like, a project manager, most likely in the Engineering
80 Department with that group.

81 MS. GREENE, Q.C.: Can the non-routine projects be
82 equated to discretionary projects?

83 MR. HENDERSON: No. These are items that are identified
84 as being necessary to maintain the reliability and the
85 efficiency of the unit. Without doing this we would end up
86 having the unit break down and perhaps in the middle of
87 the winter during our (inaudible), so these are all critical
88 items that are necessary to be done but they are, like I said,
89 sort of a one of a kind item that you wouldn't do every year,
90 and that's why they'd be designated as a non-routine or a
91 project.

92 MS. GREENE, Q.C.: Turning then to 2001, the same
93 process was followed to explain the projects for Holyrood
94 as you just explained for 2000, is that correct?

95 MR. HENDERSON: That's right.

96 MS. GREENE, Q.C.: And similarly for 2002, is that correct?

97 MR. HENDERSON: That's right.

98 MS. GREENE, Q.C.: Turning to the last additional item for

1 Mr. Henderson, it relates to a presentation on the system
2 similar to what had been done for TRO. Mr. Henderson,
3 have you prepared a presentation explaining the system
4 operations of Hydro?

5 MR. HENDERSON: Yes, I have.

6 MS. GREENE, Q.C.: Would you be able to take the panel
7 and the parties through that, please?

8 MR. HENDERSON: Yes. This should be very brief. It's
9 just to give an indication for all the parties of where our
10 generation facilities and production facilities are, the
11 capabilities of our generation facilities, our telecontrol
12 facilities that we use in support of the operation of the
13 power system, and a little brief overview of our Energy
14 Control Centre.

15 To begin with, I have put together a pie chart
16 indicating the total island generating capacity, and what
17 this slide is meant to show is Hydro's size relative to the
18 other producers on the island to indicate that we are the
19 largest producer on the island system. We have a
20 capability of ... we have 81 percent of the capability on the
21 island. The total island capability is 1,831 megawatts and
22 Hydro is 1,486 megawatts, which is 81 percent of it, and in
23 the other parts of the pie you can see the other producers
24 of electricity. There's the, starting from the left, the non-
25 utility generators, the Abitibi Price, or Abitibi Consolidated
26 it should be, in Grand Falls, Newfoundland Power and Deer
27 Lake Power. Then when it comes to Hydro's capability, I've
28 re-stated a little bit here. In the previous slide it was stated
29 as megawatts. Here I've re-stated it in gigawatt hours or
30 energy producing capability, and I've put in red the
31 Holyrood capability and blue the hydro generation
32 capability. You can see our total capability up on the top
33 of the slide is 7,268 gigawatt hours, the Holyrood facility is
34 2,996 gigawatt hours, and Bay D'Espoir you can see is by
35 far our largest hydro generation facility, which has the
36 capability of 2,598 gigawatt hours. These are all average
37 energy capability numbers. In any given year they can
38 vary. Holyrood generally does not produce, actually it has
39 never produced at 2,996 gigawatt hours. That's the
40 capability that we would require from it if the hydro
41 generation was not able to produce to a high level because
42 of very low water inflows, and there's a note that our total
43 hydroelectric generation capability is 4,272 gigawatt hours,
44 the average capability of it and that's 59 percent of our total
45 capability.

46 The next slide will indicate where our generating
47 stations are, and if I can get the mouse to come up here.
48 Here we go. The plants ... our hydro generation plants are
49 scattered over the island and you can see Cat Arm on the
50 Great Northern Peninsula, Hines Lake in Central, Western
51 Newfoundland, Upper Salmon near the south coast, near

52 Bay D'Espoir, and then Paradise River over here on the
53 Burin Peninsula. We also have the gas turbines which Mr.
54 Reeves spoke about last week, a gas turbine at Stephenville
55 and another one over here at Hardwoods which is in
56 Mount Pearl. The Holyrood generating station is down
57 here in Conception Bay South. The hydro generation is all
58 maintained from our Bay D'Espoir facilities so our
59 employees, maintenance employees, travel from Bay
60 D'Espoir to Cat Arm, Hines Lake and Upper Salmon to do
61 the maintenance on the hydro generation facilities as well
62 as the Paradise River, and the thermal people are all at
63 Holyrood and they obviously don't have any travel
64 requirements. We do have operating staff for our hydro
65 generation in around Hines Lake that would look after both
66 Cat Arm and Hines Lake plant and then at Bay D'Espoir
67 would look after Bay D'Espoir and Upper Salmon, and then
68 we have an operator on the Burin Peninsula who looks after
69 the Paradise River plant.

70 I'll just give you quick pictures now of our plants.
71 This is a picture of the Cat Arm plant, which is on the Great
72 Northern Peninsula. It has a megawatt capacity of 127 and
73 it has an average energy capability of 735 gigawatt hours.
74 It is right along the ocean. This is the, runs right into
75 White Bay here, and the plant has tunnels which bring the
76 water down from the reservoir which is well up behind here,
77 probably close to a mile away, bringing the water
78 underground into the powerhouse and then the water is
79 discharged from the turbines down here through
80 (inaudible).

81 Hines Lake, this plant is in the same water system
82 as Deer Lake Power has. This is upstream of Deer Lake
83 Power's plant at Deer Lake and this water here is Grand
84 Lake which is, most people would recognize as probably
85 the largest lake on the island, and Hines Lake discharges its
86 water into there and it has again a ... it's a buried (phonetic)
87 penstock that goes up the hill, here you can see, up to the
88 reservoir up behind. It has a 75 megawatt capacity and 340
89 gigawatt hours average energy capability.

90 Upper Salmon, it's in the Bay D'Espoir watershed.
91 It's just upstream of the Bay D'Espoir plant. The water
92 discharging from the Upper Salmon plant goes through a
93 series of lakes and then into the reservoir which is the
94 forebay of the Bay D'Espoir plant. It's an 84 megawatt plant
95 with an average energy capability of 552 gigawatt hours.
96 Again, you can see the penstock and here is a power canal
97 here that brings the water in from the reservoirs which are
98 again a fair distance back. There's dykes and everything
99 made to channel the water into this intake structure and
100 then it goes through a penstock into the powerhouse.

101 (10:15 a.m.)

102 And Bay D'Espoir, like I said, it's our largest

1 hydroelectric generation facility. This plant has two
2 powerhouses. This one here is the original powerhouse
3 which houses six units of, each 75 megawatts in size, and
4 over here to the right is the second powerhouse which is
5 for number seven which was built later, and it's a 154
6 megawatt unit, and again these discharge right into the
7 ocean in Bay D'Espoir The reservoir is up here. You can't
8 see it but it's just on the edge of the horizon here. We have
9 four intake structures that bring the water down to the
10 plant. The water comes down over the hill through again
11 penstocks. These here are surge tanks which are required
12 for safe operation of the unit. There's one for each
13 penstock going into the original powerhouse, so you can
14 see the three tall towers, and they are attached to the, surge
15 tanks are attached to the penstock, and then over for
16 number seven there is no surge tank and the water again
17 comes down into it over here. It has an average energy
18 capability of 2,598 gigawatt hours and a megawatt capacity
19 of 592.

20 Paradise River, which is down, it discharges into
21 Placentia Bay. It's a small plant relative to the others It has
22 8 megawatt capacity and 39 gigawatt hours. It has very
23 little storage capability. All the other plants have large
24 storage capability which I'll mention or go over again in a
25 minute, but this one is a run-off river plant. There's a very
26 small forebay here and you see a large concrete dam here
27 that dammed off the river, diverted into a penstock that is
28 actually a tunnel on this one.

29 The Holyrood thermal plant is, has three large
30 steam electric turbines. Originally there was two units built
31 in the early '70s. They were 150 megawatt capability and
32 then in the early '80s a third unit, number three, was built
33 which has the higher stack, and it has 150 megawatt
34 capability. I'm not sure of the timing but several years ago,
35 I think it was late '80s, the two original units were upgraded
36 to 175 megawatt units. Because of the design of those
37 units originally they were able to be increased in size
38 because of extra capacity in the boiler and other equipment
39 in the plant, so it was a very economic source of
40 generation. And Holyrood has 466 megawatt capability
41 that's met after you take out the station service
42 requirements for the plant and average energy, or actually
43 an energy capability of 2,996 gigawatt hours. It normally
44 will produce somewhere between 1,000 and 2,000 gigawatt
45 hours depending on your hydraulic conditions. It can go
46 up to this level if we had a very dry year.

47 Just to ... there's a lot of numbers in this chart but
48 I just wanted to highlight the size of our reservoirs because
49 they have a major impact on the way that we operate our
50 system. All of our larger plants have very large storage
51 reservoirs and Bay D'Espoir, there are four reservoirs.
52 There's three up above the Upper Salmon plant and one

53 down below it, and there's a total of 3,483 million cubic
54 meters of water stored in the Bay D'Espoir watershed. The
55 watershed area is 5,903 square kilometers. I won't go
56 through all these numbers but one of the items to also note
57 is our total energy storage capability is about 2,400
58 gigawatt hours, which is about one-third of our annual
59 load, so if our reservoirs were full at the end of the spring
60 run-off, then we would have the equivalent of 2,400
61 gigawatt hours stored in our reservoir and that would
62 supply about one-third. So as you can see, our snow
63 storage, if you like, storing of snow after it melts, is
64 important but a lot of our inflows come from rainfall
65 because the amount that we would be able to store at the
66 end of a spring run-off would be only one-third of the
67 annual load, and we don't normally get the full ...

68 Now changing a little bit, the Energy Control
69 Centre, the Energy Control Centre is in St. John's and it
70 remotely monitors and controls the Cat Arm, Hines Lake,
71 Upper Salmon, Paradise River, hydro plants, the gas turbine
72 and diesel plants. We can remotely control the diesel
73 plants at St. Anthony and at Hawke's Bay and it also
74 controls the reservoir control structures for leasing water
75 from one reservoir to another. It's housed in Hydro Place
76 in St. John's and we have staff there 24 hours a day, two
77 people there all the time looking after the power system.

78 In addition to the hydro plants and the generating
79 plants, it also remotely monitors and controls the high
80 voltage transmission systems including approximately 30
81 terminal stations. This is where Mr. Reeves was saying
82 that we operate the system. This is basically how the
83 system is operated while he maintains the system.

84 There is limited monitoring control of the Bay
85 D'Espoir and Holyrood plants. Because of the size of those
86 plants, they are staffed as well 24 hours a day and so there
87 is not the same requirement for us to have, to be able to
88 monitor those and the Holyrood plant is quite complex and
89 wouldn't lend itself to remote control in any case.

90 We use automatic generation control to control
91 the generators and maintain, to match, keep a match of the
92 amount of power produced to the load that our customers
93 require, and we use economic generation dispatch as part
94 of that to load the units in their most efficient manner, to
95 share the load between the units so that they're operated as
96 efficiently as possible.

97 Telecommunications, these facilities enable tele-
98 protection, which is critical protection for all of our
99 equipment, in particular our transmission lines,
100 transformers, terminal station equipment. They provide a
101 communication means to the breakers to make sure that the
102 equipment is taken out of service promptly, if there was any
103 trouble, before there is some significant damage done to

1 the equipment. They also enable us to remotely control all
2 those generating plants and the terminal stations and they
3 also provide operational voice which is again critical in the
4 maintenance of the system and repair of the system. They
5 provide communications facilities by all of our equipment
6 anywhere on the island so that our workers can be in
7 constant contact with other workers that are working with
8 them on a transmission line or in touch with our control
9 centre in St. John's. And there's also telecommunications
10 facilities that are used for administrative data and voice.
11 As we use more and more information technology
12 infrastructure there's a requirement for fast communications
13 and we're able to use our telecommunications facilities that
14 are there for the power system to also provide fast and
15 reliable data to some of our terminal, well to our terminal
16 stations and to some of our offices.

17 And this is just a little map, this is actually taken
18 out of my evidence, of the telecommunications facilities as
19 they will be at the end of 2001. These are for the power
20 operation, there's the VHF mobile radio system, and it
21 covers the whole island. There is nothing there on the
22 drawing to indicate the VHF system. We have the
23 microwave system and the microwave system is shown by
24 these black lines. You can see where our microwave
25 connects different stations, and at the end of this year it
26 will be on the Avalon Peninsula completed through from
27 Sunnyside into Oxen Pond into the control centre.

28 There's also a satellite link that's used to
29 communicate from the control centre up to Churchill Falls
30 and then from Churchill Falls down to, we use a power line
31 carrier down to Happy Valley to communicate with this, and
32 the power line carrier you can see is the ... there's actually
33 communications over the power line. And we also have
34 some UHF radio and fiberoptic. You may have seen some
35 of the items regarding that in the capital budget which Mr.
36 Budgell will be talking about. And that's all I had to say,
37 thank you.

38 MS. GREENE, Q.C.: I have copies of that presentation to
39 distribute at this time.

40 MR. KENNEDY: Could label that **RH-4**, Chair.

41 **EXHIBIT RH-4 ENTERED**

42 MR. NOSEWORTHY, CHAIRMAN: Thank you.

43 MS. GREENE, Q.C.: That concludes the direct evidence for
44 Mr. Henderson. I would point out that the topics that Mr.
45 Henderson will be speaking to were outlined on page two
46 of his pre-filed evidence and as he just mentioned he will be
47 speaking to the operating budget for Production but not
48 the capital budget. Mr. Budgell, who is the next witness,
49 will be the witness to speak to capital budget items for the
50 Production Division. Thank you, Mr. Henderson. Mr.

51 Henderson is available for cross-examination.

52 MR. NOSEWORTHY, CHAIRMAN: Thank you, Ms.
53 Greene. Thank you, Mr. Henderson. I'll now ask
54 Newfoundland Power, Ms. Butler, to begin her cross-
55 examination of this witness, please.

56 *(10:30 a.m.)*

57 MS. BUTLER, Q.C.: Thank you, Mr. Chairman. Good
58 morning, Mr. Henderson. We all know by now that
59 Hydro's island interconnected system is a mix of
60 hydroelectric and thermal generation as shown on your
61 slide four with the blue and the red.

62 MR. HENDERSON: Uh hum.

63 MS. BUTLER, Q.C.: And I accept, as you said on page
64 seven of your evidence, that Hydro dispatches the entire
65 system so that the maximum load and energy possible is
66 met by the hydroelectric generation which is the blue.

67 MR. HENDERSON: That's right.

68 MS. BUTLER, Q.C.: With thermal generation shown as the
69 red pie shape on your slide number four, dispatched to
70 supply energy that can't be met by the hydroelectric
71 sources.

72 MR. HENDERSON: That's right.

73 MS. BUTLER, Q.C.: From an operating cost perspective,
74 Mr. Henderson, because Hydro has to purchase the No. 6
75 fuel for the thermal generating station and because you
76 don't have to purchase the water ...

77 MR. HENDERSON: No.

78 MS. BUTLER, Q.C.: ... using a low hydraulic forecast, all
79 other things being equal, results in a higher thermal
80 forecast.

81 MR. HENDERSON: Right. The lower your hydro the more
82 your thermal if your load stays the same.

83 MS. BUTLER, Q.C.: If your load stays the same. And the
84 higher the thermal the higher the revenue requirements in
85 a test year.

86 MR. HENDERSON: That's right.

87 MS. BUTLER, Q.C.: I'm going to be asking you a number
88 of questions about the hydrology and the hydraulic
89 forecast. This is your area, is it?

90 MR. HENDERSON: Yes.

91 MS. BUTLER, Q.C.: And these hydraulic forecast issues
92 can be addressed by yourself. You're an electrical
93 engineer, I understand?

94 MR. HENDERSON: That's right.

- 1 MS. BUTLER, Q.C.: Okay. So this isn't something that you
2 have to be a water systems engineer to understand.
- 3 MR. HENDERSON: No.
- 4 MS. BUTLER, Q.C.: No, okay. I want to look first if we can
5 to Hydro's ten-year hydraulic production data which is **NP-**
6 **45**. Thank you, Mr. O'Reilly. We can keep that table there.
7 The table does span three pages but I can take this slowly.
8 The hydroelectric energy supply is shown as the first line
9 and what I'd like to make note of, if we could ... do you have
10 a pen and paper with you there?
- 11 MR. HENDERSON: Yeah.
- 12 MS. BUTLER, Q.C.: Is the actuals for the years '92 to 2000.
13 I'm going to ignore the points, okay?
- 14 MR. HENDERSON: Sure.
- 15 MS. BUTLER, Q.C.: So in 1992 we have 4,221 gigawatt
16 hours.
- 17 MR. HENDERSON: That's right.
- 18 MS. BUTLER, Q.C.: '93 is 4,439 gigawatt hours.
- 19 MR. HENDERSON: Yes.
- 20 MS. BUTLER, Q.C.: '94 is 5,043, '95 is 4,392. Then you
21 have to go to page three, thank you. '96 was ...
- 22 MR. HENDERSON: '95 was again? I didn't get that one.
- 23 MS. BUTLER, Q.C.: I'm sorry. 4,392.
- 24 MR. HENDERSON: Okay.
- 25 MS. BUTLER, Q.C.: '96 is 4,573.
- 26 MR. HENDERSON: Yes.
- 27 MS. BUTLER, Q.C.: '97 is 4,629.
- 28 MR. HENDERSON: Uh hum.
- 29 MS. BUTLER, Q.C.: '98 is 4,262, '99 is 4,802, and then
30 looking at the page four of four, the year 2000 actual is
31 5,016 gigawatt hours.
- 32 MR. HENDERSON: Right.
- 33 MS. BUTLER, Q.C.: If I did an average of those eight
34 years, and, Mr. Henderson, you can check me on the math
35 maybe during the break, I'd get 4,400 gigawatt hours
36 approximately.
- 37 MR. HENDERSON: Okay.
- 38 MS. BUTLER, Q.C.: The forecast for 2001, 2002, I'll come to
39 in a moment, but if you were to trend the numbers from '92
40 to 2000, would you agree with me that there is, despite
41 peaks and valleys, a general increase in trend in hydraulic
42 production from '92 to 2000?
- 43 MR. HENDERSON: I guess it would be if you looked at
44 2000. It was much wetter than 1992, so there is an increase
45 in trend. Like you say, there's ups and down in between.
- 46 MS. BUTLER, Q.C.: Now the forecast for 2001 and 2002 are
47 the same number and they are 4,271 gigawatt hours
48 respectively.
- 49 MR. HENDERSON: Yes.
- 50 MS. BUTLER, Q.C.: Which is of course significantly less
51 than the 2000 year, which is ...
- 52 MR. HENDERSON: That's right.
- 53 MS. BUTLER, Q.C.: ... 5,000, and less than the average if
54 you accept my math, which was 4,400 approximately.
- 55 MR. HENDERSON: The average from 1992 to 2000, that's
56 right.
- 57 MS. BUTLER, Q.C.: Okay. I wonder, Mr. O'Reilly, can we
58 go back now to page two of four and we'll look at the
59 thermal generation figures, if we might? '92.
- 60 MR. HENDERSON: Did you want me to write these down
61 too?
- 62 MS. BUTLER, Q.C.: Would you mind? Yeah. The actual
63 thermal is 1,704 gigawatt hours, '93 is 1,559, '94 was 778, '95
64 was 1,533, and '96 is on the next page, 1046, I'm sorry, 1,406,
65 '97, 1,530, '98, 1,262, '99 is 919 and then on page four of four,
66 19, I'm sorry, 2000 is 968. The forecast shown on this
67 document for the year 2001, well take 2001 first, is 1,974
68 gigawatt hours. I know that you subsequently revised that
69 forecast to 1,960.
- 70 MR. HENDERSON: 1,960, I'm not sure.
- 71 MS. BUTLER, Q.C.: Okay. We'll come to that in a moment,
72 but for the purposes of the exhibit the original forecast for
73 2001 was 1,974 gigawatt hours.
- 74 MR. HENDERSON: Right.
- 75 MS. BUTLER, Q.C.: And for 2002, 2,162 gigawatt hours.
- 76 MR. HENDERSON: Right.
- 77 MS. BUTLER, Q.C.: Okay. Just looking at that screen then,
78 clearly the forecast for 2001, 2002, is 1,000 gigawatt hours
79 higher than the actual in the year 2000.
- 80 MR. HENDERSON: That's right.
- 81 MS. BUTLER, Q.C.: I wonder if we could, with that in mind,
82 look at **NP-141**? I have a question first. Hydro was asked
83 to provide Schedule 1.2 recalculated reducing thermal
84 production by 100 gigawatt hours and increasing
85 hydroelectric production by 100 gigawatt hours so that we
86 could see the mathematical effect.
- 87 MR. HENDERSON: Uh hum.

1 MS. BUTLER, Q.C.: And there was an attachment
2 provided, and we might look at that. The comparison that
3 has to be made is to column two to column three, I believe.
4 Maybe we can enlarge that a bit. As I understand this
5 table, Mr. Henderson, the 100 gigawatt hour reduction in
6 thermal production and the corresponding 100 gigawatt
7 hour increase in hydraulic production will reduce 2002
8 revenue requirements by \$3.3 million.

9 MR. HENDERSON: That's correct.

10 MS. BUTLER, Q.C.: Which is the difference between
11 column two and column three. Now, with that screen still
12 there for the moment, correspondingly therefore the 1,000
13 gigawatt hour higher forecast in 2001 over the actual 2000
14 forecast for thermal production out of Holyrood shown on
15 the earlier exhibit would have a difference in revenue
16 requirement of \$33 million.

17 MR. HENDERSON: That's right.

18 MS. BUTLER, Q.C.: Okay. I guess my purpose in this
19 simple illustration is just to show or to emphasize the
20 importance of the hydraulic and thermal mix in terms of
21 revenue requirements, so it is approximately \$3.3 (phonetic)
22 million per 100 gigawatt hours.

23 MR. HENDERSON: It does impact the revenue
24 requirement, I guess. Also the other impact is, that we can't
25 disregard, is the Rate Stabilization Plan. Any variances
26 from your forecast will result in an impact on the Rate
27 Stabilization Plan that would, for instance, if the hydro
28 production forecast was lower than what actually occurred,
29 then the, in the Rate Stabilization Plan there would be a
30 credit going back to the customers to reflect that reduced
31 cost from the original cost of service that was used in
32 developing the Rate Stabilization Plan.

33 MS. BUTLER, Q.C.: Yes, I accept that. Now in addition to
34 the actual production mix from '92 to 2000, which we saw on
35 **NP-45**, the Hydro 2000 annual report which was prepared
36 in February 2001 made a comment about reservoir levels at
37 that time. I wonder if we might see this at **CA-101**? I think
38 we have to go to the hard copies of this exhibit.

39 COMMISSIONER SAUNDERS: What was the number
40 again, Ms. Butler?

41 MS. BUTLER, Q.C.: **CA-101**. The page I'm looking for
42 numerically numbered four and it should have as a banner
43 on the top, "The Commitment to Competence." 2000 year.
44 It should be the last year in the grouping. It's the blue
45 glossy ... page four, okay. Mr. Henderson, this 2000 annual
46 report would have been prepared in February of 2001.

47 MR. HENDERSON: About that, yes.

48 MS. BUTLER, Q.C.: Okay. And under the paragraph or
49 heading, "Energy Production," the paragraph that starts

50 with "Hydraulic production for 2000," could you just read
51 that paragraph for us, please?

52 MR. HENDERSON: Sure. "Hydraulic production for 2000
53 was the second highest on record. Large inflows into the
54 Bay D'Espoir reservoir system coupled with mild winter
55 temperatures enabled us to limit production from the
56 Holyrood thermal generating plant. Reservoir levels
57 remained high at the end of the year as a result of
58 production from hydro generation." I'm sorry, "As a result,
59 production from hydro generation is expected to continue
60 at high levels. Therefore, production from Holyrood during
61 the 2000/2001 winter is expected to remain lower than
62 normal, reducing consumption of No. 6 fuel at a time when
63 prices are extremely high."

64 MS. BUTLER, Q.C.: Okay. Now when I read the paragraph,
65 it suggests to me that hydraulic production forecast for
66 2001 should be higher than the long-term average. Do you
67 agree with that?

68 MR. HENDERSON: That would be for the winter that
69 occurred last year. That would have been related to the
70 January/February period of 2001.

71 MS. BUTLER, Q.C.: Right, but 2001 is one of the years that
72 you're forecasting a higher thermal generation.

73 MR. HENDERSON: That's right.

74 MS. BUTLER, Q.C.: Okay. So ...

75 MR. HENDERSON: Just on that so that we're not
76 confused, the number that's in the, in 2001 year, is the
77 average that was developed in the fall of 2000, and when
78 we do budget forecasts we use our long-term averages, and
79 that was what was used in the fall of 2000, was the long-
80 term average for 2001. If we were to review that forecast in
81 February of 2001, then there would have been a
82 recognition, as you're suggesting here, of the
83 circumstances that existed at the end of 2000, which was
84 the reservoir levels were higher than normal, let's say,
85 going into 2001.

86 MS. BUTLER, Q.C.: Do the facts that you've just shared
87 with us cause you any reason to adjust the current 2001
88 forecast for thermal generation?

89 MR. HENDERSON: The 2001 thermal forecast will be
90 different than what was forecast before because of all the
91 information we know now in October, so obviously there's
92 been a lot of things have happened since then that we have
93 more information, so it would change, absolutely. There
94 was no forecast done in February to reflect what was
95 known at that time for the purposes of this hearing because
96 this evidence had to be compiled earlier for all the reasons
97 that I'm sure our rates people could explain to you as to
98 why things had to be settled very early in the year.

1 MS. BUTLER, Q.C.: Right. So in terms of what you know
2 today, the 2001 forecast of thermal generation, which was
3 1,974 gigawatt hours, you're suggesting to me will in fact be
4 lower.

5 MR. HENDERSON: No, it will be different. What I can tell
6 you right now is that the load forecast that we have will be
7 different, therefore, because of that there will be changes to
8 the thermal requirement. The amount of inflows that we
9 saw in our reservoirs is different and therefore our hydro
10 generation will be different. From what I know from what
11 we've experienced in the last three months, we've had some
12 extremely dry, I'll say very dry, maybe not extreme because
13 extreme would indicate that we're drying up completely but
14 we're not, but we are seeing very low inflows, much lower
15 than we've experienced in the last seven or eight years, and
16 as a result our hydro production forecast up to the end of
17 September or hydro production up to the end of September
18 was actually below the forecast, below the numbers that
19 we're talking about here. The thermal generation up to the
20 end of September is also a little below what was here, and
21 that's due to the load being lower than what was forecast.
22 We had the paper mills in Grand Falls and Stephenville
23 were shut down for extended shut down since September,
24 so that greatly influenced the amount of load. So right
25 now, based on what we've experienced so far this year, this
26 has been a very low inflow year, certainly in the lower 20
27 percent of our inflow history, and so as a result we're, you
28 know, our hydro production is falling down quite a bit
29 lower than it was a year ago.

30 MS. BUTLER, Q.C.: Okay. My question of course was on
31 the thermal and I suggested to you that we would see a
32 lower number. You said it would be different but I thought
33 I just heard you say that in fact it was lower.

34 MR. HENDERSON: It was lower and the reason it's lower,
35 and I didn't want to give the impression that it's related to
36 the hydro, it's lower because of the load.

37 MS. BUTLER, Q.C.: Alright. And we'll see this in the filing
38 on October 31st.

39 MR. HENDERSON: The October 31st filing will reflect
40 actuals to the end of August. The paper mill shutdowns
41 were in September so the, what you'll see there is the
42 thermal and hydro ... the hydro may at that point be just
43 around average or would have been what was filed, and the
44 thermal would have been a little bit below, I believe.

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

46 MS. BUTLER, Q.C.: Right. In addition to the
47 inconsistency which I was pointing out to you, at least
48 what I saw as an inconsistency in the annual report, I
49 wonder if we might look to **Grant Thornton's Report** for
50 2001, which should be on the system, at page 23.

51 MR. HENDERSON: Are we going to need this annual
52 report again?

53 MS. BUTLER, Q.C.: No, sir, you won't. Thank you.

54 MR. O'RIELLY: What was the page ...

55 MS. BUTLER, Q.C.: 23. The third paragraph. Mr.
56 Henderson, in this paragraph starting about three or four
57 lines down you'll see the sentence beginning with the word
58 "Although."

59 MR. HENDERSON: Yes.

60 MS. BUTLER, Q.C.: Okay. Can you just read that sentence
61 or two for me, please?

62 MR. HENDERSON: "Although Mr. Henderson describes
63 2000 being one of the wettest years on record for Hydro's
64 watershed areas, hydraulic production levels forecast for
65 2001 and 2002 of 4,272 gigawatt hours have not been this
66 low since 1998. The 1998 low production level was
67 primarily due to a decrease in load in that year.
68 Furthermore, none of the statistics going back to 1992
69 show thermal production levels as high as the gigawatt
70 hours forecast for 2001 and 2002."

71 MS. BUTLER, Q.C.: Thank you. My point here is that the
72 interest I had, or concern I had, with the forecast for
73 2001/2002 seems to be shared by Mr. Brushett in this
74 paragraph. Do you agree with that?

75 MR. HENDERSON: Well I think what Mr. Brushett is
76 stating is factual in the sense that the, what we've
77 experienced since 1992 has been well above our historic,
78 our long-term average numbers, so therefore that's factually
79 correct. That's the ... what we've experienced with weather,
80 therefore our hydro production was higher, and again, like
81 I said, when we do our forecast we use, when we're doing
82 a forecast we're looking at a year that's well in advance of
83 where we currently are. Like in, normally we do our
84 forecast in June for the following year and we would use
85 our long-term average based on that because there's so
86 much time to ... you don't know how much rain you're going
87 to get in the fall and that sort of thing, so that's why we go
88 with the long-term average, and so what Mr. Brushett said
89 here is true that, in that sense, but again it's basically a fact
90 that we had experienced some much wetter than normal
91 years during '92 to 2000.

92 MS. BUTLER, Q.C.: Okay. I'm finished with this exhibit
93 and I want to concentrate, if I might, now on **Exhibit NP-45**,
94 page four of four. Mr. Henderson, the 2002 or 2001, it
95 doesn't matter, the same number is used, forecast for
96 hydroelectric was 4,271 gigawatt hours, and what I'm
97 interested in learning from you for my benefit and that of
98 the Board is in fact how that was calculated.

99 MR. HENDERSON: I believe there's been some RFIs given

1 ... but I'll give you a, hopefully a clear and brief overview of
2 how we do it. What we do is we accumulate our inflow
3 history which goes back a number of years depending on
4 the plant that's in question or depending on the plant. We
5 go back to 1950 for the Bay D'Espoir area, which is the
6 largest energy-producing facility, if you like that we have,
7 so we have 50 years of inflow records, inflow records are
8 by month, and they've been provided in evidence as part of
9 an RFI. What we do is we take those inflows, and I'll just
10 use one plant as an example, for Bay D'Espoir. We would
11 take the inflows for 50 years and determine the average
12 annual inflow, so this is a historic average. Then from there
13 we would take from that water the amount that we have on
14 average been releasing for fisheries compensation flows in
15 the Bay D'Espoir watershed. These are water flows that
16 have to be released out of the system into rivers that run
17 into the south coast of Newfoundland, the Grey River and
18 White Bay River, so we take historic values for those
19 because they are not fixed flows, they are variable based on
20 the flows in the rivers themselves, and we supplement the
21 flow. We also take an average spill. We look at ... since the
22 Bay D'Espoir plant came into operation and has been fully
23 utilized, up until the mid-70s that plant had a higher energy
24 capability than the system load so there was spill going on
25 in those years because we had more water than we needed.
26 So we took the ... from about that mid-70s onward when the
27 plant became fully utilized, we've been taking the average
28 of the spills that we've been seeing and we subtract those
29 spills from the inflows, so then we end up with a number
30 that we would call net useful flow. This is the amount of
31 water that would be available for utilization in the plant.
32 From there we then apply a water to energy conversion
33 factor to that flow to come up with the average, what we
34 would call the historical or a long-term average, annual
35 energy capability of the plant. The conversion factor that
36 we use is a conversion factor reflecting our most recent
37 experience with the operation of the Bay D'Espoir facility or
38 whatever plant we're talking about.

39 MS. BUTLER, Q.C.: Okay. Now ...

40 MR. HENDERSON: And I just, if I may, what we would do,
41 we would do that same process for each plant and then we
42 would add up all the plant's average energy capability
43 which will result in the 4,271.67. Now there are some plants
44 that aren't done exactly that way. For instance, they're very
45 small hydro plants, Snooks Arm, (inaudible) Bight and
46 Roddickton. Mini-hydros, we don't do it that way. We
47 take an average of historic production because they are
48 small and not significant in the big scheme. Paradise River
49 we do somewhat of a hybrid calculation on that because it's
50 a run-off river plant. There is a lot of spill. We have to
51 treat it a little bit differently, but again it's not as significant
52 as the Bay D'Espoir, Hines Lake, Upper Salmon and Cat
53 Arm facilities.

54 MS. BUTLER, Q.C.: Okay. The 4,271 gigawatt hours that
55 are shown there on that screen is the same figure that we'll
56 see in **NP-44**, if we could just go back to that exhibit. You
57 can just scroll down. Okay. And these are the lists of the
58 various plants on page one, and if you go to the next page
59 of the exhibit, page two, and scroll down for me, you're
60 showing each plant by year, and then on to page three.
61 Okay, just stop there for a moment. Page three of the
62 exhibit takes the numbers from page two of the exhibit, I
63 believe. In any event, you're forecasting there 4,271
64 gigawatt hours. There is a typo here that has to be fixed,
65 right?

66 MR. HENDERSON: Oh, yes, there is.

67 MS. BUTLER, Q.C.: The total has to be 4,271.67.

68 MR. HENDERSON: That's right.

69 MS. BUTLER, Q.C.: And it does add to 4,271.67. Alright.
70 So just, with that before us for the moment and consistent
71 with what you've just told us, you've taken the forecast
72 using the, I'll say complicated procedure that you just
73 described for each plant, and added them so that they total
74 4,271 gigawatt hours.

75 MR. HENDERSON: That's right.

76 MS. BUTLER, Q.C.: Okay. Now, that happens to be close
77 to the 50-year average of total inflows which was provided
78 in a separate exhibit. If we might just go to **NP-204** and on
79 to the attachment. There you go. Can you scroll to the
80 bottom there, please? I'm sorry, I ...

81 MR. HENDERSON: Was this **NP-204**?

82 MS. BUTLER, Q.C.: Yeah, it is. What we have to do, I
83 think, is to make it easier, just look at Mr. Brockman's
84 exhibit on which he actually took your figures and added
85 them, **LBD-4**. You'll see this repeated on his exhibit. Just
86 go to Mr. Brockman's ...

87 MR. O'RIELLY: Some of them (inaudible) I'm not sure
88 (inaudible) or of that nature?

89 MS. BUTLER, Q.C.: I don't think so. I think we were able
90 to get it on our screen, but can you go to Mr. Brockman's
91 testimony? Can you see if there are schedules that are
92 attached there, Mr. O'Rielly, please? Sorry, it is the
93 supplemental testimony. Mr. Chairman, I wonder in light of
94 that's not going to appear on the screen, could we just take
95 the morning break now and make a copy of the exhibit,
96 make it easier for the ...

97 MR. NOSEWORTHY, CHAIRMAN: Sure.

98 MS. BUTLER, Q.C.: ... in terms of cross-examination?

99 MR. NOSEWORTHY, CHAIRMAN: Sounds quite
100 reasonable. It's five to. We'll reconvene at ten after.

1 MS. BUTLER, Q.C.: Thank you.

2 MR. NOSEWORTHY, CHAIRMAN: Thank you.

3 (break)

4 (11:15 a.m.)

5 MR. NOSEWORTHY, CHAIRMAN: Mr. Butler, can I ask
6 you to proceed?

7 MR. HUTCHINGS: Mr. Chair, I'd like, just before we get
8 going by way of suitable information matter for the panel
9 by way of a preliminary ... I'd just like to let the panel be
10 aware that we have with us in the gallery at this point, Mr.
11 Don Bowers and Mr. Mel Moores, who are the president
12 and first vice-president respectively of the Communication,
13 Energy and Paper Workers, Local 1093, from the Abitibi
14 Consolidated Mill at Stephenville. These gentlemen, I
15 think, will be appearing before the public session in
16 Stephenville when that is scheduled but they have been
17 able to make time to be here as well today, joining Mr.
18 Bachus (phonetic), the mill manager, for the purpose of this
19 type of hearing as well.

20 MR. NOSEWORTHY, CHAIRMAN: Thank you very much
21 Mr. Hutchings. I'd like to welcome Mr. Bowers and Mr.
22 Moores to the hearing and look forward to seeing you, I
23 guess, when we go to the west coast.

24 MS. BUTLER, Q.C.: Thank you Mr. Chairman. I wonder,
25 Mr. O'Rielly, could we just see **NP-45** again? You recall,
26 Mr. Chairman, this morning I suggested to the witness that
27 if we averaged the years 1992 to 2000 on the exhibit, we
28 would get in the range, the figures that we were all
29 recording in our receptive pads, we'd get in the range of
30 4,400 gigawatt hours. My own team has done the math and
31 tells me it's actually 4,600, so I have to stand corrected.
32 You didn't bother to check my math did you Mister ...

33 MR. NOSEWORTHY, CHAIRMAN: No. (laughter)

34 MR. HUTCHINGS: He will the next time.

35 MS. BUTLER, Q.C.: Luckily it was higher, not lower. The
36 clerk has very kindly, Mr. Chairman, copied the exhibit
37 which is known as **LBB-4**, and we all have that before us.
38 So just to refresh everybody's memory on where we were
39 when we broke, we had seen that your hydraulic forecast,
40 which is on the screen now, for 2001 and 2002 was 4,271
41 gigawatt hours done, I'm sorry, calculated in the manner
42 which you have described and what I was suggesting to
43 you was that that figure happens to be close to this simple
44 average of the years 50 to 2000, which is shown on this
45 exhibit **LBB-4**. And you will see at the bottom of the page
46 that those first two columns of data come from **NP-204**.

MRz N

48 MR. HENDERSON: That's right.

49 MS. BUTLER, Q.C.: Okay, but the average is actually a
50 calculation of Mr. Brockman's, so the 4,271 gigawatt hours
51 is actually close to the 4,294 gigawatt hours on the basis of
52 a simple average.

53 MR. HENDERSON: Right.

54 MS. BUTLER, Q.C.: Now what I want to ask you is,
55 because I know some of your pre-filed testimony and
56 answers to requests for information addressed the simple
57 50 year average whether, for the purposes of my cross
58 examination, Hydro continues to rely on the calculation of
59 4,271, which has been adjusted to be a forecast of 4,285, or
60 whether you are relying on the simple average of the 50
61 years?

62 MR. HENDERSON: No, we are doing it the way we always
63 have. We are doing a simple average.

64 MS. BUTLER, Q.C.: Okay. What I would like to do now
65 then is perhaps move to a little more detail of the
66 calculation of the 4,271. Before I do that on this exhibit
67 **LBB-4**, Mr. Brockman was showing his calculation of the
68 30 year average, which is in column 3.

69 MR. HENDERSON: Yes.

70 MS. BUTLER, Q.C.: And, of course, there is some
71 suggestion on behalf of Newfoundland Power's expert, that
72 a moving 30 year average may be a means, amongst other
73 alternatives for the Board's calculation. Are you aware that
74 within Newfoundland Power there is a weather
75 normalization reserve?

76 MR. HENDERSON: I am aware that there is something in,
77 I think it's rate stabilization account, I think it's the way it's
78 referred, that does some kind of weather normalization with
79 respect to (inaudible) ...

80 MS. BUTLER, Q.C.: And are you aware that this Board
81 actually has accepted a 30 year moving average in
82 determining normal weather for adjustments to
83 Newfoundland Power's weather normalization reserve?

84 MR. HENDERSON: I have no knowledge of that.

85 MS. BUTLER, Q.C.: Okay, are you aware that Environment
86 Canada uses 30 year averages for their definition of climate
87 normal?

88 MR. HENDERSON: They do. Yes, they don't use a rolling
89 average though, I would like to point out. It's a ... they do
90 a review at the end of every decade, I believe, and they
91 have been doing that since the 1930's, I believe.

92 MS. BUTLER, Q.C.: So it's not a moving average but a
93 simple average, but it is 30 years for the definition of
94 climate normal.

95 MR. HENDERSON: That's what they use.

1 MS. BUTLER, Q.C.: Yeah. Thank you. Alright, so to gain
2 a better understanding of the calculation of 4,271 gigawatt
3 hours, **Schedule 1** of your own evidence ... can you scroll
4 down a bit ... there you go. Okay, I am just going to deal
5 with the hydroelectric for the moment. Okay, so what we
6 have here are the average annual gigawatt hours for each
7 of the seven, or six plants, or combination of plants.

8 MR. HENDERSON: That's right.

9 MS. BUTLER, Q.C.: And in terms of following through
10 with an example, I think, for the benefit of this cross-
11 examination, we can take Bay D'Espoir, which is the plant
12 that you used as the example earlier this morning. So here
13 the average annual energy in gigawatt hours is 2,598?

14 MR. HENDERSON: That's right.

15 MS. BUTLER, Q.C.: And from what you told me an hour or
16 so ago, that calculation would have been done in the
17 manner you described for that plant.

18 MR. HENDERSON: Right.

19 MS. BUTLER, Q.C.: Okay. Can we look at **NP-44**, page 3
20 please? Okay, so there's the figure, again, for Bay D'Espoir,
21 2,598 gigawatt hours. Then on to page 4, there's the ... in
22 the table, so ... okay, leading across from ... on line 1, we'll
23 see the calculations for Bay D'Espoir which resulted in an
24 average energy in gigawatt hours of 2,598.

25 MR. HENDERSON: Right.

26 MS. BUTLER, Q.C.: Okay. Now what I have done to make
27 this easier for everyone to follow is that I have copied that
28 page and just labelled the columns ... could we scroll down
29 just a little bit, Mr. O'Reilly, please? I'm sorry the other
30 way, scroll up ... yeah, I've labelled the columns,
31 Conversion Factor A, Average Historic Flows, Inflows B,
32 etcetera. You know, with that handed out, I wonder, Mr.
33 O'Reilly, can we have **IC-169** on the screen please? Okay,
34 now this **IC-169** at line 6 is making reference to **NP-44**
35 which is the handout we have in front of us relative to the
36 calculation method and it indicates the following records
37 and years of experience are used in the average. Correct?

38 MR. HENDERSON: That's right.

39 MS. BUTLER, Q.C.: Alright, so I am going to see if we can
40 use these two exhibits together to assist in the calculation.
41 So in calculating the 2,598 gigawatt hours for Bay D'Espoir
42 on the handout, did you use the 50 years of inflows which
43 are shown on the screen for Bay D'Espoir in column one?

44 MR. HENDERSON: Yes.

45 MS. BUTLER, Q.C.: And 50 years would take us back to
46 the year 1951?

47 MR. HENDERSON: No, what was done, and I think this
48 was clarified, we went from 1950 to 1999.

49 MS. BUTLER, Q.C.: Okay, well that's fine, yes.

50 MR. HENDERSON: Okay.

51 MS. BUTLER, Q.C.: Fifty years will take take you back to
52 1950, that's fine. My point though is that is that Bay
53 D'Espoir went into service in 1967.

54 MR. HENDERSON: It was around then. I think there were
55 some units that went into service in '66. I may be wrong
56 there. No, it's right, it's '67.

57 MS. BUTLER, Q.C.: '67, thank you. Alright, so looking at
58 the document on the screen, **IC-169** and the 50 years of
59 inflows for Bay D'Espoir, data then from 1950 to 1966,
60 before the plant was built, was measured how?

61 MR. HENDERSON: There were ... the values came from the
62 feasibility studies that were done for the Bay D'Espoir
63 development and my understanding, and I don't know this
64 intimately, but my understanding is that there were river
65 gauging stations on the Salmon River and the Grey River
66 and White Bay River, which are the main rivers which were
67 diverted for the development of the Bay D'Espoir project.
68 And those, so there was (inaudible) gauging stations on
69 the river that measured the actual flow in the rivers and
70 then once you dammed the rivers off that flow, instead of
71 going down the rivers, ended up in the reservoir systems,
72 so that was the way they were determined.

73 MS. BUTLER, Q.C.: Is it fair to say that the means of
74 measurement for the period 1950 to 1966 was different than
75 the means of measurement from 1967 to 1999?

76 MR. HENDERSON: Yes.

77 MS. BUTLER, Q.C.: Okay. The gauges in the river would
78 measure the water in million meters cubed?

79 MR. HENDERSON: No.

80 MS. BUTLER, Q.C.: How would it measure the water?

81 MR. HENDERSON: It would probably ... back then it was
82 in, I'll say cubic feet per second.

83 MS. BUTLER, Q.C.: Okay, sorry, yes.

84 MR. HENDERSON: So it was not a volume per se, it was a
85 flow rate, so there would be flow rates calculated.

86 MS. BUTLER, Q.C.: Alright, so the gauges in the stream
87 prior to the plant having been built would measure the
88 water flowing through the river.

89 MR. HENDERSON: Right.

90 MS. BUTLER, Q.C.: And you could calculate ...

91 MR. HENDERSON: Over time ...

1 MS. BUTLER, Q.C.: Over time ...

2 MR. HENDERSON: Over time you could get a volume, like
3 over a monthly period if you multiply the flow ... and I don't
4 know how recently it was measured, if it was measured
5 daily, hourly. I would assume it was something like daily
6 but it may have been something different than that. Those
7 flows then would have been accumulated over time to come
8 up with a volume, and that volume then would be the
9 inflow volume and you could state that in terms of millions
10 of cubic meters.

11 MS. BUTLER, W.C.: And that's what we have in Column
12 B on the handout, average historic inflows in million cubic
13 meters?

14 MR. HENDERSON: Yes.

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

16 MR. HENDERSON: That's the volume.

17 MS. BUTLER, Q.C.: Now for the period 1967 to 1999, how
18 is the measurement actually done? There is no gauge in
19 the stream, is there?

20 MR. HENDERSON: There are gauges in the stream but
21 they are of no value because they are dammed off, if you
22 like.

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

24 MR. HENDERSON: But the way we measure the inflows
25 since the projects went in service is we have done gauging
26 in a number of places. Like for instance, on the control
27 structures that release water through the system, there's a
28 number of them. We went through and had a Water
29 Survey Canada (*phonetic*) to go in and calibrate those
30 structures to determine for a different amount of gate
31 opening, how much flow goes through those structures, so
32 through knowing the amount the gate is open you can
33 determine how much flow went through those structures.
34 We also use, for our generators we have, when they were
35 all put in service, there was tests done on those to measure
36 the amount of water that they use for different output
37 levels and so, again, we were able to determine the flow
38 that was being put through the units, so we can get the
39 flow coming out of a reservoir by the gauging, if you like,
40 of the structure and the amount determined going through
41 the actual hydro generators. And then on top of that to
42 calculate the inflows you also have to know how much
43 your reservoir storage level changed because all the water
44 doesn't come out through the turbine or through a control
45 structure. It also builds up your storage or decreases your
46 storage, so you also have to measure the change in storage
47 volume in the reservoir. And so we measure that quite
48 regularly, the change in the storage volume and then
49 there's the ... at the time the plants were built there were

50 storage, what we call storage volume curve, that's used to
51 determine how much volume is in the reservoir for different
52 elevations in the reservoir, so you get a volume of water in
53 that manner.

54 MS. BUTLER, Q.C.: If I understand you correctly, you are
55 back calculating the amount of inflow using the different
56 means of measurement.

57 MR. HENDERSON: We are back calculating, that's right.
58 It's not the same as what's on a stream. You have to do it
59 by all the information you have which is the change in
60 volume and the amount of water that comes out of the
61 reservoir.

62 MS. BUTLER, Q.C.: Okay. So the means of measurement
63 pre-'67 and post-'67 were not the same.

64 MR. HENDERSON: No.

65 MS. BUTLER, Q.C.: But looking at the handout in Column
66 B for Bay D'Espoir, that is where you get the information to
67 put in millions of meters cubed.

68 MR. HENDERSON: That's right.

69 MS. BUTLER, Q.C.: Okay. Mr. Henderson, is it appropriate
70 to treat the full data set from 1950 to 1999 as a consistent
71 data series with equal weight to the pre-'67 data and the
72 post-'67 data, given the different means of measurement?

73 MR. HENDERSON: I have no reason to think that there's
74 ... there's error inherent in all measurements that you do. I
75 have no reason to believe that there's a greater error in pre-
76 '67 and post-'67. We can gain confidence in the fact of the
77 pre-'67 were done to justify the building of the Bay D'Espoir
78 development. There was a large amount of money at that
79 time expended ... there would have been a considerable
80 amount of engineering time spent on determining those
81 stream flows to make sure that they were reliable and I have
82 no reason to believe that they would be less reliable than
83 what we have been measuring since the plant went in
84 service.

85 MS. BUTLER, Q.C.: Do you have greater confidence in the
86 post-'67 figures given that that's when the plant was built?

87 MR. HENDERSON: I wouldn't say I have any greater or
88 lesser than either because both of them are, inherently have
89 errors in them. A reservoir level ... a very large lake that has
90 a small change in elevation, let's say a centimeter, we're
91 estimating how much volume that is. There is errors
92 inherent in that in the same way the same way the stream
93 flow measurements would have had this similar type of an
94 error. So there is no ... I don't think there is, I don't think.

95 MS. BUTLER, Q.C.: Okay, I want to go back now to the
96 same figures that are reflected on that Exhibit **LBB-4** but
97 for a different purpose relevant to what you've just

1 indicated. Mr. Henderson, this is not an actual exhibit, this
2 is your NP-204 on which Newfoundland Power has
3 actually calculated averages. Assuming our math to be
4 correct for the moment, for the period 1950 to 1966 the
5 simple average is shown as 3,978 gigawatt hours on
6 monthly inflow. And for the period 1967 to 2000, that is
7 after the plant was built, it shows monthly inflow average
8 of 4,452 gigawatt hours. Now that is a significant
9 difference, isn't it?

10 MR. HENDERSON: Oh yes, yeah.

11 MS. BUTLER, Q.C.: And again assuming the math to be
12 correct, you can certainly take the time to check me on it,
13 what possible reason could there be for the significant
14 difference in the averages pre-'67 and post-'67?

15 MR. HENDERSON: The weather probably is the most
16 influencing factor on this. The weather we had ... I wasn't
17 very old back then, actually I didn't exist a good part of it,
18 but I do recall the early sixties being particularly dry and
19 people talking about it. I know that we had a large forest
20 fire in the northern part of St. John's in early sixties, so it
21 was a dry period back then. So I think that's the
22 explanation, is back then there was ... we had some
23 extended dry periods.

24 MS. BUTLER, Q.C.: Let me ask you a couple of questions
25 from that. Now that you have seen this calculation before
26 you, is it also possible that the average, the significant
27 difference in the average, relates to the very existence of
28 Bay D'Espoir?

29 MR. HENDERSON: I don't understand how that could
30 change this.

31 MS. BUTLER, Q.C.: Well when the plant was built which
32 is your largest plant, and the means of measurement
33 changed, could that explain the substantial difference in the
34 average in terms of the measure being reliable pre-'67?

35 MR. HENDERSON: Like I said earlier, I have no reason to
36 believe there is any difference. I think the difference here
37 is related to weather.

38 MS. BUTLER, Q.C.: Well you are entitled to your opinion,
39 and I have recorded what you noted as being what you
40 considered the primary cause from your perspective, I am
41 asking you whether that is also a possibility?

42 MR. HENDERSON: A possibility that the Bay D'Espoir ...
43 the fact that we built Bay D'Espoir changed the inflows?

44 MS. BUTLER, Q.C.: Changed the measurements, yeah.

45 MR. HENDERSON: The measurements.

46 MS. BUTLER, Q.C.: The means of measurement.

47 MR. HENDERSON: The means of measurement changed.

48 But there is no way for me to know that that would have
49 caused that kind of a change. I believe, from what I
50 understand and again I ... from my knowledge of the
51 different reservoir systems, I understand that the, for
52 instance the Exploit's River had a very dry period during
53 that same period of time, so I haven't gone through and
54 done a study of correlation of say the Bay D'Espoir system
55 to the Exploit's River or the Humber River which are the
56 other larger river systems, but my general knowledge is that
57 all our inflow pattern in Bay D'Espoir is not substantially
58 different than their records which indicated that during that
59 period of time, in particular the early sixties, it was very dry.

60 MS. BUTLER, Q.C.: What I was suggesting was that this
61 may give an indication that the means of measurement
62 post-'67 are more reliable, or alternatively it may suggest
63 that the means of measurement are simply not comparable.

64 MR. HENDERSON: I don't think so. I think that these
65 numbers within the reasonable error of measurement are
66 comparable in terms of accuracy. And then as I said, if I
67 was to look at these and I heard that the 1960's was wet and
68 this way saying that it was dry, then I would say well geez,
69 there is something wrong here, we should have a look it.
70 But from all my experience with Hydro and talking to people
71 that worked at Hydro before me and experienced these
72 periods, the sixties were dry, and that would cause the
73 1950-1966 average to be much less than after that. So there
74 is nothing there to indicate to me that, boy, there is
75 something wrong, because that was the, you know, that's
76 all I can say. At that time that's the way, you know, people
77 saw the weather as being dry.

78 MS. BUTLER, Q.C.: A few other questions stemming from
79 what you said to me so far. Do you accept that there's
80 been a change in Newfoundland's weather or climate over
81 the last 40 years?

82 MR. HENDERSON: I'm not a climatologist or know
83 anything about that business per se. I know that it was ...
84 we have had some wet years recently; we have had dry
85 years in the eighties; we had dry years in the sixties; we
86 had a record snowfall this past winter; the previous record
87 was in the 1800's; the weather goes all over the place. We
88 had ... this past summer was a particularly dry summer so
89 you could say that's due to climate change or you could
90 say that's just weather patterns and I don't know. To me,
91 I would say that the types of changes you are seeing here
92 are just due to weather patterns and general weather
93 conditions. I wouldn't suggest that it is necessarily a
94 climate change but like I say, I am not a climatologist.
95 When this issue was raised one of my staff did speak to
96 somebody with Environment Canada and they told us that
97 there is no judgement yet as to whether our Newfoundland
98 climate has changed to be wetter or drier. There is certainly
99 climate change going on in the world and there will be a

1 general increasing in average temperature or normal
2 temperature but how that will influence Newfoundland I
3 don't think anybody has studied it and I couldn't say in any
4 way that the pattern of weather in Newfoundland has
5 changed because of climate change. I think it's just normal
6 weather patterns, like there was obviously a very heavy
7 snowfall winter in the 1800's and now we have had another
8 one. In the 1800's there was no talk of climate change, so
9 I couldn't say.

10 MS. BUTLER, Q.C.: Okay. I hear you but I think we
11 established to be very opening of your cross-examination
12 that you don't have to be a climatologist to address the
13 issues that we are speaking of in terms of hydraulic
14 forecasts. But as a matter of common sense and perhaps as
15 a fact known to people who have lived here all of their
16 lives, do you accept that there has been a change in
17 Newfoundland's weather in the last 30 to 40 years?

18 MR. HENDERSON: I couldn't say.

19 MS. BUTLER, Q.C.: You couldn't say. While we have that
20 exhibit in front of us, Mr. Henderson, and knowing that it
21 is sourced from **NP-204**, can you tell me why it is that the
22 exhibit only deals with three plants as opposed to the five
23 that are on the screen?

24 MR. HENDERSON: Paradise River is much smaller. What
25 we were trying to do, the reason for this data was
26 somebody asked, it may have been the Industrial
27 Customers, had asked for our distribution of our inflows
28 and they wanted a graph or something to show the
29 distribution of inflows, and because of the significance of
30 these plants to our inflows, we put them in there. We did
31 not add Paradise River because it doesn't have an influence
32 on our pattern of inflows and that is why we provided it
33 that way. It was the larger plants.

34 MS. BUTLER, Q.C.: And what about Upper Salmon?

35 MR. HENDERSON: Upper Salmon is part of the Bay
36 D'Espoir watershed so the inflows for Bay D'Espoir include
37 Upper Salmon by default.

38 MS. BUTLER, Q.C.: Okay. That Exhibit **NP-204** does
39 include Upper Salmon.

40 MR. HENDERSON: It includes the ... yeah, sure. The Bay
41 D'Espoir watershed has the Upper Salmon plant in it.

42 MS. BUTLER, Q.C.: Okay. Thank you. We are going to go
43 back now to the document that's on the screen. In going
44 forward with the cross-examination, Mr. Henderson, you
45 accept that, of course, using the full historic record
46 available implies that the full historic record available is
47 reliable.

48 MR. HENDERSON: Yes.

49 MS. BUTLER, Q.C.: Okay. This is **NP-44** which I think it's
50 page 4 of 4. Wait now. Yeah. Can you go back page 1 of
51 4 on **NP-44** please. Okay, here we have the in service dates
52 for the seven units at Bay D'Espoir which you correctly
53 indicated a moment ago came fully into service in 1977?

54 MR. HENDERSON: That's right.

55 MS. BUTLER, Q.C.: So units one and two and three were
56 all in place in '67 which is the year that we say that the plant
57 came in service.

58 MR. HENDERSON: That's right.

59 MS. BUTLER, Q.C.: But other units, four, five, six and
60 seven were added between 1968 and 1977.

61 MR. HENDERSON: That's right.

62 MS. BUTLER, Q.C.: Now again looking at the handout that
63 I gave you a moment ago, either one of these would be fine,
64 **LBB-4**, or the more recent one because it is the same
65 exhibit. The numbers that pre-date 1977 before all seven
66 units were in place, can they be said to be comparable to
67 the numbers which post-date 1977 when all seven units
68 were in place?

69 MR. HENDERSON: They should be.

70 MS. BUTLER, Q.C.: Okay, and how do we know that?

71 MR. HENDERSON: That they are comparable?

72 MS. BUTLER, Q.C.: Yeah, how do we know that they are
73 comparable? What adjustments are made to make them
74 comparable?

75 MR. HENDERSON: The number of units doesn't really
76 have a major impact in the inflow records. The inflow
77 records are primarily done, well you got your amount of
78 water going through units, so in 1977 we started putting
79 water through unit seven so we had, again, water use
80 curves for that unit that we were able to use to determine
81 the water that went through them in the same way that we
82 had it for the units that went in service previous to that.
83 The reservoir system did not change for unit seven coming
84 into play. It was just that we were making more use of the
85 water in the reservoir system so as far as the measurements
86 of inflows into Victoria reservoir, Maelpeg reservoir, and
87 Long Pond reservoir, the change ... the number of units had
88 no impact on that.

89 MS. BUTLER, Q.C.: Okay. What I'd like to do then is look
90 **NP-44**, page 4 of 4, which is the handout that has the table
91 A to F written on top of each column. Did the inflows that
92 we are talking about for Bay D'Espoir on that other handout
93 which was the combined reservoir energy inflows, are
94 stated in gigawatt hours. Correct?

95 MR. HENDERSON: I'm sorry I don't see a reference there.

- 1 MS. BUTLER, Q.C.: The Exhibit **LBB-4** ...
- 2 MR. HENDERSON: Yes, Yeah that's in gigawatt hours.
3 Yes.
- 4 MS. BUTLER, Q.C.: ... and the other one, they are stated in
5 gigawatt hours.
- 6 MR. HENDERSON: That's right, yes.
- 7 MS. BUTLER, Q.C.: And you had explained to me a while
8 ago that the calculation of gigawatt hours involves a
9 calculation which is reflected on this exhibit which is on the
10 screen and which was also our handout with my letters A
11 to F written at the top of the column. Correct?
- 12 MR. HENDERSON: The way that this exhibit which is
13 **LBB-4**, energy numbers were calculated, don't directly
14 relate to what's in **NP-44** per se. The conversion factors, if
15 you look in column A on **NP-44** ...
- 16 MS. BUTLER, Q.C.: Yes.
- 17 MR. HENDERSON: ... those conversion factors were used
18 to convert the water, that was the volume of water, into
19 energy numbers for the purposes of answering the
20 question on the distribution of inflows. Because the only
21 way we can do a distribution inflows that would have been
22 meaningful would be to equate it all to energy in gigawatt
23 hours so the inflows for Cat Arm have a less energy value
24 than the inflows in the Bay D'Espoir, or have a higher
25 actually energy value than Bay D'Espoir because of the
26 different relationships between those different plants. So,
27 in order to answer the question from the Industrial
28 Customers, I believe it was, for the distribution of inflows,
29 we converted everything to energy and we did apply the
30 factors in column A in **NP-44** but the other factors there are
31 related to fisheries releases and spill were not used in the
32 calculation for **LBB-4** or, you know, that distribution
33 inflows. It was totally put together to show a distribution
34 of inflows and we didn't anticipate that it was going to be
35 analyzed to this degree. I would suggest if you wanted to
36 do that kind of an analysis you would have to go to each
37 reservoir and look at the actual volume of water inflows in
38 each reservoir and have a good look at each one of them to
39 determine accuracy. I don't think that it would be of much
40 value. I think this is sufficient to show inflow patterns.
- 41 MS. BUTLER, Q.C.: Following up on a couple of things
42 that you said, what I hear, I think, is that **LBB-4** contains
43 the same information as **NP-44** but without adjustments for
44 fisheries release requirements and average spill
45 requirements.
- 46 MR. HENDERSON: And for only those plants that are in
47 it.
- 48 MS. BUTLER, Q.C.: Yes, on **LBB-4**, correct, alright.
- 49 MR. HENDERSON: ... and that doesn't include Paradise
50 River.
- 51 MS. BUTLER, Q.C.: Now, what I was addressing, however,
52 was whether in fact the conversion to gigawatt hours
53 which is on **LBB-4**, was done in the same way pre-'67, I'm
54 sorry, pre-'77, when all seven units were put in place, as it
55 was post '77 when all seven units were in place.
- 56 MR. HENDERSON: The conversion factor, what we did is
57 we took the actual volume of water for every reservoir and
58 we multiplied it by the conversion factor that's in **NP-44**.
59 So there is no change ...
- 60 MS. BUTLER, Q.C.: Can we just restrict it to Bay D'Espoir
61 to make it easy? For Bay D'Espoir ...
- 62 MR. HENDERSON: ... for Bay D'Espoir .
- 63 MS. BUTLER, Q.C.: ... which had seven units and not all
64 placed in service in '67. Right?
- 65 MR. HENDERSON: Right. There was no impact of that
66 unit seven going in service or not on these inflows. The
67 inflows are ...
- 68 MS. BUTLER, Q.C.: No, not on the inflows, sorry, on the
69 conversion factor.
- 70 MR. HENDERSON: The conversion factor?
- 71 MS. BUTLER, Q.C.: Yes. In other words, to make it simple,
72 is the same conversion ...
- 73 MR. HENDERSON: Those conversion factors are reflective
74 of the current circumstance. They don't reflect the '67 , or
75 '66, or '75 circumstance. Those conversion factors actually
76 are our very most recent experience since the energy
77 management system went in place in our Energy Control
78 Center and they reflect a conversion factor of only about
79 nine years.
- 80 MS. BUTLER, Q.C.: Okay. So for Bay D'Espoir on Exhibit
81 **NP-44** which is both on the screen and on the handout, the
82 conversion factor currently used is .4330 ...
- 83 MR. HENDERSON: That's right.
- 84 MS. BUTLER, Q.C.: ... and it reflects the efficiency at the
85 plant.
- 86 MR. HENDERSON: Right.
- 87 MS. BUTLER, Q.C.: And that efficiency at the plant today
88 is based on seven units, all operating.
- 89 MR. HENDERSON: Yes.
- 90 MS. BUTLER, Q.C.: What I was asking you was was the
91 same conversion factor used prior to all seven units being
92 put in place between the period '67 and '77.
- 93 MR. HENDERSON: I have to, so that there is no

1 confusion, this schedule **LBB-4** did not use any
2 conversion factors from 1967. It did ...

3 MS. BUTLER, Q.C.: Okay, well just look at ...

4 MR. HENDERSON: It didn't use any for anything prior to
5 unit seven. They only used the conversion factors, the
6 ones that are in **NP-44**.

7 MS. BUTLER, Q.C.: Okay, now we have to understand
8 why that's the case because a moment ago I thought you
9 said that **LBB-4** was comparable to **NP-44** with the
10 exception of not having subtracted fishery release
11 requirements and average spills for the plants that were
12 indicated.

13 MR. HENDERSON: Right.

14 MS. BUTLER, Q.C.: So what I am asking you is for the
15 years prior to '77 when all seven units were in place at Bay
16 D'Espoir, what conversion factor was used to get the
17 gigawatt hours for the Bay D'Espoir plant?

18 MR. HENDERSON: In **LBB-4**?

19 MS. BUTLER, Q.C.: Or otherwise if you know generally.
20 How are you converting ...

21 MR. HENDERSON: The conversion factor is determined
22 by the amount of energy that is produced by the unit.
23 Okay.

24 MS. BUTLER, Q.C.: Uh hum.

25 MR. HENDERSON: And that's used, a meter just like, very
26 similar to what's on your house to measure the energy
27 output, and we have used the same type of meters ever
28 since the Bay D'Espoir plant went in service. That's how
29 we measured energy output. The water going through the
30 units was measured based on the manufacturer's water use
31 curves for those units as verified in tests when the units
32 went in service.

33 MS. BUTLER, Q.C.: Okay. So does that mean that the
34 conversion factor applied before all seven units were
35 service was different than the one that you are using now?

36 MR. HENDERSON: Yes.

37 MS. BUTLER, Q.C.: Okay. And is that reflected on Exhibit
38 **LBB-4**?

39 MR. HENDERSON: No. **LBB-4** takes the volume of water
40 which has nothing to do with the conversion factor and
41 applies the most recent conversion factors to come up with
42 the energy number.

43 MS. BUTLER, Q.C.: Alright. So the **LBB-4** is basically a
44 mix of current information with volume of water. It is not
45 done in the same complicated fashion as **NP-44**.

46 MR. HENDERSON: We didn't go through each year and
47 come up with a conversion factor for each year to come up
48 with the energy inflows, if you like, for that year. We took
49 the actual volume of water and applied the most current
50 conversion factors.

51 MS. BUTLER, Q.C.: Alright. Now looking at **NP-44**. That
52 is page 4 of 4 on the screen, could you go to page 2 of 4,
53 please? Yes, stop right there. Thanks. Why does Bay
54 D'Espoir start with '69 when you would have data for '67
55 and '68?

56 MR. HENDERSON: We weren't able to find it quickly to
57 respond to the question. I am not sure where the numbers
58 are but this here is the energy produced from the plants in
59 '69 and prior to that I am not sure what records we have
60 that indicates what ... I think this question here is asking us
61 for the net generation from all our plants from available
62 records and this is what was readily available to respond to
63 this information request. If I went to Bay D'Espoir, I would
64 probably find somewhere down the numbers that were
65 produced and we could give them to you if that's important
66 but we just took what we had here in St. John's and we had
67 records back to '69 for the Bay D'Espoir plant.

68 MS. BUTLER, Q.C.: But you would have had to have them
69 in order to complete what we see as **LBB-4** which was
70 provided in **NP-204**, wouldn't you?

71 MR. HENDERSON: No.

72 MS. BUTLER, Q.C.: No. Okay.

73 MR. HENDERSON: No, they are different numbers. The
74 volumes of water ... all the volumes of water we have and
75 had records in St. John's because we have been doing the
76 water management of the system for years and so we had
77 the complete record here for quite a while. Keeping track of
78 the energy produced is a different thing.

79 MS. BUTLER, Q.C.: Alright. I want to just look at the
80 handout now, **NP-44**, page 4 of 4, and ask you about
81 Column C. You have got some notes under the actual table
82 which talk about the respective columns so can you just
83 explain to us how the fishery release requirements for Bay
84 D'Espoir apply to this table?

85 MR. HENDERSON: The fisheries release requirements are
86 basically water that's removed from the system to supply,
87 to enhance and allow salmon to go up and down the rivers
88 if you like. Migration of salmon, I guess, would be the right
89 term. So that's what they are. When the water is released
90 out of the system it is then not available to be generated so
91 we subtract out that water, volume of water, from our
92 calculation.

93 MS. BUTLER, Q.C.: But how is it measured?

94 MR. HENDERSON: The flow for fisheries?

- 1 MS. BUTLER, Q.C.: Yes.
- 2 MR. HENDERSON: We have a ... it is measured a little
3 differently, I guess, in different places but basically again,
4 we gauged off release structures so that we calibrated them
5 so that we knew when a gate was open how much water
6 was going through and we keep track daily how much
7 those gates are open. So the ... and daily then we calculate
8 how much flow is going through those gates.
- 9 MS. BUTLER, Q.C.: Okay, are you speaking of Bay
10 D'Espoir now in that example?
- 11 MR. HENDERSON: I'm speaking of Bay D'Espoir, Upper
12 Salmon and Hines Lake. In all three cases they are
13 calibrated release structures.
- 14 MS. BUTLER, Q.C.: And in the case of Cat Arm?
- 15 MR. HENDERSON: In Cat Arm there is no fisheries release
16 and in Paradise River there is none.
- 17 MS. BUTLER, Q.C.: Okay. Can you just flick on the screen
18 where we have **NP-44** hard copy of the handout to **IC-169**
19 again? Okay, for Bay D'Espoir we saw a moment ago that
20 for inflows you were using fifty years of data which is then
21 put into Column B on **NP-44**.
- 22 MR. HENDERSON: Uh hum. That's right.
- 23 MS. BUTLER, Q.C.: Now we are looking at the fisheries
24 release requirements and on this table, **IC-169**, you are
25 using for Bay D'Espoir 25 years of data.
- 26 MR. HENDERSON: That's right.
- 27 MS. BUTLER, Q.C.: Okay. And what is the reference to
28 constant for Upper Salmon and Hines Lake then?
- 29 MR. HENDERSON: For Upper Salmon and Hines Lake
30 there is a fixed release regime for those plants. Our
31 agreement with the Department of Fisheries and Oceans
32 requires that we open gates on a particular date, open them
33 to a certain amount and the flow has got to be constant
34 throughout that whole period. So actually we do measure
35 it but we measure it because we have to know how we
36 released to make sure that we are in compliance with the
37 agreement. But the actual amount is constant throughout
38 the release period. So for Hines Lake, for instance, there is,
39 I think, two periods in the year when we have to release
40 and it may be that on December 1st we open up the gates
41 and they stay open then until the end of March and then
42 we close them for a couple of months and so on and that
43 pattern holds true for every year. So it's a constant volume
44 of water that we release for fisheries compensation at Upper
45 Salmon and Hines Lake, that's why that is a constant.
- 46 MS. BUTLER, Q.C.: Okay. Whereas Bay D'Espoir, as you
47 point out, is different.
- 48 **(12:00 a.m.)**
- 49 MR. HENDERSON: Yes, in Bay D'Espoir, I think I
50 mentioned earlier, what we do there is we release water
51 based on the amount of water that's in the river. There's a
52 gauge station on the rivers down stream of our dams and
53 we have to maintain a certain flow in those rivers to allow
54 salmon to migrate up those rivers and if there has been lots
55 of rain on the south coast we won't need to release water.
56 If there is, it's dry then we will release water and we release
57 water to try and maintain a certain flow down stream. So
58 for Bay D'Espoir the amount varies by year based on what's
59 happening on the south coast.
- 60 MS. BUTLER, Q.C.: Alright. Can I ask you though why 25
61 years is shown on the table which is on the screen for **IC-**
62 **169** for fisheries compensation or fisheries release
63 requirements when 50 years is used for inflows?
- 64 MR. HENDERSON: Because we didn't go back through
65 and calculate what we would have released back in those
66 years prior to 25 years ago. We never started ... I'm not
67 sure when we started actually releasing water into these
68 rivers but all our records only go back 25 years of showing
69 the volume that was released so that's why we've used the
70 average of the most recent 25 years. The years prior to the
71 plant ...
- 72 MS. BUTLER, Q.C.: Excuse me, I am sorry, Mr. Henderson,
73 I didn't mean to interrupt you but let me understand ... you
74 are using average of the most recent 25 years?
- 75 MR. HENDERSON: For fisheries releases because that's
76 the period that we have a record for.
- 77 MS. BUTLER, Q.C.: Right. Okay.
- 78 MR. HENDERSON: Prior to that, you could go through
79 that calculation and say well what would have we released
80 in those other 25 years, and try to make a guess, and make
81 allowance for it. We haven't done that, we have just used
82 our most recent 25 years because that's what we have a
83 record for.
- 84 MS. BUTLER, Q.C.: And because that would be the most
85 reliable.
- 86 MR. HENDERSON: Uh hum.
- 87 MS. BUTLER, Q.C.: And because that would be the most
88 reliable.
- 89 MR. HENDERSON: Sure, yeah.
- 90 MS. BUTLER, Q.C.: Now for the next column, if I might,
91 which is Spills, the one shown on the screen is spills and
92 the one shown in the handout as Column D, Average Spill,
93 again in million meters cubed?
- 94 MR. HENDERSON: Yes.

1 MS. BUTLER, Q.C.: Again, can you just tell us how that's
2 measured at Bay D'Espoir and whether it's measured at the
3 other plants in the same way?

4 MR. HENDERSON: At each of our spillway structures,
5 again, we have a calibrated release structure so that we
6 know for a certain gate opening or a certain head of water
7 on a gate, how much water goes through those gates. So
8 we measure it using, you know, an elevation at the gate of
9 the water and the amount the gate is open and it all has
10 been calculated through engineering design things,
11 calculations, I guess, to come up with what the flow is and
12 there was some calibration done on some of these
13 structures so that we know how much water is going
14 through when we spill. And that's the case for all of our
15 spillway structures. We require it when we design plants
16 for the consultant who did the design work for them to
17 provide us this information so we can keep accurate
18 tracking of the amount of water that we do spill, and the
19 length of records that you see there vary because of the
20 length of service of those plants.

21 MS. BUTLER, Q.C.: Right, well maybe we could just be
22 helpful to the Board and indicate, Bay D'Espoir we know
23 came into service in '67.

24 MR. HENDERSON: Right.

25 MS. BUTLER, Q.C.: When did Upper Salmon go in
26 service?

27 MR. HENDERSON: In 1983.

28 MS. BUTLER, Q.C.: Cat Arm?

29 MR. HENDERSON: Cat Arm in 1985.

30 MS. BUTLER, Q.C.: Hines Lake?

31 MR. HENDERSON: I think it's 1980 or '81. That is there in
32 one of these ... well, it's the one we were just looking at,
33 **NP-44**, I believe.

34 MS. BUTLER, Q.C.: Okay, and Paradise River, do you
35 remember?

36 MR. HENDERSON: '89.

37 MS. BUTLER, Q.C.: With those dates in mind, given that
38 Bay D'Espoir went in service first but you are only using 25
39 years for the spill record for Bay D'Espoir.

40 MR. HENDERSON: Yes. The reason for that I think, again
41 I mentioned this earlier, was that up until about the mid
42 seventies the Bay D'Espoir plant wasn't being fully utilized.
43 The load on the power system wasn't sufficient to use all
44 the water that was available to it so as a result we spilled in
45 most every year and that volume of spill was due to the fact
46 of a load restriction on the system not the capability of the
47 plant. So we did not use that spill calculation to influence

48 the average capability of the plant because it was a load
49 restriction. So the values prior to ... that's about 1975,
50 would be meaningless in the calculation because the spill,
51 we were spilling every year because we just didn't have
52 enough load.

53 MS. BUTLER, Q.C.: So there is some subjectivity to the
54 duration that's used for this spill measurement.

55 MR. HENDERSON: There ... oh yes, that was our
56 judgement. It was about that time and I am not sure that ...
57 we haven't spilled at Bay D'Espoir very often and it is
58 actually only in more recent years, in the nineties, that we
59 have actually been spilling. Prior to that it was 1983 and
60 prior to that it may, I am not sure when it was. So the fact
61 that we used 25 years, and I think in 1975 is when we
62 stopped spilling because of not having enough load.

63 MS. BUTLER, Q.C.: Okay. So you acknowledge some
64 judgement or subjectivity in the spill period there. Now for
65 Upper Salmon, Hines Lake and Cat Arm, the spill years that
66 are reflected on **IC-169** tend to match the life of the plant,
67 don't they?

68 MR. HENDERSON: They should.

69 MS. BUTLER, Q.C.: So you are taking the full life of the
70 other plants for the measurement of spills.

71 MR. HENDERSON: That's right.

72 MS. BUTLER, Q.C.: Okay, and back to **NP-44** then, and
73 again, just looking at the Bay D'Espoir plant ... I'm sorry
74 you can keep **IC-169** on the screen. We have **NP-44** in our
75 hand. Thank you. So in **NP-44** the handout, in Column B
76 for Bay D'Espoir you are using 50 years; in Column C for
77 Bay D'Espoir you are using 25 years; and for Column D for
78 Bay D'Espoir you are also using 25 years.

79 MR. HENDERSON: That's right.

80 MS. BUTLER, Q.C.: Now the conversion factor which we
81 have not yet come to yet, is shown on **IC-169** for Bay
82 D'Espoir as nine years.

83 MR. HENDERSON: That's right.

84 MS. BUTLER, Q.C.: And that somehow gets converted to
85 a conversion factor shown in column A on **NP-44** of .4330.

86 MR. HENDERSON: That's right.

87 MS. BUTLER, Q.C.: Okay. Can you explain that to us?
88 First of all, where did the nine years come from for Bay
89 D'Espoir?

90 MR. HENDERSON: The Bay D'Espoir plant was put into
91 economic dispatch control using our Energy Control Center
92 in, well basically nine years ago in 1991.

93 MS. BUTLER, Q.C.: I am sorry, Mr. Henderson, what does

1 it mean to say that the plant got put into the economic
2 dispatch nine years ago?

3 MR. HENDERSON: Economic dispatch is a program that's
4 used in the Energy Control Center for controlling the
5 output of generating units and what it does is it balances
6 the load between the units so that they are operating as
7 efficiently as possible. They are sharing the load amongst
8 the units to get the most energy out of the volume of water
9 that's going through the plant. So the economic dispatch
10 is an economic loading of generating units. So we chose to
11 use the conversion factors since then to reflect what our
12 experience is with that type of operation. Prior to that our
13 conversion factor would have been reflective of a manual
14 operation which would not presumably be as efficient as
15 what the program does. So the nine years is, why we chose
16 that is because that's our most recent ... that is reflective of
17 the way we intend to continue to operate the plant so it
18 should go that way. Similarly for Upper Salmon, Hines
19 Lake and Cat Arm, they did not go into economic dispatch
20 in the first year of service of our Energy Control Center.
21 They went in a little bit later and they actually, probably
22 went in that same year as Bay D'Espoir but it wasn't a full
23 year so we did not want to be mixing apples and oranges
24 and calculating the conversion factor. We went with the
25 full years.

26 MS. BUTLER, Q.C.: And for Paradise River, it looks like it
27 was the first one into the economic dispatch.

28 MR. HENDERSON: No. No. For Paradise River that is the
29 full life of the plant.

30 MS. BUTLER, Q.C.: So for Paradise River, the period ...

31 MR. HENDERSON: We don't operate it in economic
32 dispatch. It's a run of river plant and, therefore, you ... what
33 you do is when there is water there you run it at its most
34 efficient load and it shuts down when the water is not
35 there. So its conversion factor is a function of the way the
36 water is running and the level of water that goes through
37 the plant, so again, it's the 11 years of experience.

38 MS. BUTLER, Q.C.: Okay. In comparison to Bay D'Espoir,
39 and I have just suggested to you what figures you were
40 using to come up with the numbers which are on the
41 handout, for Hines Lake you are using for Column B, 73
42 years ...

43 MR. HENDERSON: Yes.

44 MS. BUTLER, Q.C.: And for Hines Lake for Column C,
45 there is no figure because, as you say, it's a constant.
46 Correct? There's no number of years because the figure
47 every year is the same. Okay.

48 MR. HENDERSON: That's right, yes. Yeah.

49 MS. BUTLER, Q.C.: Okay. And again for Hines Lake the,

50 Column D, Spills, you are using 19 years and ...

51 MR. HENDERSON: Yes, and when you said Column D, I ...

52 MS. BUTLER, Q.C.: Column D on the handout.

53 MR. HENDERSON: Okay, I am getting confused.

54 MS. BUTLER, Q.C.: And your conversion factor is eight,
55 which then gets converted somehow, and you are going to
56 explain this to me, I am sure, into the conversion factor
57 shown on Column A.

58 MR. HENDERSON: Right.

59 MS. BUTLER, Q.C.: Okay, now back to the apples and
60 apples, I mean I have to say, does it seem right to be using
61 all these different lengths of time for the different plants
62 and for different measures in the calculation?

63 MR. HENDERSON: What we are using is the best
64 information that we have and applying it to the data that we
65 have. I am not sure how to answer your question in that all
66 of this information is the most reliable data that we have so
67 we are using what we have in terms of reliable data. You
68 could, if you wanted to spend the time and effort, you
69 could go and do simulations which is a different way of
70 doing this and simulate the operation of all of these plants
71 through a computer and go back to 73 years for Hines Lake,
72 70 in Cat Arm, 50 at Bay D'Espoir and Upper Salmon, and
73 through the simulation come up with what the numbers
74 would be, and then you would have some answer that
75 would be different. I don't know how much different. But
76 this simple calculation that we are doing here, what we did
77 is we went and said let's only use reliable information and
78 these are the periods that we have reliable information.

79 MS. BUTLER, Q.C.: Well looking at the inflows alone for
80 the moment, why not use 50 years for all of them, with the
81 exception of Paradise River which, you have described as
82 being slightly different anyway?

83 MR. HENDERSON: Why not?

84 MS. BUTLER, Q.C.: Yes, why not. I mean why ...

85 MR. HENDERSON: Again, because it was the length of
86 record we had and what we are trying to do here is come up
87 with the long-term average energy producing capability of
88 the facility and so we used the available record that we had
89 to come up with that average because weather patterns and
90 all of that, like I said earlier, I don't know how it changed
91 over time, but generally speaking, the longer the records
92 you have the better indication you have of what the long-
93 term prospects are of the plant for in terms of average
94 energy capabilities so we have gone back to the longest
95 record that we have that is reliable.

96 MS. BUTLER, Q.C.: Okay. I hear you and I am going to
97 come actually to that point in a few moments but I won't go

1 down that road at the moment because I wanted to explain,
2 if we could, to the Board the conversion factor and how
3 you get, for example, on Bay D'Espoir, from a conversion
4 factor of 9 years to a conversion factor of .4330 shown on
5 the handout in Column A.

6 MR. HENDERSON: What Column A is, it's a ratio of the
7 total energy produced at Bay D'Espoir, we'll just refer to
8 Bay D'Espoir for now, total energy produced at Bay D'
9 Espoir over the total volume of water that went through the
10 generating units, through the turbines at Bay D'Espoir over
11 that 9 year period.

12 MS. BUTLER, Q.C.: And refresh our memory again, why 9
13 years for Bay D'Espoir?

14 MR. HENDERSON: Because of the use of economic
15 dispatch.

16 MS. BUTLER, Q.C.: Oh, because the year it went into the
17 economic dispatch system.

18 MR. HENDERSON: Yes, because the conversion factor
19 would be different if you were operating the unit manually.

20 MS. BUTLER, Q.C.: Alright, so has the conversion factor
21 then for Bay D'Espoir been .4330 for each of the 9 years?

22 MR. HENDERSON: No.

23 MS. BUTLER, Q.C.: No. It's adjusted annually?

24 **(12:15 p.m.)**

25 MR. HENDERSON: The conversion factor is a result of a
26 calculation.

27 MS. BUTLER, Q.C.: Done how often?

28 MR. HENDERSON: In that calculation we review it every
29 year, we don't necessarily every year implement a change,
30 a change that we would go ahead and use in forecasting.
31 Some of the reasons for changes may be because a year
32 may have been exceptional in terms of the amount of water
33 that we produced or whatever, and you would like to get
34 some kind of length of record to get a reasonable average.
35 So I think again there is evidence, and I am not sure which
36 RFI it is, but there is an RFI that does show the change in
37 average energy capability for these plants over a period of
38 time, maybe back over 10 years or maybe 20 years, how it
39 changed each year and each year that it changed, based on
40 a review of the ... when it did change it was based on a
41 review of the conversion factors which would have been
42 this simple mathematical ratio and a review of our inflow
43 records up until that point in time, the spill records up to
44 that point in time, the fisheries release records up to that
45 point in time. So there would be ... the conversion factor
46 applied historically would not be the same one you see
47 here. This is the one that we applied which was based on
48 a 9 year average up to the end of 1999.

49 MS. BUTLER, Q.C.: Okay, and the conversion factor is
50 developed internally at Hydro as opposed to being
51 developed by an outside consultant.

52 MR. HENDERSON: Oh yes, because it is only a simple
53 ratio. Our Energy Control Center computer calculates
54 minute by minute how much water is going through the
55 turbines and we can get from that the volume of water that
56 went through the turbines so we have a volume of water,
57 the energy meters are read daily and monthly on the units
58 so we know how much energy was produced so we end up
59 with a ratio, and that's what that conversion factor is.

60 MS. BUTLER, Q.C.: And you say the ratios are reviewed
61 annually but the conversion factor is not necessarily
62 changed as a result.

63 MR. HENDERSON: Right.

64 MS. BUTLER, Q.C.: So how much subjectivity is there in
65 terms of that calculation?

66 MR. HENDERSON: Well I guess ... subjectivity ... there is
67 a fair bit of subjectivity in the sense of when you make the
68 change. The calculation doesn't require any subjectivity,
69 it's just a mathematical calculation but we sometimes will
70 look at and say ... if we look at the period that ended in 1998
71 and it went up a little bit and then after the end of 1999 it
72 went down a little bit, we may say well that change is not
73 really worth the effort of going through and changing all of
74 our numbers. But then if it changed a fair bit we would say,
75 yeah, that's worth changing or in the case we are having a
76 rate application in the fall of '99, we said let's use the most
77 current at that time so in the fall of '99, or the fall of 2000 I
78 should say, we changed it at that time so that the numbers
79 that went into the rate application were the most current.

80 MS. BUTLER, Q.C.: Okay. So can I ask you this, Mr.
81 Henderson, would the conversion factor be revisited after
82 improvements are made at a plant for efficiencies?

83 MR. HENDERSON: The conversion factor would not
84 necessarily be done that way because what we do is we like
85 to get some history before we make the change so that we
86 have some proof of change so that when we do testing of
87 the unit, when we make an efficiency improvement change,
88 we get an absolute measurement of the change. But then
89 the way that actual efficiency improvement manifests itself
90 over time depends on the load on the system, how much
91 water you are putting through the units and that sort of
92 thing. The benefit may not be a one to one. Like if you
93 measured it and said that at the most efficient point on the
94 unit and we got a two percent improvement in efficiency,
95 that doesn't relate to an overall two percent efficiency
96 going forward because you may not be able to operate at
97 the most efficient load. It's highly variable based on your
98 system load and the amount of water that you have, so we

1 gather experience before we implement a change.

2 MS. BUTLER, Q.C.: Okay, so the conversion factor for Bay
3 D'Espoir was last changed, you said, within the last year for
4 the purposes of this application.

5 MR. HENDERSON: We changed it in the fall of 2000.

6 MS. BUTLER, Q.C.: Okay. Do you remember what it was
7 before that, higher or lower?

8 MR. HENDERSON: It may ... I don't know if it changed
9 very much. It may have been marginally higher, but I am
10 guessing there.

11 MS. BUTLER, Q.C.: In Mr. Budgell's testimony there is a
12 reference to a 2.8 percent increase in efficiency at Bay
13 D'Espoir as a result of installation of steel runners.

14 MR. HENDERSON: Stainless steel.

15 MS. BUTLER, Q.C.: Yes. Can you tell us whether the
16 conversion factor currently being used reflects that
17 increased efficiency?

18 MR. HENDERSON: Yes, it does, because that change
19 occurred between, I believe, '93 and '96, in that timeframe
20 and we are using the conversion factor experience over that
21 timeframe. We didn't change out all the runners at Bay
22 D'Espoir. No. 7 didn't get changed, So the conversion
23 factor is influenced a fair bit by unit 7 because it's the unit
24 that used the most. It's the largest and more efficient unit
25 so you don't again see a direct a direct percent, 2.3 or
26 whatever that is in Mr. Budgell's evidence, in your
27 conversion factor.

28 MS. BUTLER, Q.C.: Well are you satisfied that the most
29 recent result ... first of all, let me back up. Were units one
30 to seven at Bay D'Espoir tested within the last year for their
31 efficiency?

32 MR. HENDERSON: The unit one to six, units one to six
33 were tested when they were placed in service after the
34 runner replacement, and like I said, that occurred over a
35 period of time, over a number of years and I believe the first
36 one may have gone in in the fall of '92, I am guessing, and
37 then between '92 and '97, I believe, or '96, when we finished
38 this program we continued to do testing when each unit
39 went in to make sure that they ... all these units were
40 manufactured by the same manufacturer and would have
41 been made identical. So we did extensive testing on the
42 first one that went in and the we did less extensive testing
43 on the others. What we did is verify that they had the
44 same characteristics, picking certain load points and that
45 sort of thing but not doing the same extensive testing to
46 make sure that they were all the same, which they all were.
47 So, therefore, we had very good test results from '92 or '93
48 when we did that testing. Unit seven at Bay D'Espoir
49 would have been last done, I think, when it went in service.

50 MS. BUTLER, Q.C.: Which was 1977.

51 MR. HENDERSON: Yeah, '77, or it may have been the
52 following year.

53 MS. BUTLER, Q.C.: Now if something happened tomorrow
54 to improve the efficiency at Bay D'Espoir plant by 10
55 percent, how would that affect the conversion factor that
56 we see there? Would it simply go up from .4330 to 10
57 percent higher?

58 MR. HENDERSON: Basically, it would be close to that but,
59 again, like I said, if you are saying a 10 percent overall, then
60 that would be fair to say overall it would go up.

61 MS. BUTLER, Q.C.: Mr. Chairman, in the interest of the
62 hour I don't think it would be fair to go into the next
63 section. We could break there.

64 MR. NOSEWORTHY, CHAIRMAN: Okay, thank you very
65 much, Ms. Butler, and thank you, Mr. Henderson. We'll
66 reconvene at 2:00 p.m.

67 *(break)*

68 *(2:00 p.m.)*

69 MR. NOSEWORTHY, CHAIRMAN: Good afternoon, are
70 there any preliminary matters, Counsel, before we start?

71 MR. KENNEDY: There is, Chair. I believe Hydro has some
72 additional filings to make.

73 MS. GREENE, Q.C.: Thank you, good afternoon. The first
74 thing I'd like to do is to deal with the undertakings arising
75 from Friday of last week. I have a copy of the schedule of
76 undertakings to distribute at this time, and you will recall,
77 last week we started doing it at the start of the afternoon
78 session, a review of the undertakings from the previous
79 day, and this is a continuation of that process.

80 MR. NOSEWORTHY, CHAIRMAN: Uh hum.

81 MS. GREENE, Q.C.: The first is with respect to Thursday,
82 October 4th, we recorded there were no undertakings for
83 that day in the transcript. The other undertakings all arise
84 from Friday's hearing day, and just very briefly. The first
85 one relates to a request from Commissioner Saunders for
86 the cost of fuel for vehicles split by on-road and off-road
87 vehicles ... a sample maintenance report we received from
88 PHH, and then details of the arrangements between Hydro
89 and PHH. The next, I believe, also, the undertaking also
90 arises from a request of Commissioner Saunders, and it
91 relates to the personal use of Hydro vehicles. The next
92 undertaking arises from a request of counsel for
93 Newfoundland Power for Hydro to provide the details of
94 the calculation of diesel fuel expense for 2001/2001. The
95 next relates to a request from counsel for Newfoundland
96 Power to be provided with copies of the presentation made
97 by Hydro to the Public Utilities Board on reliability centred

1 maintenance, and I believe actually that has now been
2 down, and has been circulated by the Board.

3 The next undertaking relates to a request from
4 counsel for Newfoundland Power for Hydro to provide the
5 cost of implementation of RCM in TRO and the anticipated
6 savings of that. The next undertaking is a request, arises
7 out of a request from counsel for the Industrial Customers,
8 for details of the incentive plan. And the last relates to an
9 undertaking raised by the counsel for the Consumer
10 Advocate, or the Consumer Advocate, for the status of the
11 relocation of Harbour Deep. So that's a record of the
12 undertakings as we have determined them from a review of
13 the transcript for Friday. That's the first issue.

14 The second matter that I wanted to raise, concerns
15 the filing of the 2001 forecast cost of service using the
16 interim and generic methodology as had been requested by
17 the Industrial Customers in IC-18, and you will recall that
18 this had been a source of discussion earlier and that
19 Newfoundland Hydro and the Industrial Customers had
20 agreed upon filing certain additional cost of service, and
21 the only two outstanding are 2001 and 1997, and I have for
22 filing today the 2001 forecast cost of service, and there are
23 actually two. One relates to the generic methodology, what
24 would be the outcome if the cost of service methodology
25 recommended in the '93 hearing had been used, and that's
26 what we call the generic methodology, and I have copies of
27 that to distribute at this time, and you'll see from the
28 heading, it says "2001 Forecast Cost of Service - Generic
29 Methodology". And the second document we have to
30 distribute at this time is the 2001 Forecast Cost of Service
31 Methodology, using the interim methodology, which is
32 what we are referring to as the methodology that was
33 employed back at the '92 hearing, so I have copies of that
34 to distribute as well. So the only one now outstanding is
35 1997, actual cost of service, using those methodologies.

36 The next document that I have for filing relates to
37 a request from counsel for Newfoundland Power to explain
38 the increase in the overall operating and maintenance
39 budget from what was approved by the Board of Directors
40 in October 2000, for 2001, and that, as filed, at May 31st,
41 2001. I have a copy of a schedule that explains that change
42 which I'd like to distribute at this time. Mr. Osmond or Mr.
43 Roberts would be ... actually it would be Mr. Roberts would
44 be the witness to speak to this schedule if there are any
45 questions. This is the one that had not been listed as a
46 formal undertaking, but that counsel for Newfoundland
47 Power had mentioned to me that they would like to have it.

48 MR. NOSEWORTHY, CHAIRMAN: Right.

49 MS. GREENE, Q.C.: And this, I guess, we need to mark.
50 This is not in response to a particular undertaking, nor will
51 it be addressed by this witness. It was, if you look at the

52 transcript of October 1, on page 14, you will see some
53 reference to it by counsel for Newfoundland Power, and as
54 I said, after that day, we were requested to file this, which
55 we agreed to do, so it's not an undertaking per se, and it's
56 not to be spoken to by Mister ...

57 MR. KENNEDY: So the last filing we had by Hydro which
58 wasn't considered a consent document, we called U-Hydro
59 No. 2, so we can call this U-Hydro No. 3, and with just the
60 caveat that it's not actually a response by Hydro, instead
61 of starting another series of ...

62 MS. GREENE, Q.C.: Okay, sure, thank you.

63 **EXHIBIT U-HYDRO NO. 3 ENTERED**

64 MS. GREENE, Q.C.: And the last document that I have for
65 filing at this time is in response to a request from
66 Commissioner Powell, with respect to ... that was raised in
67 questions by Commissioner Powell to Mr. Wells. We have
68 already filed two of those and this is the last remaining one,
69 and it related to the price of Bunker C fuel, so I have copies
70 of the schedule to distribute at this time, and if there are
71 any questions on this schedule, these would ... Mr.
72 Osmond will be prepared to speak to this, and again, this
73 would need to be marked.

74 MR. KENNEDY: U-Hydro No. 4.

75 **EXHIBIT U-HYDRO NO. 4 ENTERED**

76 MS. GREENE, Q.C.: And just to explain what this is, and
77 then in reading the transcript of that discussion, we believe
78 that this schedule would meet the question raised, and of
79 course, obviously, if there are other questions we would be
80 quite prepared to answer them, or to provide other
81 information. We were asked, and reading the transcript on
82 two or three occasions now, and I believe the intent of the
83 question was to show the impact of fuel, and Commissioner
84 Powell asked that we not change any other factor, so we
85 thought the easiest way to do that was to take the 1992
86 cost of service, because as you know, the proposed one for
87 the test year does include a number of changes, such as
88 changes in the different revenue requirement categories,
89 changes in methodology, changes in ROE, etcetera, so
90 what this schedule does is to take the '92 cost of service
91 and only change fuel, and you will see that if fuel were
92 changed to \$20.00 a barrel from the \$12.50 currently in base
93 rate, that amount of increase would be eight percent, and if
94 it was re-based at \$28.00 a barrel, the increase required
95 would be 16.5 percent, holding everything else flat, and as
96 I said, if there are questions on this particular schedule, it
97 would be Mr. Osmond who would speak to the schedule,
98 or if there is any other information we can provide them, of
99 course ... let us know. And that concludes the preliminary
100 points that I have at this time.

101 MR. NOSEWORTHY, CHAIRMAN: Thank you, Ms.

1 Greene. Could we continue on with cross-examination by
2 Newfoundland Power of Mr. Henderson please?

3 MS. BUTLER, Q.C.: Thank you, Mr. Chairman. Mr.
4 Henderson, can I just summarize where we left before we
5 get into the new section? Hydro's calculation of the 4,271
6 gigawatt hours of hydraulic production forecast, while you
7 still have **NP-44**, page 4 of 4, as the handout before you,
8 can we also have **IC-169** on the screen, Mr. O'Rielly
9 please? Reading the two together, so to speak, the
10 calculation results from the application of the sources
11 indicated on the handout, **NP-44**, the inflows, fishery
12 releases, average spill, etcetera, for different record lengths
13 as shown on **IC-169**, which is on the screen.

14 MR. HENDERSON: That's right.
15 (2:15 p.m.)

16 MS. BUTLER, Q.C.: Okay, and the different record lengths,
17 to some degree, reflect some subjectivity or judgement on
18 Hydro's part, based on consideration of issues such as the
19 age of the plant, etcetera?

20 MR. HENDERSON: The ... I don't know whether you'd call
21 it subjectivity. The age of the plant is the age of the plant,
22 and there is no, there is no record of spills before the plant
23 was built. For Bay d'Espoir we cut it off at 25 years which
24 is what, we only are keeping track of the spills for this
25 calculation since 1975, because prior to that the amount of
26 spill was determined by the fact that we had a load limited
27 plant, and we were spilling because we didn't have the load
28 to generate, so the subjectivity, I'm not sure that I'd
29 characterize it that way. The fisheries compensation, the 25
30 years for the Bay d'Espoir system is related to our record
31 that we have available of fisheries compensation releases,
32 and again, it starts in 1975, and the fisheries compensation
33 would not have been much of an issue prior to that as well
34 in terms of the (inaudible) because we were spilling, there
35 was water going down the rivers anyway.

36 MS. BUTLER, Q.C.: Yes, I heard you say that this morning.
37 Are you suggesting to me something different than I
38 thought you had said before lunch? I thought you had
39 acknowledged that there was some subjectivity exercised
40 in relation to some of the record lengths for the data series
41 that shown in **IC-169**.

42 MR. HENDERSON: These are the length of our records
43 that we have. I'm not sure what you classify as being
44 subjective. We didn't make any arbitrary or other decision
45 to cut them off at any level. The 25 years for the spill is the
46 one that, is the only one that would be possibly debatable,
47 but like I said, the reason is, is that prior to '75 we were
48 spilling regularly because we had a load limited plant. The
49 conversion factors, you might consider that one subjective,
50 in that we have chosen it from the point of using the EMS

51 and the economic dispatch.

52 MS. BUTLER, Q.C.: Right, and back to the handout, which
53 was **NP-44**, the actual formula that you applied, I think, is
54 fairly obvious now, it's (b) which is your average historic
55 inflows, minus (c) and (d) combined.

56 MR. HENDERSON: That's right.

57 MS. BUTLER, Q.C.: Equals (e) which is useful water.

58 MR. HENDERSON: That's right.

59 MS. BUTLER, Q.C.: And then (e) times the conversion
60 factor, which is (a), will give you (f).

61 MR. HENDERSON: That's right.

62 MS. BUTLER, Q.C.: Okay, now the 4,271 gigawatt hours
63 was then adjusted in your supplementary evidence to 4,285
64 gigawatt hours.

65 MR. HENDERSON: That's right.

66 MS. BUTLER, Q.C.: And if you like, we can have a look at
67 that. It's in your **supplementary testimony**, page 2, line
68 25/26.

69 MR. HENDERSON: Okay.

70 MS. BUTLER, Q.C.: I'll just wait for everybody to see that.
71 Okay, starting actually at line 22, you indicated that for
72 comparison the long-term average based on the full
73 available historic record, up to and including 2000
74 information, which I think had been excluded from your
75 application.

76 MR. HENDERSON: That's right.

77 MS. BUTLER, Q.C.: Is 4,285 gigawatts a year for a
78 difference of 140 gigawatts from the 30 year average of
79 4,425, but I'll come back to that in a moment. But then in
80 the next line you say Hydro will be changing its hydraulic
81 production forecast to 4,285, and that's from 4,271?

82 MR. HENDERSON: That's right.

83 MS. BUTLER, Q.C.: For the final cost of service filed at the
84 end of the hearing, resulting in approximately a \$400,000
85 decrease in revenue requirement. My point simply is that
86 just that small change in the forecast gigawatt hours from
87 4,271 to 4,285, has the effect of a \$400,000 decrease in the
88 revenue requirement, correct?

89 MR. HENDERSON: That's right.

90 MS. BUTLER, Q.C.: Now what I want to talk a little bit
91 about now is the mean versus the median, and I wonder if
92 we could just go back to **NP-204**, page 1 of 4. Okay, thank
93 you, and in the question (b), Industrial Customers asked
94 about the mean, mode, and median, of the 50 years of
95 system energy inflow data. Now that's the 50 years which

1 were shown in that exhibit we saw this morning, LBB-4?
2 MR. HENDERSON: Right.
3 MS. BUTLER, Q.C.: Okay, and the answer that you gave
4 was that the mean of the 50 years of system was 4,294,
5 which again is pretty close to the 4,271 we saw this
6 morning.
7 MR. HENDERSON: Correct.
8 MS. BUTLER, Q.C.: And the median is 4,331.
9 MR. HENDERSON: That's right.
10 MS. BUTLER, Q.C.: Can you just tell the Board the
11 difference between mean and median?
12 MR. HENDERSON: Well the mean is the average which is
13 the sum of all the numbers in the series divided by the
14 number of numbers in the series. And the median is the
15 number which is the middle of the series of numbers in
16 which half of the numbers would be greater than that value,
17 and half of them would be lower than that value.
18 MS. BUTLER, Q.C.: And in relation to forecasting
19 hydraulic production, are you able to tell the Board whether
20 there is any industry standard on whether you use mean,
21 which is average, or median?
22 MR. HENDERSON: I am not aware of what the standard is.
23 I would say that both are probably used in different places,
24 and depending on the purpose, one utility may use both.
25 MS. BUTLER, Q.C.: Yes, okay, because a utility company
26 may forecast hydraulic production for rate making
27 purposes and then may forecast hydraulic production for
28 another purpose.
29 MR. HENDERSON: Yes.
30 MS. BUTLER, Q.C.: Okay, can we look at **NP-304**, page 3
31 of 4. Now actually if we can just go back one page to look
32 at page 2 of 4, at the bottom there? I think most of us will
33 recall, because your supplementary evidence was filed
34 fairly recently, that you did a survey, or people on your
35 team did a survey of other utilities and other companies in
36 relation to determination of practices or standards in this
37 area, and you've noted there at line 10, the primary
38 questions posed to the representatives were as follows,
39 and going on to the next page, it's the second bullet there
40 that I want to ask you about, and that is, is the whole
41 historic record used ... I'm sorry, the first bullet ... why does
42 your organization use the full historic record in developing
43 average or median energy estimates, and I just want to ask
44 you, Mr. Henderson, if I might, was the question asked of
45 any utility, "do you use average or do you use median?".
46 MR. HENDERSON: That specific question, I couldn't tell
47 you whether that was asked. I am aware that in the

48 responses, some of the utilities said they use average, and
49 some said they used median.
50 MS. BUTLER, Q.C.: Okay, scrolling down then to line 27,
51 you say, uses for the average or median energy estimate,
52 which I understand now, because you say your
53 understanding is some said they used one, and some said
54 they used the other, extended to a wide range of activities
55 including planning, operations, budgeting, arranging
56 purchase and sale contracts, and forecasting. Okay, I
57 wonder whether you could tell the Board if you specifically
58 asked if they used a method for forecasting hydraulic
59 production for rate making different from a method of ... I'm
60 sorry, the method that they used for forecasting hydraulic
61 production for other purposes?
62 MR. HENDERSON: I don't think that specific question was
63 asked, but I understand that in some cases there are those
64 who will do, well they basically do different forecasts for
65 different purposes, and the rate making purpose may, I
66 think you already asked me this question, is would, can
67 you do it differently, or did some do a different forecast for
68 different purposes, and rate making is one purpose and
69 production, forecasting, and all these other reasons are
70 other reasons to do it. So some do develop different
71 forecasts. I mean we at Hydro develop different forecasts,
72 but the forecast depends on what you're looking at, and
73 whether you're looking out a year or two, or are you
74 looking out next week, or are you looking out next month.
75 There are different forecasts done for different things, and
76 different methodologies used depending on the horizon
77 that you're forecasting for.
78 MS. BUTLER, Q.C.: Yes, I acknowledge that I had asked
79 you whether, in fact, it was possible to use one method for
80 one and one method for the other, but this time I asked you
81 whether you were, whether you specifically posed that
82 question to the utilities you surveyed?
83 MR. HENDERSON: We didn't to my knowledge pose that
84 exact, that question in that format.
85 MS. BUTLER, Q.C.: Now back to the reference then to
86 median versus mean, in **NP-204**, page 1, lines 13 and 14,
87 you indicated that the mean of the 50 years of system
88 energy inflow is 4,294, and the median is 4,331. If the mean
89 of 50 years was used instead of the revised hydraulic
90 forecast referred to in your supplementary evidence of
91 4,285, we have 46 gigawatt hours higher than the figure that
92 you're proposing to use as the forecast hydraulic
93 production.
94 MR. HENDERSON: I'm not sure of the math there. You're
95 saying ...
96 MS. BUTLER, Q.C.: If we used 4,331 instead of 4,285, there
97 would be a difference of 46 gigawatts?

1 MR. HENDERSON: Yes.

2 MS. BUTLER, Q.C.: Gigawatt hours, correct? Okay, and do
3 you accept, Mr. Henderson, using the figure that we saw
4 this morning, that flowed from the effect of a 100 gigawatt
5 hour hydraulic production higher (inaudible) 100 lower, that
6 each 100 unit ... I'm sorry, each 100 gigawatt hour difference
7 amounts to \$3.3 million.

8 MR. HENDERSON: That's correct.

9 MS. BUTLER, Q.C.: So a difference of 46 gigawatt hours
10 would mean a difference of \$1.518 million as a decrease in
11 revenue requirement for the test year?

12 MR. HENDERSON: If you were to use this median
13 number?

14 MS. BUTLER, Q.C.: Yes.

15 MR. HENDERSON: That's, the math is right. The only
16 thing I caution there is that this median number is not
17 calculated in the same method that the 4,285 that you're
18 comparing it to. This one would require, and we would
19 have to think about how you would do this for a median
20 number, to reduce it for fisheries compensation, you'd have
21 to reduce it for some kind of spill, and the, and any other
22 adjustments that may be necessary, because, again, you
23 remember this, this information was provided in response,
24 looking for the distribution of inflows, and so I think you
25 may be able to gather from this that the difference between
26 the mean and the median, that's indicative of the difference
27 between the mean and the median, but it's not, you can't
28 take the 4,285 ... because the 4,285 actually relates to the
29 4,294, okay, so there is another nine gigawatt hours there
30 in difference there, so you could ... if you were going to
31 extend it, take nine gigawatt hours off the 4,331, if you
32 wanted to try to come up with a dollar number as an
33 estimate of going from mean to median.

34 MS. BUTLER, Q.C.: What I think you're telling us is that
35 the median can't be calculated using your **NP-44**, that's the
36 handout sheet that I had this morning. In other words, you
37 haven't got a median calculated in this manner?

38 MR. HENDERSON: No.

39 MS. BUTLER, Q.C.: Right, but the median figure which is
40 on the screen of 4,331, flows from that exhibit, **LBB-4**.

41 MR. HENDERSON: Yes.

42 MS. BUTLER, Q.C.: Okay, all I was saying though was that
43 if we took the median from **LBB-4**, which is a simpler
44 calculation, the savings in terms of the decrease in revenue
45 requirement is \$1.518 million, which calculation you agree
46 with?

47 MR. HENDERSON: It sounds reasonable.

48 MS. BUTLER, Q.C.: Now, are you able to refer me to any
49 other utility that does their calculation, that is their forecast
50 hydraulic calculation, in the same manner as you did yours,
51 and that is reflected on exhibit **NP-44**, page 4 or 4, which is
52 the handout?

53 MR. HENDERSON: I don't know. The other utilities, they
54 all use different ... every utility, because of the uniqueness
55 of their hydraulic system, will use different methods that
56 relate to their system. This is one that we have used in the
57 past that we continue to apply for this particular
58 application. I think the, in other utilities, they will use more,
59 maybe sophisticated methods of doing simulations, and
60 there's a whole different world out there when you get into
61 being able to sell your power into other jurisdictions and
62 those opportunities of buying and selling, you can do lots
63 of things with your hydraulic resource, so they will all use
64 different methods, so I would be surprised if anyone did
65 exactly as we do, because that's, you know, related to ...
66 this is our, I guess, historic precedent of the way we did it,
67 and in other jurisdictions, they use their methods, but one
68 of the consistencies that we found in going through the
69 survey, was that everybody used their full hydraulic
70 record. They did not go ... and this is where really, why we
71 did the survey, was to find out whether anybody was
72 making changes to 30 year rolling averages, and that was
73 why we did the survey, because we thought it a very
74 strange thing to be cutting it off for a 30 year rolling
75 average, and when we did the survey we found everybody
76 in, no matter what method they used, they used their full
77 reliable record to determine their expected production.
78 They may use it in different manners, they may use it in
79 simulations, they may use a number of different tools that
80 are available to people, but generally ... well in all cases, not
81 just generally speaking, in all cases, they were using their
82 full reliable record and not making any arbitrary cut-off to
83 say the more recent years are more relevant to the forecast.

84 MS. BUTLER, Q.C.: Okay, two things flowing from that.
85 First of all, I guess, the answer to my direct question was,
86 no, you can't refer me to any other utility who uses the
87 same method you do precisely?

88 MR. HENDERSON: Correct.

89 MS. BUTLER, Q.C.: And relevant to the fact that you
90 conclude from the survey that everybody uses their full
91 historic record, I was going to come to that a little later this
92 afternoon, but I want to be clear on what you're telling us,
93 because it wasn't perfectly clear from the pre-filed
94 supplementary evidence. Are you suggesting that they all
95 use their full historic reliable data record to compute their
96 average forecast hydraulic production for rate making
97 purposes, is that your evidence?

98 MR. HENDERSON: I don't know what they all do for their

1 rate making purposes. What we ...

2 MS. BUTLER, Q.C.: See, this is what I'm attempting to get
3 at, okay?

4 MR. HENDERSON: What we did do is we asked their
5 people, their engineering people who are involved with this
6 type of work, whether they used their full record in
7 developing their forecast and they do. They don't go and
8 say, you know, the 1950's or 1960's aren't relevant. They
9 will use whatever they have available, and in some cases
10 that may be only 25 years of reliable record for their
11 purposes, and in other cases that may be 70 or 80 years,
12 and it varies from plant to plant, and facility to facility.

13 MS. BUTLER, Q.C.: Mr. Henderson, do you accept as a
14 basic premise that there are two different things ... you
15 would plan your system to meet the worst possible
16 scenario, correct?

17 (2:30 p.m.)

18 MR. HENDERSON: Well there is a, when you're planning
19 your system, there is a number of things that you do. To
20 say that you're planning it to meet the worst scenario is
21 true in the sense that you don't want to let your reservoir
22 levels fall to a level that if you did have a repeat of a dry
23 period, that you didn't have sufficient water to meet your
24 load requirements, so that's one of your criteria, if you like,
25 and that's one that we hold very strongly, that you don't
26 want to do that, and other than that, there are other things
27 that you use to forecast and operate your system. You
28 look at your snow packs, there's lots of different things that
29 you do, you know, there's a multitude of things.

30 MS. BUTLER, Q.C.: But you don't operate your system
31 that way, you operate on an average basis, right?

32 MR. HENDERSON: No.

33 MS. BUTLER, Q.C.: Alright, well perhaps we'll come back
34 to this later when I had hoped to get to it, but I thought
35 there was a distinction between forecasting hydraulic
36 production for the purposes of planning your system, and
37 forecasting hydraulic production for the purpose of rate
38 making.

39 MR. HENDERSON: We use, the forecast that we put in for
40 this rate case is the same forecast that we would use ... if
41 you were to ask us what our forecast is for 2002 for
42 operations purposes, we would give that same number, but
43 that ... as we move into that year, because that year is that
44 far away now that that's what we would say, but as we
45 move into that year, we will take in the conditions of that
46 year. Like where is your reservoir storage position? How
47 much snow do you have on the ground? And you would
48 use different factors for determining how you're going to
49 run the system in the next week or two weeks, or month.

50 You use the most current information, but when you're
51 looking out a year or two, like we are looking at 2002, we
52 would say that the best estimate is a long-term average
53 estimate.

54 MS. BUTLER, Q.C.: Okay, I've gotten a little distracted,
55 and I want to go back to the mean and the median, if I can.
56 Mr. Brockman, on behalf of Newfoundland Power, didn't
57 use the median. He used what he refers to as a moving
58 average. You're aware of that?

59 MR. HENDERSON: Yes.

60 MS. BUTLER, Q.C.: And on his exhibit, which is **LBB-4**,
61 which we passed out this morning, because it wasn't
62 available electronically ... his 30 year moving averages are
63 shown in the third column. If you just take a moment to
64 look at them, do you agree that the 30 year moving
65 averages reflect a general increasing trend?

66 MR. HENDERSON: Well, that's the result of using the
67 numbers as you drop away that very dry period in the
68 1960's that I think everybody recognizes did occur, you will
69 start to see that rising. It just makes sense from the
70 numbers.

71 MS. BUTLER, Q.C.: Just look at the period 1992 to 2000
72 specifically, the 30 year average is increasing every year,
73 correct?

74 MR. HENDERSON: That's right.

75 MS. BUTLER, Q.C.: Alright, so do you accept that what
76 exhibit **LBB-4** shows in column three is a clear trend?

77 MR. HENDERSON: A trend of it going up as you drop out
78 the dryer periods, yes.

79 MS. BUTLER, Q.C.: Okay, and the question is, of course,
80 why is there a clear trend apparent from the third column,
81 and your position on that is what?

82 MR. HENDERSON: Because you're dropping out the dry
83 periods that we have historically experienced, the trend is
84 increasing.

85 MS. BUTLER, Q.C.: Okay, can I put it a different way for
86 you, Mr. Henderson? Do you accept that climatic changes
87 have had an effect?

88 MR. HENDERSON: No, this is just the circumstance that
89 we live in today. I think if you, and none of us was around
90 in the 1800's, but we do know that there was a wet period in
91 the 1800's because we had a record snowfall this year that
92 beat one in the 1800's, so climate goes through cycles,
93 there's wet periods, dry periods, and we're looking at a very
94 small period of the continuum of weather, if you like, and
95 we're trying to project an average as, or come up with a
96 forecast as close to the average, or an expected number,
97 and we're saying that you should use as long a record as

1 you can because of that high variability of weather over
2 time.

3 MS. BUTLER, Q.C.: Are you suggesting using the longest
4 possible period available for rate making purposes, as well
5 as for planning your system?

6 MR. HENDERSON: For trying to estimate what the average
7 expected is from a hydro generation facility, I would
8 suggest that you would use as long a record as you can.

9 MS. BUTLER, Q.C.: Despite the fact that the earlier, that is
10 the most recent 30 year portion of that reflects a clear
11 trend?

12 MR. HENDERSON: Yes.

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

14 MR. HENDERSON: It does because you're dropping out
15 dryer years, and if the 1960's had been wet, and the 1990's
16 had been dry, you would see clear trend going the other
17 way. I mean we go through these wet and dry periods.

18 MS. BUTLER, Q.C.: Let's assume for the moment that Mr.
19 Brockman's testimony and his position on the use of the 30
20 year moving average is at least one of several options
21 available for the Board, and his 30 year average is 4,477
22 gigawatt hours.

23 MR. HENDERSON: That's the average of those 30
24 numbers.

25 MS. BUTLER, Q.C.: And the impact of using that hydraulic
26 forecast in the test year instead of Hydro's hydraulic
27 forecast in the test year, that's the current forecast of 4,285,
28 is 192 gigawatt hours, or \$6.336 million in reduced revenue
29 requirements in the test year.

30 MR. HENDERSON: That's right.

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

32 MR. HENDERSON: I'm going to make the remark, because
33 one of the things about this whole issue of average
34 hydrology is you have to realize that this is a forecast. The
35 forecast will not be right, and the variances will be picked
36 up in the Rate Stabilization Plan, so if Mr. Brockman's
37 number turns out to be closer to what 2002 is, then there
38 won't be much activity in the Rate Stabilization Plan. If the
39 one that Hydro is putting forward turns out to be correct,
40 there won't be much activity in the plan. If Hydro's goes
41 ahead and it turns out that the number is what Mr.
42 Brockman is proposing, then there will be a credit going
43 into the Rate Stabilization Plan to the customers so that in
44 the end, the customers will pay what the real hydraulic
45 production is, and what we're doing here by debating these
46 two numbers is we're playing, what I like to call a shell
47 game, which is we're trying to decide whether we're going
48 to put it into the cost of service, or is it going go into the

49 Rate Stabilization Plan, because whatever it is, it's going to
50 be, so we're going to end up, either the hydraulic
51 production will be exactly as it turns out to be, and then
52 there will be an adjustment in the RSP. It's just a matter of
53 these two numbers will have an impact as to how much an
54 RSP adjustment will be next year.

55 MS. BUTLER, Q.C.: Mr. Henderson, the shell game that
56 you referred to ...

57 MR. HENDERSON: Yes.

58 MS. BUTLER, Q.C.: Tell me how this is any different than
59 what Hydro is doing with the \$20.00 per barrel for the price
60 of No. 6 fuel, when in fact Hydro's position is it should be
61 \$28.00 per barrel?

62 MR. HENDERSON: That is a position taken by Hydro to
63 lessen the impact of the price of fuel.

64 MS. BUTLER, Q.C.: Can't we do exactly the same thing,
65 Mr. Henderson, with the hydraulic production? Aren't we
66 saying exactly the same thing?

67 MR. HENDERSON: You could use this if you wanted to in
68 a similar manner by raising your hydraulic production to
69 reduce the revenue requirement, and I see that that's what
70 is trying to be done here.

71 MS. BUTLER, Q.C.: Right, so is the issue of the No. 6 fuel
72 just as much of a shell game, Mr. Henderson, as this play
73 with the hydraulic production?

74 MR. HENDERSON: No, because it will have, it's the
75 immediacy of the impact is the difference.

76 MS. BUTLER, Q.C.: You would support, that is Hydro
77 would support updating the data every year to include
78 each additional year as it occurs, correct?

79 MR. HENDERSON: Sure.

80 MS. BUTLER, Q.C.: Okay, so in the year 2050, we would
81 actually have 100 years of data.

82 MR. HENDERSON: Yes.

83 MS. BUTLER, Q.C.: Okay, but if there's a clear trend like
84 the one I'm going to suggest to you that Mr. Brockman
85 sees, but it could be any clear trend, which is evidenced by
86 a current or recent portion of the historical record, the effect
87 of using a longer period diminishes the effect of the trend,
88 doesn't it?

89 MR. HENDERSON: It will, but in what we're seeing here,
90 again, hydrology goes through cycles, so whether you will
91 ever see a clear trend, we'll have to wait and see, but the, I
92 think my understanding of climate change is that we're
93 talking about a small temperature change that over time,
94 you know, will become more measurable, but there still will
95 be a lot of swinging around that number, so what we'll see

1 here in a similar fashion, that you're going to tend towards
2 an average or a mean, but there will be ... maybe that mean,
3 which is not going to change a whole lot, but will
4 eventually move up or down, depending on what climate
5 change results are.

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

7 MR. HENDERSON: But you still will get the cycles, you
8 will have your wet years and your dry years, and maybe in
9 Newfoundland in the future, dry will be a problem, and we'll
10 end up using a lot more oil. I don't know, and nobody
11 knows, and I don't think you can use the last ten years or
12 15 years to make an assumption that this the result of
13 climate change.

14 MS. BUTLER, Q.C.: Well, I'm not going to give Mr.
15 Brockman's evidence for him. My point simply was that if
16 there is a trend represented by a 30 year period, if you put
17 that 30 years into a 100 year data bank, versus 30 years into
18 a 50 year data bank, the effect of the trend, whatever it is, is
19 being watered down by the larger data.

20 MR. HENDERSON: The effect, the more numbers, the
21 lower the impact of a certain set of those numbers will do.

22 *(2:45 p.m.)*

23 MS. BUTLER, Q.C.: Okay, can I look at your
24 **supplementary evidence** now on page 2, lines 12 to 15?
25 Okay, thanks. When the case was presented first, Hydro
26 calculated the average using the 1970 to the 1999 record,
27 which I accept, but I'm just curious as ...

28 MR. HENDERSON: No, that's ... what we did is we used
29 the record ending the, our long record ending in 1999. That
30 1970 to '99 is the represented 30 year average that ended in
31 1999 to compare it to Brockman's.

32 MS. BUTLER, Q.C.: Yes, you're right. When you
33 presented your case first, the most recent figures that you
34 used in your calculation were the 1999 figures, but did you
35 not have the 2000 figures?

36 MR. HENDERSON: When we, as I mentioned, I think,
37 earlier, when we put together our evidence for this rate
38 case, then we put together these forecasts together in 2000,
39 and there is a lot of analysis that is done through our rates
40 department, through a number of departments at Hydro
41 with those figures, to come up with the rate case, and our
42 evidence ... and we made the cut-off in late 2000. We did
43 not have the results of 2000 at that time, so we did not
44 included it.

45 MS. BUTLER, Q.C.: Okay, so what you're saying here in
46 this portion of your supplementary evidence, is that
47 relevant to the 30 year data period, which is not, of course,
48 what you used for your case.

49 MR. HENDERSON: No.

50 MS. BUTLER, Q.C.: The 30 year average using data to 1999
51 would give you 4,370 gigawatt hours.

52 MR. HENDERSON: That's right.

53 MS. BUTLER, Q.C.: Which would be a 98 gigawatt hour
54 increase over the 4,272, which was your original estimate.

55 MR. HENDERSON: Right.

56 MS. BUTLER, Q.C.: But using the 2000 data, and the
57 calculation ... just scroll down ... yes, there to line 18 ... you
58 also calculated a new 30 year average ending with the 2000
59 data, and the results of this review, give an annual average
60 production of 4,425 gigawatt hours.

61 MR. HENDERSON: That's right, and that's 55 gigawatt
62 hours above the previous 30 year average, which I think we
63 pointed out at one point, it shows the problem with going
64 with a 30 year average. You've got a smaller set of
65 numbers, and keeping with that set of numbers, it becomes
66 a little bit more volatile so there is a big change there from
67 4,370 up to 4,425, by picking up the year 2000, and
68 dropping off the year 1970.

69 MS. BUTLER, Q.C.: Okay, I guess my point is, looking at
70 **LBB-4**, which we have as the handout, Mr. Brockman's 30
71 year average was 4,477. Your calculation of the 30 year
72 average ending with the 2000 data, is 4,425.

73 MR. HENDERSON: That's right.

74 MS. BUTLER, Q.C.: But Hydro does not adjust its case on
75 that basis. Hydro maintains that they should still go with
76 the 4,285, which was calculated in the manner we went
77 through this morning in the detailed table.

78 MR. HENDERSON: That's right.

79 MS. BUTLER, Q.C.: Okay, but again, a 4,425 gigawatt hour
80 forecast would have a similar result, that is a decrease in
81 revenue requirement for the test year.

82 MR. HENDERSON: That's correct.

83 MS. BUTLER, Q.C.: So if the Board accepted that the most
84 reasonable data set was 30 years, using your calculation,
85 it's 4,425 gigawatt hours of hydraulic production?

86 MR. HENDERSON: That's correct.

87 MS. BUTLER, Q.C.: Alright, so in other words, that's the
88 **NP-44** calculation?

89 MR. HENDERSON: Using only 30 years of inflow records.

90 MS. BUTLER, Q.C.: Using only 30 years, right. And a
91 moment ago I suggested that using Mr. Brockman's figures
92 would result in a decrease in revenue requirement of \$6.2
93 million?

1 MR. HENDERSON: Uh hum, that's right.

2 MS. BUTLER, Q.C.: In comparison to that, using 30 years
3 as the data set, but your calculation that's evidenced in **NP-**
4 **44**, the revenue requirement reduction would be \$4.620
5 million?

6 MR. HENDERSON: That sounds about right. I don't see
7 it there, but I think we may have provided that.

8 MS. BUTLER, Q.C.: Let's do it together. It's four thousand
9 ...

10 MR. HENDERSON: It's on page 3 of my evidence, of that
11 **supplementary evidence**, on line 5 and 6.

12 MS. BUTLER, Q.C.: Okay, so the actual calculation is 4,425
13 gigawatt hours minus 4,285 gigawatt hours?

14 MR. HENDERSON: That's right.

15 MS. BUTLER, Q.C.: Which is 140 gigawatt hours, times
16 \$3.3 million.

17 MR. HENDERSON: If you take that, \$3.3 million, yes.

18 MS. BUTLER, Q.C.: Will give you \$4,620,000 in decreased
19 revenue requirement, and Mr. Henderson, that, of course,
20 is over and above the \$400,000 in revenue requirement
21 reduction that we already saw a moment ago which was the
22 difference between the 4,271 and the 4,285.

23 MR. HENDERSON: That's right.

24 MS. BUTLER, Q.C.: Okay, so variations in the hydraulic
25 production forecast can have a significant impact on the
26 revenue requirement.

27 MR. HENDERSON: Yes.

28 MS. BUTLER, Q.C.: And in all the various alternatives
29 which I have put to you today, including 2000 in the
30 calculation, use of median instead of mean, use of 30 years
31 instead of the full historic record that you show in **NP-44**,
32 all of them gave us significant decreases in the revenue
33 requirement.

34 MR. HENDERSON: From the filed ...

35 MS. BUTLER, Q.C.: Yes.

36 MR. HENDERSON: Yes.

37 MS. BUTLER, Q.C.: But Hydro's method gave the lowest
38 possible hydraulic forecast of those options.

39 MR. HENDERSON: Yes.

40 MS. BUTLER, Q.C.: And you've said several times today
41 that the Rate Stabilization Plan will protect Hydro from the
42 financial risk of fluctuations from the forecast hydraulic
43 production.

44 MR. HENDERSON: The Rate Stabilization Plan will ensure
45 that the customers pay for the cost of production.

46 MS. BUTLER, Q.C.: But doesn't that, in the converse,
47 protect Hydro from the financial risk of fluctuations from
48 forecast hydraulic production?

49 MR. HENDERSON: It makes sure that the customers get
50 the benefit of higher hydraulic production or the customer
51 pays for the cost of the extra thermal that you would have
52 to burn in order to make up for a shortfall in the hydraulic
53 production, so the Rate Stabilization Plan ensures that the
54 customers pay the true cost of this variable which is not in
55 Hydro's control the same way that the price of oil isn't.

56 MS. BUTLER, Q.C.: But do you accept that the same plan
57 also protects Hydro from financial risks of fluctuations from
58 forecast hydraulic production?

59 MR. HENDERSON: Sure, if there was no plan there and
60 there was a very low hydro production then that extra oil
61 that we would have to burn to supply customers, if there
62 was no plan, would have to be, come right out of Hydro's
63 bottom line, which would be a very, very large risk.

64 MS. BUTLER, Q.C.: So given the significant impact on
65 rates to consumers which a low hydraulic production
66 forecast can have, isn't it reasonable that the Board find
67 within the range of possibilities open to them, a higher
68 forecast for hydraulic production for the test year?

69 MR. HENDERSON: All I can say is the forecast that we put
70 forward is consistent with the way we have done it in the
71 past, it's the way we would recommend it because it takes
72 into account the full hydraulic record which is normally
73 done by utility people who are estimating the average
74 capability of their hydro facilities, they use the full
75 hydraulic record.

76 MS. BUTLER, Q.C.: But again, Mr. Henderson, and I don't
77 mean to harp on the point, but I don't think I've heard you
78 tell me that you asked that specific question during your
79 survey, as to whether they used the full record for rate
80 making purposes.

81 MR. HENDERSON: What they use, when they determine
82 an average, or the median, they use the full hydraulic
83 record.

84 MS. BUTLER, Q.C.: For rate making purposes, Mr.
85 Henderson? Is that your evidence, that they do that for
86 rate making purposes?

87 MR. HENDERSON: Do that for rate making purposes, I
88 can't say for certain.

89 MS. BUTLER, Q.C.: Mr. Chairman, I'm sorry, do we break
90 at 3:00 or 3:15? Was there a change in that?

91 MR. NOSEWORTHY, CHAIRMAN: We can go either,
92 which is ...

1 MS. BUTLER, Q.C.: I think I'd prefer to break now if I can.

2 MR. NOSEWORTHY, CHAIRMAN: Sure, that's fine. We'll
3 reconvene at five after.

4 (break)

5 MR. NOSEWORTHY, CHAIRMAN: Before we get started
6 there's a revised list that would have been just circulated
7 with regard to the parties or persons who have contacted
8 us with a view to making oral presentations on our
9 scheduled public participation days. Given the fact that we
10 are supposed to travel on Sunday, I thought it might be
11 appropriate to set aside, perhaps first thing in the morning,
12 for a short period of time, to have a discussion around the
13 schedule for the public participation days. We don't have
14 anybody from St. Anthony who have indicated a desire to
15 participate or make an oral presentation. That was our first
16 stop, I believe, Monday. As a matter of discussing that I
17 think we have one individual private citizen from Grand
18 Falls who contacted us, I believe this morning, with a view
19 to making a presentation. So I think it would be appropriate
20 that we spend a short time tomorrow morning having a
21 discussion around this issue and making a decision, final
22 decision as to our schedule for the coming two weeks.
23 Okay.

24 MR. BROWNE, Q.C.: Mr. Chairman, I might be of some
25 assistance here. I've been in touch with Trevor Taylor, the
26 member of the House of Assembly for St. Anthony and he
27 is getting back to me. I will see what I can do overnight to
28 firm up some of these people who have been in contact
29 with me to see if they're going to present or what the story
30 is, so I'll advise you in the morning.

31 MR. NOSEWORTHY, CHAIRMAN: Thank you very much
32 Mr. Browne. Okay, perhaps we can continue on, Ms.
33 Butler, with your cross-examination please.

34 MS. BUTLER, Q.C.: Thank you Mr. Chairman. Mr.
35 Henderson, can I move now to the fuel conversion factor
36 for No. 6 fuel. Again is this your area?

37 eaMr. HENDERSON: Yes, it is. I'm happy that there's a
38 change of subject.

39 MS. BUTLER, Q.C.: Okay. You'll be unhappy to know I'm
40 going to come back to the other one tomorrow morning.
41 The fuel conversion factor, I gather, is similar to the energy
42 conversion factor we saw for the hydrological plants.

43 Mr. HENDERSON: That's correct.

44 MS. BUTLER, Q.C.: Can you tell us how Hydro developed
45 the fuel conversion factor?

46 Mr. HENDERSON: Similar to the hydro, what we do is we
47 will determine it over a period of time and we sum the
48 amount of energy produced at Holyrood and divide it by

49 the sum of the fuel used at Holyrood over that same period
50 of time. So the conversion factor comes out be a kilowatt
51 hour per barrel figure.

52 MS. BUTLER, Q.C.: Okay. Can I look at, well before you
53 get the exhibit up, I gather that the fuel conversion factor
54 Hydro's proposing is proceeding is 610 kilowatt hours per
55 barrel.

56 Mr. HENDERSON: That's correct.

57 MS. BUTLER, Q.C.: And was that 610 kilowatt hours per
58 barrel based on the average fuel conversion rate in the
59 years '96 to 2000, or some other period?

60 Mr. HENDERSON: I think it may have been '96 to '99.

61 MS. BUTLER, Q.C.: Can we look at **NP-51**? Does that help
62 in terms of how it was calculated?

63 Mr. HENDERSON: This doesn't really help, but I do have
64 a note here. I do see that it was '96 to '99. I should say that
65 the number from '96 to '99 does not come out exactly to 610.
66 610 was chosen to be close to the number. The '96 to '99
67 average is actually 611.8 and we rounded it to 610 as a
68 round number, that's how it ended up at 610.

69 MS. BUTLER, Q.C.: And if 2000 was included it would be
70 higher?

71 Mr. HENDERSON: In 2000, it moved to 611.5. It dropped
72 a little. That's a rough calculation I have here, I'm looking at
73 the numbers to try and understand that and I'm not quite
74 sure I can explain it. So, it may be that there's an error in my
75 calculation, but its basically the 2000 year was 609.6, so it's
76 not far from the 610 we are proposing, but it may have
77 tended to lower the number down, like 611.8 was up to '99
78 then because 2000 was lower you expect it to be something
79 lower than 611.8, so 611.5 is probably correct as being the
80 average '96 to 2000, and we're using 610.

81 MS. BUTLER, Q.C.: Okay, can we look at the **Grant**
82 **Thornton report for 2001**, please, at page 45. He speaks
83 there about Holyrood, if I can find the line number here. It's
84 towards the bottom of the page, halfway through the last
85 paragraph. Yeah, okay, you see to the right of that line
86 there, Mr. O'Rielly please ... Holyrood normally runs ... do
87 you see that Mr. Henderson?

88 Mr. HENDERSON: Yes.

89 MS. BUTLER, Q.C.: Holyrood normally runs far below
90 capacity for much of the spring and summer and, therefore,
91 at a less efficient level. However, in 2001 Holyrood
92 operated at a much higher capacity during the spring and
93 summer which resulted in greater efficiency. Do you agree
94 with that statement?

95 Mr. HENDERSON: I'm not sure I'd use the same
96 terminology. Holyrood during the spring, we, we begin our

1 maintenance at Holyrood in April and, therefore, during
2 April and May we would be running with two units rather
3 than three, so that might be why he would be suggesting
4 that as a lower, far below capacity and in the last few years
5 we've been, during the springtime, and actually this year as
6 well, there was, we had a good run off so we had Holyrood
7 back down a little and, therefore, it would have been at a
8 little less efficient level. But then this summer things got
9 very dry and we're actually seeing, I think, it was like the
10 second or third driest summer in Atlantic Canada, I know in
11 something like 50 years and that's resulting in us having to
12 run Holyrood at a higher level this summer than we've had
13 to in the last many years, I think maybe back to '93 may be
14 the last time we ran Holyrood during the summer, and we
15 had to this summer because of the low inflows and,
16 therefore, we were able to pick up a bit on efficiency this
17 summer over previous years. I'm sort of paraphrasing what
18 he says, but that's what I would say is what was meant
19 there.

20 MS. BUTLER, Q.C.: But is the basic premise nonetheless,
21 Mr. Henderson, that the more the plant is run the more
22 efficient it operates.

23 Mr. HENDERSON: The higher the average unit load, like
24 you can, we have to run the units at Holyrood for the
25 winter and all spring. We don't have to run it in the
26 summer, simply because the load on the system is such
27 that you need that capacity, but when we have lots of
28 water we will run the units at lower loads, and when we run
29 it at lower loads, it's less efficient. So in a dryer period,
30 Holyrood efficiency will come up higher because we're
31 using it more at a higher output level.

32 MS. BUTLER, Q.C.: Are we saying the same thing then,
33 what I suggested is that the more plant was run the more
34 efficiently it operates?

35 Mr. HENDERSON: The higher output of the unit, megawatt
36 output, the more efficient it is. Okay. The term run, I'm not,
37 I wasn't really sure what you meant by that, but I would say
38 the higher the load on the unit the higher the efficiency is
39 on the unit.

40 MS. BUTLER, Q.C.: Alright, can we look at **NP-259**. I
41 think what you're telling me is actually reflected in that
42 exhibit. The fuel conversion factor is similar to, as you
43 said, the energy conversion factor that we saw with
44 hydraulic plants, it measures efficiency, correct?

45 Mr. HENDERSON: It is a type of efficiency measure. It's
46 not, if you're talking to a purist, it's not efficiency, but it is
47 close to it. It is a good proxy.

48 MS. BUTLER, Q.C.: Okay. When we look at **NP-259**. In
49 the table there, fuel conversion factors for the year 2000 by
50 month, it appears that in general the more fuel burned at

51 Holyrood the greater the efficiency factor. Do you agree?

52 MR. HENDERSON: The more fuel burned, well efficiency
53 is higher in the months in which we had higher load on the
54 units which would have been January and December, and
55 those months we also used more fuel, but if you look, it's
56 hard to say that it's a direct correlation ... you look at
57 February, the fuel consumption was pretty high but the
58 efficiency wasn't, if you like. The kilowatt hour per barrel
59 in February was 571 but the fuel consumption was much
60 higher than March, April, May. If you look at February, the
61 fuel consumption was 226,000 barrels, and the net
62 efficiency was 571, then you go to the next month which is
63 March there was less fuel consumed but the conversion
64 factor was 600. So it's not a direct correlation there, it's to
65 do with the load on the unit. The higher the load on the
66 unit the higher than will be. So it depends on how long
67 you are running the units and at what loads you are
68 running the units.

69 MS. BUTLER, Q.C.: Can we just look at 2001 which I think
70 is in the same exhibit. The average is 622.6.

71 Mr. HENDERSON: Yes.

72 MS. BUTLER, Q.C.: Now Hydro is forecasting, we saw this
73 morning, a 1,000 gigawatt hour increase in thermal
74 production in 2001 and 2002, compared to 2000, with this
75 exhibit in mind can you tell us wouldn't the increased
76 production at Holyrood result in a higher fuel conversion
77 factor than the 610 which you told me a moment ago is
78 based on the last five years.

79 MR. HENDERSON: The conversion factor is a variable, I
80 guess, that would depend, if you get the exact production
81 that you forecast, it will be higher, okay. I grant you that,
82 but what we do with the conversion factor is try again to
83 come up with an average that will be applicable over a wide
84 range of operating levels at Holyrood. So if you take a
85 particular year with a high production level, then you'll get
86 a higher conversion factor, but then as you vary, pluses
87 and minuses around the average hydraulic production here
88 at Holyrood, production will go up and down and what
89 we're trying to do with the 610 kilowatt hours per barrel is
90 try to come up with an average conversion factor that
91 would apply in those extremes and what happens is when
92 you go, you only can go so far up and you can go way
93 down ... you saw on the previous page that went down to
94 570. So we're trying to strike a balance that balances those,
95 the resulting production at Holyrood from wet and dry
96 years so that you come up with an average conversion
97 factor for Holyrood, not one that is perfectly fitted to the
98 forecast year, because again this is a factor that goes into
99 the Rate Stabilization Plan that has, you know, pluses and
100 minuses in it for variances in hydrology.

101 MS. BUTLER, Q.C.: But isn't it inconsistent to use a fuel

1 conversion factor based on five years of previous data
2 which is 610, and apply it to a forecast thermal production
3 1000 gigawatt hours higher than 2000?

4 MR. HENDERSON: Like I said, the reason we go with the
5 610 is to come up with an average conversion factor. It's
6 not a forecast conversion factor for that year. It's the
7 average conversion factor that we see or experience at
8 Holyrood.

9 MS. BUTLER, Q.C.: I wonder if we could look at **NP-262**.
10 Here Newfoundland Power had asked about the effect,
11 quantification of the impact in the test year of the fuel
12 efficiency factor being only two percent less than forecast,
13 and the answer, could you just read the answer there for
14 me, Mr. Henderson please?

15 MR. HENDERSON: "A two percent reduction in the
16 forecast Holyrood fuel efficiency factor would result in a
17 conversion factor of 597.8 kilowatt hours per barrel. This
18 will result in approximately 72,000 more barrels of number
19 six fuel being consumed. Assuming the cost of service is
20 established as per Hydro's application of \$20.00 per barrel,
21 using a 610 kilowatt hour per barrel conversion factor, the
22 impact on 2002 results would be an increase to the RSP
23 balance of approximately \$500,000 and a reduction in
24 Hydro's net income of approximately 1 1/2 million dollars.

25 MS. BUTLER, Q.C.: Okay, so the effect of simply adjusting
26 the fuel efficiency factor by two percent has a reduction in
27 the net income of 1 1/2 million dollars. Do you forecast the
28 conversion factor?

29 MR. HENDERSON: No, normally we only state a historic
30 average.

31 MS. BUTLER, Q.C.: Can you tell me, Mr. Henderson,
32 whether that's a conscious decision not to forecast the
33 conversion factor, or whether that's just based on past
34 practice?

35 MR. HENDERSON: That's been past practice to do that.
36 I'm trying to think of the benefits to doing it, but we have,
37 anyway the bottom line is that we haven't done it and the
38 decision was to just use a historic average.

39 MS. BUTLER, Q.C.: Okay. Given the effects on consumers
40 of even a marginal reduction in the forecast fuel efficiency
41 rate, in your view, is there room for Hydro to consider
42 revising its conversion factor of 610, which is based on the
43 last five years, and are you being conservative to lessen
44 the impact on consumers?

45 MR. HENDERSON: We are using 610 because we feel that
46 that, again, is our best estimate of the average that we
47 would expect, given a variety of circumstances of hydraulic
48 conditions. So, I mean, is there room to manoeuvre? 610 is
49 the number, I mean, I can't say whether it should be up or

50 down from that. I would say I would have to leave that to
51 the judgement of the Board as to whether they felt that
52 there is, in previous hearings, I know many years ago now,
53 we did come forward with a 600 kilowatt hour per barrel and
54 the Board, at that time, ruled a 605 kilowatt hour per barrel
55 would be used and that was based on our recent experience
56 indicating that we should move up and for that reason
57 when we came up with the 610 this time it's a move up from
58 the 605, it was because we thought we should reflect our
59 most recent experience to be consistent with the way the
60 Board ruled back, I think it would have been around 1990 or
61 thereabouts that they moved it up from 600 to 605, so we
62 thought that being consistent with the way it appears that
63 the Board, at least at that time, was thinking that you use
64 the most recent experience, we went with our most recent
65 experience which shows 611.5 and we chose 610.

66 MS. BUTLER, Q.C.: Going back to **NP-259**, your most
67 recent experience is 622.6.

68 MR. HENDERSON: That's since we filed, in the last six
69 months or eight months, and so that new experience would
70 be added to our average if we were at the end of this year,
71 to come up with a new average, and now instead of being
72 '96 to '99, or '96 to 2000, it would be '96 to 2001. That
73 number would come up because we are having a dry year
74 this year.

75 MS. BUTLER, Q.C.: So again, back to my question, I
76 guess. Is there room for movement in the fuel conversion
77 factor, given the information you have for January to July,
78 2001 and the fact that you are forecasting a higher thermal
79 production in 2001?

80 MR. HENDERSON: There is room to move, I would
81 suggest that you would include the most recent
82 information that's available to come up with a new average.
83 So you could, as a suggestion, incorporate the numbers up
84 to some point in time in the future, I'd say at the end of this
85 year, assuming that we're not finished by the end of the
86 year, you would have that data available to you to apply to
87 a new average, but I think it's best to include a full year
88 rather than just partial year like is seen here, because we
89 don't know what will happen in the next few months. If we
90 have a hurricane like we had a few weeks ago that came
91 through St. John's over the Bay d'Espoir watershed, that
92 would dramatically change how we operate Holyrood and
93 could drive that conversion factor down.

94 MS. BUTLER, Q.C.: Alright. Can I ask you a few questions
95 about the price of the No. 6 fuel? In your **pre-filed**
96 **evidence**, page 13, I think it starts at line 16, you talk about
97 the fuel oil price used for forecast prices for 2001 and 2002.

98 MR. HENDERSON: Yes.

99 MS. BUTLER, Q.C.: Perhaps we should look at Schedule 8

1 there, or, well you do go on to refer to, is it Perra (*phonetic*)
2 Energy Group of New York?

3 MR. HENDERSON: That's right.

4 MS. BUTLER, Q.C.: Alright. So Hydro retains the services
5 of Perra (*phonetic*) Energy Group of New York for its
6 petroleum product market analysis and price forecasting.
7 Their average underlying (*phonetic*) projection for crude
8 oil, which is No. 6 fuel?

9 MR. HENDERSON: No, crude oil is the product that comes
10 straight from the oil well.

11 MS. BUTLER, Q.C.: I'm sorry, okay. What I wanted to ask
12 you was whether Perra have updated their forecast for you
13 on No. 6 fuel?

14 MR. HENDERSON: They have. They, Perra does a
15 forecast every month. Just maybe as point of clarity on
16 Perra, what we do is we buy into their service and they
17 provide a forecast to a number of clients. They provide the
18 same forecast to everyone and we basically buy into their
19 service to get that forecast, and they review that every
20 month and they provide their clients with that forecast
21 monthly. They have recently revised the forecast. I can't
22 tell you right of the top what it is, but it was just last week
23 that they revised a number of, like the US dollar number of
24 No. 6 fuel. In anticipation of this question I did ask what it
25 was in Canadian dollars, so I can't give you the US, but
26 basically it's around \$27.00. Last week our price was
27 looking at about \$26.00. I understand now its looking more
28 like about \$27.00 per barrel, current prices, and they are
29 basically projecting that those \$27.00 prices will be holding
30 into 2002.

31 MS. BUTLER, Q.C.: So the 2001/2002 price per barrel for
32 No. 6 fuel is now forecast at \$27.00?

33 MR. HENDERSON: That's, I'm saying approximately. I, as
34 you know, in our evidence we are saying \$28.38. I'm saying
35 \$27.00, and approximately the, they actually forecast the
36 price by month and also by quarter, so you'd have to take
37 that price and run it through one of our models, the
38 monthly prices to come out what the impact would be in the
39 revenue requirement, because there's different prices for
40 different months, but \$27.00 is a good ball park there.

41 MS. BUTLER, Q.C.: Okay, thank you, Mr. O'Rielly, I'm
42 finished with that exhibit. Mr. Henderson, I want to take a
43 moment to ask you a few brief questions on a couple of
44 short matters. First is the abandonment clause for
45 industrial customers. Hydro currently has an abandonment
46 clause in each of the contracts with the industrial
47 customers?

48 MR. HENDERSON: I think so. I'm not familiar with, real
49 familiar with the abandonment clause of the contracts.

50 MS. BUTLER, Q.C.: Are the contracts with the industrial
51 customers in your bailiwick?

52 MR. HENDERSON: I can talk to the general operating
53 matters with respect to it, the legal matters I, I'm not sure, I
54 can probably get you the answers on that, but I'm not a
55 lawyer so I can't really talk much about the legal matters in
56 the contracts.

57 MS. BUTLER, Q.C.: The only point I was going to address
58 with you was Mr. Brockman's recommendation. Do you
59 recall that recommendation that he had for readdressing the
60 abandonment clause of the industrial customers as it
61 related to Rate Stabilization Plan balance?

62 MR. HENDERSON: Okay, I am familiar with that issue.
63 Yes.

64 MS. BUTLER, Q.C.: Okay, the purpose of the
65 abandonment clause, as I understand it, is to allow
66 recovery of system costs from industrial customers leaving
67 the system.

68 MR. HENDERSON: Right.

69 MS. BUTLER, Q.C.: Okay, and the proposed abandonment
70 clauses do not include recovery of the Rate Stabilization
71 Plan balance attributable to a customer departing?

72 MR. HENDERSON: That's right.

73 MS. BUTLER, Q.C.: Okay. Now Mr. Brockman, on behalf
74 of Newfoundland Power, has recommended that the Board
75 may want to consider having Hydro amend the proposed
76 abandonment clause to provide for recovery of an
77 appropriate portion of the RST balance from an industrial
78 customer that leaves the system. So it's that proposal I
79 wanted to ask about. Can you provide us with your
80 comments on that proposal?

81 MR. HENDERSON: I understand the issue. The, I guess,
82 the past precedent here was that there, when an industrial
83 customer left the system the remaining industrial customers
84 would have either benefitted or dis-benefitted, if you like,
85 from whatever balance was in the plan. There is no amount
86 identified right now in the plan which says this balance
87 belongs to industrial customer X, Y or Z, it just is a total
88 industrial plan and we've always applied it as an industrial
89 group, so in order to go to that type of method of getting
90 an amount from industrial customers, you'd have to identify
91 the amount in the plan belonging to each industrial
92 customer, and I would, I'm aware that that would be a
93 complicated matter to ... you'd be, in essence, creating a
94 plan for every industrial customer which would add a fair
95 bit of complexity to it. That's the difficulty with that matter,
96 is that kind of an issue of identifying who, because the plan
97 was designed and has operated for a class of customers
98 and the money in there is for the class. You'd have to look

1 at what, in order to identify each customer, you'd have to
2 look at how they impacted on hydraulic production, thermal
3 production, and their loads going up and down over the
4 years to get that. So that's where the complication gets
5 into it.

6 MS. BUTLER, Q.C.: Alright. Well do you have from
7 Hydro's perspective, despite the evidence you've given me
8 in relation to the complication of it all, do you have any
9 reason not to support Mr. Brockman's recommendation?

10 MR. HENDERSON: Well, I guess the reason would be as
11 I said, would be the complication related to it. You'd have
12 to work out a mechanism.

13 MS. BUTLER, Q.C.: Okay. Remote generation for a
14 moment.

15 MR. HENDERSON: Remote?

16 MS. BUTLER, Q.C.: Remote generation. The benefits of
17 remote generation. I want to just ask you a couple of
18 questions on this.

19 MR. HENDERSON: What do you mean by remote
20 generation?

21 MS. BUTLER, Q.C.: Well, if one of the larger generating
22 units is not available and the system operator requires all
23 generation available to maintain service, then all generating
24 units whether they, wherever they are located are of benefit
25 to the system, do you agree with that?

26 MR. HENDERSON: That's right.

27 MS. BUTLER, Q.C.: Okay, so if one accepts that having
28 the available generation is a benefit to all, then you also
29 agree that the means to connect the generation to the grid
30 is also of benefit to all?

31 MR. HENDERSON: Yes, the connection to the grid is what
32 enables the generation to be a benefit to all, so if the
33 connection is, I'm not sure what you mean by the manner,
34 or the way you phrased the question as far as how it's
35 connected, but basically you have to have a line going into
36 the plant to make a benefit. Otherwise you're not going to
37 get a benefit, it's not connected.

38 MS. BUTLER, Q.C.: Mr. Henderson, Mr. Reeves actually
39 deferred the matter of the Bottom Brook cost allocation to
40 you. You might have been in the room when he did that,
41 do you recall?

42 MR. HENDERSON: Yes, I recall the question on use of
43 400L at Bottom Brook.

44 MS. BUTLER, Q.C.: Yes, okay. So you're familiar with that
45 sub-station on the West Coast, and transmission line
46 number, that's your transmission line TL-250, terminates at
47 the Bottom Brook sub-station.

48 MR. HENDERSON: That's right.

49 MS. BUTLER, Q.C.: And the customers that are served by
50 that line would be where?

51 MR. HENDERSON: Customers served from TL-250 would
52 be at Burgeo, we call it Grandy Brook Terminal Station,
53 serves Burgeo area and then there's also a line that goes
54 west to the abandoned Hope Brook Mine site and there's
55 customers fed through there at Grand Bruit and LaPoile.

56 MS. BUTLER, Q.C.: Mr. Henderson, do you acknowledge
57 that several times a year your crews perform maintenance
58 work on Bus No. 1 and associated equipment at the Bottom
59 Brook substation?

60 MR. HENDERSON: I can't characterize it as several times
61 a year. The Bus 1 maintenance would probably be once
62 every three or four years, I'm guessing, but it's not as
63 routine as you may suggest it by a number of times per
64 year. It's much more of a rarity because of the complexity
65 of having to take that equipment out of service, because by
66 taking Bus 1 out of service, if you didn't have any other
67 means of supplying generation, you would be interrupting
68 supply of load to the Burgeo area as well as the Port aux
69 Basques, Doyles area in the Codroy Valley area. That
70 would all be interrupted, so that bus is not maintained that
71 frequently because of the complexity of that.

72 MS. BUTLER, Q.C.: Okay. As recently as July of 2001,
73 perhaps you've checked since Mr. Reeves testified, do you
74 acknowledge that your crew did maintenance on Bus 1?

75 MR. HENDERSON: Yes, we did.

76 MS. BUTLER, Q.C.: Okay, at the Bottom Brook substation
77 and while that maintenance was being performed your
78 customers at Burgeo and LaPoile did not experience an
79 outage, did they?

80 MR. HENDERSON: No, they did.

81 MS. BUTLER, Q.C.: They did?

82 MR. HENDERSON: They did.

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

84 MR. HENDERSON: At the time of that outage we did
85 maintenance on our line, TL-250.

86 MS. BUTLER, Q.C.: Alright, can you tell me, did you check
87 this since Mr. Reeves testified?

88 MR. HENDERSON: Yes.

89 MS. BUTLER, Q.C.: Alright, and who did you check it
90 with?

91 MR. HENDERSON: Our Energy Control Centre staff. I
92 know why there's confusion.

1 MS. BUTLER, Q.C.: Okay, go ahead.

2 MR. HENDERSON: Because at the time we were working
3 with Newfoundland Power to see the availability of 400L to
4 supply the area, and at that time there may have been some
5 discussion about the possibility of supplying Burgeo, but
6 we didn't go through with it because we couldn't,
7 technically couldn't do it. In that area there's a large
8 amount of 138 kV transmission. It goes from the Bottom
9 Brook station down to the Hope Brook, the old Hope Brook
10 Mine site. As well it goes down to the Doyles station. A
11 large amount of 138 kV line has a tendency of, when it's
12 lightly loaded, of causing a high voltage. It's the same as
13 any transmission that's lightly loaded and we cannot use
14 400L to supply Burgeo in that circumstance because of the
15 very light load.

16 MS. BUTLER, Q.C.: Mr. Chairman, I wonder, I need to
17 check the information that was given to me on that
18 overnight, and the other questions that I have for Mr.
19 Henderson in areas will get into some exhibits that were
20 provided to me this morning when I was deep into
21 hydrology, so could I ask for an early break today and we'll
22 start tomorrow morning with those new areas.

23 MR. NOSEWORTHY, CHAIRMAN: Sure, that's fine. Do
24 you have any idea, Ms. Butler, how much longer you might
25 be?

26 MS. BUTLER, Q.C.: I think in fairness Mr. Chairman, at
27 most, an hour.

28 MR. NOSEWORTHY, CHAIRMAN: Okay. Alright. Thank
29 you very much. We'll break now until 9:30 tomorrow
30 morning and we will begin by a brief discussion, hopefully,
31 on the schedule in relation to oral presentations. Thank
32 you very much.

33 *(hearing adjourned to October 10, 2001)*