Q. With reference to PU26 (1999-2000), please provide copies of the Hydro application for this hearing, including pre-filed testimony, a copy of the report of Dr. Wallace Read to the Board, any follow up testimony or evidence filed by Dr. Read, and any other expert testimony filed in that proceeding. Also, please provide a copy of information request PUB-8 from the hearing.

A. Attached are the following documents from the Roddickton hearing:

- Hydro's application, as amended;
- a copy of the report of Dr. Wallace Read;
- excerpts from the transcript of February 2, 2000 constituting additional evidence of Dr. Read; and
- Hydro's response to Information Request PUB-8.

IN THE MATTER OF the *Public Utilities Act* (the "Act"); and

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro ("Hydro"), pursuant to section 38 of the Act, for consent to decommission its thermal woodchip generating station and a diesel generating station, both situate at Roddickton.

TO: The Board of Commissioners of Public Utilities (the "Board")

THE APPLICATION OF HYDRO SAYS THAT:

1. Hydro is a statutory body corporate existing pursuant to the *Hydro Corporation Act*, c. H-16 of the Revised Statutes of Newfoundland, 1990, as amended, and is a public utility within the meaning of the Act.

2. Hydro owns a 5000 kW woodchip fired generating station (the "woodchip fired plant") and a 2350 kW diesel generating station (the "Roddickton diesel plant") both of which are situated in the Town of Roddickton. These generating stations provided power and energy to the formerly isolated electrical system which served the Roddickton and St. Anthony area. Other sources of electrical generation for this isolated system were a 8800 kW diesel generating station in St. Anthony and a 400 kW mini-hydro plant in Roddickton.

3. In 1996, upon the completion of the 138 kilovolt transmission line on the Great Northern Peninsula, this isolated system was interconnected to the Island Interconnected Grid. This project was made economic by the availability of financial assistance under the Canada/Newfoundland Infrastructure Works Agreement.

4. As the cost of generating electricity from the woodchip fired plant exceeds the incremental cost of obtaining electricity from the Island Interconnected Grid, it was

removed from normal production in 1996 and has been retained in service in a stand-by mode. During the period of the Autumn of 1996 to the present, the plant has operated for very short durations and on two occasions only. In neither occasion was the plant operated to supply the region's electrical load; the load could have been served from other sources.

5. The Roddickton diesel plant has not been required in order to provide power to the Roddickton area since the interconnection of the formerly isolated St. Anthony/Roddickton system to the Island Interconnected Grid. Retaining the Roddickton diesel generating station in service would require significant repairs and rehabilitation to the diesel units, the associated equipment, and the powerhouse. As has been observed by this Board in its Report on a Referral by the Lieutenant-Governor in Council Concerning Rural Electrical Service, the majority of the costs of running isolated electrical systems are fixed operating and maintenance costs. Retaining the Roddickton diesel plant in service in a stand-by mode would require Hydro to continue incurring these fixed operating and maintenance costs, thereby reducing the economic advantages effected by the interconnection.

6. Normally, upon interconnection, Hydro decommissions all diesel generating capacity which supported the formerly isolated area. The St. Anthony/Roddickton area electrical load is situated at the end of a long radial transmission line. In this case, Hydro has decided to retain the 8800 kW diesel generation station at St. Anthony as backup generation for this area. The capacity of this plant is sufficient to meet at least 75% of the forecast peak for this area through to 2008. Hydro has determined that this is a reasonable and prudent amount of backup capacity for this interconnected area.

7. Decommissioning the woodchip fired plant will result in immediate and continuing savings. In the stand-by mode the annual operating and maintenance costs are in the range of $200,000 and the annual depreciation expenses are $872,000. As of December 31, 1999 the one-time write-off per the net book value would be approximately $17.6

million which will eventually effect a reduction in Hydro's rate base. There may be some opportunities for salvage which, if realized, would reduce the write-off value.

8. The savings associated with decommissioning the Roddickton diesel plant include the annual, non-fuel, operating and maintenance costs which are estimated to be $20,000. There will also be an annual depreciation expense saving of $17,000. The one-time net book value write-off, as of December 31, 1999 would be $158,000.

9. Hydro has given written notice to the Roddickton Town Council and attended a meeting with representatives of that Council on November 8, 1999 to discuss its plans to apply to this Board for approval to remove these facilities from service. A copy of this application has been provided to the Roddickton Town Council concurrent with this filing.

Order Requested

10. Hydro therefore applies for an Order consenting to and approving the abandonment and decommissioning of its Roddickton woodchip fired generating station and of its Roddickton diesel generating station.

DATED at St. John's in the Province of Newfoundland this 15th day of November 1999.

Geoffrey P. Young
Solicitor for the Applicant,
Newfoundland and Labrador Hydro,
whose address for service is
500 Columbus Drive, P.O. Box 12400
St. John's, Newfoundland, A1B 4K7

IN THE MATTER OF
AN APPLICATION BY NEWFOUNDLAND AND LABRADOR HYDRO UNDER SECTION 38 OF THE PUBLIC UTILITIES ACT TO ABANDON THE RODDICKTON WOODCHIP FIRED THERMAL GENERATING PLANT AND THE RODDICKTON DIESEL GENERATING PLANT

ANALYSIS OF RELIABILITY OF ELECTRIC SERVICE TO THE WHITE BAY CENTRAL AREA

SCOPE:

This report is prepared relying on information provided by Newfoundland and Labrador Hydro (NLH), in their application before the Public Utilities Board (PUB), and the responses of NLH to questions raised by the PUB in subsequent requests for information.

The report addresses solely, the impact of the abandonment of these two Roddickton generating plants on the reliability of service in the areas described. It makes no attempt to analyze other financial or economic reasons that may have influenced this request.

RELIABILITY HISTORY:

The Great Northern Peninsula electricity supply has gone through several major changes since the passage of the Rural Electrification Act in the mid '50s. Three decision points in time influenced the reliability of that power supply in the White Bay Central area comprised of the communities of Roddickton, Englee, Bide Arm, Main Brook, Conche, Croque, St. Juliens and Grandois.

1964-1988

Local distribution systems powered by diesel generating plants were built in several of these communities and were operated independently of each other until the end of the '70s. During the '80s, a program was undertaken of interconnecting communities close to Roddickton, expanding the Roddickton plant, and, shutting down local diesel generation.

Subject to good maintenance practices and a generous reserve of diesel capacity, this local area power network had a high degree of reliability, however, the cost of supplying this service was very high.

1989-1995

In 1989 the 5000 kW Roddickton wood chip thermal plant was constructed when cost effective studies showed it to be a more economical energy source than diesel plants for the isolated, but newly integrated St. Anthony-Roddickton power system.

Again, subject to good operating and maintenance practices, this arrangement of generation in St. Anthony and in Roddickton, at either end of a strong 69 kV transmission line provided a high degree of flexibility and reliability in meeting communities' needs. The cost of service continued to be high.

1996-1999

In 1996 the St. Anthony-Roddickton customers were connected to the Island transmission network by extending the Great Northern

Peninsula 138 kV transmission line northwards along the western coast to St. Anthony Airport.

The preferred plan for interconnection included:
(a) removal from service of the wood chip thermal plant,
(b) retirement of the Roddickton diesel plant, and,
(c) relocation of two 850 kW mobile diesels from Roddickton to St. Anthony.

At the time approval was given for construction of the Island grid interconnection two changes to the plan were announced:
(a) relocation of the Hawke's Bay diesels to Roddickton, and,
(b) conversion of the Roddickton wood chip plant to oil fired.

Subsequent to project approval the following decisions were taken:
(a) the Hawkes Bay diesels would be retained in their present location, and,
(b) there would not be a conversion to oil for the wood chip plant.

From strictly a reliability point of view, communities which are dependent on a single transmission line backed up by generation some distance from the geographical center of their load, are at greater risk of having a less reliable service than ones relying on support from local generation particularly in the event of a prolonged line outage.

As can be seen from the foregoing, the reliability of the power supply at any particular time in the White Bay Central area was highly dependent on the choices made in the location and type of generation sources and the transmission line interconnections. These decisions were initially taken with a view that interconnecting communities was not economically justified. As

customer load increased, line extensions and the centralization of generation became more and more prevalent.

THE ISSUE:

The issue to address now is whether the abandonment of one or both of the generating plants in Roddickton will have an unreasonable impact on the electric service in the area. That is to say, will the level of service deteriorate below accepted practice in the industry, or below what other customers experience in the rural interconnected system?

PRESENT AND PROPOSED STATUS:

It is well recognized by those in the utility industry in this Province that climate, terrain and distance are major hurdles which must be overcome when constructing transmission and distribution lines. The Northern Peninsula is no exception and in some areas these conditions are as severe as one experiences anywhere on the Island.

Nowhere is this more evident than in the length and routing of the 138 kV line extending some 400 Km from Deer Lake to the St. Anthony Airport. Every community taking its power supply from that transmission line and the associated substations share in the risk of interruptions of service, although those at the very end of the line have the greatest exposure.

Additional exposures faced by the White Bay Central area are; the performance of the 69 kV line from the St. Anthony Airport to Roddickton and the performance of the St. Anthony Diesel Plant

and its 69 kV line connection to the St. Anthony Airport, in the event of an interruption of service from the 138 kV line.

It can be argued that these additional exposures should be the prime consideration when determining reliability criteria for the area and when considering the abandonment of the Roddickton wood chip thermal and diesel plants.

If the application to abandon these facilities is approved, the White Bay Central area will have its local generating capacity reduced from 8,250 kW to 1,250 kW. With an interruption of service on the 69 kV transmission line connecting Roddickton with the St. Anthony Airport this capacity level will be 2,750 kW short of peak requirements in the area, necessitating rationing until the repairs are completed.

In the event the 69 kV lines are in tact, but the interruption in service is due to a failure on the 138 kV line from Deer Lake to St. Anthony Airport, the White Bay Central area would be relying its own 1,250 kW along with the 8,850 kW St. Anthony Diesel plant, (a total of 10,100 kW) as sources of electricity supply. In the combined area the peak load is approximately 11,000 kW. Again there would need to be a rationing of use during this period.

In both cases it is NLH's plan as a first line of defense to restore service quickly by a balanced deployment of competent line maintenance crews and strategically located vehicles and repair materials.

In response to questions put to NLH by PUB, NLH has indicated a great deal of confidence in the performance of the 69 kv lines in the area. This is based on operating experience

over the last ten years and particularly since the interconnection with the Island grid in 1996, (PUB 10). As stated in their Application the use of the Roddickton plants as backup protection for the loss of power supply over the transmission network has been non-existent since the plants were placed on standby.

CONCLUSIONS:

(1) The value of thermal generating plants in providing "backup" service in an area generally requires that such plants be "on-line" continuously. That value diminishes considerably if the thermal plants are maintained as "cold" standby. NLH has stated that at least two days are required to power up the Roddickton wood chip thermal plant from a "cold" start, (PUB 6), making it a poor candidate for reliability purposes. Unless for other reasons it is intended to run that plant as an energy producer on a continuous basis, abandonment is appropriate.

(2) From strictly a reliability point of view the Roddickton Diesel plant has value as "backup" generation in a similar way as does the Roddickton Mobile Diesel unit. Given the life of this asset and the investment required to restore the plant to full standby service (PUB 8) it may not be the most economical choice. By far the strongest argument for abandonment of this asset is that the performance of the 69 kV lines, since they were built in 1989 and 1996, has been very good, (PUB 10). Also the total available capacity on the St. Anthony-Roddickton connected system in the event of a prolonged outage

seems adequate without the Roddickton Diesel plant, (PUB 5). Under these conditions abandoning the Roddickton Diesel plant is not an unreasonable request.

Respectfully submitted,
Wallace S. Read, President,
REMAS Inc.

MR. VARDY, CHAIRMAN: That's right. Do you want to do it at that time?

MR. LOCKE: Yes.

MR. VARDY, CHAIRMAN: Perhaps what we could do, as Mr. Pelletier says, is to get you to adopt your evidence now, and in order to do that we need to swear you in.

MR. LOCKE: Okay.

MR. PELLETIER: Mr. Locke, if you can just take the witness stand.

MR. VARDY, CHAIRMAN: I'd ask you to hold the Bible in your right hand.

MR. ARTHUR LOCKE, SWORN

MR. PELLETIER: Mr. Locke, I'm going to show you a document. It's dated the 3rd of February, 2000, a document from the Town of Roddickton, from the, signed by the Mayor, Lynn Ellsworth, to the Board of Commissioners of the Public Utilities. Do you recognize that document?

MR. LOCKE: Yes, I do.

MR. PELLETIER: Is that the Intervenor's submission that was filed on behalf of the Town?

MR. LOCKE: Yes, it is.

MR. PELLETIER: Do you swear that to the best of your knowledge, information and belief the facts set out in that intervention are true?

MR. LOCKE: To the best of my knowledge, yes.

MR. PELLETIER: Thank you very much.

MR. VARDY, CHAIRMAN: Thank you. The next witness would be the witness for the Board, Board's expert. Mr. Pelletier, would you like to do this this evening or would you like to do it in the morning?

MR. PELLETIER: I look to the Board for direction, whichever they prefer.

MR. VARDY, CHAIRMAN: Okay. Do I have any objections to proceeding?

MR. PELLETIER: The only suggestion I might make, and perhaps I can get a clarification from Mr. Young on this, was there, in terms of some of these outstanding issues, was there going to be an attempt this evening to obtain some answers or would this be at a later time?

MR. YOUNG: I'm presuming it would be difficult to get some of this stuff ...

MR. PELLETIER: Okay.

MR. YOUNG: ... at this time, but it' something, just if I can continue on, it's something we could probably get as soon as, you know, as soon as we contact, business hours starts tomorrow morning. So I would hope that we can make a phone call 8:30ish and get people working on some of these things and get the answers back. Now, not all of those questions are like that. I believe Mr. Vatcher indicated one of them wouldn't be ready for a few days.

MR. PELLETIER: Uh hum. My inclination is just to proceed with Mr. Read at this stage.

MR. VARDY, CHAIRMAN: Mr. Young, do you have any views on that?

MR. YOUNG: I don't have any objection to it whatsoever. If we wish to deal with Mr. Read now, that's fine by us.

MR. VARDY, CHAIRMAN: Mr. Locke, do you have any problems?

MR. LOCKE: No, no problems.

MR. VARDY, CHAIRMAN: Okay. If we find that we're going on too long and everybody is too tired, we'll break and move into the morning, but I think we'd like to ...

MR. PELLETIER: I don't anticipate Mr. Read will be all that long, Mr. Chair.

MR. VARDY, CHAIRMAN: Mr. Read, before you sit down, I wonder if you'd take the Bible?

MR. WALLACE READ, SWORN, X'D BY MR. PELLETIER

MR. PELLETIER: Good evening, Mr. Read.

MR. READ: Good night, sir.

MR. PELLETIER: I would request that you better not fall asleep until after you've finished giving your evidence here this evening. It's been a long day and I do appreciate your patience. Mr. Read, you've given your name. Can you please give us your current residence, current address?

MR. READ: Home address?

MR. PELLETIER: Home address.

MR. READ: 44 Thorburn Road, St. John's, Newfoundland.

MR. PELLETIER: Mr. Read, I'm going to show you a document now. Mr. Read, is this a copy of a brief biography that you drafted?

MR. READ: Yes.

MR. PELLETIER: I'd ask that it be entered as WR No. 1.

EXHIBIT WR NO. 1 ENTERED

MR. PELLETIER: Now I'm just going to very, very quickly go through this biography with you, Mr. Read. You've been involved in the field of electrical engineering for quite a while and that you've held senior positions with utilities, including Newfoundland and Labrador Hydro, and that you have been President of the Canadian Electrical Association and Past President of the IEEE, which is the Institute of Electrical and Electronic Engineers. Can you tell me a little bit about that, what that institution is?

MR. READ: That's a professional member body. It's the largest one in the world, has 350,000 members in about 150 countries, and the President is elected from the membership.

MR. PELLETIER: Now, Mr. Chair, in other circumstances I would have gone into some depth with Mr. Read with respect to his history, both in the field of electrical engineering, electrical planning, however, I feel that his experience is well known to the Board and certainly well known to the Applicant, and unless Mr. Locke objects and would require further information with respect to Mr. Read, I would request that he be qualified to give expert testimony on transmission and rural distribution and matters of electrical engineering generally.

MR. VARDY, CHAIRMAN: Is there any objection, Mr. Locke?

MR. LOCKE: No, sir, not to that point, no.

MR. VARDY, CHAIRMAN: Mr. Young?

MR. YOUNG: No objections here, Mr. Chairman. Thank you.

MR. PELLETIER: Mr. Read, I'm going to refer you to another document, a document which I believe everyone has a copy of, which is a report that you have drafted in the recent past. Do you have a copy of that report with you, Mr. Read?

MR. READ: Yes, I do.

MR. PELLETIER: I'd like to mark that as WR 2.

EXHIBIT WR NO. 2 ENTERED

MR. PELLETIER: Mr. Read, you were retained by the Board to draft this report. Being given the mandate to draft this report, what was the scope of the mandate that you were given?

MR. READ: I was asked to address the impact of the abandonment of these two Roddickton generating plants on the reliability of service in the areas described. That's the areas of the White Bay/Central, as it's termed. I've used information which was supplied by Newfoundland and Labrador Hydro and also I used the responses to the questions that were put to them by the Public Utilities Board and I prepared this document from that information and I did not do any examination or reporting on whether, what the impact of any financial or economic reasons were for the various changes in assets and abandonment of service.

MR. PELLETIER: Just one quick point of clarification. I note that you on the first page of your report, you talk about abandonment, and there's been some discussion here today in which the application has been referred to as an application for decommissioning. Now, decommissioning is something different from abandonment, is it?

MR. READ: I don't know what the context was used, but I used the word that was used in the application, which was abandonment of the service. That means shutting them down and never using them again and writing them off as assets. That's my understanding.

MR. PELLETIER: Very good. In preparing your report, you reviewed the reliability history of the transmission and distribution system on a certain level over a historical period of time?

MR. READ: Yes, that's correct. I thought it would be helpful in, before writing my conclusions on the information that I had, to give a brief history of the setting and how things change from time to time as you go through that history, and I split it up into three areas, the one being when electricity was first brought into this area, several plants in Roddickton and Englee and some of the other communities, which were not interconnected but rather separate plants supplying small distribution systems in the communities. Then came the period when Hydro decided that some of these communities could be connected up to the Roddickton plant, and the individual plants in those communities were shut down and the generation was all located in Roddickton, and that was the period between '64 and '88, and in both of those cases, in my opinion, the Roddickton area with its own separate plant and only servicing Roddickton in the first instance, was a pretty reliable system. At least everything was under the control of first of all the Town of Roddickton and then afterwards, when Hydro brought it, it had, as long as good maintenance practices were carried out and there were generally generous reserves of diesel capacity, it was a pretty reliable system. Moving on to when the other communities were connected in and the generation was centralized in Roddickton for this particular area we're talking about, it too was a pretty reliable system as far as I could see from the records, and it provided a high degree of flexibility in meeting the various community needs. Both of these cases of course, the cost of service was high and was subsidized by the, in the first instance, the Government of Newfoundland, and later I think it was collected through the rates to Newfoundland Power and the industrial customers on Hydro's grid.

1996 to 1999 was a time when they decided, after several studies I guess, to connect the system into, the St. Anthony/Roddickton customers, into the Island transmission network. They had, I should say prior to that, in 1989, the chip plant was built and it was justified on the basis that it would probably never ever be connected into the Island grid, and so the cost effectiveness analysis of that system was based on the Roddickton plant compared to supplying the load for the St. Anthony/Roddickton system from diesels forever and a day. And the area here in Roddickton and the communities around it were connected to St. Anthony with new 69 kV transmission lines. And then in 1996, the St. Anthony/Roddickton customers were connected to the Island transmission network, extending the 138 kV line on the Great Northern Peninsula northwards to St. Anthony airport. I think a lot of this has already been stated by others and I just confirm it's the same thing I found in the reports.

The preferred plan for the interconnection included the removal of service of the wood chip plant, the retirement of the Roddickton diesel plant, and the relocation of two 850 kilowatt mobile diesels from Roddickton (unintelligible). I understand one of those has since been destroyed by fire.

At the time the approval was given for construction of the Island grid interconnection, there was two changes to the plan that were announced. One was that the relocation of the Hawke's Bay diesels to Roddickton and the conversion of the Roddickton wood chip plant to oil-fired, and then about a year later, subsequent to project approval, the following decisions were taken. The Hawke's Bay diesels would be retained in their present location and there would not be a conversion to oil for the wood chip plant.

MR. PELLETIER: Now, if I could just stop you there for one moment. At the time you prepared your report, did you have in your possession some of the background and explanation that we received here today with respect to the Hawke's Bay diesel generating facilities and the fact that they weren't moved to Roddickton? Were you aware of the circumstances which resulted in that decision to leave the Hawke's Bay diesel facilities in Hawke's Bay, this business of capacitors and so on? Mr. Budgell, I believe it was who spoke to the issue, provided us with a lot more background than was provided in the response to the information request, so when you drafted your report, you didn't have Mr. Budgell's explanation.

MR. READ: No, but in the reports it was stated that they were going to go to switch capacitors and reactors, and so that was independent as far as I'm concerned of the reason why they would say we'll bring the Hawke's Bay diesels over to Roddickton and then a year later say we won't do it. I would think there were other reasons for that. I don't think ...

MR. PELLETIER: Sorry. I didn't mean to ...

MR. READ: ... that's related to the switch ...

MR. PELLETIER: I didn't mean to interrupt. You go ahead.

MR. READ: Okay. But again I'm just stressing this from a reliability point of view, and in that context the communities ended up being dependent on a single transmission line backed up by generation some distance from the geographical centre of their load. In other words, the Roddickton support was really going to come from a reliability point of view and a backup point of view from the St. Anthony plant, so they were at a greater risk of having a less reliable service than the ones relying on support from local generation. In other words, it was a step down I believe from a reliability point of view, but as I talk about it later, that was a very minimal risk. I don't think there's any question of when you have the plant right in your backyard, it's the best of both worlds, and when you go to a, relying on a distant plant for your backup, it's got to be less, a less reliable situation but not to say it wouldn't be tolerable or wouldn't be in accordance with industry standards. So I just commented that the reliability of the power supply at any particular time in the White Bay/Central area was very highly dependent on the choices made in the location and type of generating sources and the transmission line (unintelligible) connections. These decisions were initially taken with a view that interconnecting communities was not economically justified. That's way back. And as customer load increased, line extensions became possible and the centralization of generation became more and more prevalent. So with that background of history, I tried to identify for myself what the real issue here is, and the issue is to address, in my opinion anyway, the issue to address now is whether the abandonment of one or both of the generating plants in Roddickton will have an unreasonable impact on the electric service in the area, and that's to say, will the level of service deteriorate below accepted practice in the industry or below what other customers experience in the rural interconnected system. That I felt was the thing that I had to address as a mandate from the Public Utilities Board. I don't know if I need to go into too much detail here because it's really, confirms what I've already heard here. I have heard some other things that I wasn't aware of and as a result of the visit to the plants and as a result of the evidence given here today, which I wasn't aware of before, and I'll comment on whether that has an impact on my conclusions or not if that's what you want.

The real issue in addressing the issue of reliability without these two plants being available at this end of the 69 kV line really means that in the event of an outage on the 138 kV line, Hydro has viewed the St. Anthony/Roddickton area, those two areas as one entity pretty strongly connected with 69 kV line, and I must say the construction of that line down here, as I viewed it, is far in excess of some 69 kV lines I've seen elsewhere in Canada and certainly here. But anyway, that's their view and so they look at that area, those two areas combined, as being, what would I put on the end of that long 138 kV line to give an assurance to the people that they have a back, a reasonable backup? Somewhat the same as what happened in Goose Bay, a long 138 kV line, but in Goose Bay of course the load was all concentrated in one community. In this case it was in two communities, St. Anthony, Roddickton, and a rough split between the two is, Roddickton is one-third of the total capacity needed for that system, St. Anthony is two-thirds. So I said to myself, what, if I didn't want to be coloured by what happened, why the chip plant was built, why the diesel plant was located in Roddickton in the first instance, if I was just looking at what would be the right decision to take for the backup of reliability for that joint area, those two, that's what I looked at, and that's, well, when I get to my conclusion here, I can state, but that was really what I looked at at that time without having a little bit more knowledge of which I gained since I've been here.

I just make comment on the present and proposed status, that this is a hard, hard, tough province to service, long distances between communities, bad terrain, in some cases climate and distance are all major hurdles that have to be jumped when you talk about bringing power to these communities, and certainly the Northern Peninsula is probably one of the areas, particularly on the west

coast of the Northern Peninsula, that is exposed to, as we have heard, sleet and icing conditions and to some extent lightening.

I then talked, tried to talk about, if you can go from (unintelligible), you've got a line that runs right up to the St. Anthony Airport essentially, 138 kV, and then it splits into two 69 kV feeders, a shorter one running into St. Anthony and a longer one coming down to Roddickton, and what would you do up there. What Hydro has said it's going to do up there is consider that total area good strong 69 kV link and use the centralization of generation in St. Anthony with those strong links to the, to backup the system if 138 kV fails.

I must say that I would, the ideal situation, probably a more costly situation no doubt, the ideal situation would be to have, because this line splits into two 69 kV feeders, to have enough capacity in St. Anthony to meet the load in that immediate area, which is roughly two-thirds as I mentioned, and enough capacity in Roddickton to back up. That would be the ideal situation in my opinion, and I would be very tempted to consider that. But what has been proposed is not unrealistic. I mean, I think there are, may be other factors like cost that would influence, and the centralization accrues, that would influence the Hydro decision to put all the generation in St. Anthony.

Just read down here a little further. I tried to separate out the loads and I have more information now as a result of this meeting than I had when I wrote this report, but I do know the two-thirds, one-third split between Roddickton and St. Anthony is roughly correct and it's been verified.

If you were looking at, then you would say I think, you know, how reasonable is it to put some generation in Roddickton or use some that's already there to get this ideal situation at not too much cost, and I've agreed with the findings. My first conclusion was that the value of the thermal generating plants in providing backup service is probably not all that great. If that plant for other reasons was a contributor and running on line to service the system and you had an interruption in the 138 kV line, it would be an excellent thing to keep going. If it's only going to be put on cold stand-by and a long start-up time, there's not a real plus for just having it on a cold stand-by basis as I see it, so I would endorse the recommendation to abandon that property or that particular plant unless in comparing it with ... I wouldn't compare it with Holyrood, I would compare it with the next generation that you want to put on. What is the real cost added, which I understand is Granite Lake and I understand is around seven, a little short of seven cents a kilowatt hour I think came out in the evidence, and I was surprised to see the cost of running that plant on diesel fuel, which I think was somewhere up around eight and a half or nine cents, was testified to. So that's ... no, it's higher than that actually. I just forget the number now. Yeah, 15 cents. So one would really, if you were doing the financial analysis, I'm sure Hydro must have done this, just said, you know, for a stand-by plant, 15 cents compared to normal backup, which is either diesel or gas turbine at 8 1/2 cents, is probably not realistic, but as I say, I haven't done the financial analysis. I'm just going by the numbers that were given here today. So my recommendation would be to close out the thermal plant and salvage it or whatever and clean up the site.

If I might go now to the diesel plant, and here's where I have a little bit of difficulty because information that came out at this meeting is a little bit different than when I made my decision or when I recommended also the abandonment of it as not being the best alternative but a satisfactory and acceptable one according to the standards (unintelligible).

The plant certainly doesn't look to be in very good shape. A small unit there, I don't think it's, doesn't look to me like it's salvageable, so it's gone as far as I'm concerned. The two 1,000 units there, one has had, I think we've heard evidence that the crank shaft has had problems on one. The other one is probably in runnable condition, but they're both, they've both been in that plant I think since its inception. Then there's an emergency unit there which is about 400 kilowatts. And I started to think about, well, what is a backup. If you close down the thermal plant and you close down basically the diesel plant, what's left? There's the mini hydro which we've already heard that it can't really be considered a backup, but certainly the 400 kilowatt emergency start plant in the thermal plant, Caterpillar engine, is in good shape and could be left. We have the 850 mobile which was one of the two, one of which burnt down. So I, you're left with about 1,250 kilowatts if you close down the other two plants on this end of the system.

Then I was surprised to learn that the industrial load was as high as it was here because in an emergency situation you would request that the industries go down first so that you can service the hospitals and the domestic service and so on. The total load in this area is roughly I think 3,600 kilowatts at peak, maybe 37. Just let me turn up ...

MR. PELLETIER: If I can be of assistance, Mr. Read, there are some figures at Tab 4 and Tab 5, particularly Tab 4. I'm not certain whether those are of assistance to you.

MR. READ: Tab 4 is the one, I think. Yes. I just jotted on some other numbers. 3,960 at peak for this area, looking out to the year 2010. 1,480 kilowatts of industrials. I think that's in the three plants we heard from, and I'm not aware of the particle board. I don't think it's been planned for and I don't think it's been used here. But if you take 1,480, assuming you can ask them to shut down in an emergency, I mean a long-term emergency, from 3,960, you end up with 2,480 kilowatts needed to provide full service to all domestic, commercial, pumping station, hospitals and that sort of thing. Of the 2,480, you have an 850 here mobile diesel. If you take that off, then you only need to have 1,630 worth of additional diesel capacity. If you take off the 400 unit from that, that's the 400 emergency unit which you could leave here, leave at that site, and may have to house it, move it up to the other site, you're down to 1,230 additional kilowatts you'd want to put in here, and to me, I would weigh very heavily the possibility of locating the emergency unit that's down in the existing diesel plant up to the thermal plant site, not necessarily in the building, but up adjacent to the mobile that's up there, and I would look at buying another mobile of 850 and that gets you pretty close to meeting all the loads in the case of an emergency. Measure that against the alternative of relying, and the worry, if there's any worry, of relying on that distant St. Anthony plant for all of the generation except the 850.

So I think there is a case to be made, having heard the evidence which I didn't have when I made my report, a case to be made for a diesel, a complex of diesels, machines perhaps, two 850s, one is existing, plus the emergency unit, or maybe even a, revitalizing the 1,000 down there. I'm not sure how good that is, but for my money, I think I'd buy a new unit and put it up there, if that was the choice you wanted to make. So that's the only thing I've heard that sort of changes my thinking on a complete close-out of the diesel plant.

I think by moving them up to that site, if you wanted to do that too, you could restore that downtown site, bring it back to complete abandonment, tear it down and restore the area, and it also gets over that problem which I've heard mentioned several times, that there's a lot of noise, and I agree with you, that if you want to make a choice between noise and having some electricity in the home, you'd probably ignore the noise. That was always our case whenever we went into a community, we always slapped the diesel plant down in the community and everybody was so glad to have electricity until a year later. Then they started complaining about the noise and move it out of town. But this would get rid of that problem as well because the wood chip site is relatively remote from the housing.

So my original recommendation was, given the life of this asset and the investment required to restore the plant to full stand-by service, and I was looking at the bigger number at that time, there's six million instead of the ... it may not be the most economical choice. By far the strongest argument for abandonment of this asset is, the diesel plant asset, is that the performance of the 69 kV lines since they were built in 1989 and 1996 has been very good, and I mean very good according to the standards that CEA lay out. Also the total available capacity on the St. Anthony/Roddickton connected system in the event of a prolonged outage seems adequate without the Roddickton diesel plant, and that was a statement that was made in answer to our question, PUB 5. So I said, I concluded that, "Under these conditions, abandoning the Roddickton diesel plant is not an unreasonable request." I chose my words very carefully here. I didn't say it was a proper choice, and I'm glad I didn't now because of what I've heard since. So it should be a good system. I mean, I really believe in what they've got there. I've seen the lines. They're very good. And I would say that it's an acceptable or, way to go. In other words, rely on the Roddickton plant. I would say in the future, if you need more load here, that this would be the proper ... I'd like to see a balance on the end of the two 69 kV feeders, one-third, two-thirds. Whether you can afford to do that, whether it's cost-effective or not, is a decision that's beyond what I ... but from a

reliability point of view, that would be ideal. That's my conclusions.

MR. PELLETIER: Mr. Read, I only have a couple of questions for you. If you have local generation as a stand-by generation, or not as a stand-by, as your primary generation, that can be the most reliable insofar as you're not dependent upon the condition of certain lines to bring the power to you. Is that correct? When we were touring some of the facilities yesterday, one of our party, when we were touring the mini hydro plant, made the comment that everybody should have one of these in their backyard. It was a tidy looking little thing and was producing a good bit of electricity. But I suppose the reality of the matter is, we can't all have one of those in our own backyard unless you got a whole lot of money to stick one of those in your backyard. So I guess the balance here is not, will people have 100 percent reliability, but what is an acceptable level of reliability. Is that a fair statement?

MR. READ: It's a fair statement. It brings me back to memory. I was in Lebanon a couple of years ago and the power supply there is so bad that, you know, it's lost for four hours a day and they don't have sleet, and people actually buy in-house little gasoline engines to get them through that period, but that was because of the war over there. Anyway, what you're saying is correct.

MR. PELLETIER: And in terms of determining what is an acceptable level of reliability, there's some judgment involved I'm certain, but in terms of what you'd look at, would you look at what other people in the province have and what level of risk they have with respect to reliability? Would that be a fair way of determining how you're going to strike this balance?

MR. READ: I would go first to the industry standards and with respect to the, certainly 69 kV lines, what should, you know, what level of reliability should be there, and, as I mentioned, these two lines have been very, up for the period they looked at, has been very well within industry standards. The next thing I would do of course is to see that there's some fairness in all the system, supply, and it can't be completely the same. I would say that Plum Point and ...

MR. PELLETIER: Bear Cove?

MR. READ: ... Bear Cove are probably well down on the list of reliable service if something happens to the 138 kV line.

MR. PELLETIER: I actually just mentioned the 69 kV line and we have, well, we have a 138 kV line going (unintelligible) the airport up to the town operating at 69 kV and we have the second line, although I believe there's actually two lines but essentially one string from the airport down to Roddickton, and I believe in your report you looked at some of the information that was supplied by Newfoundland Hydro with respect to the operating history of that line from the airport to Roddickton. In preparing your report you looked at some of those figures. And as I recall, that line has been in existence since 1989, so it had ten years of use, the line from the airport to Roddickton ...

MR. READ: That's correct.

MR. PELLETIER: ... I'm talking about now, and there were no outages in that ten-year period.

MR. READ: No outages under a minute.

MR. PELLETIER: Yes. Sustained.

MR. READ: There may have been ...

MR. PELLETIER: I'm sorry. I'm sorry, yes ...

MR. READ: ... 1,500 ...

MR. PELLETIER: You're right.

MR. READ: ... of re-closures but ...

MR. PELLETIER: No sustained outage ...

MR. READ: ... no sustained outage.

MR. PELLETIER: Did that figure impress you?

MR. READ: Yeah, it did, because that's, as you can see in the table that's on, in response to question 10, that's probably, there's only one other line that has that kind of experience on it, as I recall, somewhere down in the ... I believe in question 10 they compare it with other lines. There's only the Jackson's Arm tap to Coney Arm (phonetic), and the Hampden tap to

Jackson's Arm that has had similar good experience, same experience.

MR. PELLETIER: And I know you haven't had an opportunity to look at the line and physically look at the line in any great detail. We unfortunately didn't get a chance to put you on a ski-doo and give you a run up the pole line, but we did on our drive down from the airport to Roddickton yesterday, seems like a long time ago now, yesterday, we at times could see the line and how it was constructed (inaudible) as opposed to a single pole. Based on that, and I know it's a little unfair because you didn't have a chance to have a real good look at it, how, what was your impression when you saw that line?

MR. READ: I thought it was what I would call a design probably stronger than you would, and maybe purposely so because when the designers were designing the line, they were probably over-designing it for sleet, wind conditions or some climatological reason, because normally you wouldn't see a 69 kV line, I don't think, as robust as that one. They were probably wanting to get long spans too as well, but it's, I don't know the design criteria it was built to, but my guess would be that it's in excess of what you would normally use some other places on the Island.

MR. PELLETIER: Now, talking, sort of joking a minute ago about the ideal situation as opposed to reality, and the ideal situation would be for us all to have mini hydro plants in our backyard, but the reality is you can't do that, and is, when you're talking about something being ... the application asks for the decommissioning of certain diesel facilities here in the town, and your conclusion with respect to that is, no, that would not be unreasonable, and your conclusion, as I recall, was due to the performance and the confidence that you would have in having St. Anthony as a backup for Roddickton, based on the performance of those lines and your impression of the performance of those lines, that it would not be unreasonable, maybe not ideal, maybe not ideal, but it wouldn't be unreasonable. Is that a fair ...

MR. READ: That was my conclusion, and having visited the plant, I even feel stronger about that, because I don't think it's been very well kept, and some numbers I've heard for refurbishing it, to me, I would start anew somewhere else, as I mentioned earlier in my comments, if you want to have generation here.

MR. PELLETIER: Thank you, Mr. Chairman. Those are my questions.

MR. VARDY, CHAIRMAN: Thank you. Mr. Young.

MR. WALLACE READ, XX'D BY MR. YOUNG

MR. YOUNG: I don't have very many questions for Mr. Read, except for maybe just one. This is a small point of clarification. In your report, Dr. Read, I don't know if you're sticky on that, on page four ... they're not ... I gather it's already been the source of some good-natured kidding. Paper ... I'm just going to read this sentence out to you. "Because every community takes its power supply from that transmission line and the associated sub-station, sharing" ...

MR. READ: What page?

MR. YOUNG: Well, it's not numbered. It's page four, I think.

MR. READ: Oh, yeah. I'm sorry.

MR. YOUNG: ... "Sharing the risk of interruptions of service, although those at the very end of the line have the greatest exposure." And that paragraph seems to be in reference to the 138 kV line. What struck me about the last few words in the last sentence of that paragraph, in the second sentence of that paragraph, is that even though the Roddickton area is at the very end of this line, it's not really very far removed from a generating station. I'm just wondering to what extent that tempers it. Is this a general comment about radial lines or is this comment given with due consideration to the fact that there is this, as you say, robust, 69 kV line?

MR. READ: The only point I was making I think is that Berry Hill (phonetic) is at less risk than, or is at less risk than say Parson's Pond, and the further you go out, the people on the end are exposed to the interruption of that 138 kV line wherever it happens, but if the line goes out between Hawke's Bay and Plum Point, these fellows are not going to be, you know, they have less exposure to, they don't have any exposure to that out ...

MR. YOUNG: Right.

MR. READ: ... so all I'm saying is when you go all the way to, both St. Anthony and Roddickton are the very end and they're exposed to anything that happens between there and Deer Lake, whereas these people down here would only be exposed to what's between them and Deer Lake. You know, one of the alternatives in the early study was to come into Roddickton and go north to St. Anthony and it was, capital cost wise, was very very close.

MR. YOUNG: Yes.

MR. READ: But that was not choice.

MR. YOUNG: Yes. And that would have, well ...

MR. READ: That would have been great for Roddickton but probably would have been a little worse for St. Anthony.

MR. YOUNG: Right. Although St. Anthony having the generation there, I'm wondering like, could you sort of look at it coming in the other direction? You're thinking there's generation in St. Anthony. I know it's stand-by, it's not (unintelligible) load, and I realize there's re-closing problems, that's been well discussed here, which cause short-term outages and flicker and voltage problems. St. Anthony having a fair bit of generation there, Roddickton is not that far removed from it.

MR. READ: I don't want to walk it, but ...

MR. YOUNG: I suppose you come from the Avalon Peninsula, you get ...

MR. READ: If you lose the 138 ...

MR. YOUNG: ... you get fooled by geography.

MR. READ: ... then you've got Roddickton on the tail end of a fairly long line, I would say. It's 69 kV. But it's a line that's had good experience.

MR. YOUNG: Yes.

MR. READ: So that's why I came to the conclusion I did when I made my earlier recommendation.

MR. YOUNG: Looking at, just a general comment, but looking at other lines, like right now there's a line to Burgeo, it's not really shown there of course because it's not the right voltage to be shown there and there's a line up the Bottom Waters (phonetic) area which is referred to, well, most people refer to it as Baie Verte. Hydro refers to it as Bottom Waters area which is up, you know, it's on the other side of White Bay. Looks like a fairly long radial line, and I'm looking also at the line that goes to, in the Bonavista North area. These are also radial lines, and I think you can tell from a glance (unintelligible) must be generation on them, so ...

MR. READ: Well, that's what you've told me. I think the evidence was that you don't retain any diesel at the end of the Burgeo line, you don't retain any up here in Fogo now and ...

MR. YOUNG: Yes. So I guess my ...

MR. READ: It's not always the length of the line, it's the kind of area it's going through. I mean, you need to have three or four killicks tied to your feet ... I mean, I've been down there when the wind has been blowing and the lines are supposed to be hanging like that and going like that because with the mountains down there, the wind comes (inaudible) it smashes the insulators and everything. So that's a very short line but that's one of the reasons that they maintain that gas turbine down there.

MR. YOUNG: Right.

MR. VARDY, CHAIRMAN: Turbine ...

MR. READ: Mobile ...

MR. VARDY, CHAIRMAN: Yes.

MR. YOUNG: Okay. Looking now, my question is this though, having a look at the other radial lines in the province, (unintelligible) province anyway, and there are several of them you just pointed out, and the GNP line stands out as being long, but the fact that the St. Anthony generation is there, I take it, would you agree, makes it more like the other radial lines from the point of view, I mean, Roddickton is situated not that much worse off and that much differently than the other several radial lines where there is no generation right at the end.

MR. READ: As I say, from length of line is not really what ... what impressed me was the experience on the line. It doesn't seem to experience the kind of

weather and salt contamination that the 138 kV line gets over here. It seems to be protected maybe because the winds are normally westerly and, but the experience impressed me more than the length.

MR. YOUNG: I suppose the experience speaks louder than the glance at the map and trying to make sort of rash comparisons. I don't have any other questions. Thank you, Dr. Read.

MR. VARDY, CHAIRMAN: Mr. Locke.

MR. WALLACE READ, XX'D BY MR. LOCKE

MR. LOCKE: I don't know if I have any questions, Mr. Chairman, just a comment. Reading Mr. Read's report here and initial, my initial reaction was different than the latter or the second. His report, I agree with everything he has here until he gets to the conclusion, and then I agree with half what he has there in the conclusion.

MR. READ: Which half?

MR. LOCKE: Well, I think possibly the first one, I think we realize the thermal generating plant may not be a good source of backup service. I think most everybody agrees with that, basically due to the fact that it takes two or three days to get it up and running, and unless it was online all the time, I think that would be acceptable. I think most anybody ... in our submission we mentioned that and the fact that we were dealing with this matter in a little different manner in the sense of the fact that the use of it at the time during the year is basically (unintelligible) our forest industry, so we're looking more along the compensation line rather than the fact to keep it for backup, but not with the Board obviously. This is (unintelligible) through another avenue.

The second recommendation regarding the backup generation, the mobile, of course we could not agree with this, but it's nice to hear you say that even, knowing that people like yourself can really change their mind sometimes, and ...

MR. READ: My wife tells me I do it all the time.

MR. LOCKE: Yes. Because it looked like, when I looked at the report, it reminded me, it's well written but it was like you shot the hero on the last page.

MR. READ: Just to respond to you, I want, and I want to make it clear to the Board that I really, after having been here and I've heard some of the evidence, that I would have to be, if I was Hydro, I'd have to be very strongly convinced about not having, maintaining that emergency unit, moving it up to the, where the 850 mobile is, and looking at the possibility of adding 1,000 megawatts there before I would surrender. I know they have to, I understand they would have to employ a diesel person, but given the area we're talking about, because the diesel man in St. Anthony is not going to be running down to Roddickton in an hour, even though he can do it on the road, because he's in trouble already up there if he's lost the 138 kV line. He's going to be up there getting his own system in shape and running, I would think, and then it seems to me that that wouldn't be all that bad a balance to have a diesel person in St. Anthony, one in Roddickton with the lesser diesel plant that I talked about, and one in ... where was the other location?

MR. LOCKE: Hawke's Bay.

MR. READ: Hawke's Bay, was it? Yes. Those are the three diesel people. That's not an unreasonable number of people to maintain backup diesel systems, in my opinion.

MR. LOCKE: One other thing I was going to mention and what your opinion would be of this, we said in our, I think in our submission, and a couple of times today I've mentioned the fact that we feel that if there was some diesel backup generation here at Roddickton, it would also be very advantageous to Hydro in the event of a loss of the power say in, maybe in Plum Point and those areas where they could re-route the power from this area, this, you know, if we weren't in trouble for example, you know. It would assist the St. Anthony plant as well in cold starts and whatever.

MR. READ: I would think that would be true if you, I took you through the numbers, how I got down to ...

MR. LOCKE: Yes.

MR. READ: ... where I think it's not the 3,600 megawatts, or kilowatts of diesel that were here at one time. I think it can be less if you had some control over the industrial loads, but anything you do down here just means you don't have to do it ...

MR. LOCKE: Up there.

MR. READ: ... up at St. Anthony and it could free up, I think you're correct, although I haven't looked at the technical details of energizing that 138 kV line back to ...

MR. LOCKE: Back the other way.

MR. READ: You know, that's, charging current on that line would be fairly high, but I think they'd have to look at that. Hydro would know whether they can feed back there.

MR. LOCKE: Yes.

MR. READ: But it would help them.

MR. LOCKE: Yes.

MR. READ: There's no question about ...

MR. LOCKE: That's all, Mr. Chair. Thank you.

MR. VARDY, CHAIRMAN: Commissioner Crosbie.

COMMISSIONER CROSBIE: I don't have any questions.

MR. VARDY, CHAIRMAN: Commissioner Pollett?

COMMISSIONER POLLETT: No, sir. I think he's done well.

MR. WALLACE READ, XX'D BY MR. VARDY, CHAIRMAN

MR. VARDY, CHAIRMAN: Mr. Read, a couple of questions. I gather from your testimony that you feel that the diesel plant site within the community of Roddickton really should be abandoned. Is that correct?

MR. READ: As it is there now?

MR. VARDY, CHAIRMAN: As it is there now.

MR. READ: That would be my impression, but salvage certainly the emergency unit and move it up, if that was the decision to ... I'm not saying don't have any diesel in Roddickton. I'm just saying that site. I think it's had it. Whether you move it 1,000, the one 1,000 that seems to be in reasonable shape up there too, that would solve the problem, but I don't know what the economics of that is. Maybe that's not ...

MR. VARDY, CHAIRMAN: In terms of the site, are you suggesting there would be some value in creating a stand-by unit on the site of the wood chip plant or is there any particular reason to choose that site?

MR. READ: I would do it up there because I, first of all, you already have, I would think, unless you've destroyed them and I don't have evidence one way or the other on that, but you already had fuel storage facilities there for two 850s. One burnt down. Well, I imagine the fuel capability and everything in those facilities is still there, so you could put another unit there, at 850, would be, and build something to house the 400 kilowatt emergency. But I really think that you need to get out of that site if you're going to have anything here at all. You either stay with the 850 that's up there and take your chances on the line or if you feel strongly and have a social conscience, if I might put it that way, for the people in the area here, that you can probably carry their load through any emergency with some, by shutting down the industrials and putting out 850 or 1,000 up at the, along with the emergency unit up at the chip plant site which is a good site as far as I could see anyway under the snow.

MR. VARDY, CHAIRMAN: One other question I have for you is, I'd like for you to speak to the subject of, you use the term cold stand-by, I believe.

MR. READ: Cold start, I might have mentioned, yeah.

MR. VARDY, CHAIRMAN: I think in your, you used the term on the, in your conclusion, paragraph one of your conclusion, you use ...

MR. READ: Yeah. Cold start.

MR. VARDY, CHAIRMAN: If you look ...

MR. READ: Well, cold stand-by too ...

MR. VARDY, CHAIRMAN: Yeah. That's right.

MR. READ: ... as well, yeah, sure.

MR. VARDY, CHAIRMAN: On the second sentence, "value diminishes considerably." This is in reference to the thermal plant. But I wanted, because I think this was the subject of some discussion earlier this evening about the fact that if the diesel plant were to be on a stand-by, it would need to be maintained, it would need to be warm or hot or whatever the term would be.

MR. READ: Well, I would think it would be the same as we walked into there except, you know, they, you put inert gas into the boiler to, in a situation where you're not going to probably have to run it for two or three years, and that's been the case up there now. It's what they call mothball rather than, or, and if you had to ... that's why it takes a couple of days to get it online. So that's the kind of condition you would leave it in.

MR. VARDY, CHAIRMAN: So are you saying a cold stand-by really is not much use as a backup.

MR. READ: My guess is that whatever your problem is, you'd probably get power restored over the transmission system before you got around to running that up. I think there was some evidence given earlier about, by the time they got the gas turbine up from Port aux Basques to where, to here, they had the line repaired. So it's a judgment call there. It would have to be a really disastrous situation on the line where you'd run up that plant, but the point was made that, yes, that's a possibility, but don't look to get it done in a couple of hours like you can with a diesel plant.

MR. VARDY, CHAIRMAN: Back to you, Mr. Pelletier, for re-direct.

MR. PELLETIER: I have nothing further.

MR. VARDY, CHAIRMAN: Thank you, Mr. Read. There's some information that the Board would like to have which I assume we'll get sometime early next week, and I think what we're going to want to do is to reserve the, that we may want to re-open the hearing for the purpose of reviewing that material. I'm thinking about the history of the 138 line. So we, I'm not going to close this hearing right now. I'm going to reserve the right to re-open. We may need to re-open, to continue the hearing, and if we did, we'd do it in St. John's. Once we look at the evidence, this material that we've asked, the undertakings, we may want to call some, call a witness to answer some questions, and we may want to give Mr. Locke an opportunity to review the material and to participate in any questions. So I'm not going to call this hearing to a close at this point.

MR. PELLETIER: Do you want to do final argument now?

MR. VARDY, CHAIRMAN: Pardon?

MR. PELLETIER: Do you want to do final summations now?

MR. VARDY, CHAIRMAN: What I'm going to do though, what I am going to do is I'm going to ask for summations at this time, even though when we rise here this evening, I'm not going to bring closure to the hearing. I'm going to ...

MR. YOUNG: I just want to make sure I understand this. We're going to have evidence provided after the summations ...

MR. VARDY, CHAIRMAN: Yes.

MR. YOUNG: ... are given. Given the nature of the evidence, that's probably not a major problem, and my only concern about that would be, is that if we got a lot of supplementary summations following the evidence, and particularly for the witnesses called. My only other concern is that I think if we are sitting here in the chair any longer, we may be running a fowl of some Geneva's Convention on war crimes. I don't know, is it possible we can reconvene this first thing in the morning? The other thing, Mr. Chairman, to be quite honest, I would like to seek instructions before I do final summation. I don't need overnight to do that, but I do need a few minutes at least, and I would be just as happy to reconvene in the morning or take a 10 or 15 minute break now which is I know not a very popular time to ask for time.

MR. VARDY, CHAIRMAN: I don't see any problem. I'll ask Mr. Locke, but I think I've already determined that he is a night owl. So I think what we'd like to do is to give you the few minutes and ...

MR. YOUNG: Okay.

MR. VARDY, CHAIRMAN: ... we'll come back in ten minutes' time.

Q. If the Roddickton plants in question were to be retained, what capital program, if any, and what operating and maintenance funds would be required to provide a stand-by service?

(a) What options for providing a stand-by service have been considered?

(b) Which options have been found to be more economical than the maintenance and operation of the Roddickton plants?

(c) Please provide a net present value analysis of the options considered.

A. (a), (b), (c) If the Roddickton plants were to be retained to provide a stand-by service, the following capital and operating costs would be required:

For the Roddickton diesel plant:

Capital - $ 4,200,000

Annual Operating - $ 90,000; and

For the Roddickton thermal plant:

Capital - $ 1,146,000

Annual Operating - $ 323,000

When isolated diesel systems are interconnected to the main Island grid, it is Hydro's normal practice to remove the diesel generation facilities. The underlying rationale for interconnections is the cost savings associated with discontinuing the maintenance and operation of the diesel generation facilities. After an interconnection, Hydro normally maintains the diesel plant for only one operating season after interconnection to verify the performance of the interconnection. After this period, the diesel facilities are decommissioned, dismantled and removed from the site (e.g. Flower's Cove, Burgeo, Fogo-Change Island and many others). It is worth noting that stand-by generation is not available for many of the areas of the Province, radially connected to the grid, as to do so would entail significant cost.

When the St. Anthony-Roddickton system was interconnected in 1996, it was necessary to consider other factors when evaluating the need for stand-by generation. These were, the considerable length of transmission line (400 km) feeding the system and operating history of transmission on the peninsula, and the significant installed capacity in the area

which would benefit the overall Island system. At the 1995 Rural Rate Inquiry, Hydro responded to a question from Newfoundland Power related to the provision of stand-by generation in the St. Anthony-Roddickton area (refer to NP-45, 1995 attached). During the final design of the transmission facilities certain changes were made which necessitated a review of Hydro's plan for stand-by generation particularly with respect to relocating Hawke's Bay and converting the Roddickton Woodchip Plant to burn # 2 fuel. It should be noted that no consideration had been given at the time to maintaining the Roddickton Diesel Plant given the significant cost to do so and past customers' objections to diesel operations within close proximity to residential areas. Even if the interconnection had not materialized, Hydro planned to discontinue operations at the Roddickton Diesel Plant and concentrate operations at the Roddickton Woodchip Plant and the St. Anthony Diesel Plant.

In the original plan, the stand-by generation was to provide emergency service and backup for a static var compensator system. It was eventually decided to proceed with a voltage regulation system consisting of switched capacitor and reactors. For this mode of operation, stand-by generation was not required for voltage regulation and the economics of relocating units from Hawke's Bay had significantly diminished. As well, it was recognized that removing the diesel units from Hawke's Bay would, in fact, leave the communities in the Hawke's Bay area worse off than they were prior to the interconnection of the St. Anthony-Roddickton system to the Island grid.

The option of converting the Roddickton Woodchip Plant from woodchip fired to a fully oil fired facility was under consideration at that time because it was not practical to store woodchips for extended periods due to the problem associated with spontaneous combustion. A stockpile of woodchips would have been required to maintain the full capacity in a stand-by mode. After further review, it was decided not to convert to full oil operation, not only because of the cost involved but also because of concern regarding deterioration in its operating condition after an extended period of stand-by mode. As well, it was recognized that it would take a minimum of two days for the facility to go

from a cold stand-by state to a full operating state which results in the Roddickton Woodchip Plant being not well suited for the role of a stand-by facility. From a system perspective, given its relatively high operating cost and long start up time, it is unlikely that the plant would operate to any significant extent in the future. It was therefore concluded to abandon the facility.

Q. Outline the plans for the Roddickton Wood Chip facility upon the interconnection of the GNP system. Provide details of the economic analysis performed to determine whether the plan for the Roddickton facility is the least cost option for Hydro's customers. Identify all costs associated with the Roddickton plant as reflected in NLH-1 and NLH-2. If the Roddickton plant was relocated or is being relocated, identify the cost of relocation.

A. Upon the interconnection of the GNP system, Hydro plans to modify the Roddickton Wood Chip plant to fully utilize #2 diesel fuel and place it in a standby mode of operation. In early 1994, an economic analysis was performed to determine whether it is more cost effective for the plant to be placed in a standby status or mothballed. The details of this analysis are as follows:

i) Two generation expansion scenarios for the Island Interconnected System were considered; Scenario 1 assumed the Wood Chip plant on standby status, and Scenario 2 assumed the Wood Chip plant in mothballed status.

ii) In Scenario 1, the capital costs for the GNP interconnection in addition to the transmission line and terminal station facilities, included:

- modifications of the Wood Chip plant to burn #2 diesel fuel,
- relocation of the Hawke's Bay diesel units to the Roddickton Wood Chip site,
- placing the St. Anthony diesel plant in a standby mode, and
- provision for one full size static var compensator for voltage support.

This cost is $38.4 million for 1996 in-service exclusive of any contribution under the Canada/Newfoundland Infrastructure Works Agreement. Annual operation and maintenance costs related to the GNP generation facilities for this scenario are expected to be $616,000 (Jan. 1993$).

iii) In Scenario 2, the capital costs for the GNP interconnection in addition to the transmission line and terminal station facilities, included:

- mothballing the Wood Chip plant,
- relocation of diesel units from the Wood Chip site to St. Anthony and placing the St. Anthony diesel plant in a standby mode, and
- provision for two half size static var compensators for voltage support.

This cost is $41.5 million for 1996 in-service exclusive of any contribution under the Canada/Newfoundland Infrastructure Works Agreement. Annual operation and maintenance costs related to the GNP generation facilities for this scenario are expected to be $625,000 (Jan. 1993$).

iv) A present worth analysis performed for each of the above two scenarios over a 30 year period showed an overall cumulative present worth preference of $2.8 million (1993$) for placing the Wood Chip plant in standby status. Excluding the effect of the initial capital costs, the cumulative worth preference based on future operating and generation expansion costs remains for the standby status at $700,000 (1993$).

As standby facilities, the generation on the GNP will fulfil a role similiar to that filled by Newfoundland Power's diesel and thermal facilities since the development of Bay d'Espoir and the Island transmission grid in the late 1960's.

The costs associated with the Roddickton plant as reflected in NLH-1 and NLH-2 are identified in Table 1 below.

Hydro has no plans to relocate the Roddickton Wood Chip plant.

TABLE 1

NEWFOUNDLAND AND LABRADOR HYDRO
RODDICKTON WOOD CHIP COSTS

Description	NLH-1 1995 Base Case	NLH-2 1995 Interconnection Case
Operating & Maintenance	2,403,205	427,452
Fuel	1,744,632	12,000
Depreciation	1,018,633	1,261,045
Expense Credits	(5,666)	(1,523)
Interest	2,128,438	2,118,933
Disposal Gain/Loss	293	12,678
Margin	0	190,838
Total Revenue Requirement	**7,289,535**	**4,021,423**