

- 1 Q. GNP interconnection – Reference PU5 (2000-2001),
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3 a. Please provide all evidence filed in that proceeding to support the
4 claims (noted at page 8, lines 7 to 14 of PU5) that Hydro “believes
5 9700 kW of generation is adequate to meet the emergency
6 requirements of the St. Anthony’s –Roddickton (*sic*) area”.
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8 b. Please confirm that the current firm generating capacity in the St.
9 Anthony’s-Roddickton area is 9700 kW.
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11 c. Please provide a copy of the response to information request PUB 5
12 and PUB 7 from that proceeding.
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14 d. Please note all actions taken by Hydro to comply with this Board
15 Order, including relocation of diesel units, and the costs of these
16 actions.
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18 e. Please provide details on the current disposition of the 450 kW diesel
19 unit which was previously at the Roddickton Wood Chip plant, and if
20 still in service, please note the location and assignment as to Island
21 Interconnected customers or to common.
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23
24 A. a. Please see Hydro’s response to Information Request PUB 12 of the
25 Roddickton hearing (attached).
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27 b. The current generating capacity in the St. Anthony-Roddickton area is
28 10,100 kW. This capacity comprises 8000 kW of diesel capacity in the

1 St. Anthony diesel generating station, two 850 kW mobile diesel
2 generators located at Roddickton, and a 400 kW of run-of-the-river
3 hydro capacity at the Roddickton mini-hydro generating station.
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5 c. Hydro's responses to PUB 5 and PUB 7 filed in the Roddickton
6 proceeding are attached.
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8 d. The Order required Hydro to put in place between 1500 and 2000 kW
9 of emergency supply in the Roddickton area. In compliance with that
10 Order, Hydro relocated its 850 kW transportable diesel unit from its St.
11 Anthony diesel generating station location to Roddickton, which, when
12 added to the 850 unit that was already located at Roddickton, provided
13 1700 kW of emergency supply at that location.
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15 The cost of this diesel unit relocation, including the reconfiguration of
16 the St. Anthony generating station to accommodate its removal, was
17 \$98,905. Added to this cost there is an annual cost of approximately
18 \$34,000 associated with providing an operator in the Roddickton area.
19

20 Another requirement of the Order was the monitoring of outage
21 statistics for this part of the Great Northern Peninsula and the
22 provision of a report of these statistics to the PUB. This information is
23 being provided to the PUB in Hydro's quarterly reports. These outage
24 statistics comprise information that had been recorded by Hydro for
25 other purposes, therefore, there is no additional costs associated with
26 complying with this part of the Order.
27

28 The Order also requires Hydro to conduct a study on the reliability of
29 the transmission lines serving the Roddickton area and the

1 appropriate level of emergency generation for this location. The Order
2 requires that this study be filed by July 1, 2003. No work has been
3 commenced on this study to date.

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5 e. The 450 kW diesel unit from the Roddickton Wood Chip plant is in
6 temporary service at the Little Bay Islands isolated diesel system.

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- Q. In his testimony in Roddickton (transcript, lines 67-73, page 31) on February 2nd, Mr. Budgell said that the initial plan was to maintain a total capacity of about 20 MW in the St. Anthony/Roddickton area. Why does Hydro now believe that a total of 8850 kW (possibly augmented by 850 kW from the mobile generating plant) is now adequate? (Reference page 16, lines 51-62 of Feb. 2nd transcript.)
- A. Hydro had initially planned to maintain 20,950 kW of generation capacity (including the mini-hydro) on the Great Northern Peninsula. The rationale for consolidating the generation in the St. Anthony-Roddickton area was based on expected cost savings due to the elimination of redundancy in voltage compensation facilities and from lower operation and maintenance costs arising from fewer operating locations. It is important to note that as this level of generation capacity was well in excess of local St. Anthony-Roddickton load, it was not intended to serve as stand-by for just the St. Anthony-Roddickton area.

Hydro's decision to proceed with a voltage regulation system consisting of switched reactors and capacitors eliminated the requirement for generation to act as redundancy for voltage support. This was a contributing factor in later decisions not to relocate the Hawke's Bay diesels and not to proceed with the full oil conversion at the Roddickton Woodchip plant.

Hydro's current plan is to maintain 15,100 kW of generation capacity on the peninsula consisting of 9700 kW of diesel and 400 kW of hydro in the St. Anthony-Roddickton area and 5000 kW of diesel at Hawke's Bay. The reduced capacity from that initially planned results from the decision to decommission the Roddickton Woodchip Plant and the loss of one of the mobile diesels at the Roddickton Woodchip site due to a fire.

Hydro believes that maintaining 9700 kW of generation capacity in the area is adequate since it is sufficient to back up approximately 85% of the total peak load of the St. Anthony-Roddickton area and can supply 100% of the area's load in excess of 99% of the time.

- Q. If it is correct to say there would have to be some rationing of electricity in all communities north and west of Hawkes Bay in the event the 138 kV transmission line south of Hawkes Bay is out of service, describe any contingency plan that Newfoundland and Labrador Hydro (Hydro) might have to deal with that situation. Indicate the shortfalls / excesses that might exist in each area under this situation.
- A. The load north of Hawkes Bay can vary between approximately 3,500 kW and 20,000 kW from summer light load to winter peak load. The standby and mobile generation is 8,850 kW available from St. Anthony and 850 kW mobile generation at Roddickton for a total of 9,700 kW. As a result all customers in the area cannot always be supplied from the available standby generation when the transmission line between Peters Barren and Hawkes Bay is out of service.

The plan to supply this area in the event of an outage to this line is as follows:

I. Outages requiring no line or station repairs (most common outages – less than 30 minutes)

The generation would not be started and no rationing would be required as the lines would be restored before the generation could be started and switched to supply the loads.

II. Outages Requiring Some Repairs (30 minutes to eight hours)

1. The generation would be started immediately at St. Anthony.
2. Customers in the St. Anthony area would be supplied power by switching in each feeder.
3. Generation in excess of the above requirements would then be used to supply electricity to the Roddickton and Main Brook areas by switching in the lines from the St. Anthony Diesel Plant to the St. Anthony Airport and from the St. Anthony Airport

to Roddickton. This generation is sufficient 99% of the time as the combined winter peak load of these areas exceeds 9,700 kW only 1% of the time.

4. Generation in excess of the above requirements would then be used to supply power to Bear Cove area customers via the 138 kV line from the St. Anthony Airport to Bear Cove. This can be done approximately 70% of the time.
5. If there is excess generation to the above requirements, the load in Plum Point would be supplied using the 138 kV line between Bear Cove and Plum Point. This can be done approximately 50% of the time.
6. When there is insufficient generation to supply the entire area, only the areas nearest to the generation are supplied because the time required to perform switching to isolate parts of the system to affect rationing may exceed the time to restore the damaged line.

III. Outages Requiring Extended Time to Complete Repairs (greater than eight hours)

1. Under these conditions, rationing would be initiated when there is insufficient generation to supply all areas. If the repair required an extended outage (greater than 3 days), we would request Newfoundland Power's 7MW gas turbine under our present arrangements. The rationing would begin with supplying any customers not supplied in Roddickton and switching off customers in St. Anthony and then moving on to Bear Cove and then to Plum Point if possible.
2. The order of rationing and the timing of switching customers would be determined by the Energy Control Centre in St. John's in consultation with the regional management depending on the expected duration of the outage and the length of time customers had been out.
3. In conjunction with rationing electricity there would be radio announcements to area customers informing them of the situation and the need to conserve electricity so that as many customers as possible can be restored. Also up to date information will also be available from Hydro's 1-800 Customer Service lines.

The peak loads for the distribution systems in this area and percent of time the available standby generation meets the load is provided in the following table.

**Great Northern Peninsula North of Hawkes Bay
Peak Load and Available Standby Generation Capability**

St. Anthony	Roddickton/ Main Brook	Bear Cove	Plum Point
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Year 2000 Forecast

Peak Load (kilowatts)	7,551	3,942	4,804	3,658
Combined Peak Load to be met by Generation (kilowatts) *	7,551	11,206	15,890	19,456
Percent of Time Generation meets Combined Load	100.0%	99.5%	75.0%	46.0%

Year 2010 Forecast

Peak Load (kilowatts)	7,849	3,961	4,800	3,747
Combined Peak Load to be met by Generation (kilowatts)*	7,849	11,515	16,195	19,858
Percent of Time Generation meets Combined Load	100.0%	99.0%	72.5%	43.5%

* The combined load does not match the sum of the peak loads due to diversity in peaks between communities.

There are several communities lying to the West of Hawkes Bay (eg. Port Saunders, Port aux Choix) which are supplied at distribution voltages from the Hawkes Bay Terminal Station. In most instances of outages on the 138 kV lines south of Hawkes Bay, the communities can still be served on the 69 kV system which runs from Hydro's Peter's Barren Terminal Station. If power cannot be provided on that 69 kV line, those communities can be provided power from the Hawkes Bay Diesel Station.

- Q: Comment on the value of the same plants, as described in PUB 6.0 above, in supporting any shortages of electricity in the St. Anthony area, should the 138 kV transmission line south of the St. Anthony Airport be out of service.
- A: In the answer for PUB 5.0 it was indicated that the St. Anthony Diesel Plant and local mobile and the Roddickton mobile generation can meet the combined load of Roddickton, St. Anthony and Main Brook ninety-nine percent of the time. Therefore, the generating plant in Roddickton is of potential benefit only one percent of the time. This benefit would only be realized if an outage occurred during the highest load periods of the year.