

1 R. Henderson's Testimony

2 Q. .1) Provide all the terms and conditions of the longstanding agreements
3 to buy energy"?

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5 .2) Describe Hydro's underfrequency load shedding program and the
6 benefits provided to the grid by the participation in this program by
7 Industrial Customers.

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10 A. .1) The agreement with Corner Brook Pulp and Paper was signed on May
11 13, 1977 between Bowater Power Company Limited and Hydro. The
12 agreement with Abitibi Consolidated Inc. was signed June 23, 1982
13 and amended on June 20, 1995. A copy of these agreements are
14 attached.

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16 .2) Maintaining proper system frequency at or near 60 Hz is a critical
17 requirement in power systems. Failure to maintain system frequency
18 near 60 Hz can result in significant damage to both generating
19 equipment and customer loads. Deviations as little as 2.5 Hz below
20 nominal frequency can pose a significant hazard to rotating machines.
21 In particular, if there is a sudden loss of generation the system
22 frequency will immediately begin to reduce. A failure to rapidly correct
23 this will result in continued frequency deterioration, further loss of
24 generation and eventual system collapse.

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26 The maintenance of system frequency is based upon a match
27 between generation and load. In the North American grid, loss of
28 large generating units is compensated for by the spinning reserve

1 (spare generation and rotating inertia) maintained in the grid. For
2 isolated systems, such as Newfoundland's island interconnected
3 system, it is not economically feasible to carry sufficient spinning
4 reserve to completely compensate for the sudden loss of large
5 generating units. In these cases, utilities employ underfrequency load
6 shedding programs to automatically reduce loads upon loss of
7 generation, thereby re-establishing the balance between generation
8 and load.

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10 The underfrequency load shedding program operated on the island
11 interconnected system is based upon participation by industrial
12 customers, Newfoundland Power, and Newfoundland and Labrador
13 Hydro. The attached table provides the participation schedule for
14 these customers in the current scheme. Loads shown on the table
15 indicate the amount of load that can be shed under peak conditions. If
16 an underfrequency event occurs at a time other than peak, then the
17 amount of load shed by each customer will depend upon the load
18 connected at the time.

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20 By participating in the underfrequency load shedding scheme,
21 industrial customers contribute to the overall stability and security of
22 the system. Based upon the attached table, industrial customers
23 represent roughly 24 % of the total load allocated to the
24 underfrequency load shedding program.

UNDERFREQUENCY LOAD SHEDDING PARTICIPATION SCHEDULE Revision 1 (99/12/16)	
CUSTOMER	LOAD (MW)
Newfoundland Power	406.50
Corner Brook Pulp & Paper	23.00
Abitibi Consolidated	
Grand Falls	55.50
Stephenville	60.00
Newfoundland & Labrador Rural Customers	31.00
System Total	576.00