IN THE MATTER OF the *Public Utilities Act*, (R.S.N. 1990, Chapter P-47 (the "Act"), and

IN THE MATTER OF a General Rate Application (the "Application") by Newfoundland and Labrador Hydro for approvals of, under Section 70 of the Act, changes in the rates to be charged for the supply of power and energy to Newfoundland Power, Rural Customers and Industrial Customers; and under Section 71 of the Act, changes in the Rules and Regulations applicable to the supply of electricity to Rural Customers.

Supplementary Evidence of Larry Brockman

NEWFOUNDLAND POWER
A FORTIS COMPANY

At the hearing into Newfoundland and Labrador Hydro's 2003 General Rate Application, the Cost of Service Expert Evidence will be adopted by Larry Brockman, President of Brockman Consulting based in Atlanta, Georgia.

A witness profile for Larry Brockman follows.

Larry Brockman
President of Brockman Consulting
Atlanta, Georgia

Larry Brockman has over 29 years experience as a power system planning engineer, rate designer, regulatory staff member and consultant. He specializes in regulatory and generation planning assistance and analysis, as well as the analysis of competitive generation markets.

Mr. Brockman has testified before this Board as an expert witness on 7 previous occasions.

He has presented evidence on behalf of Newfoundland Power Inc. concerning cost of service, rate design and least cost planning in Newfoundland and Labrador Hydro's 1990 and 1992 general rate referrals. In addition, Mr. Brockman appeared as an expert witness on behalf of Newfoundland Power at Hydro's 1992 generic cost of service proceeding and the 1995 rural rate inquiry. Mr. Brockman also appeared as an expert witness on cost of service and rate design on behalf of Newfoundland Power in the 1996 Newfoundland Power General Rate Application, the 2001 Hydro General Rate Proceeding and the 2003 Newfoundland Power General Rate Application.

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SUMMARY

Based on my analysis of the intervenors' pre-filed evidence and responses to information requests reviewed since my original filing, I hereby provide the following recommendations on issues raised by the intervenors:

1. That Newfoundland and Labrador Hydro ("Hydro") and Newfoundland Power be requested to complete a marginal cost study. Upon completion of the marginal cost study, Hydro and Newfoundland Power also jointly participate in a retail rate design study to determine the most efficient and cost effective retail rates for the Island Interconnected System. As part of a comprehensive plan, the retail rate design study should also incorporate load research information which is currently being gathered by way of Newfoundland Power's load research study.

2. Newfoundland Power should continue to receive the generation credit for both its thermal and hydraulic generation, consistent with the Board's acceptance of Hydro's treatment of the generation credit to Newfoundland Power as indicated in Order No. P.U. 7 (2002-2003).

3. The test year load forecast for each customer class should be reviewed as part of Hydro's General Rate Proceeding.

Each of these recommendations is addressed in the evidence that follows.

1. MARGINAL COSTS AND RATE DESIGN

1.1 Marginal Cost and Retail Rate Design Study

On behalf of the Consumer Advocate, Mr. D. Bowman has submitted evidence in this proceeding recommending that Hydro complete a marginal cost study.

At page 3 of Mr. D. Bowman's evidence, he states,

> "...I recommend that the Board direct Hydro to undertake a marginal cost study, and evaluate, and make recommendations on how its rates can be re-designed to better incorporate marginal cost principles and promote market efficiency. The report should make specific recommendations regarding the introduction of rate options for customers, and include a time-bound plan for implementation."

I agree with Mr. D. Bowman that a marginal cost study and a retail rate design study[1] would be useful in evaluating retail rates on the Island Interconnected System.

Newfoundland Power's retail rate design focuses on total system costs including both Hydro's and Newfoundland Power's costs. Two of the main inputs currently used in developing rates for Newfoundland Power's customers are embedded costs, as reflected in the Cost of Service Study,

[1] Such a process is necessary to align rates with Integrated Resource Planning ideas. This process is essentially one of aligning rates with marginal costs to the degree practical, and is described in "Aligning Rate Design Policies with Integrated Resource Planning," NARUC, January 1994. At the Board's request, Newfoundland Power performed a retail rate design study in 1997, but did not have the long run marginal cost information from Hydro that was needed to make the study meaningful, as described in the next section.

and the electrical system's short-run marginal cost. I have testified several times before this Board that retail rate design involves a balancing of objectives, including the need to factor efficiency into rate designs. Efficiency can only be accomplished by giving due consideration to both the long run and short run marginal costs of supplying electricity. The addition of long-run marginal cost information would assist Newfoundland Power and the Board in evaluating the efficiency of the current retail rate designs and in determining whether any cost effective rate options should be offered to retail customers on the Island Interconnected System.

Newfoundland Power is currently undertaking a load research study for its retail rate classes. Load research data is also being collected from Hydro's customers as part of the study. The results of the load research study will permit the evaluation of the fairness of Newfoundland Power's rate structures by determining if any significant cross-subsidization exists among retail rate classes.

Mr. D. Bowman is recommending that Hydro complete a marginal cost study, and that the resulting report make specific recommendations regarding the introduction of customer rate options. It is my recommendation that the marginal cost study and the retail rate design study be a joint effort of Hydro and Newfoundland Power. This recommendation is based on the fact that Newfoundland Power's marginal costs will also impact retail rates, and it is the retail rates to Newfoundland Power's customers that should be evaluated.

1.2 Marginal Costs and the Firm Energy Criterion

The appropriate marginal cost methodology is dependent upon the characteristics of the electrical system being analyzed. The Island Interconnected System is primarily hydraulic. Generation planning decisions are significantly impacted by the Firm Energy Criterion, in which the availability of water in dry water years can drive the need for new generation capacity. Sophisticated modeling of various expansion plan scenarios is required to determine the long run marginal costs on the Island Interconnected System.

Without the benefit of sophisticated expansion plan analysis from Hydro, Newfoundland Power has previously used the cost of a new simple cycle peaking unit for estimating marginal demand costs and the marginal costs of Holyrood fuel as marginal energy cost. This method is reasonable for estimating the marginal costs on thermal systems where new capacity is required in the immediate future[2]. However, simple peaker calculations to estimate marginal capacity costs on a predominantly hydraulic system should be used with caution. This fact is pointed out in Newfoundland Power's 1997 Innovative Rate Study, a copy of which has been provided in the Company's response to Request for Information CA-235 NP. Appendix B of that report includes the NARUC Cost of Service Manual which states at page 115, footnote 7 that:

> "In some systems that rely heavily on hydro facilities, energy may be a constraining variable rather than capacity. New generating facilities are added primarily to generate additional energy to conserve limited water supplies. In such circumstances, marginal capacity costs are essentially zero."

[2] On thermal systems where peaking capacity is not needed in the near future, the costs of such proxy peaker units should be discounted with present value calculations.

I do not believe that the marginal costs of capacity on the Island Interconnected System are zero. However, the firm energy criterion and the current capacity situation on the Island Interconnected System does make the marginal cost considerably less than implied by the simplistic proxy peaker method used by Newfoundland Power in the 1997 report.

The extent to which the Firm Energy Criterion affects the cost of capacity is a question that can best be resolved by Hydro and Newfoundland Power completing a long-run marginal cost study in which increases in demand and energy are tested for their impact on future system costs. A marginal cost study based on Hydro's planning models will greatly assist in resolving the relative values of marginal demand versus marginal energy in retail rate design, the value of Newfoundland Power's Curtailable Service Option, the value of Hydro's Interruptible B load, and the value of implementing additional rate options to Newfoundland Power's customers.

2. GENERATION CREDIT TO NEWFOUNDLAND POWER

The treatment of Newfoundland Power's generation credit in Hydro's Cost of Service Study has been discussed before this Board at both the 1992 Cost of Service Hearing and the 2001 Hydro General Rate Proceeding. On both occasions the Board accepted the current Cost of Service methodology for dealing with the generation credit. At the 2001 Hydro General Rate Proceeding Mr. Osler, the Industrial Customer's expert witness, expressed concern over the generation credit methodology. On page 115 of Order No. P.U. 7 (2002-2003) the Board re-confirmed acceptance of Hydro's treatment of the generation credit for Newfoundland Power.

In this proceeding, the Industrial Customer's expert witnesses, Mr. Osler and Mr. P. Bowman, recommend that Newfoundland Power not be given a generation credit for its thermal generation.

In Section 6.3 on page 28 of their pre-filed evidence, Mr. Osler and Mr. P. Bowman suggest that the generation credit should be revisited by the Board because they believe the Island Interconnected System is in a "*situation of excess capacity until 2011"*.

Mr. Osler and Mr. P. Bowman's conclusions concerning excess capacity do not reflect the reality of generation and transmission planning. Generation and transmission additions provide blocks of increased capacity to the system. The size of the block depends on the resource being utilized. It is often the case that a system will have more or less than the exact amount of generation needed at any given point in time. Table 8 of Mr. Haynes' prefiled evidence indicates that even with the additional capacity added through Granite Canal and the additional purchased power contracts, there is a calculated probability of 1.1 hours of capacity shortfall forecast for 2004. The Board has not found Hydro's generation plans to be imprudent. Therefore, all the generation currently on the system provides a benefit to customers by minimizing the likelihood of outages.

In their evidence, EES states that Newfoundland Power's generating units are in Hydro's service territory and that Newfoundland Power should not therefore receive a credit for Hydro's transmission portion of the demand. In fact EES is simply mistaken, since none of Newfoundland Power's generating units are located in Hydro's service territory. Since the belief that Newfoundland Power's generation is located in Hydro's service territory is a cornerstone of the EES conclusion, it is difficult to see how the conclusion can now stand. The conclusion of EES appears to ignore the fact that Newfoundland Power's generation provides benefits to customers other than those of Newfoundland Power.

In the response to Request for Information NP-215 NLH, Hydro states that:

> "The purpose of the Newfoundland Power generation credit used in Hydro's cost of service study is to provide Newfoundland Power a credit that represents the capacity value, that NP's generation brings to the Island Interconnected System with respect to system planning and operations, from which all customers benefit. This credit has been consistently accepted since 1977."

Response to Request for Information IC-306 NLH indicates that Newfoundland Power has 94.62 MW of hydroelectric generation capacity and 50.90 MW of thermal generation capacity for a total generation capacity of 145.52 MW.

If the thermal generation credit where eliminated, as suggested by the Industrial Customers, and Newfoundland Power wanted to minimize its peak requirements and its cost assignment from Hydro, Newfoundland Power could opt to run all of its available thermal generation units during peak periods. However, Newfoundland Power's thermal units cost more on a kWh basis than those that would alternatively be run by Hydro to supply the load. Hence, running its own thermal generation in order to reduce its purchased power costs may result in higher costs on the overall system. Newfoundland Power currently only runs its thermal generation to reduce its demand requirement from Hydro when requested to do so by Hydro. This practice promotes least cost operation of the thermal generating facilities on the Island Interconnected System and ensures overall efficiency of operations. As a result of this arrangement between Newfoundland Power and Hydro on the operation of Newfoundland Power's thermal generation, the peak

demand assigned to Newfoundland Power through Hydro's cost of service study is net of Newfoundland Power's thermal generation, as well as hydraulic generation.

The difference between the native peak demand for Newfoundland Power (i.e., total peak requirement excluding generation) and the peak demand in the cost of service study is referred to as Newfoundland Power's generation credit. The generation credit is determined based on Newfoundland Power's total generation capability of 145.52 MW (as indicated in response to IC 306 NLH) less Hydro's 16% reserve.

Exhibit JRH-3, Section 3, deals with the benefits of remote peaking generation on system reliability from both an LOLH perspective and a system restoration perspective. Hydro's analysis indicates that all generation, including that owned by Newfoundland Power, defers the requirement to add new generation to meet capacity needs and assists in system restoration efforts[3]. Exhibit JRH-3, page 15, also indicates that over the past couple of years even the remote generation on the GNP has assisted in meeting peak load and system restoration efforts that benefited all customers on the Island Interconnected System.

Both Newfoundland Power's thermal and hydraulic generation serve an important role in Hydro's generation planning and system operations. I support continuation of the generation credit to Newfoundland Power, consistent with the Board's determination on the issue in Order No. P.U. 7 (2002-2003).

[3] Response to Request for Information IC-188 NLH

3. REVIEW OF TEST YEAR FORECASTS

In their pre-filed evidence, Mr. Osler and Mr. P. Bowman recommend that: "NP peak forecasts need to be reviewed further in the proceeding to assess the extent to which NP's peak demands as currently forecast result in a reasonable allocation of demand costs, particularly in the context that the 2002 actual cost of service showed that the IC group paid more than $5 million in excess of its measured costs in 2002 and that NP paid almost $5 million below the amounts that should have been collected through rates."

The characterization that the Industrial Customers paid $5 million more than it should have in 2002 is misleading. The rates charged to the Industrial Customers since September 2002 are based on approved rates derived from approved costs and approved forecasts. The view of being over-charged by Hydro is inconsistent with the acceptance of basing rates on a forecast test year rather than an historic test year. Rates are based on "expected" or "normal" test year conditions. That is an accepted practice before this Board in determining rates and revenue requirements.

Hydro's test year cost of service is provided on a forecast basis. In the 2002 test year Hydro based its cost of service allocations on the best estimates of demand and energy usage that were available at the time. Sometimes forecasts are incorrect on the high side and sometimes forecasts are incorrect on the low side. There has been no evidence presented of a consistent forecasting bias.

Recalculating the cost allocations on the presumption of perfect information would have resulted in different cost allocations. Based on Mr. Osler and Mr. P. Bowman's prefiled evidence,

page 30, Table 6.4, the cost transfer to the Industrial Customers resulting from a change in Newfoundland Power's demand is approximately $16 per kW. Newfoundland Power's actual coincident peak demand for 2002 was approximately 128 MW (or 13 %) greater than the 2002 test year forecast. The Industrial Customer's actual coincident peak demand for 2002 was approximately 11% less than the 2002 test year forecast. The impact of the Newfoundland Power demand forecast variance was approximately $2.0 million (128 MW times $16 per kW). The remaining cost variance of approximately $3.0 million referred to by Mr. Osler and Mr. P. Bowman was related to the Industrial Customer's demand forecast variance as well as energy forecast variances for both Newfoundland Power and the Industrial Customers.

Prior to September 2002, the Rate Stabilization Plan did recalculate the test year cost assignments to Newfoundland Power and Industrial Customers based on actual peak demand and energy usage on an annual basis. Mr. Osler's evidence at the 2001 Hydro General Rate Proceeding[4] clearly indicated dissatisfaction with that approach to cost recovery. It was subsequently changed.

I do agree with the Industrial Customer's recommendation that the Board should review the test-year load forecasts used in determining revenue requirement. All customer load forecasts should be reviewed in the rate case since they are an important component of the cost of service and rate design. In my experience, this is commonly done in other jurisdictions.

[4] 2nd Supplementary Evidence dated November 25, 2001; Section 3 – RSP Operation Pre 2002.