1998 Demand Side Management Report

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I. Background

In Order No. P. U. 1 (1990), the Board of Commissioners of Public Utilities ("the Board") ordered Newfoundland Power Inc. ("the Company") to file annually a progress report of its Demand Side Management (DSM) activities. In Order No. P.U. 7 (1996-97) the Board expanded on the DSM requirement, stating: "*The Applicant shall continue to file DSM progress reports annually, indicating the validity of individual programs and documenting their impact on conservation, valley filling, peak shifting, peak clipping and strategic load growth; their impact on minimizing customer rates; and their impact on next generation planning."*

This report provides an overview of the Company's DSM activities during 1998. It includes a description of the various activities, together with the results and associated costs. Where applicable, the costs and benefits of the programs are analyzed from the perspectives of participants, non-participants and total resources.

II. 1998 DSM Activities

The intent of DSM programs is to manage the demand side use of electrical energy in order to minimize electricity rates. However, the primary focus for 1998 of many of the programs traditionally classified as DSM programs continued to be on improving customer service and enhancing the value customers receive from electrical energy. The activities for 1998 are described below under the general categories of Customer Energy Services and Programs, Load Shape Programs, and DSM Research Projects.

Customer Energy Services and Programs

The Customer Service Department provides assistance and information to customers on a variety of customer and energy related matters. These services and programs affect load shape either directly by influencing customers' use of electricity, or indirectly by influencing the use of products that have the potential to affect load shape.

***Power Smart Programs*:**
Activities under this heading include customer inquiries, financing, electric heating designs, and the Thermostat Rebate Program.

Customer Inquiries: The Company answered customer inquiries on energy efficiency and Power Smart programs through its toll-free service. Where necessary, these services were provided in conjunction with Energy Consultant field visits and the involvement of participating trade allies. In addition to the inquiries handled by Call Centre agents, approximately 6,900 calls were referred to Power Smart Representatives during 1998.

Financing: The Company provided financing to eligible customers for electric heating systems, heat recovery ventilation systems, electrical upgrades, high performance thermostats, and hot water tanks. A total of 1,600 loans were issued in 1998. These consisted of 943 loans for hot water tanks, 611 for electric heat financing, and 46 for insulation upgrades.

Electric Heat Design: The Company provided electric heat designs to customers building new homes. These designs indicate appropriate sizing for heating systems along with an estimate of annual heating costs. The heating design reports also provide customers with recommendations on insulation levels. The Company completed 234 electric heat designs in 1998.

Thermostat Rebate Program: The Company offered a $4 rebate on each purchase of selected high-accuracy thermostats under its Thermostat Rebate Program. The purpose is to increase the comfort and satisfaction of electric heat customers by encouraging customers to install highly accurate thermostats. There were 2,551 rebates issued in 1998.

***Energy Consultants*:**
The role of Energy Consultants at Newfoundland Power has evolved over the last two years. They are no longer focused on DSM, and are primarily considered to be customer service providers. This is reflected in the current position title, which was changed in early 1999 to "Customer Service Specialist". While Customer Service Specialists continue to be responsible for providing advice on energy issues, their role now includes such duties as delivery of safety and general consumer information, and the assessment and settlement of customer damage claims.

Energy conservation continues to be an important issue for the Company's customers, and the Company considers the provision of information on this topic to be an essential element of good customer service. Information related to the wise use of electricity is now available from all employees performing customer service functions. The following is the breakdown for 1998 of Customer Service Specialist contacts by type:

	Residential	Commercial
Efficiency Improvements/ Customer Service	3,687 (88%)	1,375 (84%)
New Construction	347 (8%)	159 (10%)
Conversions	149 (4%)	95 (6%)
	4,183 (100%)	1,629 (100%)

***Energy Advertising*:**
The Company regularly advertises its programs and services including the Equal Payment Plan (EPP), Pre-authorized Payment Plan (PAP), TVD (automated power outage information system), Power Smart Energy Efficiency programs, Call Centre hours, and services and information available through the Company's website. The total 1998 expense for advertising programs and services was $23,867. It is estimated

that 15% of this amount was attributable to Power Smart programs and energy advertising. Brochures explaining programs and services continued to be displayed at Company locations. These brochures are also distributed along with other information provided to customers building new homes.

Load Shape Programs

Load Shape Programs improve the Company's load factor by reducing demand for energy during system peak periods. These programs have the potential of deferring capital expenditures and associated customer costs by making more effective use of the electrical system. Wrap Up For Savings and the Curtailable Service Option were the two DSM programs quantitatively measured as having an effect on load shape in 1998.

***Wrap Up For Savings*:**
This program is designed to improve energy efficiency, enhance the comfort level of electrically heated homes, and increase customer satisfaction with the value they are receiving from electricity. The program offers rebates to customers to upgrade insulation in basements, crawl spaces, and attics. Customer Service Specialists meet with customers to provide advice on insulation and how to properly upgrade existing insulation levels.

The load shape impacts of this program are conservation and peak clipping. Improved insulation and air sealing tend to reduce both demand and energy at the time of system peak and throughout the remainder of the heating season. The program also functions as a load retention mechanism, as increased customer satisfaction with electric heating will likely ensure continued customer usage of electric space heating.

In 1998, 231 projects were completed under the program, resulting in an energy reduction of 810,000 kWh and a peak reduction of 250 kW.

The costs and benefits of this program were analyzed from the perspective of participants, non-participants, and total resources. In 1998, the DSM program tests indicated benefit to cost ratios as follows:

Participants Test[1] :	5.05
Rate Impact Test[2] :	1.03
Total Resource Cost Test[3] :	4.07

***Curtailable Service Option*:**

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1 A *Participants Test* is used to determine if a DSM program minimizes the overall energy costs for users.

2 A *Rate Impact Test* is used to determine whether the program minimizes rates for non-participants.

3 A *Total Resource Cost Test* is used to determine if a DSM program minimizes the overall cost of supplying energy. As such, the Total Resource Cost Test is a test of the program's impact on generation planning.

The Curtailable Service Option provides an incentive to large commercial customers to reduce electrical demand during system peak. Large commercial customers are offered a credit on their electric bill for curtailing their load when requested to do so. The option is available to general service customers who can curtail load by at least 330 kVA. Participants who curtail their load at the request of the Company receive an annual credit on their electric bills at the end of the winter season.

This project has a peak clipping impact on the load shape. Results for the 1997/1998 winter heating season were submitted to the Board in a report dated April 22, 1998, entitled *1998 Curtailable Service Option Report*. Nine commercial customers participated in the Curtailable Service Option in the 1997/1998 winter heating season and were asked to curtail on four occasions. This option provided between 5 MW and 6 MW of curtailable load to the Company. The actual results depend on both the number of successful curtailments for each request and the coincidence of the curtailable customer's peak energy usage with the Company's peak energy use.

DSM Research Projects

DSM research projects are conducted to test the costs and benefits of potential programs through the analysis of small-scale pilots or demonstration projects and to research customer acceptance of innovative products. While there were no new projects initiated in 1998, the Company continued to monitor a number of past projects.

In 1997, the Company installed load monitoring equipment on approximately 110 customer services. These services had a variety of heating systems installed, e.g. air-source heat pumps with electric resistance back-up, air-source heat pumps with propane backup, ground source heat pumps, electric baseboard systems, and oil-fired systems. In addition, the sample also included a number of R-2000 homes. The data collected from these recorders in 1997 and 1998 has been downloaded for analysis. Once the analysis has been completed, it will assist in determining the potential impact of these technologies on system load shape and assessing the potential for load retention, peak clipping, conservation and valley filling.

III. 1998 DSM Costs

The following table summarizes the costs associated with the various activities classified as DSM activities in 1998. The majority of those costs are associated with Customer Energy Services and Programs.

1998 Costs

	Total
Customer Energy Services and Programs	
Power Smart Programs	$243,442
Energy Advertising	3,580
Load Shape Improvements	
Wrap Up for Savings	37,971
Curtailable Service Option	122,737
DSM Research Projects	2,224
Total DSM Costs	**$409,954**
Customer Service Specialists	643,901
Total Costs	**$1,053,855**

The total cost of the Customer Service Specialists (formerly Energy Consultants) was $643,901 in 1998. However, due to the significant evolution of their role, only a portion of those costs is directly related to DSM activities. In order to avoid confusion, the Company intends to exclude the costs associated with Customer Service Specialists from future reporting on DSM activities.

IV. Summary And Outlook

In 1998, the Company continued its transition from a focus on traditional DSM activities in favour of improving customer service and enhancing the value customers receive from electrical energy. In future, the Company's reporting on DSM activities will be modified to reflect this change.

The Company continues to see load shape improvements from customer participation in the Wrap Up for Savings Program and the Curtailable Service Option. Other DSM activities undertaken by the Company during 1998 did not have a measurable impact on generation planning. However, a combination of energy packages and customer service offerings that adds value to customers will contribute indirectly to minimizing the cost of generation over the long term.

In 1999, the Company will continue to facilitate the optimal use of electricity by customers through its Customer Energy Services and Programs. These programs are designed to maximize the value of electrical energy by ensuring customers use electricity efficiently and wisely. The Company will also continue with its Wrap Up For Savings and Curtailable Service Option.

It is the intent of the Company that all customers benefit from the Company's DSM activities either directly as participants, indirectly as non-participants or through improved customer service. DSM activities will continue to be influenced by load forecasts, competitive pressures and generation cost projections. The Company will continuously reassess DSM initiatives to ensure they meet customer requirements.