

1 **Q. Further to the response to PUB-NP-029, Attachment A, please provide the**
2 **underlying load data and work papers used to develop this study.**
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4 A. Attachment A to this response provides load data for the 2-year study of time-of-day rates
5 provided in response to Information Request PUB-NP-029. Attachment A is provided in
6 Microsoft Access format, compressed in ZIP file format on Newfoundland Power's
7 stranded website at <https://ftp.nfpower.nf.ca/>. Hourly load data (in watts) is provided for
8 each load recorder throughout the 2-year study period.
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10 Attachment B to this response provides compiled data, including daily energy usage
11 broken down by morning peak, evening peak and off-peak. It also includes demographic
12 information, including the type of space heating.¹ Attachment B is provided in Microsoft
13 Excel format on Newfoundland Power's stranded website at <https://ftp.nfpower.nf.ca/>.
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15 Attachment C to this response provides the attributes used to develop the time-of-day
16 rates study.²

¹ Please note that while 209 customers remained throughout the program and were included in the analysis, load and demographic data is available for all 236 installed load recorders.

² Attachment C to this response is Exhibit 3 of the *Evidence of Newfoundland Power Inc.* filed with the Board on March 15, 2011 in relation to the *Retail Rate Review – Alternative Rate Proposals*.

Time-of-Day Rate Study
Attributes

TOD Rate Study Attributes

1.0 General

This document provides the TOD study design, the processes for data collection, the planned approach to provide timely feedback to participants on their usage patterns, illustrative TOD rates, and the billing approach for the rate study.

1.1 Study Design

Domestic

It is planned that 120 Domestic customers participate in the TOD rate study; participation will be voluntary.¹ The participants will be stratified into three subgroups identified by source of space heating: 1) electric heating only; 2) electric heating plus supplementary fuel; and 3) heating source other than electric.

A control group of 120 customers with similar characteristics and seasonal usage patterns as the participant group will also be selected for load shape comparison to the participant group. The same stratifications will apply to the control group as the participant group.

It is anticipated that many participants may not achieve annual savings on the TOD rates compared to the flat energy rate. To encourage customer participation in the rate study, the participants will be guaranteed that their annual bill will not increase as a result of their participation. If customers achieve savings through participation, the savings are theirs to keep.

Customers will be contacted electronically to solicit their participation in the TOD rate study.² Interested participants will complete a questionnaire on-line to provide their demographic and home characteristics for the Company to use in selecting the study participants and the control group. As an incentive for participation, all participants will become eligible to win a draw prize following each year the study is in effect (maybe an iPad).

Rate 2.4

The experimental rate will be offered to Rate 2.4 customers that are in operation during the winter season. This approach will result in approximately 45 of the 60 Rate 2.4 customers being offered participation in the rate study.³

¹ The specific dwelling types that will be included in the rate study have yet to be finalized.

² The information package will be sent to customers that are either set up on ebills or have accessed the Company's website and are served in meter reading routes that are accessible year-round.

³ Customers with average monthly winter season demand requirements less than 50% of their average monthly non-winter season demand requirements will not be requested to participate in the rate study. In general, these customers are not in full operation during the winter months and their participation in the TOD rate study would not provide beneficial information on the effects of TOD rates on reducing or shifting loads from the winter on-peak period. The selection criteria is consistent with the objectives of the TOD rate study (i.e., one of which is to help evaluate the impact that offering TOD rates can have on customer's usage patterns during the winter season).

The Company has load recording meters on the vast majority of the Rate 2.4 customers. As a result, for the Rate 2.4 customers, the impact of TOD pricing on usage patterns can be evaluated by comparing pre-rate study patterns with their usage patterns during the rate study. No separate control group will be established for Rate 2.4.

1.2 Data Collection

Domestic

Meters with load recording capability will be installed on the services of the customers in both the participant group and the control group. These load recording meters store the customer usage data for each 15 minutes during the month.

The customer usage data will be collected by handheld probes during the regularly scheduled monthly meter reading process. To provide regular access for meter reading monthly usage, participants for the rate study will be located in the vicinity of the Company's area offices. One third of the study participants will be selected from each of the St. John's area, the Gander area and the Stephenville area.

The load recording meters and the meter reading probes to be used for the rate study were purchased in 2003 for the Company's class load research study. As a result, no additional load recording meters or meter reading probes are required to be purchased for the study. However, approximately 190 load research meters are still in service and need to be removed and re-calibrated for use in the rate study.

Rate 2.4

Modems are installed in the load recording meters on the Rate 2.4 customers and dedicated telephone lines are utilized to collect usage data each month. The availability of data for TOD billing for Rate 2.4 customers is not impacted by accessibility issues for meter readers.

1.3 Customer Information

An important element in assisting customers in changing their usage patterns is the provision of timely usage information. The monthly bill will provide information to participants providing their on-peak and off-peak usage characteristics. However, the timing of this feedback will materially lag the customers' behaviours that influenced their time of day usage characteristics.

To allow participants from the Domestic class to become familiar with their daily usage patterns and to help enable them to manage their pattern of use during the winter period, it is proposed to provide each customer with an in-home monitoring device that provides real-time feedback on their household usage. The use of in-home monitoring devices has been recognized to incent conservation by customers.⁴

⁴ In-home monitoring devices will also be provided to the customers in the Domestic control group to permit separate analysis of the effects of the in-home monitoring devices on customer usage. The energy usage of control group participants prior to and during the rate study will provide a basis for estimating any conservation effects of the in-home monitoring devices.

Rate 2.4 customers are advanced users that often have load management systems that enable them to monitor their daily usage patterns. For Rate 2.4 customers that do not have load management systems, the Company can provide the customer's historical daily usage patterns to assist the customer in managing its usage.

1.4 TOD Rates

Table 1 provides illustrative TOD rates that will be comparable to those that will be used for the TOD rate study.

Table 1
Illustrative TOD Rates⁵

Rate Design	Energy Charges (¢ per kWh)		Demand Charge \$ per kVA
	Non-Winter	Winter	
Domestic	8.275 All kWh	14.375 on-peak kWh 9.375 off-peak kWh	-
Rate 2.4	6.756 All kWh	12.455 on-peak kWh 7.655 off-peak kWh	\$1.84

The illustrative TOD base rates provided in Table 1 were designed based upon the 2010 test year revenue requirement by class including the Rate Stabilization Adjustment (RSA) and the Municipal Tax Adjustment (MTA) effective July 1, 2010. The TOD customer rates to become effective December 1, 2011 will reflect the most recent approved test year and the most current RSA and MTA adjustments.

1.5 Customer Billing

For the TOD rate study, manual bill calculations will be performed outside CSS. This will require that a billing application must be developed outside CSS to compute monthly bills and maintain a history of monthly TOD data for each participant.

The data to be used in billing TOD rates will be extracted from the MV90 load research software which stores the interval data collected from the load recording meters.⁶ Training will be provided to the staff that will use the MV90 software as part of the billing process.

⁵ For the TOD rates, the Basic Customer Charge is set to equal Basic Customer Charge in the standard rate.

⁶ Additional usage information is required for time of day billing that is not recorded on a standard energy or demand/energy meter. Therefore, to make a time of day rate available to all customers would require a commitment to replace the meters for those that participate. For the Company's largest customers (Rate 2.4), the current metering equipment stores the information necessary for billing on time of day rates.

Exhibit 3

Billing adjustments will be required in CSS so that the monthly bill issued to each customer reflects the TOD rate effects. An attachment to each bill will provide the computation of the TOD charges supporting the monthly bill adjustment.

TOD billings will occur throughout the month as the billing cycles proceed. With 120 Domestic participants, there will be on average 6 customers billed per billing cycle. As a result, the TOD rate study will require manual preparation of 6 bills and 6 bill adjustments in CSS per day.⁷ Depending upon the number of Rate 2.4 customers that participate, the number of manual bills and bill adjustments to be processed per day will be slightly greater.

Training will be provided to Customer Contact Centre staff to deal with inquiries from participants in the rate study. Training will also be provided for the billing staff preparing the monthly bills.

⁷ The estimate of 6 manual bills per day is based upon 120 bills spread over 19 billing days.