

1 **Reference: Volume 2, Customer, Energy and Demand Forecast**

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3 **Q. Volume 2, Customer, Energy and Demand Forecast, page 3. Footnote 8 describes**
4 **the peak demand forecasting methodologies of six of twelve Canadian utilities that**
5 **use a similar methodology to Newfoundland Power's. Describe the methodologies**
6 **used by the other utilities included in the survey.**

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8 A. In 2021, Newfoundland Power surveyed 12 Canadian utilities to understand their peak
9 demand forecast methodologies. Of the 12 surveyed utilities, 6 use methodologies
10 similar to Newfoundland Power's load factor methodology, which relies on forecast
11 energy consumption and historic energy and demand data.

12
13 Five of the remaining 6 utilities use statistical regression models to forecast peak
14 demand.¹ Statistical regression models analyze the historical relationship between peak
15 demand (the "dependent variable") and independent variables that can be used to predict
16 peak demand.² Independent variables can include, for example, the number of customers,
17 temperature at time of peak, electricity rates, conservation and demand management
18 initiatives, and other factors that prove to be relevant in determining peak demand.³ To
19 forecast peak demand using a statistical regression model, forecast information is
20 required for the independent variables.⁴

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22 The remaining utility forecasts its capacity requirements on the distribution level. The
23 utility's forecast of capacity requirements involves statistical trending of historical
24 recorded peaks, inclusion of aggregated committed loads and the use of professional
25 distribution system planning judgment. The utility's forecast capacity requirements are
26 used by the provincial electrical system operator for supply planning purposes.

¹ Statistical regression models used to forecast peak demand can be developed using Microsoft Excel and purpose-built forecasting software including the Itron Inc. *MetrixND* software and the Business Forecast Systems, Inc. *Forecast Pro* software.

² Statistical tests are applied to the independent variables to determine whether they are statistically significant. Independent variables that are not statistically significant are typically excluded from the regression model.

³ The relationship between the dependent variable and each independent variable is estimated by regression coefficients. For example, the regression coefficient associated with the number of customers would define the amount of peak demand attributable to each customer (i.e. kW per customer).

⁴ For example, to forecast peak demand in 2023 would require a forecast of the number of customers expected to be served in that year.