**Raquel J. Webster**
Senior Counsel

October 15, 2020

**VIA ELECTRONIC MAIL**

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

**RE: Docket 5043 - National Grid's Gas Long-Range Resource and Requirements Plan Forecast Period 2020/21 to 2024/25**
**Responses to Conservation Law Foundation Data Requests – Set 1**

Dear Ms. Massaro:

I have enclosed an electronic version of National Grid's[1] responses to the Conservation Law Foundation's ("CLFs") First Set of Data Requests in the above-referenced docket.[2]

Thank you for your attention to this matter. If you have any questions, please contact me at 401-784-7288.

Very truly yours,

Raquel J. Webster

Enclosures

cc: Docket 5043 Service List
Leo Wold, Esq.
Al Mancini, Division
John Bell, Division

[1] The Narragansett Electric Company d/b/a National Grid (National Grid or the Company).
[2] Per Commission counsel's update on October 2, 2020, concerning the COVID-19 emergency period, the Company is submitting an electronic version of this filing. The Company is also providing the Commission Clerk with five (5) hard copies of the enclosures.

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Certificate of Service

I hereby certify that a copy of the cover letter and any materials accompanying this certificate was electronically transmitted to the individuals listed below.

Joanne M. Scanlon

October 15 ,2020
Date

**Docket No. 5043 – National Grid's Gas Long-Range Resource Plan**
**Service List as of 7/23/2020**

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CLF 1-1

Request:

Section III.D.2. of National Grid's Gas Long-Range Resource and Requirements Plan for the Forecast Period 2019/20 to 2023/24 (attached hereto as Attachment 1), submitted July 2, 2019 in RIPUC Docket No. 4816, forecasted growth in sendout requirements for natural gas of 1,297 MDth between 2019/2020 and 2023/2024. Section III.D.2. of National Grid's pending Gas Long-Range Resource and Requirements Plan projects growth in sendout requirements of 2,474 MDth between 2019/2020 and 2023/2024. Please describe each of the factors that are responsible for the increase in projected growth in the 2019/2020–2023/2024 forecast period, detail the impact that each factor had on the increased growth, and provide any working papers reflecting associated calculations.

Response:

The growth in sendout requirements is driven by growth in the number of customers.

In the Company's instant Gas Long-Range Resource and Requirements Plan ("Long Range Plan"), Exhibit 5 presented the Company's retail forecasted meter count at the end of each planning year[1]. Using that table, below the Company shows the cumulative change in meter count by rate group is 13,004 meters at the end of PY2024.

2020 National Grid RI Meter Count Forecast
End of Planning Year (Nov-Oct) - Cumulative Change

| | RNH | RH | CI_Sales | FT1 | FT2 | Subtotal | Other | Total |
|---|---|---|---|---|---|---|---|---|
| PY2020 | -740 | -1,272 | -46 | -21 | -27 | -2,106 | 29 | -2,077 |
| PY2021 | -1,576 | 2,975 | 398 | -6 | 11 | 1,802 | 46 | 1,848 |
| PY2022 | -2,934 | 10,616 | 788 | 7 | 48 | 8,525 | 61 | 8,586 |
| PY2023 | -4,100 | 15,226 | 1,077 | 20 | 76 | 12,299 | 71 | 12,370 |
| PY2024 | -5,225 | 16,817 | 1,220 | 27 | 88 | 12,927 | 77 | 13,004 |

[1] A planning year runs from November through October. For example, PY2020 began November 1, 2019 and ends October 31, 2020.

Prepared by or under the supervision of: Theodore E. Poe, Jr.

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CLF 1-1, page 3

In the Long Range Plan, Exhibit 1 presented the Company's retail forecasted volume at the end of each planning year. Using that data and dividing by the meter count values in Exhibit 5, the Company shows the cumulative change in use-per-customer by rate group is -1 Dth/meter at the end of PY2024. Hence, rebounding from the economic effects of the COVID-19 Pandemic ("Pandemic"), the average use per customer remains approximately the same as prior to the Pandemic in PY2019.

2020 National Grid RI Use Per Customer Forecast
End of Planning Year (Nov-Oct) - Cumulative Change

| | RNH | RH | CI_Sales | FT1 | FT2 | Subtotal | Other | Total |
|---|---|---|---|---|---|---|---|---|
| PY2020 | -3 | -5 | -17 | -369 | -62 | -8 | -228 | -9 |
| PY2021 | -2 | -3 | -6 | -1,050 | -142 | -7 | -378 | -8 |
| PY2022 | -2 | -4 | -1 | -723 | -106 | -6 | -322 | -6 |
| PY2023 | -2 | -3 | 4 | -306 | -66 | -3 | -277 | -4 |
| PY2024 | -2 | -2 | 11 | -395 | -50 | -1 | -297 | -1 |

The growth in sendout requirements is in PY2024 versus the PY2019 reference year is not driven by an overall change in per-customer usage; it is driven by growth in the number of customers, particularly the residential heating and the commercial & industrial markets. In the Company's forecast, residential heating meter count was found to be driven by non-manufacturing employment. The commercial meter count was driven by retail sales and the industrial meter count was driven by total employment and the industrial gas-to-oil price ratio. Key economic variables were provided as Exhibit 3 in the Company's filing. Attachments 1 and 2 to the Company's response to Data Request CLF 1-2 provide the full set of monthly economic and price variables considered in the development of the Company's retail gas forecast.

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CLF 1-2

Request:

Please list and provide a copy of each and every economic projection that was used by National Grid in developing its five-year forecast.

Response:

For its 2020 Long Range Plan, the Company used the April 2020 baseline economic projections from Moody's Analytics. This forecast included estimates of the impact of the COVID-19 pandemic on the Rhode Island economy. Attachment 1 is a csv file of the monthly economic variables. Attachment 2 is a csv file of the monthly price variables. All the economic data is for The Narragansett Electric Company. The price data is for the state of Rhode Island.

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CLF 1-3

Request:

On September 9, 2020 the U.S. Energy Information Administration (EIA) published its most recent Short-Term Energy Outlook (attached hereto as Attachment 2), which projected national natural gas demand (*see* Table 5a, pg. 38), and New England regional real gross state product and total non-farm employment (*see* Table 9b, pg. 49) to remain below 2019 levels through 2021. Please explain how and to what extent the EIA's projections alter or otherwise impact National Grid's proposed forecast.

Response:

EIA's September projections do not alter or otherwise impact National Grid's proposed forecast. In general, the Company does not change its annual gas load forecast because new data and projections come in each month throughout the year. The exception would be the occurrence of unforeseen events that cause a major change in the economic or natural gas outlook. This has not been the case.

The April 2020 economic projections that the Company used to develop the proposed forecast include the impact of COVID-19 on the Rhode Island economy. Since then, the economic outlook has not changed enough to warrant a change in the gas load forecast, and the Company's economic projections remain in line with those contained in EIA's September 9, 2020 Short-Term Energy Outlook (STEO). Like EIA's projections for total New England non-farm employment, the Company anticipates that total Rhode Island non-farm employment will remain below 2019 levels through 2021. The Company expects Rhode Island real gross domestic product (GDP) to regain 2019 levels mid-way through 2021 which is slightly earlier than EIA's projections for New England real GDP. However, actual Rhode Island employment and GDP growth outperformed that of the Northeast and the US prior to the COVID-19 recession. Note that the Company does not use EIA's projections of New England GDP or New England total non-farm employment to drive its forecast of Rhode Island natural gas demand. Rather, the Company uses projections of Rhode Island economic growth, available from Moody's Analytics. Rhode Island economic growth can differ significantly from that of the New England region as a whole. EIA's STEO does not include state-specific data or projections.

Finally, the Company did not use EIA's forecast of national natural gas demand in developing the proposed gas demand forecast for Rhode Island. The reason is that there can be significant differences between national natural gas demand growth and Rhode Island natural gas demand growth due to differences in Rhode Island economic growth, natural gas transportation costs, gas availability and the size of the oil conversion market.

Prepared by or under the supervision of: Theodore E. Poe, Jr.

CLF 1-3, page 2

To sum up, data in the coming months may work in favor or against the proposed 2020 and 2021 forecast. However, there have not yet been any developments indicating that the forecast is too high or too low to be revised due to events since April.

CLF 1-4

Request:

Please explain how the Company has taken climate change into account when calculating the design year standard, design day standard, and cold-snap scenario. For each of these standards, if climate change was not considered please explain why it was not considered.

Response:

As noted in section III.D.1.a of the Company's Gas Long-Range Resource and Requirements Plan ("Long Range Plan"), the Company's normal year is the average of the most-recent 10 years of weather, established each time that the Company files a rate case in Rhode Island. The use of the rolling 10-year average will capture any long-term changes in the Rhode Island climate due to climate change.

In section III.E.2.a of the Company's Long Range Plan, the Company describes how its design day standard is determined based on the recorded daily heating degree day ("HDD") values (6,040 observations) at the T.F. Green weather station for the November through March periods of 1977/78 through 2016/17. Similarly, the design year standard is also determined based on statistical analysis on 40 years of historical data. Periodically, the Company will update the 40-year time period to include more-recent data and capture any longer-term climate changes.

In section II of the Company's Long Range Plan, the Company describes its cold-snap weather scenario as a 14-day cold snap occurring in the coldest 14-day period of the Company's normal year (January 8 - January 21). The most recent cold snap scenario was developed by evaluating January weather data from the 40-year period from 1977/78 to 2016/17.[1] Periodically, the Company will update the 40-year time period to include more-recent data and capture any longer-term climate changes.

Since all the weather standards are determined by using moving-average periods of historical weather data, any impact of climate change would automatically be incorporated in the Company's weather standards.

[1] The normal year was determined by calculating the average annual number of HDDs for the T.F. Green (KPVD) weather station for the 10-year period from April 2007 through March 2017, and then selecting, for each calendar month, the month in the T.F. Green weather database that most closely approximates the 10-year average HDD and standard deviation for each month.

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CLF 1-5

Request:

In Section III.E.2.a. the Company explains that it is now utilizing a larger data set in calculating the design day standard, because "the distribution of coldest days in the earlier methodology is trending away from a normal distribution." Please expand upon this, and if possible, explain the trend away from a normal distribution.

Response:

The Company's response to Data Request DIV 1-12(b) in the Company's 2018 Long-Range Resources and Requirements Plan (Docket 4816) is responsive to this request. In that response, the Company stated:

*I)n previous Long-Range Plan filings, the Company had used the coldest day in each of the most recent 40 years to determine the mean and standard deviation statistics for its design day distribution. In reviewing the data for the current filing, the Company noted that the distribution was considered normally-distributed based on the Shapiro-Wilk test (p-value>0.05):*

> *Shapiro-Wilk normality test*
> *data: RI_data[, 2]*
> *W = 0.96664, p-value = 0.2803*

*However, the data was becoming more skewed as seen in the histogram in Figure 1 and the normal Q-Q plot in Figure 2.*

CLF 1-5, page 2

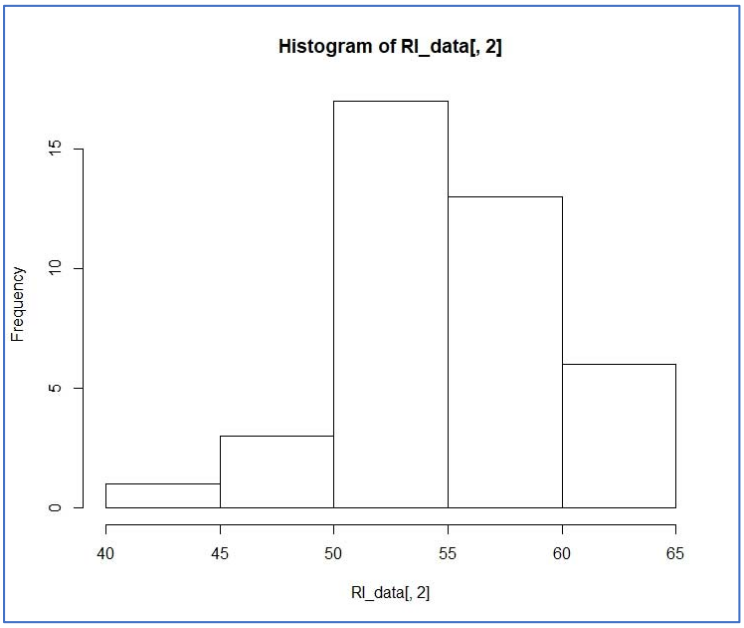


*Figure 1*

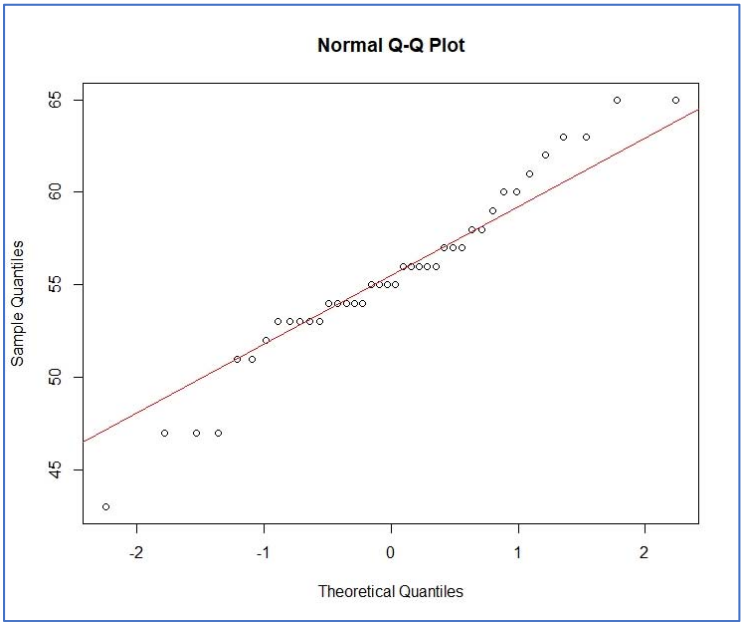


*Figure 2*

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CLF 1-5, page 3

*As noted in the Company's filing, the Company used recorded daily HDD values based on 6,040 observations at the T.F. Green weather site for the November through March periods of 1977/78 through 2016/17. Using its new methodology, the Company found that these 6,040 data points had a mean of 55.00 HDD and a standard deviation of 6.13 HDD.*

*The Shapiro-Wilk test for normality cannot be used for datasets with more than 5000 observations since, for large amounts of data, even very small deviations from normality can be detected, leading to rejection of the null hypothesis even though for practical purposes the data is essentially normal. The Company did use the Kolmogorov-Smirnov test on its data and found that it too rejected normality:*

> *One-sample Kolmogorov-Smirnov test*
> *data: RI_data[, 4]*
> *D = 0.99897, p-value < 2.2e-16*
> *alternative hypothesis: two-sided*

*Examining the normal Q-Q plot (Figure 3), the Company accepted the data as normally distributed.*

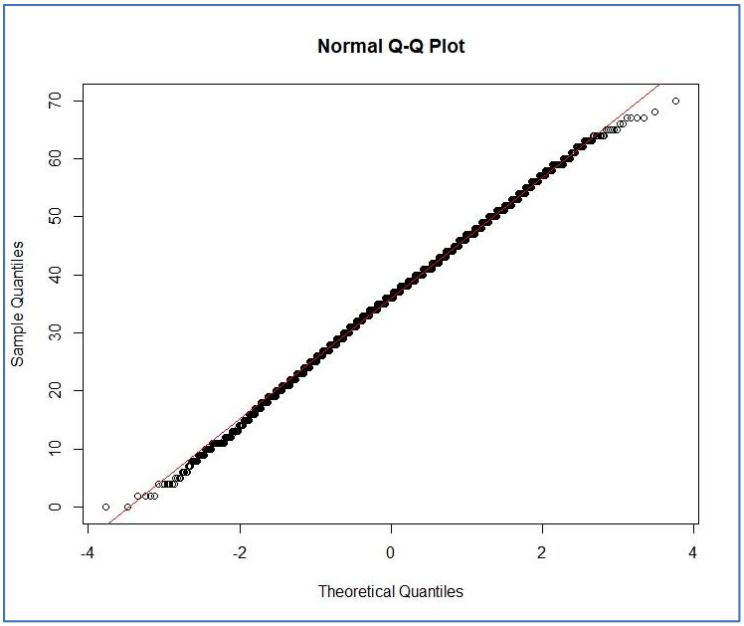


*Figure 3*

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CLF 1-6

Request:

In Section III.E.2.b. the Company says that it "performed a statistical analysis of annual HDD data recorded over a historical period." Please identify this historical period.

Response:

In Section III.E.2.b., the Company describes its design year standard, which was based on a statistical analysis of the calendar year annual HDD values for 40 years: 1978 – 2017.