

July 31, 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
Response to Division Data Requests – Set 1**

Dear Ms. Massaro:

I have enclosed an electronic version of National Grid's¹ responses to the Division of Public Utilities and Carriers' ("Division") First Set of Data Requests in the above-referenced docket.²

This filing also contains a Motion for Protective Treatment of Confidential Information in accordance with Rule 810-RICR-00-00-1.3(H) of the Public Utilities Commission's (PUC) Rules of Practice and Procedure and R.I. Gen. Laws § 38-2-2(4)(B). National Grid seeks protection from public disclosure of certain confidential and privileged information in response to Division Data Request 1-3 contained in Excel workbooks provided as Attachment DIV 1-3c, Attachment DIV 1-3d, Attachments DIV 1-3e_1 through 4, and Attachments DIV 1-3f_1 through 4.

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

Very truly yours,



Jennifer Brooks Hutchinson

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 Because of the COVID-19 Pandemic emergency period, the Company is providing a PDF version of the above-referenced transmittal. The Company is providing the PUC with one copy and, if needed, additional hard copies at a later date.

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

July 31, 2020

Date

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

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calculations, workpapers, documentation and Excel files supporting Exhibits 18, 19, 20, and 21, respectively. In response, the Company provided the Excel workbooks used to create these confidential exhibits. The Excel workbooks provided as Attachment DIV 1-3c, Attachment DIV 1-3d, Attachments DIV 1-3e_1 through 4, and Attachments DIV 1-3f_1 through 4 contain the same confidential gas cost pricing information and contract terms as contained in Confidential Exhibits 18, 19, 20, and 21, respectively. Therefore, the Company requests that, pursuant to Rule 1.3(H), the PUC afford confidential treatment to Attachment DIV 1-3c, Attachment DIV 1-3d, Attachments DIV 1-3e_1 through 4, and Attachments DIV 1-3f_1 through 4 in their entirety.

II. LEGAL STANDARD

Rule 1.3(H) provides that access to public records shall be granted in accordance with the Access to Public Records Act (APRA), R.I. Gen. Laws § 38-2-1, *et seq.* Under the APRA, all documents and materials submitted in connection with the transaction of official business by an agency is deemed to be a “public record,” unless the information contained in such documents and materials falls within one of the exceptions specifically identified in R.I. Gen. Laws § 38-2-2(4). To the extent that information provided to the PUC falls within one of the designated exceptions to the public records law, the PUC has the authority under the terms of APRA to deem such information as confidential and to protect that information from public disclosure.

In that regard, R.I. Gen. Laws § 38-2-2(4)(B) provides that the following types of records shall not be deemed public:

Trade secrets and commercial or financial information obtained from a person, firm, or corporation which is of a privileged or confidential nature.

The Rhode Island Supreme Court has held that this confidential information exemption applies where the disclosure of information would be likely either (1) to impair the government's ability to obtain necessary information in the future; or (2) to cause substantial harm to the competitive position of the person from whom the information was obtained. *Providence Journal*, 774 A.2d 40 (R.I. 2001).

The first prong of the test is satisfied when information is provided to the governmental agency and that information is of a kind that would customarily not be released to the public by the person from whom it was obtained. *Providence Journal*, 774 A.2d at 47.

III. BASIS FOR CONFIDENTIALITY

The gas cost pricing information and confidential contract terms contained in the Excel workbooks – provided in Attachment DIV 1-3c, Attachment DIV 1-3d, Attachments DIV 1-3e_1 through 4, and Attachments DIV 1-3f_1 through 4 – are the same type of information that was used to create Confidential Exhibits 18, 19, 20 and 21, respectively, to the LRP, which are the subject of a Motion for Protective Treatment currently pending with the PUC. This information is confidential and privileged information of the type that National Grid would not ordinarily make public. As such, the information should be protected from public disclosure. Public disclosure of such information could impair National Grid's ability to obtain advantageous pricing or other terms in the future, thereby causing substantial competitive harm. Accordingly, National Grid is providing the information on a voluntary basis to assist the PUC with its decision-making in this proceeding, but respectfully requests that the PUC provide confidential treatment to the information.

IV. CONCLUSION

For the foregoing reasons, National Grid respectfully requests that the PUC grant its Motion for Protective Treatment of Confidential Information.

Respectfully submitted,

**THE NARRAGANSETT ELECTRIC
COMPANY d/b/a NATIONAL GRID**

By its attorney,



Jennifer Brooks Hutchinson (Bar #6176)
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Providence, RI 02907
Tel. 401-784-7288
jennifer.hutchinson@nationalgrid.com

Dated: July 31, 2020

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5043
In Re: Gas Long-Range Resource and Requirements Plan
for the Forecast Period 2020/21 to 2024/25
Responses to the Division's First Set of Data Requests
Issued on July 10, 2020

Division 1-1

Request:

Please provide all calculations, workpapers, documentation and Excel files supporting the statements made in Section III.E.2.a. of the Long-Range Plan.

Response:

In Section III.E.2.a of the Company's Long-Range Resource and Requirements Plan Forecast Period 2020/21 to 2024/25, the Company describes the statistical analysis and cost/benefit analysis that it performed in 2018 to support its Design Day standard of 68 heating degree days (HDD). Please see the following documents, which support the statements in this section:

- Please see Attachment DIV 1-1-1 for the Excel spreadsheet used to support the Company's Design Day standard.
- Please see Attachment DIV 1-1-2 for a copy of the Company's response to Data Request DIV-1-12 in Docket 4816. The Company's response to Data Request DIV 1-12 in Docket 4816 describes the Company's statistical analysis.
- Please see Attachment DIV 1-1-3 for a copy of Chart III-E-1 referred to in Attachment DIV 1-1-2.
- Please see Attachment DIV 1-1-4 for a copy of the Company's response to Data Request DIV-1-13 in Docket 4816. The Company's response to Data Request DIV 1-13 describes the Company's assumptions regarding damage costs used in its Design Day cost/benefit analysis.

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Attachment DIV 1-1-1

Please see the Excel version of Attachment DIV 1-1-1.

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 4816
In Re: Long-Range Resource and Requirements Plan
For the Forecast Period 2017/18 to 2026/27
Responses to the Division's First Set of Data Requests
Issued on July 19, 2018

Division 1-12

Request:

With respect to Chart III-E-1 in the March 30, 2018 LRP, please:

- a. Provide the workpapers, data, analyses, and assumptions upon which the Company has relied to assess the "Cumulative Probability of Occurrence (p)" for each HDD level shown.
- b. If the Company assumes that HDDs are normally distributed around the computed mean value, provide the workpapers, data, analyses, and assumptions upon which the Company has relied to assess the distribution of actual Peak Day HDD measures have the characteristics of a normally distributed variable.
- c. Given that the Company's planning is based on being able to meet its Design Peak Day requirements, please document and explain the analyses and rationales upon which the Company relies to measure the probability of a shortage on its Mean Peak Day.
- d. Identify each historical year (on a planning year basis) for which the Company actually experienced a shortfall of supply on its Annual Peak Day, provide:
 - i. Provide the HDDs associated with the Annual Peak Day for each year identified;
 - ii. Provide the magnitude of the MMBtu shortfall experienced.
- e. Identify each historical year (on a planning year basis) for which the Company actually experienced a weather-related supply shortfall on a day for which its record degree days were below its Design Peak Day HDDs.
 - i. Provide the HDDs associated for each day on which such a supply shortfall was experience;
 - ii. Provide the magnitude of the MMBtu shortfall for each day on which such a supply shortfall was reported.

Response:

- a. In Chart III-E-1 in the Company's Long-Range Plan filing, the column labeled "Cumulative Probability of Occurrence (p)" contains the Excel NORMDIST function for calculating the probability of the peak day being at or less than the "HDD [heating

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degree day] Level" value based on the mean peak day and standard deviation of peak day listed in the chart, assuming normal distribution.

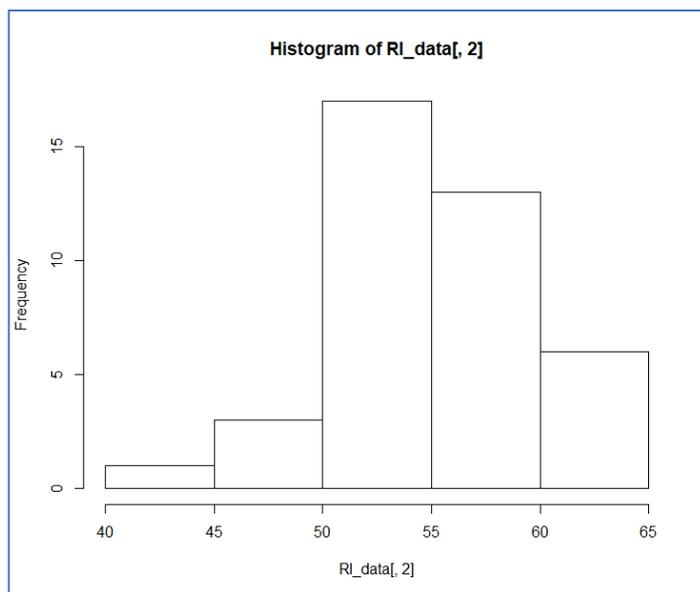
- b. In previous Long-Range Plan filings, the Company had used the coldest day in each of the most recent 40 years to determine the mean and standard deviation statistics for its design day distribution. In reviewing the data for the current filing, the Company noted that the distribution was considered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

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 below and the normal Q-Q plot in Figure 2 below.



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Division 1-12, page 3

Figure 1

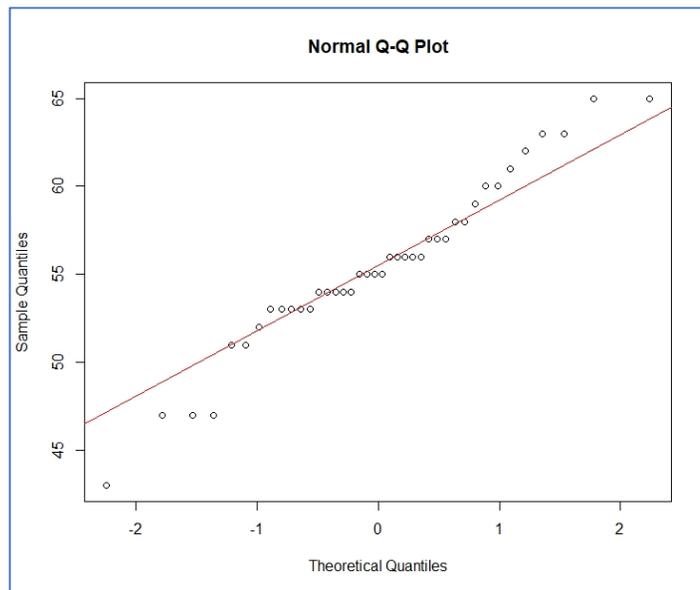


Figure 2

As noted in the Company's Long-Range Plan 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 the 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 data sets with more than 5,000 observations because, 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 also rejected normality:

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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 below), the Company accepted the data as normally distributed.

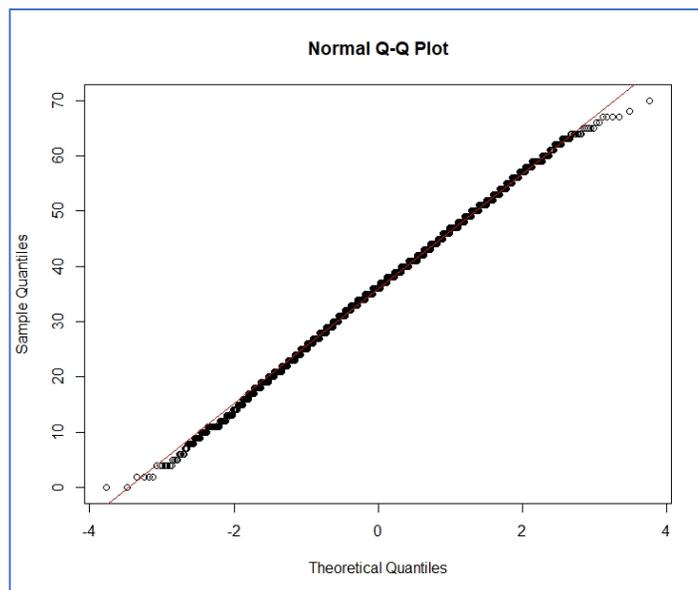


Figure 3

The Narragansett Electric Company
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Division 1-12, page 5

- c. The Company's analyses and methodology for measuring the probability of a supply resource shortfall on a design day are documented in Section III.E.2.a. of the Company's Long-Range Plan filing. The Company's cost/benefit analysis of its design day standard measures the cost of holding a basket of resource capacity to meet its customers' one-day resource needs with the benefit of avoiding the probability-weighted economic damages that would ensue. The Company assumes that, given it is a one-day event, there would be insufficient time to arrange for additional citygate resources or that such additional resources would not be available.
- d. The Company has not experienced a shortfall of supply resources on its annual peak day.
- e. The Company has not experienced a weather-related supply shortfall on a day for which its actual degree days were below its design peak day HDDs.

Chart III-E-1
 RIPUC Docket No. 4816
 Long-Range Gas Supply Plan
 March 30, 2018
 Page 1 of 1

**National Grid Rhode Island
 2018 Long Range Plan**

Assumptions:

Mean Peak Day = 55.00 HDD
 Std Dev Peak Day = 6.13 HDD

Heating Increment = 5,664.03 MMBtu/HDD
 No. of Firm Customers = 267,530

HDD Level	Cumulative Probability Of Occurrence (p)	Probability Of Exceeding (1-p)	Frequency of Occurrence 1/(1-p) (years)	HDD Excess	Delta Supply (MMBtu)	Requirements Of An Average Customer At HDD Level (MMBtu/cust)	Equivalent Number of Customers
55.0	0.5000	0.5000	2.00	0.0	0	1.16	0
56.0	0.5648	0.4352	2.30	1.0	5,664	1.19	4,777
57.0	0.6279	0.3721	2.69	2.0	11,328	1.21	9,387
58.0	0.6877	0.3123	3.20	3.0	16,992	1.23	13,838
59.0	0.7430	0.2570	3.89	4.0	22,656	1.25	18,138
60.0	0.7927	0.2073	4.82	5.0	28,320	1.27	22,294
61.0	0.8362	0.1638	6.10	6.0	33,984	1.29	26,314
62.0	0.8733	0.1267	7.89	7.0	39,648	1.31	30,205
63.0	0.9041	0.0959	10.42	8.0	45,312	1.33	33,972
64.0	0.9290	0.0710	14.08	9.0	50,976	1.35	37,621
65.0	0.9486	0.0514	19.45	10.0	56,640	1.38	41,158
66.0	0.9636	0.0364	27.49	11.0	62,304	1.40	44,588
67.0	0.9749	0.0251	39.78	12.0	67,968	1.42	47,916
68.0	0.9830	0.0170	58.92	13.0	73,632	1.44	51,145
69.0	0.9888	0.0112	89.36	14.0	79,296	1.46	54,281
70.0	0.9928	0.0072	138.83	15.0	84,960	1.48	57,328
71.0	0.9955	0.0045	220.97	16.0	90,624	1.50	60,288
72.0	0.9972	0.0028	360.36	17.0	96,288	1.52	63,167
73.0	0.9983	0.0017	602.28	18.0	101,952	1.55	65,966
74.0	0.9990	0.0010	1031.78	19.0	107,616	1.57	68,690
75.0	0.9994	0.0006	1811.95	20.0	113,281	1.59	71,341
76.0	0.9997	0.0003	3262.39	21.0	118,945	1.61	73,923
77.0	0.9998	0.0002	6022.88	22.0	124,609	1.63	76,437
78.0	0.9999	0.0001	11402.37	23.0	130,273	1.65	78,887
68.0	0.9830	0.0170	58.92	(EDD Level MINUS Mean Peak)	(EDD Excess TIMES Heating Increment) (MMBtu)	(Heating Increment DIVIDED BY No. of Firm Customers TIMES EDD Level)	(Delta Supply DIVIDED BY Requirements of Average Customer)

The Narragansett Electric Company

d/b/a National Grid

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Issued on July 19, 2018

Division 1-13Request:

With respect to Chart III-E-2 in the March 30, 2018 LRP, please:

- a. Provide the workpapers, data, analyses, assumptions (as well as source documents) upon which the Company has relied to estimate “**Relight Costs**” per customer, and if the source data is not based on actual Rhode Island experience document the Company’s efforts to verify the applicability to Rhode Island of the data used, as well as any and all adjustments to data from another jurisdiction or other jurisdictions upon which the Company has relied.
- b. Provide the workpapers, data, analyses, assumptions (as well as source documents) upon which the Company has relied to estimate “**Freeze-Up Damages**” per customer. Also:
 - i. Explain why (as noted Section III.E.2.a of the March 30, 2018 LRP) the Company has chosen to rely on a **ten year old** estimate from Marsh & McLennan basis for its “**Freeze-Up Damages**” cost estimate.
 - ii. Provide the analyses upon which the Company has relied to assess the representativeness of that Marsh & McLennan estimate to reflect current remodeling costs for Rhode Island customers.
 - iii. Document and explain the composition of the data base from which the 2008 Marsh & McLennan average was derived with particular sensitivity to the region of the U.S. from which Marsh & McLennan derived the data base from which the 2008 value was computed.
- c. Explain why the Company’s estimate of “**Relight Costs**” per customer in 2016 dollars of \$1,069.00 in its March 30, 2018 LRP is identical to the “**Relight Costs**” per customer in 2014 dollars assumed in Chart II-E-2 in the Company’s 2016 LRP.
- d. Provide the workpapers, data, analyses, and assumptions upon which the Company has relied to adjust its estimate of “**Freeze-Up Damages**” per customer from \$41,794.39 in 2014 dollars in the Company’s 2016 LRP, Chart III-E-2, to \$44,785.05 per customer in 2016 dollars in its March 30, 2018 LRP.

The Narragansett Electric Company

d/b/a National Grid

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In Re: Long-Range Resource and Requirements Plan

For the Forecast Period 2017/18 to 2026/27

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Division 1-13, page 2Response:

- a. The Company's estimate of reight costs per customer is part of the Company's capital sanctioning analysis related to its fiscal year (FY) 2019 Gas System Reinforcement Program in Rhode Island. Please refer to Attachment DIV 1-13-1 for a copy of the Company's analysis of its estimated reight costs per customer. In particular, the reight cost estimate is derived from two outages Rhode Island (Tiverton and Westerly), as well as two outages in geographically-close areas of Long Island (Glen Cove and Cutchogue).
- b.i. The Company uses its Marsh & McLennan study as the basis for its "Freeze-Up Damages" cost estimate and adjusts its results with the most recent (2014) U.S. Construction Price Deflator. The Marsh & McLennan study is the Company's most recent study of freeze-up damages associated with loss of supply to customers' homes and facilities.
- b.ii. Because loss of supply to customers' homes and facilities and the associated freeze-up damages occurs so infrequently, the Company had requested Marsh & McLennan to include structures within the Company's New England service territories.
- b.iii. The Company does not have information on the Marsh & McLennan database from which Marsh & McLennan's data was derived.
- c. The Company's estimate of reight costs has not changed in current dollars.
- d. The "Freeze-Up Damages" per customer of \$41,794.39 in 2014 dollars in the Company's 2016 Gas Long-Range Resource and Requirements Plan (Long-Range Plan) for 2015/16 to 2024/25, Chart III-E-2, and \$44,785.05 per customer in 2016 dollars in its March 30, 2018 Long-Range Plan are both derived from the Marsh & McLennan baseline of \$20,000 per customer in 2007 dollars. In both cases, the Company inflated the Marsh & McLennan figure using the most recent (2014) U.S. Construction Price Deflator. Each value was set as the 50 percent midline figure for expected freeze-up damages. As described in Section III.E.2.a., the values quoted in Chart III-E-2 of both the Company's 2016 and the 2018 Long-Range Plans are two times the 50 percent midline figure. The U.S. Construction Price Deflator table used in the 2018 Long-Range Plan is provided as Attachment DIV 1-13-2.



Short Form Sanction Paper

Appendix 2 – Outage Restoration Costs

Estimates for relighting customers and recovering from a system outage have been prepared to quantify the impact of outages related to insufficient system capacity during periods of peak demand and severe winter cold.

Actual relight costs have been captured from recent incidents to quantify Company expenses related to restoring service. These were all related to outages that occurred for reasons other than insufficient system capacity and operations were conducted under benign weather conditions. It is likely that during severe winter weather conditions, costs would increase.

Claims related to frozen buildings, burst pipes and equipment damage due to a lack of heat during severe cold weather were captured from the only recent incident the Company experienced the outage in Hull, Massachusetts during the peak day of January 16, 2004.

Relight Costs

Tiverton, RI (2008): 900 customer outage with relight costs of \$322,839 for an average relight cost of \$358.71 per customer.

Cutchoque, NY (2003): 1,800 customer outage with relight costs of \$2,367,401 for an average relight cost of \$1,315.22 per customer.

Glen Cove, NY (2008): 1,016 customer outage with relight costs of \$275,000 for an average relight cost of \$270.67 per customer.

Westerly, RI (2011): 1,686 customer outage with relight costs of \$2,811,455 for an average relight cost of \$1,667.53 per customer.

Average cost to relight for combined instances above equals \$1,069 per customer.

Claims

Hull, MA (2004): 297 customers affected with claims totaling \$206,336 for an average claim of \$694.73 per customer.

Combined cost of relight and claims

The combined cost of relighting customers and resolving claims averages out to \$1,764 per customer.

Recognizing the amount of variability in different incidents, such as weather conditions, different types of neighborhoods, variable labor costs, economies of scale, etc., for purposes of evaluating the benefits of reinforcement projects, an average value of service restoration costs and claims of \$1,000 per customer is used.

Constant Quality (Laspeyres) Price Index of New Single-Family Houses Under Construction

[2005 = 100.0. Index based on kinds of houses sold in 2005]

Year	Annual		Monthly											
	Annual index	Percent change	January	February	March	April	May	June	July	August	September	October	November	December
1964	12.4	(X)	12.2	12.1	12.0	12.2	12.3	12.4	12.4	12.3	12.3	12.6	12.7	12.8
1965	12.8	3.2%	12.7	12.6	12.6	12.6	12.6	12.8	12.6	12.6	12.6	13.0	13.2	13.3
1966	13.4	4.7%	13.0	12.8	12.8	13.3	13.6	13.6	13.4	13.4	13.3	13.6	13.7	13.9
1967	13.8	3.0%	13.7	13.6	13.6	13.6	13.7	13.7	13.7	13.8	13.9	13.9	14.1	14.2
1968	14.6	5.8%	14.3	14.3	14.3	14.4	14.5	14.5	14.3	14.4	14.5	14.8	15.1	15.4
1969	15.5	6.2%	15.2	15.2	15.4	15.4	15.6	15.4	15.5	15.4	15.4	15.6	15.7	15.8
1970	15.9	2.6%	15.6	15.6	15.7	16.1	16.3	16.7	16.0	15.6	15.5	15.6	15.8	16.0
1971	16.8	5.7%	15.9	16.4	16.5	16.6	16.6	16.7	16.7	17.2	17.1	17.2	17.3	17.5
1972	18.0	7.1%	17.6	17.6	17.6	17.6	17.6	17.7	17.9	18.0	18.2	18.5	18.7	18.9
1973	19.8	10.0%	18.9	18.9	19.1	19.3	19.5	19.6	19.9	20.2	20.4	20.5	20.6	20.6
1974	21.8	10.1%	20.8	20.9	21.4	21.1	21.3	21.8	22.0	22.0	22.1	22.4	22.6	22.8
1975	23.7	8.7%	23.1	23.1	23.1	23.3	23.7	23.8	23.8	23.7	23.9	24.0	24.2	24.4
1976	25.2	6.3%	24.2	24.2	24.3	24.6	25.1	25.4	25.5	25.5	25.5	25.7	25.9	26.1
1977	28.2	11.9%	26.6	26.8	27.0	27.2	27.6	27.9	28.3	28.5	28.7	29.0	29.3	29.7
1978	31.7	12.4%	30.0	30.3	30.5	30.8	31.2	31.3	31.6	32.0	32.5	32.9	33.3	33.6
1979	35.7	12.6%	33.9	34.2	34.4	34.8	35.2	35.7	36.2	36.5	36.8	37.0	37.3	37.6
1980	39.8	11.5%	38.1	38.4	38.6	39.0	39.2	39.6	40.1	40.3	40.5	40.7	41.0	41.3
1981	42.6	7.0%	41.6	41.9	42.0	42.3	42.6	42.7	42.7	42.8	43.0	43.2	43.5	43.5
1982	43.4	1.9%	43.4	43.4	43.5	43.6	43.5	43.4	43.2	43.4	43.6	43.5	43.7	43.7
1983	44.7	3.0%	44.0	44.1	44.0	44.0	44.3	44.4	44.6	44.7	44.9	45.2	45.4	45.6
1984	46.7	4.5%	45.8	46.0	46.1	46.1	46.2	46.5	46.5	46.9	47.3	47.5	47.6	47.5
1985	47.9	2.6%	47.7	47.5	47.6	47.5	47.4	47.5	47.6	47.8	48.0	48.2	48.4	48.8
1986	50.4	5.2%	49.1	49.2	49.3	49.5	49.8	50.2	50.4	50.6	50.8	51.1	51.5	51.8
1987	52.7	4.6%	52.1	52.1	52.2	52.4	52.4	52.6	52.7	52.8	52.8	53.0	53.3	53.7
1988	54.5	3.4%	54.1	54.3	54.1	54.1	54.3	54.3	54.3	54.5	54.8	54.9	55.2	55.2
1989	56.4	3.5%	55.4	55.6	55.8	56.1	56.3	56.3	56.5	56.6	56.8	56.8	56.8	57.0
1990	58.0	2.8%	57.2	57.4	57.5	57.6	57.6	57.9	58.2	58.2	58.2	58.1	58.5	58.5
1991	58.2	0.3%	58.5	58.4	58.0	57.9	58.0	58.3	58.4	58.5	58.6	58.3	58.2	58.1
1992	58.9	1.2%	58.4	58.4	58.4	58.5	58.4	58.5	58.5	58.7	58.9	59.4	59.7	60.0
1993	61.8	4.9%	60.4	60.7	60.8	60.9	61.1	61.4	61.8	61.9	62.1	62.5	63.0	63.2
1994	64.6	4.5%	63.3	63.5	63.5	63.5	63.8	64.2	64.4	64.7	65.1	65.5	66.0	66.7
1995	67.3	4.2%	67.0	67.0	67.0	67.0	67.2	67.3	67.2	67.4	67.6	67.7	67.6	67.6
1996	68.6	1.9%	67.9	67.9	67.9	67.7	67.9	68.3	68.8	69.0	69.0	69.2	69.3	69.4
1997	70.6	2.9%	69.8	69.8	69.8	70.0	70.1	70.3	70.6	70.7	71.2	71.4	71.6	71.6
1998	72.5	2.7%	71.6	71.4	71.4	71.7	71.8	72.4	72.7	72.7	72.7	73.0	73.5	74.0
1999	72.7	0.3%	71.3	71.4	71.7	72.0	72.4	72.7	73.0	73.2	73.2	73.4	73.5	73.8
2000	75.9	4.4%	74.7	75.0	75.2	75.3	75.5	75.9	76.0	76.1	76.4	76.5	76.7	77.1
2001	79.7	5.0%	77.7	78.0	78.2	78.6	79.2	79.6	80.0	80.8	81.0	81.5	81.5	81.2
2002	81.7	2.5%	80.6	80.9	81.2	81.4	81.7	81.9	81.7	81.4	81.8	82.3	81.9	82.6
2003	85.9	5.1%	83.7	84.5	85.0	85.3	85.2	85.3	85.1	85.9	86.5	87.1	87.8	88.4
2004	93.1	8.4%	88.9	89.4	90.5	91.4	92.5	93.0	93.6	94.1	94.5	95.1	95.7	96.5
2005	100.0	7.4%	96.7	96.4	96.9	97.1	98.3	99.3	100.7	100.8	101.2	101.8	102.8	104.0
2006	106.0	6.0%	104.4	104.7	105.6	105.7	105.9	105.8	105.4	105.9	106.9	107.3	107.5	107.8
2007	107.0	0.9%	107.9	108.1	108.4	108.0	106.8	106.3	106.4	106.6	106.7	106.7	106.2	105.8
2008	103.3	-3.5%	105.1	104.9	104.5	103.8	104.1	103.0	103.3	102.7	101.8	101.4	101.6	102.0
2009	98.1	-5.0%	101.7	100.8	100.5	99.2	97.7	96.9	96.7	96.6	96.9	97.2	97.5	97.9
2010	96.4	-1.7%	97.8	97.2	96.4	95.7	95.6	95.9	96.4	96.4	96.0	96.6	96.7	97.0
2011	97.4	1.0%	97.0	96.6	96.8	97.5	97.4	97.3	97.2	97.9	97.4	97.8	97.8	97.8
2012	98.4	1.0%	96.8	96.2	96.9	97.4	97.4	97.4	98.4	99.3	99.5	99.4	99.5	99.9
2013	104.8	6.5%	100.9	101.9	102.8	103.5	103.8	103.9	104.0	104.5	105.8	107.5	108.4	108.9
2014	111.2	6.1%	109.9	110.7	111.0	109.8	109.6	108.8	111.3	112.8	113.1	111.5	112.3	112.8
2015	114.0	2.5%	113.2	113.8	114.1	113.8	113.9	114.1	114.1	113.8	113.8	114.4	114.0	114.7
2016	119.8	5.1%	114.9	115.0	116.6	117.3	118.1	118.3	119.8	121.3	122.3	123.4	124.0	124.0
2017			124.5	124.4	124.8	124.9	124.6	125.5	126.2	126.9	127.3	127.9	127.6	

(X) Not applicable

^p Preliminary

^r Revised

Price Deflator (Fisher) Index of New Single-Family Houses Under Construction

[2005 = 100.0. Index based on kinds of houses sold in 2005]

Year	Annual		Monthly											
	Annual index	Percent change	January	February	March	April	May	June	July	August	September	October	November	December
1964	12.0	(X)	11.8	11.7	11.6	11.8	12.0	12.0	12.0	12.0	11.9	12.1	12.3	12.3
1965	12.4	3.3%	12.3	12.2	12.1	12.2	12.3	12.3	12.3	12.2	12.2	12.4	12.8	12.8
1966	13.0	4.8%	12.6	12.4	12.4	12.8	13.2	13.2	13.0	12.9	12.8	13.1	13.2	13.4
1967	13.4	3.1%	13.2	13.2	13.2	13.2	13.2	13.2	13.3	13.3	13.4	13.5	13.6	13.8
1968	14.1	5.2%	13.8	13.9	13.9	13.9	14.0	14.0	13.9	13.9	14.0	14.3	14.6	14.9
1969	15.0	6.4%	14.7	14.7	14.9	14.9	15.0	14.9	15.0	14.9	14.9	15.1	15.2	15.3
1970	15.4	2.7%	15.1	15.0	15.2	15.6	15.8	16.1	15.5	15.1	15.0	15.1	15.3	15.5
1971	16.3	5.8%	15.4	15.8	15.9	15.9	16.0	16.1	16.2	16.5	16.5	16.6	16.7	16.9
1972	17.5	7.4%	16.9	17.0	17.1	17.1	17.1	17.1	17.3	17.5	17.5	17.9	18.0	18.3
1973	19.1	9.1%	18.3	18.3	18.3	18.7	18.7	18.9	19.2	19.5	19.7	19.8	19.9	19.9
1974	21.1	10.5%	20.0	20.2	20.7	20.3	20.5	21.1	21.2	21.2	21.3	21.5	21.9	21.9
1975	22.9	8.5%	22.3	22.3	22.3	22.6	22.9	23.1	23.1	22.9	23.1	23.2	23.4	23.6
1976	24.4	6.6%	23.4	23.4	23.5	23.9	24.3	24.5	24.7	24.6	24.6	24.8	25.0	25.2
1977	27.0	10.7%	25.6	25.7	25.8	26.0	26.4	26.9	27.2	27.6	27.8	28.0	28.2	28.5
1978	30.6	13.3%	28.9	29.2	29.6	30.0	30.2	30.6	30.9	31.2	31.4	31.7	32.0	32.2
1979	34.3	12.1%	32.4	32.5	32.8	33.2	33.8	34.4	34.8	35.2	35.4	35.6	35.8	36.1
1980	37.9	10.5%	36.5	36.7	37.0	37.3	37.4	37.7	38.0	38.1	38.5	38.9	39.3	39.5
1981	40.5	6.9%	39.8	40.1	40.1	40.3	40.4	40.5	40.7	40.7	40.8	40.9	41.1	41.0
1982	41.7	3.0%	41.3	41.3	41.5	41.5	41.7	41.7	41.7	42.0	42.3	42.1	42.1	42.2
1983	42.9	2.9%	42.5	42.7	42.8	42.6	42.5	42.6	42.7	42.8	42.9	43.3	43.3	43.4
1984	44.5	3.7%	43.8	44.1	44.2	44.1	44.1	44.2	44.4	44.8	45.0	45.0	45.0	45.0
1985	45.4	2.0%	45.2	45.3	45.5	45.2	45.0	45.0	45.0	45.2	45.4	45.7	45.9	46.1
1986	47.4	4.4%	46.5	46.6	46.7	46.8	47.0	47.3	47.6	47.6	47.8	48.2	48.6	48.8
1987	49.6	4.6%	49.2	49.2	49.2	49.3	49.4	49.5	49.7	49.8	49.8	50.0	50.2	50.6
1988	51.6	4.0%	51.2	51.4	51.4	51.3	51.4	51.4	51.4	51.6	51.8	51.9	52.2	52.3
1989	53.7	4.1%	52.6	53.0	53.0	53.4	53.7	53.7	53.9	53.8	53.9	54.1	54.1	54.5
1990	55.4	3.2%	55.0	55.0	55.1	55.1	55.1	55.4	55.8	55.8	55.7	55.7	55.8	55.7
1991	55.9	0.9%	55.8	55.7	55.4	55.4	55.5	55.8	56.0	56.2	56.3	56.2	56.1	56.1
1992	57.0	2.0%	56.4	56.5	56.5	56.6	56.5	56.7	56.9	57.0	57.2	57.7	58.0	58.3
1993	59.8	4.9%	58.7	58.9	59.0	59.1	59.3	59.7	59.9	60.1	60.3	60.5	60.9	61.1
1994	62.5	4.5%	61.3	61.5	61.5	61.5	61.7	62.1	62.3	62.7	63.1	63.4	63.8	64.4
1995	65.2	4.3%	64.6	64.8	64.8	64.9	65.0	65.2	65.1	65.4	65.6	65.6	65.6	65.6
1996	66.4	1.8%	65.6	65.8	65.7	65.6	65.8	66.2	66.6	66.8	66.8	67.0	67.1	67.3
1997	68.4	3.0%	67.6	67.6	67.6	67.8	67.8	68.1	68.4	68.6	69.0	69.2	69.3	69.3
1998	70.2	2.6%	69.4	69.2	69.2	69.4	69.5	70.0	70.3	70.4	70.4	70.8	71.2	71.6
1999	73.3	4.4%	72.0	72.1	72.3	72.7	73.0	73.3	73.6	73.6	73.7	73.9	74.3	74.6
2000	76.7	4.6%	75.5	75.8	76.0	76.2	76.4	76.7	76.9	76.9	77.1	77.2	77.3	77.7
2001	80.2	4.6%	78.2	78.4	78.6	79.1	79.7	80.2	80.8	81.6	81.6	82.1	82.1	81.8
2002	82.1	2.4%	81.2	81.4	81.7	81.8	82.1	82.2	82.1	81.8	82.3	82.9	82.6	83.2
2003	86.1	4.9%	84.1	84.6	85.1	85.3	85.3	85.4	85.4	86.1	86.8	87.4	88.1	88.5
2004	93.0	8.0%	89.1	89.4	90.3	91.1	92.2	92.8	93.4	93.9	94.4	94.9	95.6	96.3
2005	100.0	7.5%	96.5	96.3	96.9	97.2	98.3	99.3	100.7	100.8	101.3	101.9	102.8	104.1
2006	106.2	6.2%	104.5	104.7	105.7	105.9	106.1	106.1	105.6	105.9	107.0	107.4	107.5	107.8
2007	107.2	0.9%	107.8	107.9	108.2	107.9	106.9	106.5	106.7	107.0	107.2	107.2	106.7	106.4
2008	104.1	-2.9%	105.8	105.5	105.2	104.8	105.2	104.0	104.1	103.4	102.6	102.2	102.2	102.6
2009	99.5	-4.4%	102.4	101.8	101.8	100.8	99.3	98.4	98.0	97.9	98.3	98.6	99.0	99.5
2010	98.0	-1.5%	99.5	98.8	98.0	97.3	97.1	97.4	97.8	97.7	97.5	98.1	98.4	98.8
2011	98.7	0.7%	98.7	98.2	98.5	98.6	98.5	98.4	98.4	99.0	98.8	99.1	99.2	99.4
2012	99.7	1.0%	98.6	98.1	98.9	99.1	98.8	98.7	99.4	100.2	100.3	100.4	100.7	101.0
2013	105.2	5.5%	101.9	102.7	103.4	104.0	104.2	104.2	104.5	105.0	106.0	107.4	108.2	109.1
2014	112.3	6.7%	110.2	111.0	111.5	110.7	110.9	110.4	112.9	114.0	114.4	112.9	113.7	114.1
2015	115.1	2.5%	114.5	114.8	114.9	114.4	114.4	114.8	115.0	115.0	115.3	115.9	115.6	116.2
2016	120.2	4.4%	116.5	116.4	117.9	118.2	118.9	119.1	120.1	121.1	122.0	122.9	123.3	123.5
2017			123.8	123.6	124.4	124.8	124.9	125.7	126.1	125.7	125.9	126.4	126.8	

(X) Not applicable

^p Preliminary

^r Revised

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5043
In Re: Gas Long-Range Resource and Requirements Plan
for the Forecast Period 2020/21 to 2024/25
Responses to the Division's First Set of Data Requests
Issued on July 10, 2020

Division 1-2

Request:

Please provide all calculations, workpapers, documentation and Excel files supporting the statements made in Section III.E.2.b. of the Long-Range Plan.

Response:

In Section III.E.2.b of the Company's Long-Range Resource and Requirements Plan Forecast Period 2020/21 to 2024/25, the Company describes the statistical analysis and cost/benefit analysis that it performed in 2018 to support its Design Year standard of 6,250 heating degree days (HDD).

Please see Attachment DIV 1-2-1, which is a copy of the Company's response to Data Request DIV-1-17 in Docket 4816. This response further describes the Company's Design Year standard.

Please see Attachment DIV 1-2-2 for a copy of the Excel spreadsheet referred to in Attachment 1 as 'Attachment DIV 1-17-1' used to model daily sendout.

Please see Attachment DIV 1-2-3 for a copy of the Excel spreadsheet referred to in Attachment 1 as 'Attachment DIV 1-17-2' used to support its Design Year standard. The charts referred to in Attachment 1 can be found as part of Attachment 3.

Please see Attachment DIV 1-2-4, which is a copy of the Company's response to Data Request DIV-1-18 in Docket 4816, which further describes portions of the development of the Company's Design Year standard.

The Narragansett Electric Company

d/b/a National Grid

RIPUC Docket No. 4816

In Re: Long-Range Resource and Requirements Plan

For the Forecast Period 2017/18 to 2026/27

Responses to the Division's First Set of Data Requests

Issued on July 19, 2018

Division 1-17Request:

With respect to Charts III-E-8 and III-E-9 in the March 30, 2018 LRP, please:

- a. Explain the Company's rationale for using "Mean Annual HDD" as the base for measuring "HDD Excess" and "Days of Interruption" when the Company purportedly plans its system to have sufficient resources to reliably meet Design Year conditions.
- b. Document and provide workpapers to support the Company's determination of "Delta Supply (MMBtu)" for each EDD Level for:
 - i. Pipeline
 - ii. Storage
 - iii. Supplementals
- c. It is assumed that Charts III-E-8 and III-E-9 use the acronyms EDD and HDD interchangeably. If that is not correct, please document and explain the differences between EDD and HDD measures as they are used in the referenced charts.

Response:

- a. The purpose of the Company's design day cost/benefit analysis is to ensure that the Company has sufficient capacity and supply resources to meet its customers' predicted requirements up to the design day and design year weather conditions.
- b. The Company uses the mean coldest day as the starting point for its design day analysis and it uses the mean annual heating degree day (HDD) as the starting point for its design year analysis. Each of these choices begins the cost/benefit "what if" analysis, meaning what if the Company only planned for the average peak day or annual HDD and it experienced harsher weather conditions. Harsher weather conditions would require the cost of additional capacity and supply and receive the benefits of avoiding the damages that could be incurred. The Company uses these analyses to ensure that it has sufficient capacity to meet its customers' requirements without holding a significant amount of excess capacity.

Please refer to Attachment DIV 1-17-1 for the model of daily sendout at different annual HDD levels. The results are then individually copied into Attachment DIV 1-17-2, where they are compared to the total pipeline, storage, and supplemental

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

The Narragansett Electric Company
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resource capacities. In Attachment DIV 1-17-2, for each annual HDD level, the Company uses a daily dispatch model to determine the shortfall in each of the three resource types relative to the resources used in the reference case of the 40-year mean annual HDD. This result is provided on a monthly basis in Chart III-E-7 and annually in Chart III-E-8.

- c. Charts III-E-8 and III-E-9 incorrectly reference EDD (effective degree days). The EDD references in Charts III-E-8 and III-E-9 should be "HDD". The Company does not use EDD in its design standards or its forecasting in its Rhode Island service territories.

The Narragansett Electric Company
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Attachment DIV 1-2-2

Please see the Excel version of Attachment DIV 1-2-2.

The Narragansett Electric Company
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Attachment DIV 1-2-3

Please see the Excel version of Attachment DIV 1-2-3.

The Narragansett Electric Company

d/b/a National Grid

RIPUC Docket No. 4816

In Re: Long-Range Resource and Requirements Plan

For the Forecast Period 2017/18 to 2026/27

Responses to the Division's First Set of Data Requests

Issued on July 19, 2018

Division 1-18Request:

With respect to Chart III-E-9 in the March 30, 2018 LRP, please:

- a. Identify all resources that the Company includes in "Supplementals" for the purposes of the analysis presented in Chart III-E-9.
- b. Verify that the "*Peak Period Supply Cost*" of \$3.189 per MMBtu is the "Supply Cost" that is referenced in the parenthetical comment below the column in Chart III-E-9 labeled "Long-Haul Supply Cost."
- c. Document with workpapers, supporting analyses, and studies the Company's derivation of the referenced "*Peak Period Supply Cost*."
- d. Document and explain the manner in which the Company expects that its "Peak Period Supply Cost" will vary over the 2017/18 to 2026/27 forecast period as the Company's customer requirements and mix of available resources changes.

Response:

- a. The analysis in Chart III-E-9 considers the probability-weighted benefit of avoiding a resource shortfall to the cost of maintaining the level of seasonal resource required at each heating degree day (HDD) level. At the time of preparing this filing, only one resource was available to the Company: incremental pipeline capacity akin to the Algonquin Gas Transmission Algonquin Incremental Market (AIM) project with supply priced based on NYMEX.
- b. The column labeled "Long-Haul Supply Cost" consists of the following elements:
 - The annual "Long-Haul Capacity Cost" multiplied by the "Required Incremental Capacity", plus
 - The "Peak Period Supply Cost" multiplied by the "Required Incremental Winter Volume".

The Narragansett Electric Company
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- c. For this filing, the “Peak Period Supply Cost” is the average of the five monthly values for NYMEX from November 2016 through March 2017. See Figure 1 below.

Figure 1

NYMEX Settlement Prices (\$/MMBtu)												
(strip as of 1/23/2018)												
Source: https://business.directenergy.com/market-insights/nymex-settlement-history												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002	-	-	-	-	-	-	-	2.976	3.288	3.686	4.126	4.140
2003	4.988	5.660	9.133	5.146	5.123	5.945	5.291	4.693	4.927	4.430	4.459	4.860
2004	6.150	5.775	5.150	5.365	5.935	6.680	6.141	6.048	5.082	5.723	7.626	7.976
2005	6.213	6.288	6.304	7.323	6.748	6.123	6.976	7.647	10.847	13.907	13.832	11.180
2006	11.431	8.400	7.112	7.233	7.198	5.925	5.887	7.042	6.816	4.201	7.153	8.318
2007	5.838	6.917	7.547	7.558	7.508	7.591	6.929	6.110	5.430	6.423	7.269	7.203
2008	7.172	7.996	8.930	9.578	11.280	11.916	13.105	9.217	8.394	7.472	6.469	6.888
2009	6.136	4.476	4.056	3.631	3.321	3.538	3.949	3.379	2.843	3.730	4.289	4.486
2010	5.814	5.274	4.816	3.842	4.271	4.155	4.717	4.774	3.651	3.837	3.292	4.267
2011	4.216	4.316	3.793	4.240	4.377	4.326	4.357	4.370	3.857	3.759	3.524	3.364
2012	3.084	2.678	2.446	2.191	2.036	2.429	2.774	3.010	2.634	3.023	3.471	3.696
2013	3.354	3.226	3.427	3.976	4.152	4.148	3.707	3.459	3.567	3.498	3.497	3.818
2014	4.407	5.557	4.855	4.584	4.795	4.619	4.400	3.808	3.957	3.984	3.728	4.282
2015	3.189	2.866	2.894	2.590	2.517	2.815	2.773	2.886	2.638	2.563	2.033	2.206
2016	2.327	2.189	1.711	1.903	1.995	1.963	2.917	2.672	2.853	2.952	2.764	3.232
2017	3.930	3.391	2.627	3.175	3.142	3.236	3.067	2.969	2.961	2.974	2.752	3.074
2018	2.738	-	-	-	-	-	-	-	-	-	-	-

- d. The Company expects that its “Peak Period Supply Cost” will vary over the 2017/18 to 2026/27 forecast period in conjunction with its NYMEX forecast. The need for the capacity and volume amounts reflect the dynamics of customers’ requirements at the time of preparation of this filing so as to set the Company’s design year standard. This standard, as well as the Company’s design day standard, are revisited every two years. In its design year standard analysis, the Company has, in the past, selected a high and a low cost alternative to reflect the mix of resources available to establish a reasonable range of solutions. In the current filing, only one alternative was available to the Company, so the Company only modeled the long-haul capacity contract with supply.

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5043
In Re: Gas Long-Range Resource and Requirements Plan
for the Forecast Period 2020/21 to 2024/25
Responses to the Division's First Set of Data Requests
Issued on July 10, 2020

Division 1-3

Request:

Please provide all calculations, workpapers, documentation and Excel files supporting the following Exhibits:

- a. Exhibit 9
- b. Exhibit 17, page 6
- c. Exhibit 18
- d. Exhibit 19
- e. Exhibit 20
- f. Exhibit 21
- g. Exhibit 22.

Response:

- a. In Exhibit 9 of the Company's Long-Range Resource and Requirements Plan Forecast Period 2020/21 to 2024/25 submission, the Company presents charts of historical actual and forecasted design weather sendout in dekatherms for its FT-1 customers as load duration curves. Refer to Attachment DIV 1-3a for the Microsoft Excel workbook used to create these charts.
- b. In Exhibit 17, page 6 of the Company's Long-Range Resource and Requirements Plan Forecast Period 2020/21 to 2024/25 submission, the Company presents the 2020-21 Design Load Duration curve. Refer to Attachment DIV 1-3b for the Microsoft Excel workbook used to create this chart.
- c. In Exhibit 18 of the Company's Long-Range Resource and Requirements Plan Forecast Period 2020/21 to 2024/25 submission, the Company presents a projection of costs for its full supply portfolio assuming design weather. This projection provides a sense of the overall variable and fixed costs for all customers, including transportation customers. Refer to Confidential Attachment DIV 1-3c for the Microsoft Excel workbook used to create this exhibit.

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Division 1-3, page 2

- d. In Exhibit 19 of the Company's Long-Range Resource and Requirements Plan Forecast Period 2020/21 to 2024/25 submission, the Company presents an estimate of the fixed and variable costs that will support the GCR. The GCR pertains solely to sales customers and assumes normal weather. Refer to Confidential Attachment DIV 1-3d for the Microsoft Excel workbook used to create this exhibit.
- e. In Exhibit 20 of the Company's Long-Range Resource and Requirements Plan Forecast Period 2020/21 to 2024/25 submission, the Company presents the projected unitized costs by path for all customers and sales-only customers accounting for normal and design weather. Refer to Confidential Attachment DIV 1-3e_1 through 4 for the Microsoft Excel workbooks used to create this exhibit.
- f. In Exhibit 21 of the Company's Long-Range Resource and Requirements Plan Forecast Period 2020/21 to 2024/25 submission, the Company presents an estimate of fixed costs by contract in the Company's portfolio including transportation contracts, storage contracts, and supply contracts. Refer to Confidential DIV 1-3f_1 through 4 for the Microsoft Excel workbooks used to create this exhibit.
- g. In Exhibit 22 of the Company's Long-Range Resource and Requirements Plan Forecast Period 2020/21 to 2024/25 submission, the Company presents a summary of proposed releases to Marketers. Refer to the Attachment DIV 1-3g for the Microsoft Excel workbook used to create this exhibit.

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Attachments DIV 1-3

The Company is providing these attachments in Excel versions via the Company's encryption software, Egress Switch.

The Narragansett Electric Company
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for the Forecast Period 2020/21 to 2024/25
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Division 1-4

Request:

Please provide all calculations, workpapers, documentation and Excel files supporting the 2020-2021 firm sendout requirements identified in Exhibit 15, page 1.

Response:

Please see the Company's response to Division 1-1.

Division 1-5

Request:

Reference Exhibit 2. Please identify what is reflected in Columns 5 and 6 of each table and explain how the values were calculated.

Response:

Referring to the tables in Exhibit 2, Column 5 is labeled "Total Supply Deliveries Company & Marketers (Dth/hr)". Column 5 reflects a combination of the following:

- The Company's calculated hourly flow limits at each take station, shown in Exhibit 8;
- The calculated hourly vaporization for LNG facilities and portable LNG equipment sites;
- The forecasted third-party Marketer supply for FT-1 capacity exempt customers delivered to the Algonquin Gas Transmission, LLC (AGT) Dey Street take station and the Tennessee Gas Pipeline (Tennessee) Cranston take station; and
- The forecasted storage and peaking volumes provided by third-party Marketers for FT-1 capacity eligible customers delivered to AGT Dey Street take station and the Tennessee Cranston take station.

The Company's calculated hourly flow limits at each take station are either 1/24th or 6% of the daily Maximum Daily Quantity (MDQ). The Company has both 1/24th and 6% hourly flow limit contracts with AGT. The Company has 1/24th hourly flow limit contracts with Tennessee.

The Company's forecast includes a forecast for FT-1 capacity exempt FT-1 capacity eligible load; including the storage and peaking portion for the FT-1 capacity eligible load. The Company calculates the expected deliveries by Marketers by converting the design day FT-1 capacity exempt and FT-1 storage and peaking customer requirements to a peak hour based on 5% peak-hour factor. Expected Marketer deliveries on AGT reflect forty percent of the peak hour FT-1 capacity exempt and FT-1 capacity eligible storage and peaking customer requirements; this volume is then combined with the Company's hourly flow limits at the Dey Street take station. Expected marketer deliveries on Tennessee reflect sixty percent of the peak hour FT-1 capacity exempt and FT-1 capacity eligible storage and peaking customer requirements; this volume is then combined with the Company's hourly flow limits at the Cranston take station.

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Division 1-5, page 2

Referring to the tables in Exhibit 2, Column 6 is labeled “Total Firm Peak Hour Model Flow (DTH/hr)”. The volumes in Column 6 reflect peak hour requirements at each take station for all customers. The Company uses Synergi hydraulic modeling software for this analysis. The Company describes in Section III.H. Design Hour Requirements of the Long-Range Plan, how the Company converts the design day sendout requirement to the peak hour. For this analysis, the Company sets the peak hour requirements for the Tennessee Cumberland take station and AGT Portsmouth take station to calculated hourly flow limits and Providence LNG facility, Exeter LNG facility and Cumberland portable LNG equipment to calculated hourly vaporization, because these are the supply constraints on the system. Then the model calculates the remaining take station requirements. The Company ensures the results meet system pressure operating requirements.

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Division 1-6

Request:

Reference page 22 of the Long-Range Plan, second paragraph. Please provide the NYMEX prices and basis curves dated June 8, 2020.

Response:

Please see Attachment DIV 1-6 for the NYMEX prices and basis curves dated June 8, 2020.

Attachment DIV 1-6

NYMEX Future Settlements and Basis Curves (USD/MMBtu)											
8-Jun-2020											
	7/1/2020	8/1/2020	9/1/2020	10/1/2020	11/1/2020	12/1/2020	1/1/2021	2/1/2021	3/1/2021	4/1/2021	
NYMEX	\$ 1.79	\$ 1.89	\$ 1.95	\$ 2.04	\$ 2.38	\$ 2.82	\$ 2.96	\$ 2.93	\$ 2.81	\$ 2.49	
Tenn Z4	\$ (0.19)	\$ (0.26)	\$ (0.50)	\$ (0.52)	\$ (0.36)	\$ (0.24)	\$ (0.17)	\$ (0.17)	\$ (0.15)	\$ (0.20)	
Niagara	\$ (0.14)	\$ (0.20)	\$ (0.27)	\$ (0.35)	\$ (0.34)	\$ (0.30)	\$ (0.28)	\$ (0.27)	\$ (0.23)	\$ (0.21)	
Iroquois Receipts	\$ (0.19)	\$ (0.19)	\$ (0.19)	\$ (0.19)	\$ (0.08)	\$ 0.61	\$ 2.12	\$ 1.96	\$ 0.14	\$ (0.19)	
Tetco M3	\$ (0.30)	\$ (0.37)	\$ (0.64)	\$ (0.67)	\$ (0.15)	\$ 0.69	\$ 2.06	\$ 1.94	\$ 0.34	\$ (0.25)	
Dracut	\$ 0.02	\$ (0.01)	\$ (0.18)	\$ (0.19)	\$ 1.05	\$ 2.57	\$ 3.62	\$ 3.67	\$ 1.54	\$ 0.59	
TCO	\$ (0.27)	\$ (0.34)	\$ (0.47)	\$ (0.57)	\$ (0.34)	\$ (0.31)	\$ (0.30)	\$ (0.30)	\$ (0.33)	\$ (0.27)	
Dawn	\$ (0.08)	\$ (0.14)	\$ (0.23)	\$ (0.31)	\$ (0.04)	\$ (0.01)	\$ 0.01	\$ 0.03	\$ 0.06	\$ (0.11)	
Tetco M2	\$ (0.41)	\$ (0.48)	\$ (0.72)	\$ (0.76)	\$ (0.50)	\$ (0.37)	\$ (0.39)	\$ (0.36)	\$ (0.36)	\$ (0.38)	
Transco Leidy	\$ (0.47)	\$ (0.54)	\$ (0.77)	\$ (0.82)	\$ (0.61)	\$ (0.46)	\$ (0.48)	\$ (0.42)	\$ (0.42)	\$ (0.51)	
Algonquin	\$ (0.22)	\$ (0.26)	\$ (0.43)	\$ (0.45)	\$ 0.87	\$ 2.39	\$ 3.44	\$ 3.48	\$ 1.37	\$ 0.33	
Tenn Z6	\$ (0.22)	\$ (0.26)	\$ (0.43)	\$ (0.46)	\$ 0.73	\$ 2.37	\$ 3.41	\$ 3.46	\$ 1.43	\$ 0.32	
Dominion SP	\$ (0.40)	\$ (0.47)	\$ (0.71)	\$ (0.75)	\$ (0.51)	\$ (0.40)	\$ (0.42)	\$ (0.39)	\$ (0.39)	\$ (0.40)	
Dominion NP	\$ (0.49)	\$ (0.56)	\$ (0.80)	\$ (0.84)	\$ (0.66)	\$ (0.55)	\$ (0.57)	\$ (0.54)	\$ (0.54)	\$ (0.49)	
Iroquois Z1	\$ (0.19)	\$ (0.19)	\$ (0.19)	\$ (0.19)	\$ (0.08)	\$ 0.61	\$ 2.12	\$ 1.96	\$ 0.14	\$ (0.19)	
Leidy Hub	\$ (0.30)	\$ (0.47)	\$ (0.75)	\$ (0.75)	\$ (0.33)	\$ (0.26)	\$ (0.30)	\$ (0.22)	\$ (0.28)	\$ (0.35)	
Millennium East Pool	\$ (0.44)	\$ (0.48)	\$ (0.72)	\$ (0.76)	\$ (0.53)	\$ (0.38)	\$ (0.43)	\$ (0.50)	\$ (0.52)	\$ (0.46)	
NYMEX*1.15	\$ 2.06	\$ 2.18	\$ 2.24	\$ 2.34	\$ 2.73	\$ 3.25	\$ 3.41	\$ 3.36	\$ 3.23	\$ 2.87	

Attachment DIV 1-6

NYMEX Future Settlements and Basis Curves (USD/MMBtu)											
8-Jun-2020											
	5/1/2021	6/1/2021	7/1/2021	8/1/2021	9/1/2021	10/1/2021	11/1/2021	12/1/2021	1/1/2022	2/1/2022	
NYMEX	\$ 2.46	\$ 2.49	\$ 2.53	\$ 2.54	\$ 2.52	\$ 2.54	\$ 2.58	\$ 2.71	\$ 2.81	\$ 2.78	
Tenn Z4	\$ (0.26)	\$ (0.30)	\$ (0.29)	\$ (0.31)	\$ (0.48)	\$ (0.48)	\$ (0.24)	\$ (0.15)	\$ (0.20)	\$ (0.21)	
Niagara	\$ (0.25)	\$ (0.28)	\$ (0.28)	\$ (0.29)	\$ (0.31)	\$ (0.31)	\$ (0.40)	\$ (0.30)	\$ (0.29)	\$ (0.25)	
Iroquois Receipts	\$ (0.25)	\$ (0.14)	\$ (0.15)	\$ (0.17)	\$ (0.29)	\$ (0.18)	\$ (0.07)	\$ 0.65	\$ 2.21	\$ 2.06	
Tetco M3	\$ (0.36)	\$ (0.38)	\$ (0.30)	\$ (0.31)	\$ (0.63)	\$ (0.57)	\$ (0.19)	\$ 0.46	\$ 1.83	\$ 1.75	
Dracut	\$ 0.02	\$ (0.03)	\$ 0.12	\$ 0.12	\$ (0.23)	\$ 0.05	\$ 1.18	\$ 2.90	\$ 4.31	\$ 4.34	
TCO	\$ (0.31)	\$ (0.37)	\$ (0.36)	\$ (0.39)	\$ (0.46)	\$ (0.49)	\$ (0.33)	\$ (0.30)	\$ (0.29)	\$ (0.29)	
Dawn	\$ (0.20)	\$ (0.24)	\$ (0.24)	\$ (0.24)	\$ (0.23)	\$ (0.29)	\$ (0.10)	\$ (0.00)	\$ 0.01	\$ 0.04	
Tetco M2	\$ (0.46)	\$ (0.49)	\$ (0.50)	\$ (0.52)	\$ (0.69)	\$ (0.69)	\$ (0.46)	\$ (0.38)	\$ (0.32)	\$ (0.31)	
Transco Leidy	\$ (0.57)	\$ (0.58)	\$ (0.55)	\$ (0.58)	\$ (0.77)	\$ (0.74)	\$ (0.50)	\$ (0.40)	\$ (0.42)	\$ (0.42)	
Algonquin	\$ (0.25)	\$ (0.29)	\$ (0.15)	\$ (0.15)	\$ (0.49)	\$ (0.22)	\$ 1.02	\$ 2.73	\$ 4.12	\$ 4.15	
Tenn Z6	\$ (0.25)	\$ (0.30)	\$ (0.15)	\$ (0.16)	\$ (0.50)	\$ (0.23)	\$ 0.87	\$ 2.70	\$ 3.67	\$ 3.87	
Dominion SP	\$ (0.46)	\$ (0.49)	\$ (0.49)	\$ (0.50)	\$ (0.68)	\$ (0.68)	\$ (0.47)	\$ (0.40)	\$ (0.36)	\$ (0.35)	
Dominion NP	\$ (0.55)	\$ (0.58)	\$ (0.58)	\$ (0.59)	\$ (0.77)	\$ (0.77)	\$ (0.62)	\$ (0.55)	\$ (0.51)	\$ (0.50)	
Iroquois Z1	\$ (0.25)	\$ (0.14)	\$ (0.15)	\$ (0.17)	\$ (0.29)	\$ (0.18)	\$ (0.07)	\$ 0.65	\$ 2.21	\$ 2.06	
Leidy Hub	\$ (0.49)	\$ (0.51)	\$ (0.39)	\$ (0.50)	\$ (0.72)	\$ (0.68)	\$ (0.29)	\$ (0.26)	\$ (0.24)	\$ (0.18)	
Millennium East Pool	\$ (0.51)	\$ (0.57)	\$ (0.53)	\$ (0.51)	\$ (0.68)	\$ (0.68)	\$ (0.49)	\$ (0.38)	\$ (0.38)	\$ (0.46)	
NYMEX*1.15	\$ 2.83	\$ 2.87	\$ 2.91	\$ 2.92	\$ 2.90	\$ 2.92	\$ 2.97	\$ 3.12	\$ 3.24	\$ 3.19	

Attachment DIV 1-6

NYMEX Future Settlements and Basis Curves (USD/MMBtu)											
8-Jun-2020											
	3/1/2022	4/1/2022	5/1/2022	6/1/2022	7/1/2022	8/1/2022	9/1/2022	10/1/2022	11/1/2022	12/1/2022	
NYMEX	\$ 2.64	\$ 2.30	\$ 2.26	\$ 2.30	\$ 2.34	\$ 2.35	\$ 2.33	\$ 2.36	\$ 2.42	\$ 2.60	
Tenn Z4	\$ (0.21)	\$ (0.17)	\$ (0.20)	\$ (0.28)	\$ (0.21)	\$ (0.23)	\$ (0.43)	\$ (0.49)	\$ (0.34)	\$ (0.24)	
Niagara	\$ (0.17)	\$ (0.15)	\$ (0.19)	\$ (0.21)	\$ (0.22)	\$ (0.25)	\$ (0.24)	\$ (0.26)	\$ (0.37)	\$ (0.25)	
Iroquois Receipts	\$ 0.15	\$ (0.07)	\$ (0.14)	\$ (0.20)	\$ (0.11)	\$ (0.16)	\$ (0.45)	\$ (0.34)	\$ (0.50)	\$ 0.33	
Tetco M3	\$ 0.07	\$ (0.20)	\$ (0.32)	\$ (0.33)	\$ (0.27)	\$ (0.29)	\$ (0.55)	\$ (0.58)	\$ (0.17)	\$ 0.46	
Dracut	\$ 1.67	\$ 0.64	\$ 0.04	\$ 0.05	\$ 0.27	\$ 0.26	\$ (0.20)	\$ (0.08)	\$ 1.24	\$ 3.37	
TCO	\$ (0.32)	\$ (0.26)	\$ (0.30)	\$ (0.34)	\$ (0.36)	\$ (0.38)	\$ (0.45)	\$ (0.45)	\$ (0.29)	\$ (0.27)	
Dawn	\$ 0.12	\$ (0.10)	\$ (0.14)	\$ (0.15)	\$ (0.16)	\$ (0.19)	\$ (0.18)	\$ (0.20)	\$ (0.07)	\$ 0.05	
Tetco M2	\$ (0.33)	\$ (0.38)	\$ (0.44)	\$ (0.47)	\$ (0.42)	\$ (0.47)	\$ (0.63)	\$ (0.71)	\$ (0.46)	\$ (0.36)	
Transco Leidy	\$ (0.43)	\$ (0.42)	\$ (0.48)	\$ (0.56)	\$ (0.50)	\$ (0.53)	\$ (0.68)	\$ (0.71)	\$ (0.48)	\$ (0.43)	
Algonquin	\$ 1.51	\$ 0.36	\$ (0.20)	\$ (0.19)	\$ 0.01	\$ 0.01	\$ (0.43)	\$ (0.31)	\$ 1.11	\$ 3.18	
Tenn Z6	\$ 1.48	\$ 0.40	\$ (0.21)	\$ (0.25)	\$ (0.07)	\$ (0.02)	\$ (0.46)	\$ (0.30)	\$ 0.84	\$ 3.27	
Dominion SP	\$ (0.37)	\$ (0.37)	\$ (0.41)	\$ (0.47)	\$ (0.42)	\$ (0.43)	\$ (0.61)	\$ (0.67)	\$ (0.46)	\$ (0.38)	
Dominion NP	\$ (0.52)	\$ (0.48)	\$ (0.52)	\$ (0.59)	\$ (0.53)	\$ (0.55)	\$ (0.74)	\$ (0.80)	\$ (0.58)	\$ (0.48)	
Iroquois Z1	\$ 0.15	\$ (0.07)	\$ (0.14)	\$ (0.20)	\$ (0.11)	\$ (0.16)	\$ (0.45)	\$ (0.34)	\$ (0.50)	\$ 0.33	
Leidy Hub	\$ (0.26)	\$ (0.32)	\$ (0.44)	\$ (0.48)	\$ (0.32)	\$ (0.43)	\$ (0.65)	\$ (0.67)	\$ (0.27)	\$ (0.24)	
Millennium East Pool	\$ (0.50)	\$ (0.42)	\$ (0.45)	\$ (0.55)	\$ (0.45)	\$ (0.43)	\$ (0.62)	\$ (0.68)	\$ (0.46)	\$ (0.34)	
NYMEX*1.15	\$ 3.03	\$ 2.64	\$ 2.60	\$ 2.65	\$ 2.69	\$ 2.70	\$ 2.68	\$ 2.71	\$ 2.79	\$ 2.99	

Attachment DIV 1-6

NYMEX Future Settlements and Basis Curves (USD/MMBtu)										
8-Jun-2020										
	1/1/2023	2/1/2023	3/1/2023	4/1/2023	5/1/2023	6/1/2023	7/1/2023	8/1/2023	9/1/2023	10/1/2023
NYMEX	\$ 2.73	\$ 2.69	\$ 2.56	\$ 2.27	\$ 2.23	\$ 2.27	\$ 2.31	\$ 2.32	\$ 2.31	\$ 2.34
Tenn Z4	\$ (0.20)	\$ (0.20)	\$ (0.25)	\$ (0.27)	\$ (0.30)	\$ (0.38)	\$ (0.32)	\$ (0.34)	\$ (0.53)	\$ (0.58)
Niagara	\$ (0.25)	\$ (0.20)	\$ (0.20)	\$ (0.13)	\$ (0.17)	\$ (0.19)	\$ (0.20)	\$ (0.23)	\$ (0.22)	\$ (0.24)
Iroquois Receipts	\$ 2.10	\$ 1.95	\$ 0.88	\$ (0.06)	\$ (0.13)	\$ (0.19)	\$ (0.10)	\$ (0.15)	\$ (0.44)	\$ (0.33)
Tetco M3	\$ 1.76	\$ 1.69	\$ (0.17)	\$ (0.24)	\$ (0.35)	\$ (0.37)	\$ (0.36)	\$ (0.39)	\$ (0.58)	\$ (0.50)
Dracut	\$ 4.38	\$ 4.40	\$ 1.94	\$ 0.75	\$ 0.13	\$ 0.13	\$ 0.36	\$ 0.36	\$ (0.13)	\$ 0.01
TCO	\$ (0.31)	\$ (0.31)	\$ (0.32)	\$ (0.31)	\$ (0.33)	\$ (0.37)	\$ (0.37)	\$ (0.41)	\$ (0.44)	\$ (0.40)
Dawn	\$ 0.05	\$ 0.10	\$ 0.10	\$ (0.09)	\$ (0.12)	\$ (0.13)	\$ (0.14)	\$ (0.16)	\$ (0.16)	\$ (0.18)
Tetco M2	\$ (0.30)	\$ (0.33)	\$ (0.40)	\$ (0.39)	\$ (0.48)	\$ (0.45)	\$ (0.46)	\$ (0.51)	\$ (0.63)	\$ (0.66)
Transco Leidy	\$ (0.42)	\$ (0.41)	\$ (0.45)	\$ (0.49)	\$ (0.55)	\$ (0.55)	\$ (0.49)	\$ (0.55)	\$ (0.66)	\$ (0.64)
Algonquin	\$ 4.17	\$ 4.19	\$ 1.79	\$ 0.47	\$ (0.11)	\$ (0.10)	\$ 0.07	\$ 0.01	\$ (0.34)	\$ (0.14)
Tenn Z6	\$ 3.67	\$ 3.87	\$ 1.48	\$ 0.40	\$ (0.21)	\$ (0.25)	\$ (0.07)	\$ (0.02)	\$ (0.46)	\$ (0.30)
Dominion SP	\$ (0.34)	\$ (0.33)	\$ (0.39)	\$ (0.38)	\$ (0.44)	\$ (0.44)	\$ (0.46)	\$ (0.47)	\$ (0.61)	\$ (0.62)
Dominion NP	\$ (0.44)	\$ (0.43)	\$ (0.50)	\$ (0.48)	\$ (0.52)	\$ (0.59)	\$ (0.53)	\$ (0.55)	\$ (0.75)	\$ (0.81)
Iroquois Z1	\$ 2.10	\$ 1.95	\$ 0.88	\$ (0.06)	\$ (0.13)	\$ (0.19)	\$ (0.10)	\$ (0.15)	\$ (0.44)	\$ (0.33)
Leidy Hub	\$ (0.22)	\$ (0.15)	\$ (0.28)	\$ (0.33)	\$ (0.47)	\$ (0.46)	\$ (0.36)	\$ (0.46)	\$ (0.65)	\$ (0.62)
Millennium East Pool	\$ (0.33)	\$ (0.42)	\$ (0.51)	\$ (0.42)	\$ (0.46)	\$ (0.55)	\$ (0.45)	\$ (0.43)	\$ (0.63)	\$ (0.68)
NYMEX*1.15	\$ 3.14	\$ 3.09	\$ 2.94	\$ 2.61	\$ 2.56	\$ 2.61	\$ 2.65	\$ 2.66	\$ 2.65	\$ 2.69

Attachment DIV 1-6

NYMEX Future Settlements and Basis Curves (USD/MMBtu)											
8-Jun-2020											
	11/1/2023	12/1/2023	1/1/2024	2/1/2024	3/1/2024	4/1/2024	5/1/2024	6/1/2024	7/1/2024	8/1/2024	
NYMEX	\$ 2.41	\$ 2.58	\$ 2.70	\$ 2.67	\$ 2.54	\$ 2.27	\$ 2.24	\$ 2.27	\$ 2.31	\$ 2.32	
Tenn Z4	\$ (0.35)	\$ (0.26)	\$ (0.22)	\$ (0.22)	\$ (0.27)	\$ (0.42)	\$ (0.45)	\$ (0.52)	\$ (0.47)	\$ (0.49)	
Niagara	\$ (0.37)	\$ (0.25)	\$ (0.25)	\$ (0.19)	\$ (0.20)	\$ (0.08)	\$ (0.12)	\$ (0.14)	\$ (0.15)	\$ (0.18)	
Iroquois Receipts	\$ (0.52)	\$ 0.29	\$ 2.03	\$ 1.89	\$ 0.83	\$ (0.05)	\$ (0.12)	\$ (0.18)	\$ (0.09)	\$ (0.14)	
Tetco M3	\$ (0.20)	\$ 0.47	\$ 1.85	\$ 1.78	\$ (0.15)	\$ (0.33)	\$ (0.44)	\$ (0.46)	\$ (0.45)	\$ (0.47)	
Dracut	\$ 1.36	\$ 3.57	\$ 4.62	\$ 4.64	\$ 2.09	\$ 0.78	\$ 0.15	\$ 0.15	\$ 0.39	\$ 0.38	
TCO	\$ (0.32)	\$ (0.32)	\$ (0.33)	\$ (0.31)	\$ (0.33)	\$ (0.33)	\$ (0.35)	\$ (0.39)	\$ (0.39)	\$ (0.43)	
Dawn	\$ (0.06)	\$ 0.07	\$ 0.03	\$ 0.11	\$ 0.10	\$ (0.05)	\$ (0.07)	\$ (0.08)	\$ (0.09)	\$ (0.11)	
Tetco M2	\$ (0.46)	\$ (0.36)	\$ (0.31)	\$ (0.33)	\$ (0.39)	\$ (0.39)	\$ (0.54)	\$ (0.50)	\$ (0.52)	\$ (0.56)	
Transco Leidy	\$ (0.51)	\$ (0.42)	\$ (0.47)	\$ (0.49)	\$ (0.52)	\$ (0.52)	\$ (0.63)	\$ (0.61)	\$ (0.56)	\$ (0.61)	
Algonquin	\$ 0.47	\$ 3.16	\$ 5.01	\$ 5.02	\$ 1.75	\$ 0.50	\$ (0.09)	\$ (0.09)	\$ 0.09	\$ 0.03	
Tenn Z6	\$ 0.84	\$ 3.27	\$ 3.67	\$ 3.87	\$ 1.48	\$ 0.40	\$ (0.21)	\$ (0.25)	\$ (0.07)	\$ (0.02)	
Dominion SP	\$ (0.46)	\$ (0.38)	\$ (0.36)	\$ (0.33)	\$ (0.38)	\$ (0.38)	\$ (0.51)	\$ (0.50)	\$ (0.52)	\$ (0.52)	
Dominion NP	\$ (0.59)	\$ (0.50)	\$ (0.46)	\$ (0.45)	\$ (0.52)	\$ (0.54)	\$ (0.58)	\$ (0.65)	\$ (0.59)	\$ (0.61)	
Iroquois Z1	\$ (0.52)	\$ 0.29	\$ 2.03	\$ 1.89	\$ 0.83	\$ (0.05)	\$ (0.12)	\$ (0.18)	\$ (0.09)	\$ (0.14)	
Leidy Hub	\$ (0.27)	\$ (0.24)	\$ (0.24)	\$ (0.16)	\$ (0.28)	\$ (0.33)	\$ (0.54)	\$ (0.51)	\$ (0.42)	\$ (0.52)	
Millennium East Pool	\$ (0.45)	\$ (0.31)	\$ (0.31)	\$ (0.39)	\$ (0.49)	\$ (0.39)	\$ (0.43)	\$ (0.52)	\$ (0.43)	\$ (0.40)	
NYMEX*1.15	\$ 2.77	\$ 2.97	\$ 3.11	\$ 3.07	\$ 2.92	\$ 2.61	\$ 2.58	\$ 2.62	\$ 2.65	\$ 2.66	

Attachment DIV 1-6

NYMEX Future Settlements and Basis Curves (USD/MMBtu)											
8-Jun-2020											
	9/1/2024	10/1/2024	11/1/2024	12/1/2024	1/1/2025	2/1/2025	3/1/2025	4/1/2025	5/1/2025	6/1/2025	
NYMEX	\$ 2.31	\$ 2.33	\$ 2.40	\$ 2.57	\$ 2.68	\$ 2.64	\$ 2.51	\$ 2.25	\$ 2.24	\$ 2.27	
Tenn Z4	\$ (0.66)	\$ (0.71)	\$ (0.46)	\$ (0.38)	\$ (0.35)	\$ (0.35)	\$ (0.39)	\$ (0.46)	\$ (0.48)	\$ (0.55)	
Niagara	\$ (0.18)	\$ (0.19)	\$ (0.37)	\$ (0.25)	\$ (0.25)	\$ (0.20)	\$ (0.20)	\$ (0.08)	\$ (0.12)	\$ (0.14)	
Iroquois Receipts	\$ (0.43)	\$ (0.32)	\$ (0.55)	\$ 0.25	\$ 1.97	\$ 1.83	\$ 0.79	\$ (0.04)	\$ (0.12)	\$ (0.17)	
Tetco M3	\$ (0.67)	\$ (0.58)	\$ (0.20)	\$ 0.47	\$ 1.90	\$ 1.89	\$ (0.12)	\$ (0.33)	\$ (0.44)	\$ (0.46)	
Dracut	\$ (0.11)	\$ 0.02	\$ 1.83	\$ 4.33	\$ 5.53	\$ 5.55	\$ 2.66	\$ 0.78	\$ 0.15	\$ 0.16	
TCO	\$ (0.46)	\$ (0.42)	\$ (0.32)	\$ (0.32)	\$ (0.37)	\$ (0.35)	\$ (0.37)	\$ (0.33)	\$ (0.35)	\$ (0.39)	
Dawn	\$ (0.11)	\$ (0.13)	\$ (0.06)	\$ 0.07	\$ 0.03	\$ 0.11	\$ 0.10	\$ (0.05)	\$ (0.07)	\$ (0.08)	
Tetco M2	\$ (0.71)	\$ (0.73)	\$ (0.46)	\$ (0.35)	\$ (0.31)	\$ (0.36)	\$ (0.38)	\$ (0.44)	\$ (0.55)	\$ (0.53)	
Transco Leidy	\$ (0.75)	\$ (0.72)	\$ (0.52)	\$ (0.42)	\$ (0.54)	\$ (0.59)	\$ (0.63)	\$ (0.50)	\$ (0.65)	\$ (0.64)	
Algonquin	\$ (0.32)	\$ (0.12)	\$ 1.23	\$ 4.10	\$ 5.57	\$ 5.50	\$ 2.61	\$ 0.60	\$ (0.10)	\$ (0.10)	
Tenn Z6	\$ (0.46)	\$ (0.30)	\$ 0.84	\$ 3.27	\$ 3.67	\$ 3.87	\$ 1.48	\$ 0.40	\$ (0.21)	\$ (0.25)	
Dominion SP	\$ (0.69)	\$ (0.69)	\$ (0.46)	\$ (0.37)	\$ (0.36)	\$ (0.36)	\$ (0.37)	\$ (0.43)	\$ (0.52)	\$ (0.53)	
Dominion NP	\$ (0.80)	\$ (0.86)	\$ (0.59)	\$ (0.50)	\$ (0.47)	\$ (0.45)	\$ (0.52)	\$ (0.56)	\$ (0.60)	\$ (0.67)	
Iroquois Z1	\$ (0.43)	\$ (0.32)	\$ (0.55)	\$ 0.25	\$ 1.97	\$ 1.83	\$ 0.79	\$ (0.04)	\$ (0.12)	\$ (0.17)	
Leidy Hub	\$ (0.73)	\$ (0.69)	\$ (0.28)	\$ (0.23)	\$ (0.24)	\$ (0.18)	\$ (0.27)	\$ (0.38)	\$ (0.55)	\$ (0.54)	
Millennium East Pool	\$ (0.60)	\$ (0.66)	\$ (0.43)	\$ (0.29)	\$ (0.29)	\$ (0.37)	\$ (0.47)	\$ (0.37)	\$ (0.40)	\$ (0.50)	
NYMEX*1.15	\$ 2.65	\$ 2.68	\$ 2.75	\$ 2.95	\$ 3.08	\$ 3.04	\$ 2.89	\$ 2.59	\$ 2.58	\$ 2.61	

Attachment DIV 1-6

NYMEX Future Settlements and Basis Curves (USD/MMBtu)				
8-Jun-2020				
	7/1/2025	8/1/2025	9/1/2025	10/1/2025
NYMEX	\$ 2.31	\$ 2.32	\$ 2.31	\$ 2.34
Tenn Z4	\$ (0.47)	\$ (0.49)	\$ (0.66)	\$ (0.71)
Niagara	\$ (0.15)	\$ (0.18)	\$ (0.18)	\$ (0.19)
Iroquois Receipts	\$ (0.09)	\$ (0.14)	\$ (0.43)	\$ (0.32)
Tetco M3	\$ (0.45)	\$ (0.47)	\$ (0.67)	\$ (0.58)
Dracut	\$ 0.39	\$ 0.38	\$ (0.11)	\$ 0.02
TCO	\$ (0.39)	\$ (0.43)	\$ (0.46)	\$ (0.42)
Dawn	\$ (0.09)	\$ (0.11)	\$ (0.11)	\$ (0.13)
Tetco M2	\$ (0.52)	\$ (0.56)	\$ (0.71)	\$ (0.73)
Transco Leidy	\$ (0.56)	\$ (0.61)	\$ (0.75)	\$ (0.72)
Algonquin	\$ 0.09	\$ 0.03	\$ (0.32)	\$ (0.12)
Tenn Z6	\$ (0.07)	\$ (0.02)	\$ (0.46)	\$ (0.30)
Dominion SP	\$ (0.52)	\$ (0.52)	\$ (0.69)	\$ (0.69)
Dominion NP	\$ (0.59)	\$ (0.61)	\$ (0.80)	\$ (0.86)
Iroquois Z1	\$ (0.09)	\$ (0.14)	\$ (0.43)	\$ (0.32)
Leidy Hub	\$ (0.42)	\$ (0.52)	\$ (0.73)	\$ (0.69)
Millennium East Pool	\$ (0.43)	\$ (0.40)	\$ (0.60)	\$ (0.66)
NYMEX*1.15	\$ 2.65	\$ 2.66	\$ 2.66	\$ 2.69

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5043
In Re: Gas Long-Range Resource and Requirements Plan
for the Forecast Period 2020/21 to 2024/25
Responses to the Division's First Set of Data Requests
Issued on July 10, 2020

Division 1-7

Request

Reference Exhibit 8 of the Long-Range Plan. Please explain why each pipeline contract is identified twice in this exhibit.

Response:

Each pipeline is listed twice because the first table for each pipeline contains daily contract quantities while the second table for each pipeline contains hourly contract quantities. The Company inadvertently omitted labels on each table. Please see Attachment DIV 1-7 for a revised version of Exhibit 8, which contains labels above each table. There have not been any changes to the contract quantity values in this revision.

The Narragansett Electric Company -Take Station Contract Quantities (MMBtu)

* = Peak MDQ

^ = Not incremental city gate capacity

Algonquin Daily Contract Quantities

ALGONQUIN 1/24th or 6% Hourly:	9001	90106	90107	933005	93001ESC	93011E	93401S	96004SC	9B105	9S100S	9W009E	510801	Constellation CG Supply NSB19_	510985	Total
	1/24th	1/24th	6%	1/24th	6%	6%	1/24th	1/24th	1/24th	1/24th	6%	1/24th	1/24th	1/24th	1/24th
Contract MDTQ:	11,063	19,465	26,129	2,061	2,384	56,035	335	1,695	8,539	187	6,812	18,000	14,100	96,000	166,805
Dey St. (#00004)	11,063	9,223	19,514	---	---	25,137	---	---	4,258	---	6,234	---	13,100	---	88,529
Westerly (#00008)	---	474	---	248	---	1,221	---	---	79	---	273	500	---	---	2,795
Wampanoag Trail [E. Prov] (#00010)	---	4,092	6,615	---	---	18,837	---	---	---	---	---	---	---	---	29,544
Portsmouth (#00013)	---	5,078	---	---	---	6,504	---	---	4,202	---	305	6,000	---	---	22,089
Tiverton (#00033)	---	598	---	---	---	163	---	---	---	---	---	500	---	---	1,261
Burrillville (#00044)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0
Barrington (#00064)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0
Bristol/Warren (#00012)	---	---	---	813	2,384	4,173	335	1,695	---	187	---	6,000	1,000	---	16,587
Cumberland (#00083)	---	---	---	1,000	---	---	---	---	---	---	---	---	---	---	1,000
Crary St. (#00842)	---	---	---	---	---	---	---	---	---	---	---	---	---	96,000	96,000
Montville (#00059)[Yankee Gas]	---	---	---	---	---	---	---	---	---	---	---	5,000	---	---	5,000
Take Station Total:															262,805

Algonquin Hourly Contract Quantities

ALGONQUIN 1/24th or 6% Hourly:	9001	90106	90107	933005	93001ESC	93011E	93401S	96004SC	9B105	9S100S	9W009E	510801	Constellation CG Supply NSB19_	510985	Total
	1/24th	1/24th	6%	1/24th	6%	6%	1/24th	1/24th	1/24th	1/24th	6%	1/24th	1/24th	1/24th	1/24th
Contract MDTQ:	461	811	1,568	86	143	3,362	14	71	356	8	409	750	588	4,000	8,625
Dey St. (#00004)	461	384	1,171	---	---	1,508	---	---	177	---	374	---	546	---	4,622
Westerly (#00008)	---	20	---	10	---	73	---	---	3	---	16	21	---	---	144
Wampanoag Trail [E. Prov] (#00010)	---	171	397	---	---	1,130	---	---	---	---	---	---	---	---	1,698
Portsmouth (#00013)	---	212	---	---	---	390	---	---	175	---	18	250	---	---	1,045
Tiverton (#00033)	---	25	---	---	---	10	---	---	---	---	---	21	---	---	56
Burrillville (#00044)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0
Barrington (#00064)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0
Bristol/Warren (#00012)	---	---	---	34	143	250	14	71	---	8	---	250	42	---	811
Cumberland (#00083)	---	---	---	42	---	---	---	---	---	---	---	---	---	---	42
Crary St. (#00842)	---	---	---	---	---	---	---	---	---	---	---	---	---	4,000	4,000
Montville (#00059)[Yankee Gas]	---	---	---	---	---	---	---	---	---	---	---	208	---	---	208
Take Station Total:															12,625

Tennessee Daily Contract Quantities

TENNESSEE All 1/24th:	10807	95345	39173	62930	1597	64025	64026	330580	330581	349449	Total	
1/24th:	1/24th											
Contract MDTQ:	10,836	1,000	1,067	15,000	29,335	5,220	6,380	24,000	15,000	20,000	127,838	
Cranston (#420750)	---	---	---	9,000	10,000	---	---	15,000	20,000	54,000	---	
Smithfield (#420910)	---	---	---	---	5,000	2,610	3,190	---	---	10,800	---	
Pawtucket (#420135)	10,836	---	1,067	6,000	14,335	---	---	---	---	32,238	---	
Lincoln (#420758)	---	1,000	---	---	---	2,610	3,190	24,000	---	30,800	---	
Take Station Total:												127,838

Tennessee Hourly Contract Quantities

TENNESSEE All 1/24th:	10807	95345	39173	62930	1597	64025	64026	330580	330581	349449	Total	
1/24th:	1/24th											
Contract MDTQ:	452	42	44	625	1,222	218	266	1,000	625	833	5,327	
Cranston (#420750)	---	---	---	375	417	---	---	---	625	833	2,250	
Smithfield (#420910)	---	---	---	---	208	109	133	---	---	---	450	
Pawtucket (#420135)	452	---	44	250	597	---	---	---	---	---	1,343	
Lincoln (#420758)	---	42	---	---	---	109	133	1,000	---	---	1,283	
Take Station Total:												5,327

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 5043
In Re: Gas Long-Range Resource and Requirements Plan
for the Forecast Period 2020/21 to 2024/25
Responses to the Division's First Set of Data Requests
Issued on July 10, 2020

Division 1-8

Request:

Reference Exhibit 13 and Exhibit 15, page 1. Please reconcile the contract quantities identified in Exhibit 13 with the resource quantities identified in Exhibit 15.

Response:

Please see Attachment DIV 1-8 for a mapping of Exhibit 15 categories onto Exhibit 13 assets. The long-term supply agreements found in section *IV.C.4. Long-Term Supply Agreements* can be found at the bottom of Attachment DIV 1-8. The attachment does not include the Company's on-system LNG assets (i.e., Exeter, Cumberland, and Portsmouth).

Attachment DIV 1-8

NATIONAL GRID - RHODE ISLAND ASSETS
Transportation Contracts

Shipper	Pipeline Company	Contract No.	Rate Schedule	City Gate MDQ	Annual Quantity	Expiration Date	Currently In Evergreen	Notes	Exhibit 15	City Gate / Upstream
Narragansett Electric Co.	Algonquin	9001	AFT1FT3	11,063	4,037,995	12/31/2021	No	Part-284 transportation service (365-day) used to transport gas from the Columbia interconnect at Hanover, NJ (11,063 MMBtu) to National Grid - Dey St (11,063 MMBtu).	TCO Appalachia	City Gate
Narragansett Electric Co.	Algonquin	90106	AFT-14	19,465	7,104,725	10/31/2021	Yes	Part-284 transportation service (365-day) used to transport gas from the Columbia interconnect at Hanover, NJ (12,808 MMBtu), TETCO interconnect at Lambertville (6,585 MMBtu) and Transco interconnect at Centerville (72 MMBtu) to National Grid - Dey St (9,223 MMBtu), National Grid - Tiverton (598 MMBtu), National Grid - Westerly (474 MMBtu), National Grid - E. Providence (4,092 Mmbtu), and National Grid - Portsmouth (5,078 MMBtu).	Transco Leidy / TCO Appalachia / TET/AGT Storage	City Gate
Narragansett Electric Co.	Algonquin	90107	AFT-1W	26,129	3,945,479	10/31/2021	Yes	Part-284 service with a seasonally adjusted MDQ of (26,129 MMBtu), used to transport gas from the Columbia interconnect at Hanover, NJ (18,674 MMBtu) or Ramapo, NY (7,455 MMBtu) to National Grid - Dey St (19,514 MMBtu) and National Grid - E. Providence (6,615 MMBtu).	TCO Appalachia	City Gate
Narragansett Electric Co.	Algonquin	933005	AFT-1P	2,061	752,265	3/31/2021	Yes	Part-284 transportation service (365-day) used to transport gas from the TETCO interconnect at Lambertville, NJ (2,061 MMBtu) to National Grid - Cumberland (1,000 MMBtu), National Grid - Westerly (248 MMBtu), and National Grid - Warren (813 MMBtu).	TET/AGT Storage	City Gate
Narragansett Electric Co.	Algonquin	93001ESC	AFT-ES1	2,384	771,904	10/31/2021	Yes	Part-284 NO NOTICE service with a seasonally adjusted MDQ of (2,384 MMBtu), used to transport gas from the TETCO interconnect at Lambertville, NJ (1,377 MMBtu) and Hanover, NJ (1,007 MMBtu) to National Grid - Warren (2,384 MMBtu).	M2 / M3	City Gate
Narragansett Electric Co.	Algonquin	93011E	AFT-E1	56,035	19,446,885	10/31/2021	Yes	Part-284 NO NOTICE service with a seasonally adjusted MDQ of (56,035 MMBtu), used to transport gas from the TETCO interconnect at Lambertville, NJ (34,668 MMBtu) and Hanover, NJ (21,367 MMBtu) to National Grid - Dey St (25,137 MMBtu), National Grid - Westerly (1,221 MMBtu), National Grid - E. Providence (48,147 MMBtu), National Grid - Warren (4,173 MMBtu), National Grid - Portsmouth (6,504 MMBtu), and National Grid - Tiverton (163 MMBtu).	M2 / M3	City Gate
Narragansett Electric Co.	Algonquin	93401S	AFT-1S4	335	122,275	10/31/2021	Yes	Part-284 transportation service (365-day) used to transport gas from the TETCO interconnect at Lambertville, NJ (335 MMBtu) to National Grid - Warren (335 MMBtu).	TET/AGT Storage	City Gate
Narragansett Electric Co.	Algonquin	96004SC	AFT-1S3	1,695	618,675	10/31/2021	Yes	Part-284 firm transportation service (365-day) used to transport gas from the TETCO interconnect at Lambertville, NJ (537 MMBtu) and Centerville, NJ (1,158 MMBtu) to National Grid - Warren (1,695 MMBtu).	Transco Leidy / Dominion South Point	City Gate
Narragansett Electric Co.	Algonquin	9B105	AFT-1B	8,539	1,813,145	10/31/2021	Yes	Part-284 service with a seasonally adjusted MDQ of (8,539 MMBtu), used to transport gas from the TETCO interconnect at Lambertville, NJ to National Grid - Dey St (4,258 MMBtu), National Grid - Portsmouth (4,202 MMBtu) and National Grid - Westerly (79 MMBtu).	TET/AGT Storage	City Gate
Narragansett Electric Co.	Algonquin	9S100S	AFT-1SX	187	39,737	10/31/2021	Yes	Part-284 service with a seasonally adjusted MDQ of (187 MMBtu), used to transport gas from the TETCO interconnect at Lambertville, NJ to National Grid - Warren (187 MMBtu).	TET/AGT Storage	City Gate
Narragansett Electric Co.	Algonquin	9W009E	AFT-EW	6,812	1,446,384	10/31/2021	Yes	Part-284 NO NOTICE service with a seasonally adjusted MDQ of (6,812 MMBtu), used to transport gas from the TETCO interconnect at Hanover, NJ (4,222 MMBtu) and Lambertville, NJ (2,590 MMBtu) to National Grid - Dey St (6,234 MMBtu), National Grid - Westerly (273 MMBtu), and National Grid - Portsmouth (305 MMBtu).	TET/AGT Storage	City Gate
Narragansett Electric Co.	Algonquin	510801	AFT1AIM	18,000	6,570,000	1/6/2032	No	Part-284 transportation service used to transport gas from Ramapo, NY (18,000 MMBtu) to National Grid - Westerly (500 MMBtu), National Grid - Warren (6,000 MMBtu), National Grid - Portsmouth (6,000 MMBtu), National Grid - Tiverton (500 MMBtu), and Yankee Gas - Montville (5,000 MMBtu).	AIM (Ramapo) / AIM (Millenium)	City Gate
Narragansett Electric Co.	Algonquin	510985	AFTCLMS	96,000	35,040,000	7/16/2032	No	Part-284 transportation service used to transport gas from Manchester Street Lateral on the G 12 System (Meter No. 80070) to National Grid - Cray Street-Providence, RI (96,000 MMBtu).	Manchester Lateral (Not listed in Exhibit 15)	N/A
Narragansett Electric Co.	Columbia	31523	FTS	10,000	3,650,000	10/31/2025	No	Part-284 transportation service used to transport gas from Broad Run-19 (10,000 MMBtu) to Columbia interconnect at Hanover, NJ (10,000 MMBtu).	TCO Appalachia	Upstream
Narragansett Electric Co.	Columbia	31524	FTS	30,000	10,950,000	10/31/2025	No	Part-284 transportation service used to transport gas from Maumee-1 (30,000 MMBtu) to Columbia interconnect at Hanover, NJ (30,000 MMBtu).	TCO Appalachia / TET/AGT Storage	Upstream
Narragansett Electric Co.	Columbia	9631	SST	2,545	695,966	4/1/2040	No	Part-284 transportation service used to transport gas from RP Storage Point TCO-FSS #9630 (2,545 MMBtu) to Columbia interconnect at Hanover, NJ (2,545 MMBtu). MDQ Seasonally adjusted to be 1,272 MDQ from Apr - Sep.	TET/AGT Storage	Upstream
Narragansett Electric Co.	Dominion	100118	FTNN	537	196,005	3/31/2022	No	Part-284 transportation service used to transport gas from the TETCO interconnect at Oakford (537 MMBtu) or Dominion South Point (537 MMBtu) to the Leidy Group Meter (537 MMBtu).	Dominion South Point	Upstream
Narragansett Electric Co.	Dominion	700086	FTGSS	2,061	311,211	3/31/2022	No	Transportation contract used to transport gas from DTI-GSS #300169 (2,061MMBtu) to the TETCO interconnect at Chambersburg, PA (2,061 MMBtu).	TET/AGT Storage	Upstream
Narragansett Electric Co.	Dominion	700087	FTGSS	5,324	803,924	3/31/2021	No	Transportation contract used to transport gas from DTI-GSS #300170 (5,324MMBtu) to Ellensburg, PA (5,324 MMBtu).	TET/AGT Storage	Upstream
Narragansett Electric Co.	Iroquois	50001	RTS-1	1,012	369,380	11/1/2022	No	Transportation contract used to transport gas from Waddington (1,012 MMBtu) to the IGTS interconnect with TGP at Wright, NY.	Dawn Iroquois	Upstream
Narragansett Electric Co.	Millennium	210165	FT-1	9,000	3,285,000	3/31/2034	No	Transportation service used to transport gas from Corning, NY to the interconnect with Algonquin Gas Transmission at Ramapo, NY (9,000 MMBtu).	AIM (Millenium)	Upstream
Narragansett Electric Co.	PNGTS	225805	FT	29,000	9,382,325	10/31/2040	No	Transportation service used to transport gas from East Hereford to the interconnect with Tennessee Gas Pipeline at Dracut (25,705 MMBtu).	Dawn PNGTS	Upstream
Narragansett Electric Co.	Tennessee	10807	FT-A	10,836	3,955,140	3/31/2022	No	Transportation service used to transport gas from Ellsburg (6,581 MMBtu) and Nothern Storage (4,255 MMBtu) to National Grid city gates at Pawtucket, RI (10,836 MMBtu).	TGP Storage	City Gate
Narragansett Electric Co.	Tennessee	39173	FT-A	1,067	389,455	10/31/2024	No	Transportation service (365-day) used to transport gas from Niagara River (1,067 MMBtu) to National Grid city gates at Pawtucket, RI (1,067 MMBtu).	Niagara	City Gate
Narragansett Electric Co.	Tennessee	1597	FT-A	29,335	10,707,275	10/31/2024	No	Transportation service used to transport gas from Zn1 800 Leg (6,160 MMBtu), Zn1 500 Leg (13,091 MMBtu), Zn0 100 Leg (9,522 MMBtu), and Zn1 100 Leg (562 MMBtu) to National Grid city gates at Pawtucket, RI (14,335 MMBtu), Cranston (10,000 MMBtu), and Smithfield (5,000 MMBtu).	Zone 4	City Gate

Attachment DIV 1-8

Shipper	Pipeline Company	Contract No.	Rate Schedule	City Gate MDQ	Annual Quantity	Expiration Date	Currently In Evergreen	Notes	Exhibit 15	City Gate / Upstream
Narragansett Electric Co.	Tennessee	62930	FT-A	15,000	5,475,000	8/31/2022	No	Transportation service used to transport gas from the interconnect at Dracut (15,000 MMBtu) to National Grid city gate - Cranston (9,000) and National Grid city gate - Pawtucket, RI (6,000 MMBtu).	Dawn PNGTS	City Gate
Narragansett Electric Co.	Tennessee	64025	FT-A	5,220	1,905,300	10/31/2027	No	TGP ConneXion - Transportation service used to transport gas from Tx Zone 0 (5,220 MMBtu) to National Grid city gates at Lincoln, RI (2,610 MMBtu) and Smithfield, RI (2,610). If volumes transported to points other than primary points as listed on the contract, maximum commodity rate per TGP's tariff apply.	Zone 4	City Gate
Narragansett Electric Co.	Tennessee	64026	FT-A	6,380	2,328,700	10/31/2027	No	TGP ConneXion - Transportation service used to transport gas from Tx Zone 0 (6,380 MMBtu) to National Grid city gates at Lincoln, RI (3,190 MMBtu) and Smithfield, RI (3,190). If volumes transported to points other than primary points as listed on the contract, maximum commodity rate per TGP's tariff apply.	Zone 4	City Gate
Narragansett Electric Co.	Tennessee	95345	FT-A	1,000	365,000	10/31/2022	No	Transportation service used to transport gas from interconnect at Wright, NY (1,000 MMBtu) to National Grid city gates at Lincoln (1,000 MMBtu).	Dawn Iroquois	City Gate
Narragansett Electric Co.	Tennessee	330580	FT-A	24,000	8,760,000	10/31/2038	No	Transportation service used to transport gas from the interconnects at Dracut (14,000 MMBtu) and at Distrigas (10,000 MMBtu) to National Grid city gate - Lincoln (24,000).	Dawn PNGTS	City Gate
Narragansett Electric Co.	Tennessee	330581	FT-A	15,000	5,475,000	10/31/2038	No	Transportation service used to transport gas from the interconnect at Distrigas (15,000 MMBtu) to National Grid city gate - Cranston (15,000).	Everett Multi Year	City Gate
Narragansett Electric Co.	Tennessee	349449	FT-A	20,000	7,300,000	10/31/2025	No	Transportation service used to transport gas from the interconnect at Dracut (20,000 MMBtu) to National Grid city gate - Cranston (20,000).	Dracut (Not listed in Exhibit 15)	City Gate
Narragansett Electric Co.	Texas Eastern	330844	FTS	6,377	2,327,605	10/31/2021	Yes	Part-157 (7C) transportation service used to transport gas from Leidy, PA (6,377 MMBtu) to interconnect with AGT at Lambertville, NJ or Hanover, NJ (6,377 MMBtu).	TET/AGT Storage	Upstream
Narragansett Electric Co.	Texas Eastern	330845	FTS	537	196,005	10/31/2021	Yes	Part-157 (7C) transportation service used to transport gas from Leidy, PA (537 MMBtu) to interconnect with AGT at Lambertville, NJ or Hanover, NJ (537 MMBtu).	Dominion South Point	Upstream
Narragansett Electric Co.	Texas Eastern	330867	FTS-5	813	296,745	3/31/2022	Yes	Part-157 (7C) transportation service used to transport gas from Chambersburg, PA (813 MMBtu) to Lambertville, NJ (813 MMBtu).	TET/AGT Storage	Upstream
Narragansett Electric Co.	Texas Eastern	330870	FTS-5	1,000	365,000	3/31/2022	Yes	Part-157 (7C) transportation service used to transport gas from Chambersburg, PA (1,000 MMBtu) to Lambertville, NJ (1,000 MMBtu).	TET/AGT Storage	Upstream
Narragansett Electric Co.	Texas Eastern	330907	FTS-5	248	90,520	3/31/2022	Yes	Part-157 (7C) transportation service used to transport gas from Chambersburg, PA (248 MMBtu) to Lambertville, NJ (248 MMBtu).	TET/AGT Storage	Upstream
Narragansett Electric Co.	Texas Eastern	331722	FTS-7	538	196,370	3/31/2022	Yes	Part- 157 (7C) transportation service used to transport gas from Oakford, PA (538 MMBtu) to either interconnects at Lambertville or Hanover, NJ (538 MMBtu).	TET/AGT Storage	Upstream
Narragansett Electric Co.	Texas Eastern	331801	FTS-8	79	28,835	3/31/2022	Yes	Part-157 (7C) transportation service used to transport gas from Leidy, PA (38 MMBtu) to either interconnects at Lambertville or Hanover, NJ. In addition, Oakford, PA (41 MMBtu) to either interconnects at Lambertville or Hanover, NJ.	TET/AGT Storage	Upstream
Narragansett Electric Co.	Texas Eastern	331802	FTS-8	187	68,255	3/31/2022	Yes	Part-157 (7C) transportation service used to transport gas from Leidy, PA (89 MMBtu) to either interconnects at Lambertville or Hanover, NJ. In addition, Oakford, PA (98 MMBtu) to either interconnects at Lambertville or Hanover, NJ.	TET/AGT Storage	Upstream
Narragansett Electric Co.	Texas Eastern	331819	FTS-8	4,745	1,731,925	3/31/2022	Yes	Part- 157 (7C) transportation service used to transport gas from Oakford, PA (4,745 MMBtu) to either interconnects at Lambertville or Hanover, NJ (4,745 MMBtu).	TET/AGT Storage	Upstream
Narragansett Electric Co.	Texas Eastern	800156	SCT	2,099	766,135	10/31/2021	Yes	Part-284 transportation contract used to transport gas from the access areas at STX (585 MMBtu oper. entitle.), ETX (392 MMBtu oper. entitle.), WLA (900 MMBtu oper. entitle.), and ELA (1,504 MMBtu oper. entitle.) to the TETCO interconnect with AGT at Lambertville, NJ (2,099 MMBtu).	M2	Upstream
Narragansett Electric Co.	Texas Eastern	800303	CDS	45,934	16,765,910	10/31/2021	Yes	Part-284 transportation contract used to transport gas from the access areas at STX (14,193 MMBtu oper. entitle.), ETX (9,523 MMBtu oper. entitle.), WLA (21,846 MMBtu oper. entitle.), and ELA (31,460 MMBtu oper. entitle.) to the TETCO interconnect with AGT at Lambertville, NJ (45,934 MMBtu) or Hanover, NJ (18,656 MMBtu) or Zone M3 Storage Point (6,665 MMBtu).	M2	Upstream
Narragansett Electric Co.	Texas Eastern	800440	CDS	944	344,560	10/31/2021	Yes	Part-284 transportation contract used to transport gas from TETCO FSS-1 #400515 to the TETCO interconnects at Lambertville, NJ (405 MMBtu) and Hanover, NJ (539 MMBtu).	TET/AGT Storage	Upstream
Narragansett Electric Co.	TransCanada	42386	FT	1,012	369,380	10/31/2024	No	Transportation service used to transport gas from the Union Gas interconnect at Parkway to the interconnect with Iroquois Gas Transmission at Waddington (1,012 MMBtu).	Dawn Iroquois	Upstream
Narragansett Electric Co.	TransCanada	58577	FT	10,757	3,926,305	10/31/2040	No	Transportation service used to transport gas from the Union Gas interconnect at Parkway to the interconnect with Portland Natural Gas Transmission System at East Hereford (10,757 MMBtu).	Dawn PNGTS	Upstream
Narragansett Electric Co.	TransCanada	60659	FT	18,294	5,474,635	10/31/2040	No	Transportation service used to transport gas from the Union Gas interconnect at Parkway to the interconnect with Portland Natural Gas Transmission System at East Hereford (14,999 MMBtu).	Dawn PNGTS	Upstream
Narragansett Electric Co.	Transco	9081767	FT	1,240	452,600	3/31/2021	Yes	Part-284 transportation service used to transport gas from Transco Leidy (1,240 MMBtu) to the Algonquin interconnect at Centerville, NJ (1,240 MMBtu).	Transco Leidy	Upstream
Narragansett Electric Co.	Union Gas	M12164	M12	1,025	374,125	10/31/2021	No	Transportation service used to transport gas from Dawn, Ontario to the interconnect with TransCanada Pipeline at Parkway (1,025 MMBtu).	Dawn Iroquois	Upstream
Narragansett Electric Co.	Union Gas	M12274	M12	29,051	9,400,940	10/31/2040	No	Transportation service used to transport gas from Dawn, Ontario to the interconnect with TransCanada Pipeline at Parkway (25,756 MMBtu).	Dawn PNGTS	Upstream

Peaking Supply Assets:

Shipper	Supply Company	Contract No.	MDQ	Annual Quantity	Expiration Date	Notes	Exhibit 15	City Gate / Upstream
Narragansett Electric	Nat'l Grid LNG	LNG003	95,000	600,000	5/1/2021	National Grid LNG Tank in Providence, RI	LNG From Storage	City Gate
Narragansett Electric	Constellation	NSB042-16	20,000	651,000	3/31/2021	Supply at TGP Everett (Contract Season 3)	Everett Multi Year	City Gate
Narragansett Electric	Constellation	NSB19_24-42-20	14,100	507,600	3/31/2024	Supply at AGT Citygates	AGT Citygate	City Gate

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Division 1-9

Request:

Reference Exhibit 15, page 1. Please explain the significant increases in the fuel requirements for 2023-2024 and 2024-2025.

Response:

There was an error in Exhibit 15, page 1. Specifically, the Company inadvertently reported Unserved volumes associated with the entire month of January instead of the individual design day, which occurs in January in the design weather pattern. The Unserved volume error impacted the Fuel Reimbursement calculations. Please see Attachment DIV 1-9 for a corrected version of Exhibit 15.

National Grid Rhode Island
Comparison of Resources and Requirements
Design Year (Sales and Customer Choice)
(BBtu)

		Design Day with Existing Resources				
		<u>2020-2021</u>	<u>2021-2022</u>	<u>2022-2023</u>	<u>2023-2024</u>	<u>2024-2025</u>
<u>REQUIREMENTS</u>						
Firm Sendout	Valley	67	69	71	73	73
	Providence	298	305	314	321	322
	Warren	11	11	12	12	12
	Westerly	6	7	7	7	7
Fuel Reimbursement		6	6	6	6	6
Underground Storage Refill		0	0	0	0	0
LNG Refill		0	0	0	0	0
TOTAL		389	398	410	419	419
<u>RESOURCES</u>						
TGP	Dawn PNGTS	29	29	29	29	29
	Dawn Iroquois	1	1	1	1	1
	Niagara	1	1	1	1	1
	Zone 4	41	41	41	41	41
	TGP Citygate	0	0	0	0	0
	Everett Multi Year Storage	20	20	0	0	0
		11	11	11	11	11
TET/AGT	M2	49	49	49	49	49
	Dominion South Point	1	1	1	1	1
	TCO Appalachia	41	41	41	41	41
	Transco Leidy	1	1	1	1	1
	AIM (Ramapo)	8	9	9	9	9
	AIM (Millennium)	9	9	9	9	9
	M3	18	18	18	18	18
	AGT Citygate Storage	14	14	14	0	0
		29	29	29	29	29
Liquid for Portables and Refill		0	6	0	0	0
LNG From Storage		116	119	76	95	119
Unserved	Valley	0	0	37	39	19
	Providence	0	0	43	43	40
	Warren	0	0	0	2	2
	Westerly	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
		0	0	80	84	61
TOTAL		389	398	410	419	419

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Division 1-10

Request:

Please provide a copy of each AMA that will be in effect for the winter of 2020-2021.

Response:

At this time, the Company is in the process of preparing Request for Proposals (RFP) to enter into Asset Management Arrangements (AMA) to meet its customer requirements on the following paths:

- Dawn to Tennessee Zone 6 via Portland Natural Gas Transmission System
- Dawn to Tennessee Zone 6 via Iroquois Gas Transmission System
- Dracut to Tennessee Zone 6
- Columbia Gas Transmission to Algonquin

Based on the results of the RFPs, the Company will make a determination of the volume and assets to release pursuant to an AMA. At this time, the Company does not have final AMAs that will be in effect for the winter of 2020-2021. The Company will supplement this response with the final RFPs and AMAs for the winter of 2020-2021.

Division 1-11

Request:

Reference Exhibit 15, page 2:

- a. please explain if the Company anticipates acquiring additional resources to meet the anticipated unserved demand for the winter of 2020-2021. If yes, identify these resources;
- b. please explain why the LNG from storage in Exhibit 15 is not equal to the 802,000 Dth shown on page 24 of the Long-Range Plan; and
- c. please provide a sendout run identifying daily demands and the usage of each capacity resource for the winter of 2020-2021.

Response:

- a. The Company anticipates acquiring additional resources to meet unserved demand and hourly needs for the winter of 2020-2021.
 - Winter Liquid Volumes (LNG): approximately 192,000 Dth. For more information reference Section IV.C.8. *Changes and Proposed Additions to the Company's Resource Portfolio (4)*.
 - Incremental Summer Liquid Volumes (LNG): approximately 225,000 Dth. The actual volume will depend on usage during the 2020/21 heating season and will be determined in late-winter.
 - Proposed Dracut Supply Deal or Asset Management Arrangement: a 10-day call for 20,000 Dth per day at Dracut
 - Proposed Everett Supply Deal: a 5-day call for 5,000 Dth per day at Everett
- b. When modeling LNG Storage in SENDOUT, the Company ensures that the LNG tanks will be 100% full on November 1st of each year. Exhibit 15 shows the portfolio with existing assets only. Due to delays in Liberty Liquefaction and NGLNG Liquefaction, there is not enough liquid refill in the non-heating season currently under contract to refill the tanks if the model were to dispatch the full 802,000 Dth over the course of the winter. Therefore, the model conserves LNG to be able to meet the 100% full constraint in the following November. As noted in response to DIV 1-11-a, the Company is planning to contract for additional summer liquid refill that will make the full quantity of LNG in its tanks available to meet customer requirements.
- c. Please see Attachment DIV 1-11-1 for daily demand and the Excel version of Attachment DIV 1-11-2 for usage of each capacity resource for the winter of 2020-2021. Volumes are presented in thousands of dekatherms.

Attachment DIV 1-11-1

Date	Daily Served Demand by Area/Class (MDth)	Daily Unserved Demand by Area/Class (MDth)
11/1/2020	80.069	-
11/2/2020	51.476	-
11/3/2020	80.538	-
11/4/2020	74.426	-
11/5/2020	112.227	-
11/6/2020	107.355	-
11/7/2020	92.252	-
11/8/2020	82.772	-
11/9/2020	113.719	-
11/10/2020	90.131	-
11/11/2020	90.628	-
11/12/2020	83.024	-
11/13/2020	110.482	-
11/14/2020	105.114	-
11/15/2020	135.917	-
11/16/2020	155.097	-
11/17/2020	119.049	-
11/18/2020	161.425	-
11/19/2020	171.682	-
11/20/2020	179.836	-
11/21/2020	179.267	-
11/22/2020	211.087	-
11/23/2020	228.274	7.251
11/24/2020	228.939	21.156
11/25/2020	229.519	33.231
11/26/2020	176.671	-
11/27/2020	116.524	-
11/28/2020	115.205	-
11/29/2020	134.923	-
11/30/2020	165.354	-
12/1/2020	125.160	-
12/2/2020	162.863	-
12/3/2020	167.272	-
12/4/2020	194.024	-
12/5/2020	150.233	-
12/6/2020	219.425	-
12/7/2020	170.053	-
12/8/2020	127.007	-
12/9/2020	166.793	-
12/10/2020	137.939	-
12/11/2020	121.923	-
12/12/2020	150.516	-
12/13/2020	155.009	-
12/14/2020	228.814	-
12/15/2020	255.078	-
12/16/2020	234.377	-
12/17/2020	199.197	-

Attachment DIV 1-11-1

Date	Daily Served Demand by Area/Class (MDth)	Daily Unserved Demand by Area/Class (MDth)
12/18/2020	234.957	-
12/19/2020	189.910	-
12/20/2020	264.109	10.916
12/21/2020	264.822	25.822
12/22/2020	206.867	-
12/23/2020	144.941	-
12/24/2020	159.892	-
12/25/2020	223.929	-
12/26/2020	236.400	-
12/27/2020	264.774	24.821
12/28/2020	265.085	31.312
12/29/2020	207.824	-
12/30/2020	213.384	-
12/31/2020	181.269	-
1/1/2021	329.854	-
1/2/2021	227.871	-
1/3/2021	160.381	-
1/4/2021	168.615	-
1/5/2021	119.048	-
1/6/2021	161.904	-
1/7/2021	210.791	-
1/8/2021	234.566	-
1/9/2021	236.783	-
1/10/2021	186.454	-
1/11/2021	246.740	-
1/12/2021	281.920	-
1/13/2021	247.511	-
1/14/2021	270.995	-
1/15/2021	252.403	-
1/16/2021	187.803	-
1/17/2021	231.027	-
1/18/2021	304.925	-
1/19/2021	383.385	-
1/20/2021	325.444	-
1/21/2021	276.077	-
1/22/2021	213.678	-
1/23/2021	192.307	-
1/24/2021	247.226	-
1/25/2021	156.252	-
1/26/2021	235.525	-
1/27/2021	258.530	-
1/28/2021	200.636	-
1/29/2021	262.754	-
1/30/2021	265.637	-
1/31/2021	255.279	-
2/1/2021	128.218	-
2/2/2021	168.134	-

Attachment DIV 1-11-1

Date	Daily Served Demand by Area/Class (MDth)	Daily Unserved Demand by Area/Class (MDth)
2/3/2021	244.054	-
2/4/2021	257.477	-
2/5/2021	275.393	42.003
2/6/2021	320.661	-
2/7/2021	332.829	-
2/8/2021	261.986	-
2/9/2021	265.051	-
2/10/2021	234.377	-
2/11/2021	247.603	-
2/12/2021	220.196	-
2/13/2021	246.563	-
2/14/2021	258.824	-
2/15/2021	201.114	-
2/16/2021	200.730	-
2/17/2021	204.754	-
2/18/2021	186.637	-
2/19/2021	213.003	-
2/20/2021	137.372	-
2/21/2021	219.426	-
2/22/2021	241.947	-
2/23/2021	149.351	-
2/24/2021	204.754	-
2/25/2021	240.028	-
2/26/2021	248.088	-
2/27/2021	240.141	-
2/28/2021	231.411	-
3/1/2021	263.586	7.024
3/2/2021	200.156	-
3/3/2021	250.575	-
3/4/2021	243.769	-
3/5/2021	173.225	-
3/6/2021	207.548	-
3/7/2021	187.124	-
3/8/2021	235.525	-
3/9/2021	257.477	-
3/10/2021	263.263	5.333
3/11/2021	148.775	-
3/12/2021	108.922	-
3/13/2021	121.953	-
3/14/2021	114.958	-
3/15/2021	144.840	-
3/16/2021	156.057	-
3/17/2021	198.522	-
3/18/2021	164.207	-
3/19/2021	167.088	-
3/20/2021	161.603	-
3/21/2021	164.212	-

Attachment DIV 1-11-1

Date	Daily Served Demand by Area/Class (MDth)	Daily Unserved Demand by Area/Class (MDth)
3/22/2021	131.767	-
3/23/2021	143.308	-
3/24/2021	165.833	-
3/25/2021	130.276	-
3/26/2021	151.559	-
3/27/2021	221.444	-
3/28/2021	237.928	-
3/29/2021	184.051	-
3/30/2021	134.114	-
3/31/2021	128.287	-

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Attachment DIV 1-11-2

Please see the Excel version of Attachment DIV 1-11-2