Andrew S. Marcaccio
Senior Counsel

February 9, 2022

VIA ELECTRONIC MAIL

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

RE: Docket 5209 - Proposed FY 2023 Electric Infrastructure, Safety, and Reliability Plan
Responses to Data Requests – OER Set 1

Dear Ms. Massaro:

On behalf of The Narragansett Electric Company d/b/a National Grid ("National Grid" or the "Company"), enclosed please find the electronic version of the Company's responses to the Office of Energy Resources ("OER") First Set of Data Requests in the above-reference matter.[1]

Thank you for your attention to this transmittal. If you have any questions, please contact me at 401-784-7263.

Sincerely,

Andrew S. Marcaccio

Enclosure

cc: Docket 5209 Service List
Jon Hagopian, Esq.
John Bell, Division
Greg Booth, Division
Linda Kushner, Division

[1] Per a communication from Commission counsel on October 4, 2021, the Company is submitting an electronic version of this filing followed by six (6) hard copies filed with the Clerk within 24 hours of the electronic filing.

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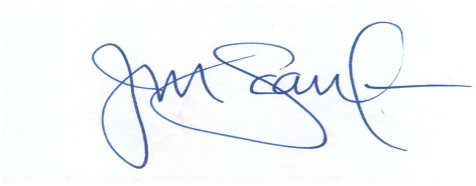
Certificate of Service

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

The paper copies of this filing are being hand delivered to the Rhode Island Public Utilities Commission and to the Rhode Island Division of Public Utilities and Carriers.



_____ February 9, 2022

Joanne M. Scanlon Date

Docket No. 5209 - National Grid's Electric ISR Plan FY 2023
Service List as of 01/10/2022

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OER 1-1

Request:

How does the Company's proposal advance the objectives of the 2021 Act on Climate?

Response:

The most immediate requirement of the 2021 Act on Climate is directed to the Rhode Island Executive Climate Change Coordinating Council to file an updated plan by December 31, 2022, that "includes strategies, programs, and actions to meet economywide enforceable targets for greenhouse gas emissions reductions." (*See* R.I. Gen. Laws §§ 42-6.2-2(a)(2)(i), (viii), and 42-6.2-3). The 2021 Act on Climate does not place any requirements on public utilities with which they must comply at this time; therefore, it is too soon to know how future rules and regulations implementing the new targets under the 2021 Act on Climate will implicate the utility sector.

Notwithstanding the above, the Company is committed to a smart and responsible transition to a clean energy future that benefits all customers and actively supports the advancement of the State's clean energy goals. While the FY 2023 ISR Plan does not specifically address the 2021 Act on Climate for the reasons stated above, the Company believes a safe and reliable electric distribution system is a foundational element of any long-term approach to achieving the economywide greenhouse gas emission reduction targets set forth in the 2021 Act on Climate. The investments in the FY 2023 Electric ISR Plan form the critical foundation for the provision of safe and reliable electric service throughout the State upon which many clean energy programs rely. Additionally, investments such as vegetation management also provide mitigations against impacts from climate change and are developed to meet the changing nature of weather events that cause tree damage and impacts to the Company's infrastructure. For these reasons, the Company believes the FY 2023 ISR Plan is consistent with the objectives of the 2021 Act on Climate.

Prepared by or under the supervision of:
Caitlin Broderick, Ryan Constable, Ryan Moe and Patricia Easterly

OER 1-2

Request:

Please provide annual SAIDI and SAIFI statistics (both excluding and including major event days) for 2022 for each of the 38 municipalities the Company serves.

Response:

The year to date (01/01/2022 to 01/31/2022) town SAIFI and SAIDI is summarized in the following reliability table. RI has not had any major event days during the period provided in 2022. Therefore, there is no separate reliability data for excluding major event days to provide.

OER 1-2, page 2

Town	SAIFI	SAIDI (mins)
BARRINGTON	0.067	8.61
BRISTOL	0.014	0.52
BURRILLVILLE	0	0
CENTRAL FALLS	0	0
CHARLESTOWN	0.008	0.96
COVENTRY	0.013	1
CRANSTON	0.005	0.58
CUMBERLAND	0.001	0.04
EAST GREENWICH	0.104	11.67
EAST PROVIDENCE	0	0.07
EXETER	0.002	0.25
FOSTER	0.026	2.66
GLOCESTER	0	0.03
HOPKINTON	0.001	0.19
JAMESTOWN	0.001	0.07
JOHNSTON	0.033	1.27
LINCOLN	0.006	0.35
LITTLE COMPTON	0.11	14.86
MIDDLETOWN	0.003	0.24
NARRAGANSETT	0.005	0.55
NEWPORT	0	0.01
NORTH KINGSTOWN	0.131	7.07
NORTH PROVIDENCE	0.003	0.01
NORTH SMITHFIELD	0.095	3.12
PAWTUCKET	0.002	0.17
PORTSMOUTH	0.008	3.48
PROVIDENCE	0.001	0.21
RICHMOND	0.049	7.89
SCITUATE	0.072	5
SMITHFIELD	0	0.09
SOUTH KINGSTOWN	0.093	1.88
TIVERTON	0	0.04
WARREN	0	0
WARWICK	0.012	0.42
WEST GREENWICH	0	0.02
WEST WARWICK	0.006	0.64
WESTERLY	0.014	1.98
WOONSOCKET	0.069	9.54

OER 1-2, page 3

CY2021 town SAIFI and SAIDI data with and without major storms is provided in the reliability tables below. CY2021 town reliability excluding major storm days.

Town	SAIFI	SAIDI (mins)
BARRINGTON	1.313	89.55
BRISTOL	1.135	146.35
BURRILLVILLE	3.936	343.92
CENTRAL FALLS	0.617	31.03
CHARLESTOWN	0.665	73.64
COVENTRY	0.893	118.40
CRANSTON	0.522	26.48
CUMBERLAND	1.856	125.66
EAST GREENWICH	0.832	91.20
EAST PROVIDENCE	0.542	46.61
EXETER	2.212	271.43
FOSTER	1.782	176.15
GLOCESTER	1.761	194.55
HOPKINTON	2.849	321.08
JAMESTOWN	1.267	48.44
JOHNSTON	0.602	51.38
LINCOLN	2.600	171.05
LITTLE COMPTON	1.889	108.32
MIDDLETOWN	1.178	108.15
NARRAGANSETT	2.101	124.48
NEWPORT	0.660	22.04
NORTH KINGSTOWN	0.972	61.25
NORTH PROVIDENCE	0.865	67.68
NORTH SMITHFIELD	2.149	163.39
PAWTUCKET	1.155	68.42
PORTSMOUTH	2.164	180.91
PROVIDENCE	0.557	44.62
RICHMOND	1.370	139.64
SCITUATE	1.323	113.57
SMITHFIELD	0.489	28.99
SOUTH KINGSTOWN	1.042	116.58
TIVERTON	1.083	54.85
WARREN	0.559	55.73
WARWICK	0.766	52.77
WEST GREENWICH	1.073	91.03
WEST WARWICK	0.285	22.13
WESTERLY	2.147	159.85
WOONSOCKET	0.669	36.42

OER 1-2, page 4

CY2021 town reliability including major storm days

Town	SAIFI	SAIDI
BARRINGTON	2.103	770.14
BRISTOL	1.899	432.11
BURRILLVILLE	4.074	391.51
CENTRAL FALLS	0.678	36.30
CHARLESTOWN	2.547	3560.95
COVENTRY	1.721	990.64
CRANSTON	0.771	105.27
CUMBERLAND	2.092	157.33
EAST GREENWICH	1.254	460.09
EAST PROVIDENCE	0.717	83.26
EXETER	4.462	3106.00
FOSTER	3.545	758.40
GLOCESTER	2.290	433.29
HOPKINTON	4.718	3683.61
JAMESTOWN	2.289	743.62
JOHNSTON	1.068	162.11
LINCOLN	2.921	207.29
LITTLE COMPTON	4.602	857.66
MIDDLETOWN	1.616	246.18
NARRAGANSETT	3.463	1471.60
NEWPORT	0.914	86.85
NORTH KINGSTOWN	2.345	1173.44
NORTH PROVIDENCE	0.993	133.42
NORTH SMITHFIELD	2.269	184.85
PAWTUCKET	1.364	94.97
PORTSMOUTH	2.327	253.60
PROVIDENCE	0.668	101.27
RICHMOND	2.976	3160.27
SCITUATE	1.851	366.35
SMITHFIELD	0.817	71.29
SOUTH KINGSTOWN	2.753	2722.95
TIVERTON	2.320	489.39
WARREN	1.377	391.88
WARWICK	1.250	430.55
WEST GREENWICH	1.816	1009.99
WEST WARWICK	0.715	247.10
WESTERLY	3.673	1210.16
WOONSOCKET	0.671	37.19

OER 1-3

Request:

Please describe any methodological updates or changes (i.e. differences relative to the prior year's methodology) to electric load forecasting implemented and used to inform this proposal.

Response:

The electric load forecasting implemented and used to inform the proposal was the forecast that the Company developed and released in Fall 2020. The forecasting methodology is outlined in Chart 3 of the Company's original filing and the overall process is similar to its prior year's (i.e., Fall 2019) forecasting, with all input data being updated to the latest as of Fall 2020 and the models being re-calibrated using these updated inputs. There were two methodological updates/changes that the Company made in the forecasting process:

(1) Electric heat pumps were added into the forecasting process in Fall 2020. Electric heat pumps were considered to be adding load during heating season and helping to save load during cooling season.

(2) In the weather normalization process, a weekly trend variable was implemented to capture the impact of COVID-19 to the 2020 peak load. This was discussed on page 9 of the Company's 2021 Electric Peak (MW) Forecast report that this proposal refers to in the Load Forecasting section of the original filing: http://ngrid-ftp.s3.amazonaws.com/RISysDataPortal/Docs/RI_PEAK_2021_Report_.pdf;

OER 1-4

Request:

On Bates Page 32, the Company refers readers to the 2021 Electric Peak Forecast. The Rhode Island System Portal includes the 2022 Electric Peak Forecast.

a) Was the 2022 Electric Peak Forecast was used in the development of this proposal? If so, please explain how.
b) If the response to (a) is 'yes', then please clarify whether statements regarding the forecast in this proposal (e.g. methods, results, etc.) refer to the 2022 Electric Peak Forecast or the 2021 Electric Peak Forecast.

Response:

a) No, the 2022 Electric Peak Forecast was not used in the development of the FY23 ISR Plan. As stated in the FY23 ISR filing on Bates Page 32, the plan used the 2021 Electric Peak Forecast for the Annual Capacity Review. The Company did perform its annual feeder capacity reviews as soon as the 2022 Electric Peak Forecast report was published and included the results in response to Division 1-5 and the Supplemental response to DIV 1-5 in this Docket. In addition, the FY23 ISR Plan includes a number of projects in various stages of design, permitting, and construction that span many years and could have used previous forecasts.

b) The response to (a) is no. The statements regarding the forecast refer to the 2021 Electric Peak Forecast.

OER 1-5

Request:

Regarding electric vehicles, the Company states in its 2022 Electric Peak (MW) Forecast (page 13): "It is estimated that these vehicles may have increased cumulative summer peak loads by about 1.6 MW as of 2021, increasing to 217.4 MW of cumulative peak load increase in 2036. While EVs do add to both peak and energy loads over time, they are considered 'beneficial' electrification."

a) Please describe any models, assumptions, inputs, and methodology used to estimate the increased cumulative summer peak loads of electric vehicles in 2021 specifically.
b) 215.8 MW of additional projected cumulative peak load increase from EV's in 2036 represents nearly 12% of the Company's peak demand in 2021. Please describe how the Company is preparing to meet load growth caused by beneficial electrification in Rhode Island?
c) Does the Company anticipate any additional challenges or opportunities related to serving load growth from beneficial electrification? Challenges and opportunities may be related to reliability, data privacy, data management, security, and/or other dimensions. If so, please describe.

Response:

a) In its 2022 Electric Peak (MW) Forecast, the Company considered plug-in hybrid vehicles and plug-in battery-only electric vehicles in the light-duty, medium-duty, heavy-duty, and bus categories. The electric vehicle (EV) charging load impacts were estimated from two components: (1) the EV adoption estimations, and (2) the kilowatts (kW) per EV charging load impact estimations. The Company then multiplied the estimated number of adopted EVs by the estimated kW per EV impact to get the estimated EV charging load impacts. The assumptions and methodologies for estimating these two components are discussed below:

   As discussed on page 12 of the Company's 2022 Electric Peak (MW) Forecast report, the Company based its EV adoption predictions on the EV sales and vehicle scrap projections studied in Bloomberg's sixth annual Long-term Electric Vehicle Outlook dated June 9, 2021 (BNEF-2021). It is a well-known and comprehensive study of the transportation electrification sector, where technology, policy, and economic factors that drive the electric vehicle market were thoroughly studied. Based on this methodology, the Company estimated that there will be about 4,500 EVs cumulatively in Rhode Island as of 2021 and will grow to about 255,000 by 2036, where the majority are light-duty

EVs as shown in the plot on page 55 of the Company's 2022 Electric Peak (MW) Forecast report.

The kW per EV impact was from derived from ISO-NE's EV charging study for light-duty EVs and from BNEF-2021 for medium-duty and heavy-duty EVs and electric buses. The Company developed a representative 24-hour profile EV charging profile from these sources. Depending on the hour of the peak, the estimated charging load impact varies. For the year 2021, the Company's peak was at hour-ending 16 on June 30, and the estimated impact at that hour was 0.42 kW per light-duty EV, 1.39 kW per medium-duty EV, 7.9 kW per heavy-duty EV, and 13.3 kW per electric bus.

b) When a forecast is issued, the Company begins to use that forecast in future planning analysis. The 2022 Electric Peak (MW) Forecast, issued in November 2021, has been applied to the Company's latest annual planning efforts but has not yet been used in more detailed study related planning. The annual planning effort does extend to 2036, but the planning engineers will not initiate projects for far future issues (over 10 years in the future). Furthermore, annual planning is used to inform more detailed study area reviews, which have not been analyzed with this new forecast. In summary, the Company has started to incorporate the forecast with its EV impacts into its planning analysis, but there are no preparations identified at this time.

c) The Company does anticipate issues related to beneficial electrification. In addition to the basic load growth impacts, the daily load cycle could change dramatically based on EV charging behavior and electric heating usage. Electric vehicles can also change the location of the load on an hourly or daily basis. In summary, the distribution system will become more dynamic and unpredictable. To manage the evolving system, the Company will require greater sensing and control of a variety of devices. With this requirement comes a need for robust communication capabilities and data handling and storage capabilities. Beneficial electrification with distributed generation managed through a sensing and control system such as an Advanced Distribution Management System (ADMS) provides a number of opportunities for mutual benefits. For example, with proper assets and controls, the EV charging and electric heating loads could be shifted to coincide with renewable generation on a near real time basis. These issues and opportunities will be further evaluated in the Company's Grid Modernization Plan.