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Rhode Island Energy™
a PPL company

January 25, 2024

VIA ELECTRONIC MAIL

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

RE: Docket No. 23-37-EL – The Narragansett Electric Company d/b/a Rhode Island Energy's Petition for Acceleration of a System Modification Due to Distributed Generation Project Tiverton Project
Responses to Division Data Requests – Set 2

Dear Ms. Massaro:

On behalf of The Narragansett Electric Company d/b/a Rhode Island Energy (the "Company"), enclosed, please find the Company's responses to the Division of Public Utilities and Carriers' ("Division's") Second Set of Data Requests concerning the Tiverton Project in the above-referenced docket.

Thank you for your attention to this filing. If you have any questions, please contact me at 401-784-4263.

Sincerely,

Andrew S. Marcaccio

Enclosures

cc: Docket 23-37-EL Service List

Division 2-1

Request:

Provide a Table similar to Table 4.1 in the Tiverton Area Study attached to the Petition with a column for actual peak summer demand on each circuit for 2022 and 2023.

Response:

Substation	Transformer	Feeder	2022 Actual	2022 %SN	2023 Actual	2023 % SN
TIVERTON 33	T1	33F1	434	91%	382	80%
TIVERTON 33		33F3	388	85%	361	79%
TIVERTON 33	T2	33F2	393	82%	400	84%
TIVERTON 33		33F4	395	87%	373	82%

Please see a Table like Table 4.1 of the Tiverton Area Study above.

Please note that the Company performs its normal loading analysis considering extreme Summer loading. Actual loading can be compared to the planned load level and if less than the planned load level, the system can be considered sufficient. Furthermore, care should be used when reviewing actual load levels in relation to other system consideration such as contingency load-at-risk.

Prepared by or under the supervision of: Ryan Constable

Division 2-2

Request:

Provide a Table or a circuit diagram showing each Tiverton substation feeder and the actual percent loading on peak during 2023 for each line section including the conductor size and maximum conductor capacity used to determine the percent loaded of the conductor.

Response:

Please find attached a CYME model with load adjusted to 2023, from the original area study file. The Company recommends this as the easiest method for the Division to see conductor sizes and capacities for all instances in the models for all four circuits.

Attachment DIV 2-2

The Company provided a .zip file of Attachment DIV 2-2.

Prepared by or under the supervision of: Ryan Constable

Division 2-3

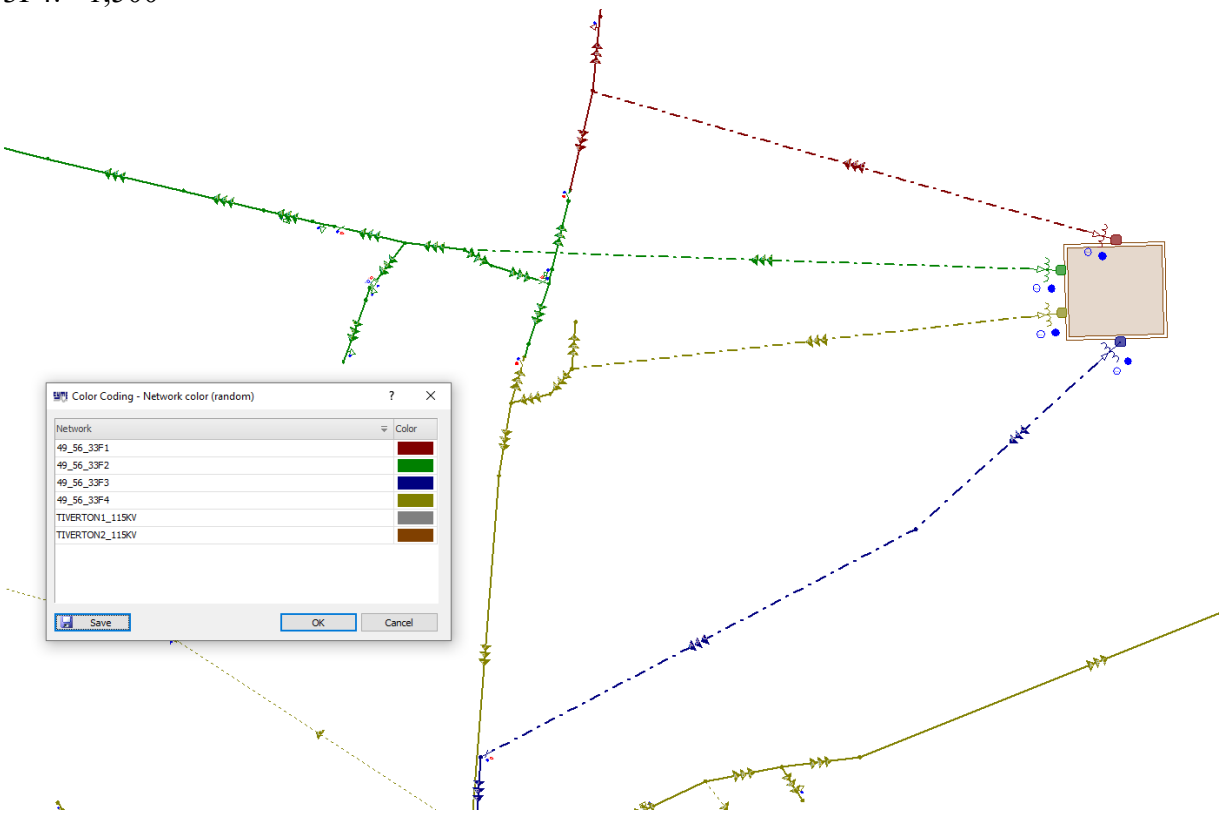
Request:

For Table 4.1 on page 160 of the filing, page 8 of 42 of the Tiverton Area Study Exhibit EJRS-3 attached to the Petition, show on a circuit diagram for each feeder what portion of the feeder is loaded to the percentage as indicated in the Table.

Response:

The portion of each feeder that would potentially be loaded to the values shown in Table 4.1, are the station underground getaways for each circuit. Below is a snapshot from CYME showing the extent of those portions. The underground portions are dashed lines, connecting to solid lines where they rise up.

33F1: ~1,000'
33F2: ~1,500'
33F3: ~2,500'
33F4: ~1,500'



Prepared by or under the supervision of: Ryan Constable

Division 2-4

Request:

Provide the entire list of all standard conductor sizes used by the Company including overhead, underground and duct bank conductors. Include the ampacity rating for each conductor.

Response:

Equipment	Equipment Type	SN (A)	WN (A)	SE (A)	WE (A)
3-1/c 1000 Cu EPR 15 kV - Station Getaway (Assumes 9-way duct, 4 ckts)	UG Cable	535	575	715	745
3-1/c 1000 Al EPR 15 kV - Station Getaway (Assumes 9-way duct, 4 ckts)	UG Cable	445	475	595	615
3-1/c 750 Al EPR 15 kV - Station Getaway (Assumes 9-way duct, 4 ckts)	UG Cable	385	415	515	535
3-1/c 500 Cu EPR 15 kV - Station Getaway (Assumes 9-way duct, 4 ckts)	UG Cable	395	420	520	545
3-1/c 500 Al EPR 15 kV - Station Getaway (Assumes 9-way duct, 4 ckts)	UG Cable	315	340	415	435
3-1/c 350 Cu EPR 15 kV - Station Getaway (Assumes 9-way duct, 4 ckts)	UG Cable	330	355	440	455
3-1/c 4/0 Cu EPR 15 kV - (Assumes 2-way or 4-way duct, 1 ckt)	UG Cable	315	340	380	395
795 Al (ARBUTUS) Bare	OH Conductor	890	1235	890	1235
477 Al (COSMOS) Bare	OH Conductor	645	885	645	885
1/0 Al (AZUZA) Bare	OH Conductor	255	345	255	345
795 Al Spacer Cable - 35kV	OH Conductor	665	940	820	1045
477 Al Spacer Cable - 35kV	OH Conductor	485	685	595	760
795 Al Spacer Cable - 25kV	OH Conductor	680	960	840	1070
477 Al Spacer Cable - 25kV	OH Conductor	495	700	610	775
795 Al Spacer Cable - 15kV	OH Conductor	720	1015	890	1130
477 Al Spacer Cable - 15kV	OH Conductor	530	740	650	820

For underground cable ampacity calculations, there are assumptions made to get the values listed in the table above. Underground cable calculations are affected by specific installation details and standardized underground cable ampacity values are typically not used.

Prepared by or under the supervision of: Ryan Constable

Division 2-5

Request:

Provide a copy of the CYME model referenced on page 160 of the filing page 8 of 42 of the Tiverton Area Study in the sentence directly under Table 4.1.

Response:

Attached are two CYME models that are referred to by the sentence under the Table 4.1. One is a 2021 model, and the other is a 2035 model.

The Company provided .zip file of Attachment DIV 2-5.

Prepared by or under the supervision of: Ryan Constable

Division 2-6

Request:

What year of peak load is used in the CYME model described on page 161 of the filing page 9 of 42 of the Tiverton Area Study?

Response:

2020 loads were used for the peak load in the CYME model described on page 161 of the filing.

Prepared by or under the supervision of: Ryan Constable

Division 2-7

Request:

Provide a CYME model analysis for each Tiverton feeder for the projected loads five years after the completion of the Impact Study for the Green Development generation to be interconnected to the Tiverton substation. Provide this model with existing circuit conditions and a model with the installation of capacitors to correct the voltage deficiency and a model with the installation of voltage regulation to correct the voltage deficiency. Also provide the color coded lines comparable to those in Tiverton study on page 161 of the filing page, page 9 of 42 of the Tiverton area study.

Response:

Attached are two CYME models. The first is a model with projected loads to 2025, and the Green Development Interconnection. The second is a model, building on the first model but with the proposed capacitor banks and voltage regulator.

The Company provided .zip file of Attachment DIV 2-7.

Prepared by or under the supervision of: Ryan Constable

Division 2-8

Request:

Provide for each Tiverton feeder, the number of hours that the feeder thermal capacity was exceeded and the number of hours each year that there will be low voltage if no corrective action is taken. Please provide the information for each year from 2021 to 2029 thus showing actuals for 2021, 2022 and 2023 and projected for the other years.

Request:

To answer this question Please see the following Table for a list of hours, by feeder and by year, counting the number of hours where the feeder thermal capacity was exceeded, and there were areas of under voltage.

Please note, the columns names correspond as follows, OL stands for overload, and UV stands for under voltage. The count of hours encompasses more than just one section of a feeder, but the hours are based on the worst section. The overloads noted in the table are for the feeder thermal rating elements only, which are the feeder getaways for each circuit.

	2021		2022		2023		2024		2025		2026		2027		2028		2029	
	OL	UV	OL	UV	OL	UV	OL	UV	OL	UV	OL	UV	OL	UV	OL	UV	OL	UV
33F1	0	1	2	114	0	0	6	97	7	103	7	107	7	108	8	113	8	116
33F2	0	0	0	0	0	0	1	0	1	0	1	0	1	0	1	0	1	0
33F3	10	67	3	45	1	43	1	9	1	7	2	10	2	9	2	11	2	11
33F4	3	7	0	2	0	0	0	9	0	9	0	10	0	8	0	10	0	12

Prepared by or under the supervision of: Ryan Constable

Division 2-9

Request:

Explain in detail why the Company did not utilize capacitors and voltage regulators to solve the thermal and voltage problems?

Response:

The Company did utilize capacitors and voltage regulators as part of the overall area study solution for Tiverton.

Please see page 167 of the filed petition, a new set of line regulators are recommended for P29 East Road on the new 33F6 circuit.

Please see page 168 of the filed petition. There are six (6) new capacitor bank locations recommended on three of the four existing area circuits.

Additionally, the Company recommended feeder switching to better balance area circuits, for voltage and thermal performance.

Division 2-10

Request:

Explain in detail why the Company did not solve the thermal and voltage deficiencies with a smaller conductor size particularly considering there is virtually no significant load growth projected?

Response:

In the Company's view, it would not be prudent to utilize smaller conductors for any reconductoring of mainline. Fundamentally, a small conductor size, due to its greater resistance value, has the potential to lead to future voltage performance issues, or to exacerbate existing ones. Additionally, the Tiverton work has additional drivers such as feeder contingency and reliability issues which smaller conductors would not resolve. Lastly, the Company's standard mainline conductor size was recommended. Standard conductor sizes result in procurement efficiencies and construction efficiencies.

Division 2-11

Request:

On page 9 of the filing and testimony in paragraph (c) the witness states: The Company will consider a system modification to be an accelerated modification if such modification is otherwise identified in the Company's work plan as a necessary capital investment to be installed within a five -year period as of the date the Company begins the impact study of the proposed distributed generation (DG) project (defined as an Accelerated Modification). On page 14 the Company states the Impact Study was started on June 6, 2019. Explain how the capital investment absent the DG interconnection would be installed within five years of June 6, 2019 since such capital investment was not included in an ISR Plan or an area study to be started and completed by June 6, 2024.

Response:

In this case, the Company views this project as an Accelerated Modification that was anticipated and continues to be needed within the FY24 – FY29 period as identified in the Tiverton Area Study.

The Tiverton Area Study was initially performed in September 2021, and revised in September 2022. The study identified spend for this project over the timeframe of FY24 – FY29.
The Company began the Tiverton Impact Study in June 2019 (FY20) and spend will begin for the capital investment four years later, in FY24.

While the R.I. Gen. Laws § 39-26.3-4.1 is silent in terms of timing, the Company acknowledges that this investment will not be installed within a five-year period as the language in the tariff directs. However, given the overlap of benefits to all customers, fairness to the DG developers, and the fact that the investment has been identified with projected spend within the five-year timeframe, the Company supports categorizing this investment as an acceleration for purposes of cost sharing.

Division 2-12

Request:

Page 13 of the testimony, states d) That the System Improvements have been accelerated from the time they would otherwise be required to serve the Company's distribution customers. The System Improvements do not appear to have been included in an approved ISR Plan or described in such plan, please explain how they fall within the five-year window as described by the Company on page 9 of its testimony? Additionally, the Company's testimony on page 19 states the work would not be placed into service until 2029 without the DG project. Since that is ten years after the start of the Impact Study, please explain in detail how the System Improvements can be considered accelerated within five years of the start of the Impact Study?

Response:

Please refer to Division 2-11. Although not a specific project item, the work was identified in the Company's FY 2023 ISR Docket 5209 in December 2021.

The work was included as a specific item in the FY 2024 ISR, Docket 22-53-EL, in December 2022.

Division 2-13

Request:

On page 11 of the Company's testimony it indicates the Interconnection Tariff does not precisely address the process to determine that a "System Improvement" has been accelerated. Explain in detail each method used to determine the date and precise engineering details of the System Improvement anticipated to be accelerated with a precise timeline and documentation of the source of the timeline. This detailed explanation should demonstrate what the minimum solution would have been for any System Improvement excluding the DG project and the assumptions that the selected solution would have received an agreement from the Division and an approval as proposed the PUC.

Response:

As filed in Division 1-10, the System Modifications subject to the Petition which have been accelerated as a System Improvement given the benefit it has to other customers are:

	Scope	**Total Cost (M)**
System Modification Subject to Petition	Substation – New feeder position	$1.024
	Line – Civil & Cable Procure - 21,000 feet of a manhole and duct system with 3 conductor 1000 kcmil rubber insulated copper cable	$15.381
	Line – Electrical – Installation of 21,000 feet of 3 conductor 1000 kcmil rubber insulated copper cable	$1.540
	Total	$17.945

Per the Tiverton Area Study (which provides the precise engineering details and precise timeline of the System Improvement), the recommendation is to extend the proposed 33F6 circuit further south to serve load. Thermal (capacity) limits, contingency response capability, and voltage issues were identified on the existing Tiverton circuits. The addition of a new circuit with the capability to offload the existing circuits will resolve these issues and is the least cost option. The minimum solution without the DG is demonstrated in the response to Division 3-11 and also explained in the Petition.

Division 2-14

Request:

The Tiverton substation also serves load in Massachusetts. Please explain the steps taken, or that will be taken, to allocate the cost of upgrades to those ratepayers.

Response:

There have been no steps taken yet, as the upgrades are not yet in service. The Company plans to look into whether this upgrade would be included as part of a borderline sales agreement between Rhode Island Energy and Massachusetts Electric Company. The Company will supplement this response once additional information becomes available.

Division 2-15

Request:

Which project at the Tiverton substation included the installation of 3VO on both transformers? Please provide a detailed cost of this work along with a timeline.

Response:

The RI 3V0 Program included the installation of 3V0 at Tiverton Substation. 3V0 was installed on both transformers.

Cash flows for this project are as follows:

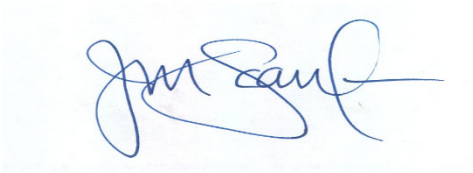
	FY19	FY20
Both T/D Sub	$163k	$303k

Of the total FY19 and FY20 spend, $60k flowed through the ISR in FY20, with the remaining spend transmission costs.

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.



Joanne M. Scanlon

January 25, 2024
Date

Docket No. 23-37-EL Rhode Island Energy – Petition for Acceleration Due to DG Project – Tiverton Projects - Service List updated 12/14/2023

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