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Rhode Island Energy™
a PPL company

February 5, 2024

**VIA ELECTRONIC MAIL**

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

**RE: Docket No. 23-38-EL – The Narragansett Electric Company d/b/a Rhode Island Energy's Petition for Acceleration of a System Modification Due to Distributed Generation Project Weaver Hill Projects**
**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") Second Set of Data Requests 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 No. 23-38-EL Service List

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Division 2-1

Request:

Provide a CYME model with the solution for the Coventry 54F1 and Hopkins Hill 63F6 thermal issues being solved by the application of capacitors for optimum power factor correction.

Response:

A CYME model is included at Attachment DIV 2-1 with the power factor corrected to near unity on the Coventry 54F1 and Hopkins Hill 63F6.

For the 63F6, five capacitor banks were added to the model. Voltage and loading issues remain after the addition of the capacitor banks as shown in Figure 2-1-1 and 2-1-2.

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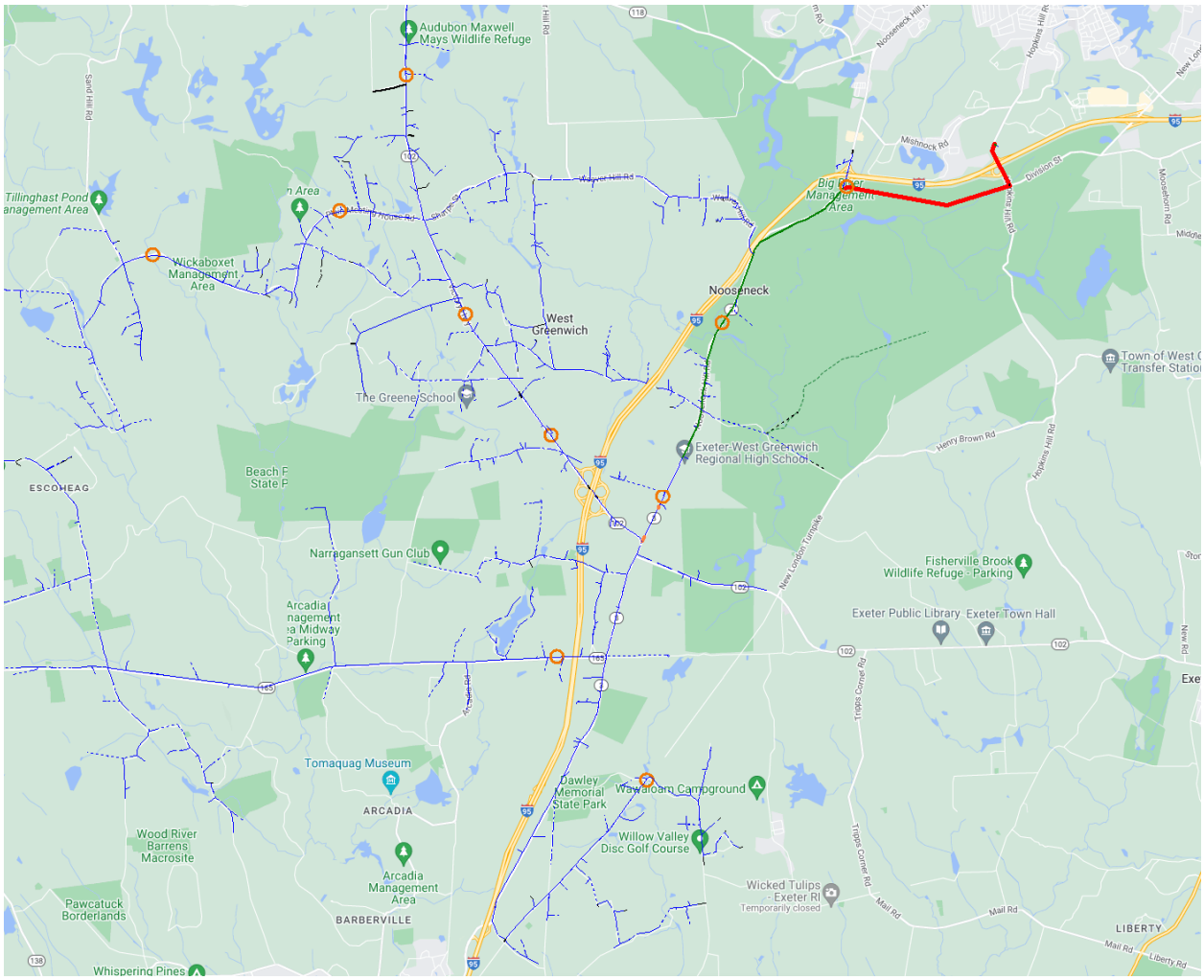
Division 2-1, page 2

Figure 2-1-1 – 63F6 Loading After Power Factor Correction
(red indicates an overload)

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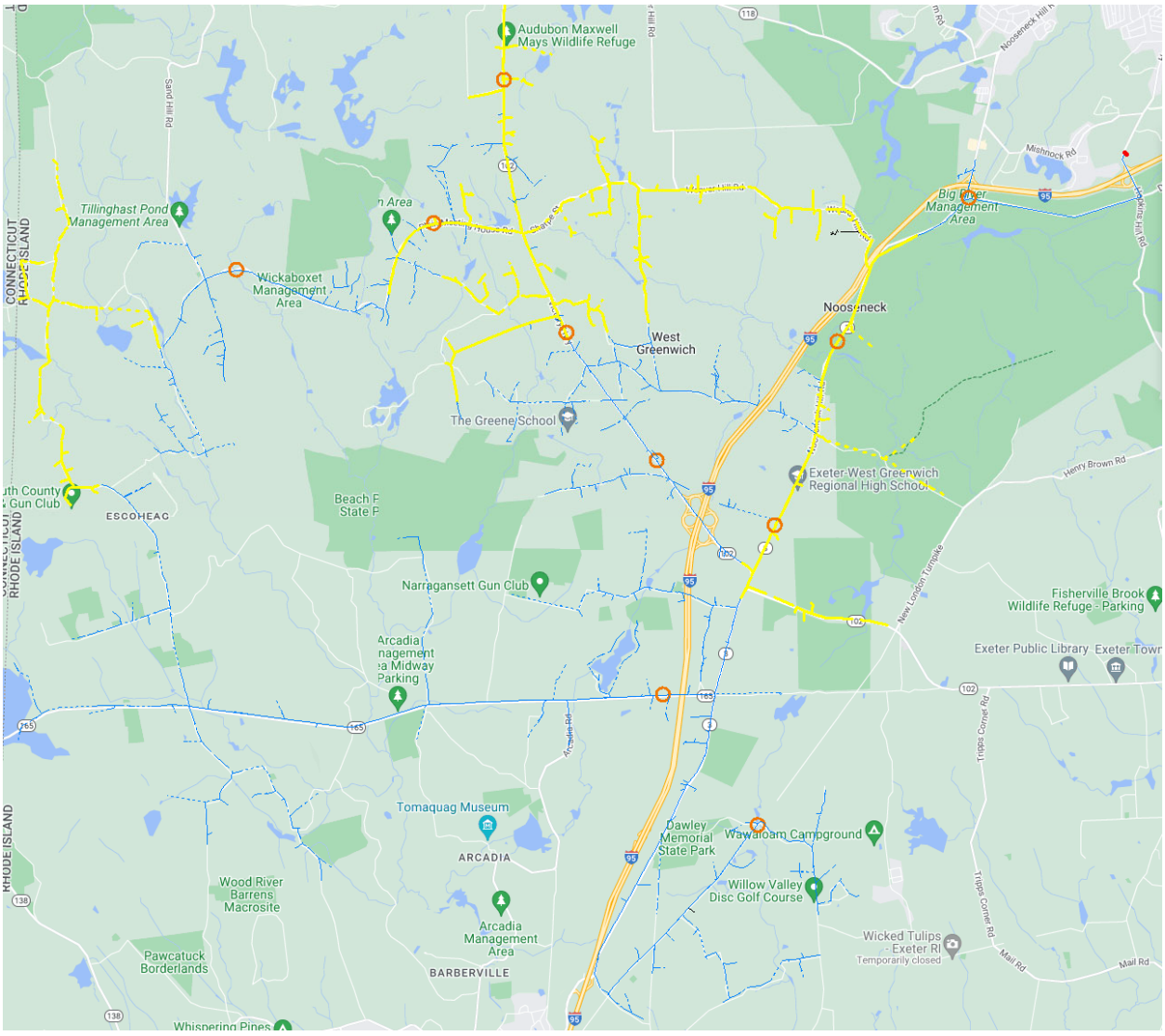
Division 2-1, page 3

Figure 2-1-2 – 63F6 Voltage After Power Factor Correction
(yellow indicates low voltage)




For the 54F1, six capacitor banks were added in the model to correct the circuit to near unity power factor. No overloads were predicted before or after the capacitor bank additions. Voltage issues remain even with the new cap banks being added as shown in Figure 2-1-3.

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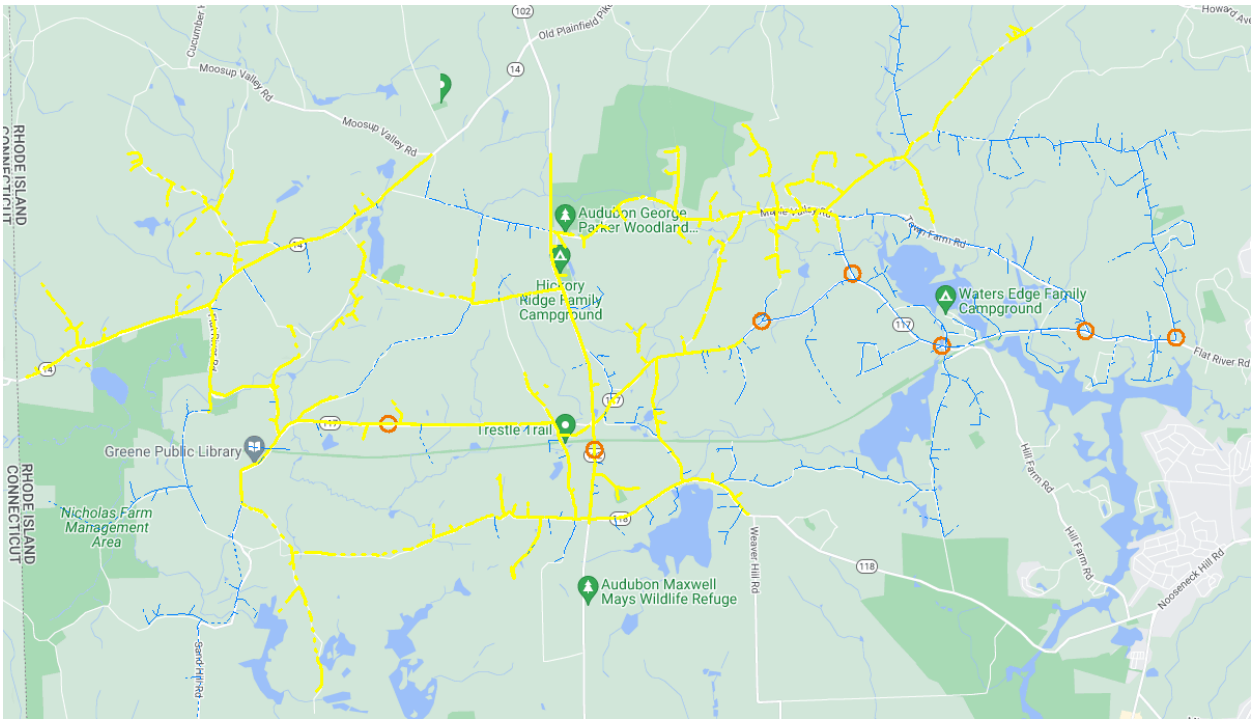
Division 2-1, page 4

Figure 2-1-3 – 54F1 Voltage After Power Factor Correction
(yellow indicates low voltage)

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Division 2-2

Request:

Provide a Table or circuit diagram showing the actual percent loading on peak during 2023 for Coventry 54F1 and Hopkins Hill 63F6. Also, provide the percent actual load growth for each of these feeders in 2021 and 2022 on the same table. Also, for each line section include the conductor size and maximum conductor capacity used to determine the percent loaded of the overloaded conductor sections.

Response:

Table 2-2-1 shows the actual percent loading on peak, element size, and rating for 2021, 2022, and 2023 for the Coventry 54F1 and Hopkins Hill 63F6.

Table 2-2-1 – Loading on 54F1 and 63F6 for 2021, 2022, and 2023

| Substation | Feeder | SN Limiting Element | SN Amps | 2021 Actual | 2021 % SN | 2022 Actual | 2022 % SN | 2023 Actual | 2023 % SN |
|---|---|---|---|---|---|---|---|---|---|
| COVENTRY 54 | 54F1 | Station Transformer | 526 | 413 | 79% | 402 | 76% | 360* | 68% |
| HOPKINS HILL 63 | 63F6 | 477 AL Spacer | 530 | 483 | 91% | 459 | 87% | 409* | 77% |

*The 2023 peak occurred during September.

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## Division 2-3

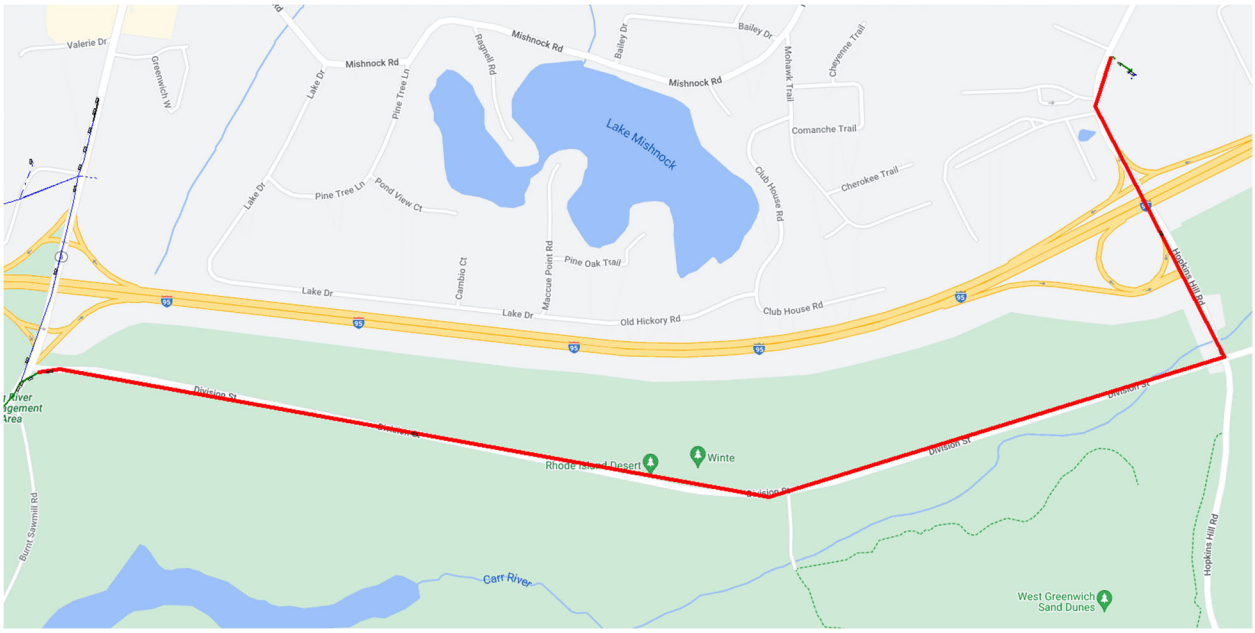
Request:

Show on a circuit diagram for Coventry 54F1 and for Hopkins Hill 63F6 the portion of the feeder which is overloaded or loaded beyond 90 percent. Include the conductor size and ampacity of the conductor being used for the calculations.

Response:

Figure 2-3-1 is a circuit diagram for Hopkins Hill 63F6 showing the portion of the feeder which is overloaded or loaded beyond 90 percent. The conductor is 477 aluminum spacer cable, rated for 530 amps.

Figure 2-3-1 – 63F6 Section Loading Above 90%




There are no distribution line sections on the Coventry 54F1 loaded beyond 90%. The limiting element is the station transformer, which is loaded above 90%. Therefore, no diagram is provided.

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Division 2-4

Request:

Provide a CYME model analysis for the Coventry 54F1 feeder and the Hopkins Hill 63F6 feeder for the projected loads five years after the initiation of the Impact Study and five years after the completion of the Impact Study assuming the distributed generation projected to be interconnected in the Weaver Hill Petition is not connected.

Response:

The Company cannot complete the request above because the distributed generation is connected to the 34.5kV supply for Nooseneck and Robin Hollow and will be connected to the 34.5kV supply for Studley. This has no impact on the two feeders.

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Division 2-5

Request:

Provide for Coventry 54F1 and for Hopkins Hill 63F6, the number of hours each of the feeders' thermal capacity was exceeded and the number of hours the feeder reached or exceeded 90 percent of its thermal capacity. This should be provided for 2021, 2022 and 2023 and projected for each year from 2024 to 2035.

Response:

Table 2-5-1 shows the number of hours exceeding 100% and 90% for the Coventry 54F1 and Hopkins Hill 63F6 from 2021 to 2035.

Table 2-5-1 – 54F1 and 63F6 Hours of Loading

| | 54F1 100% | 54F1 90% | 63F6 100% | 63F6 90% |
|---|---|---|---|---|
| 2021 | 0 | 1 | 0 | 1 |
| 2022 | 0 | 0 | 0 | 0 |
| 2023 | 0 | 0 | 0 | 0 |
| 2024 | 0 | 1 | 1 | 4 |
| 2025 | 0 | 1 | 1 | 4 |
| 2026 | 0 | 1 | 1 | 5 |
| 2027 | 0 | 1 | 1 | 6 |
| 2028 | 0 | 1 | 1 | 6 |
| 2029 | 0 | 2 | 1 | 6 |
| 2030 | 0 | 3 | 1 | 6 |
| 2031 | 0 | 2 | 1 | 6 |
| 2032 | 0 | 1 | 1 | 6 |
| 2033 | 0 | 1 | 1 | 6 |
| 2034 | 0 | 1 | 1 | 5 |
| 2035 | 0 | 1 | 1 | 5 |

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Division 2-6

Request:

Provide the ampacity of the proposed 1,000 MCM UG conductor.

Response:

The generic rating for the 1,000 MCM copper cable is 535 amps. A specific rating will be developed using actual conditions during detailed design.

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Division 2-7

Request:

Will the 1,000 MCM conductor exceed 90 percent loading during any N-1 contingencies? If so, provide the scenarios and a CYME model to indicate these conditions.

Response:

No, there are no N-1 contingencies that will cause the 1,000 MCM conductor to exceed 90 percent loading.

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Division 2-8

Request:

Would a different sub-transmission/transmission voltage be utilized to serve Weaver Hill if the distribution generation projects were not installed? Please explain.

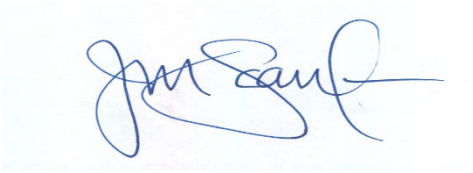
Response:

No, there are no other sub-transmission or transmission facilities in the area. The alternative considered in the Central Rhode Island West study was a more expensive sub-transmission option of the same voltage.

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

February 5, 2024
Date

**Docket No. 23-38-EL Rhode Island Energy – Petition for Acceleration Due to DG Project – Weaver Hill Projects Service List updated 12/14/2023**

| Parties' Name/Address | E-mail | Phone |
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