



Eastern Connecticut (ECT)

TCA Submittal Presentation

ES-22-TCA-15

NEPOOL Reliability Committee Meeting

July 18th, 2023

CMEEC-23-TCA-01 and 02 included for reference

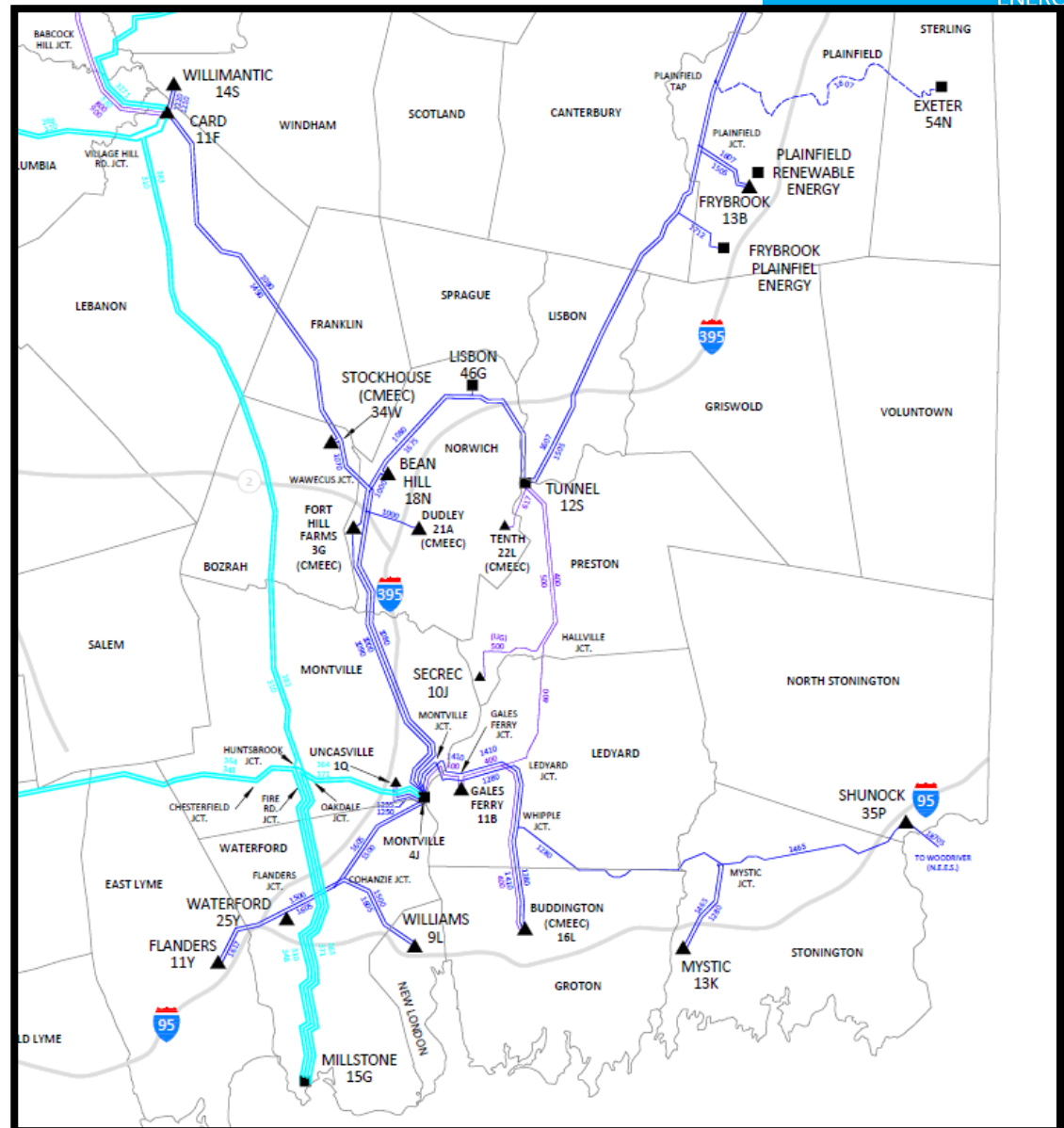
Agenda

- Project Backgrounds
- Eastern Connecticut Study Area/Project Location
- Project Components
- TCA Submittal, Eversource
- Project Summary
- TCA Submittal, CMEEEC

Project Background

History

- ECT Needs Assessment initiated in **June 2017**
- Final ECT Needs Assessment posted - [November 2019](#)
- Final ECT Solutions Study posted - [June 2020](#)
- Eastern CT 2029 Project Updates presented to RC - [June 2021](#)
- Proposed Plan Applications (PPA) Study Presentation to RC - [June 2021](#), [April 2023](#)
- Eversource TCA submitted **May 2022**
- NGRID TCA presented to RC – [August 2022](#)
- CMEEC TCAs submitted **July 2023**
- Targeted completion:
 - Eversource and CMEEC – **Fall 2023**
 - Rhode Island Energy – **December 2024**



Eversource ECT - Project Components

- Card Substation
 - Install 2nd 345/115kV Autotransformer (4X) and one 345-kV breaker
 - Upgrade Card 115kV to BPS standards
 - Install one 115kV circuit breaker in series
- Gales Ferry substation, convert from 69kV to 115kV
- Shunock Substation, install a 50 MVAR synchronous condenser with two 115kV breakers
- 100 Line Rebuild (Now 1787 Line)
 - Rebuild 100 Line (Montville to Gales Ferry) to allow operation at 115kV
 - Re-terminate and energize 100 Line at Montville station at 115kV
- 400 Line Rebuild (Now 1911 Line)
 - Rebuild 400-1 Line (Tunnel to Ledyard Jct.) to allow operation at 115kV
 - Add one 115kV circuit breaker and re-terminate 400-1 line section into Tunnel substation and energize at 115kV
 - Rebuild 400-2 Line (Ledyard Jct. – Border Bus with CMEEC) to allow operation at 115kV
 - Rebuild 400-3 Line (Gales Ferry – Ledyard Jct.) to allow operation at 115kV
- Additional substation work:
 - Killingly Substation, install 25.2 MVAR, 115kV capacitor and circuit breaker
 - Montville Substation, install one 345kV series breaker
 - Mystic Substation, install a 1% series reactor with by-pass switch on the 1465 Line

Card Substation



Top Left – New 115kV Breaker

Bottom Left – New 345/115kV Auto Transformer

Bottom Right - New 115kV control house



Gales Ferry Substation - 2022



Gales Ferry Substation - 2023



Shunock Substation



Top Left – New Synchronous Condenser building

Bottom Left – Synchronous Condenser Rotor

Bottom Right - New 115kV breaker, completing the ring bus



Tunnel Substation



Clean Air Breaker

Eversource energized the first 115kV clean air breaker installed in the United States. Manufactured by Siemens, this “Energy Blue” breaker utilizes purified oxygen as the insulating medium instead of Sulfur Hexafluoride (SF6) gas.

115kV Duct Bank



100 and 400 Line Rebuild

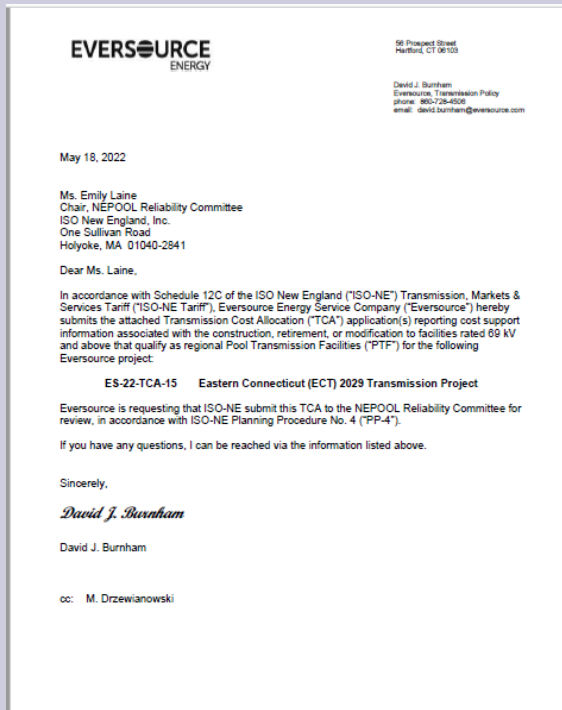


Representative Transmission line right of way photos

TCA Submittal - Eversource

	A	B	C	D
	Project RSP ID	Project In-Service Date	Project Description	TCA PTF Cost
Components, In-Service				
1	1850	12/2022	Install a second 345/115 kV autotransformer (4X) and one 345 kV breaker at Card substation	\$ 17,394,000
2	1851	12/2022	Upgrade Card 115 kV to BPS standards	17,502,000
3	1852	2/2023	Install one 115 kV circuit breaker in series with Card substation 4T	1,952,000
4	1854	6/2023	Rebuild the 100 Line from Montville to Gales Ferry to allow operation at 115 kV	6,995,000
5	1855	6/2023	Reterminate the 100 Line at Montville station and associated work. Energize the 100 Line at 115 kV	8,407,000
6	1856	2/2023	Rebuild 400-1 Line section to allow operation at 115 kV (Tunnel to Ledyard Jct.)	42,917,000
7	1857	2/2023	Add one 115 kV circuit breaker and re-terminate the 400-1 line section into Tunnel substation. Energize 400 Line at 115 kV	7,439,000
8	1858	9/2022	Rebuild 400-2 Line section to allow operation at 115 kV (Ledyard Jct. to Border Bus with CMEEC)	15,133,000
9	1859	2/2023	Rebuild the 400-3 Line Section to allow operation at 115 kV (Gales Ferry to Ledyard Jct)	6,855,000
10	1860	12/2021	Install a 25.2 MVAR 115 kV capacitor and one capacitor breaker at Killingly	4,823,000
11	1861	11/2021	Install one 345 kV series breaker with the Montville 1T	3,973,000
12	1863	3/2022	Install a 1% series reactor with bypass switch at Mystic, CT on the 1465 Line	4,780,000
Components, Under Construction				
13	1853	12/2023	Convert Gales Ferry substation from 69 kV to 115 kV	17,256,000
14	1862	12/2023	Install a 50 MVAR synchronous condenser with two 115 kV breakers at Shunock	40,518,000
Total, TCA PTF Cost				\$ 195,944,000

Summary - Eversource



To date, Eversource has completed and placed in-service a majority of the components of the Eastern CT solution.

We anticipate that the final active components will be completed later this year, **Fall 2023**.



The Eversource Eastern CT portfolio of projects are anticipated to complete on budget and on schedule.

The total Eversource requested PTF Transmission cost for regionalization is **\$195,944,000**.

CMEEC ECT - Project Components/TCAs



- Buddington Substation (RSP 1904)
 - Install one 115kV circuit breaker
 - Re-terminate the 400 Line from Buddington GU/ES border into the Buddington 115-kV bus (GU Project) and Reconnecting the Buddington 1X transformer to 115-kV
 - Project estimated in-service date, **December 2023**
 - **CMEEC-23-TCA-01** requesting to regionalize **\$6,073,478**
- 400 (Now 1911 Line) Line Rebuild (RSP 1864)
 - Rebuild 400 Line from Buddington to GU/ES Border to allow operation at 115kV
 - Project completed and placed in-service **February 2023**
 - **CMEEC-23-TCA-02** requesting to regionalize **\$2,792,733**
- Combined Solution
 - **Total CMEEC PTF project cost = \$8,866,211**

CMEEC – Buddington Substation



Questions

