



WETT Delaware Basin Stage 5 Project Alternative

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Transmission Planning, WETT
ERCOT RPG Meeting
September 25, 2024

Project Overview

- **Project Background**

- ❑ The 2019 ERCOT Delaware Basin Load Integration Study identified the Delaware Basin Stage 5 upgrade that would be triggered if the load in the Delaware Basin exceeded 5,422 MW.
- ❑ The ERCOT 2023 Regional Transmission Plan (RTP) report confirmed the need for the Stage 5 transmission enhancement to serve the projected demand in the Delaware Basin area.
- ❑ Oncor submitted its Delaware Basin Stage 5 (DB5) Project proposal to the RPG in May 2024.
- ❑ WETT submitted its Delaware Basin Stage 5 Project Alternative proposal for RPG review in June 2024.

Project Overview

- **Project Scope**

- ❑ Construct a new approximately 105-mile 345 kV double circuit line from WETT's Faraday 345 kV substation to Oncor's Clearfork 345 kV substation, using a conductor rated 5000 A or greater (normal and emergency rating of 2988 MVA).
- ❑ Construct a new approximately 105-mile 345 kV line from Oncor's Clearfork 345 kV Switch to Oncor's Drill Hole 345/138 kV Switch, on double-circuit capable structures with both circuits in place using a conductor rated 5000 A or greater (normal and emergency rating of 2988 MVA).
- ❑ Construct a new approximately 22-mile 138 kV single circuit line from WETT's Long Draw 138 kV substation to Oncor's Lamesa 138 kV substation, using a conductor rated 2569 Amps or greater (normal and emergency rating of 614 MVA)
- ❑ Expansion of Faraday 345 kV substation to accommodate the new Faraday – Clearfork 345 kV double circuit and loop in Long Draw – Scurry 345 kV line
- ❑ Expansion of Long Draw 138 kV station and Lamesa 138 kV station to accommodate the new Long Draw – Lamesa 138 kV line
- ❑ Rebuild the Clearfork 345 kV Switch by installing thirteen 345 kV, 5000 A circuit breakers in a breaker-and-a-half bus arrangement
- ❑ Install two 5000 A, 345 kV circuit breakers in a breaker-and-a-half bus arrangement at Oncor's Drill Hole 345/138 kV Switch

Project Overview

- **Project Cost and Schedule**

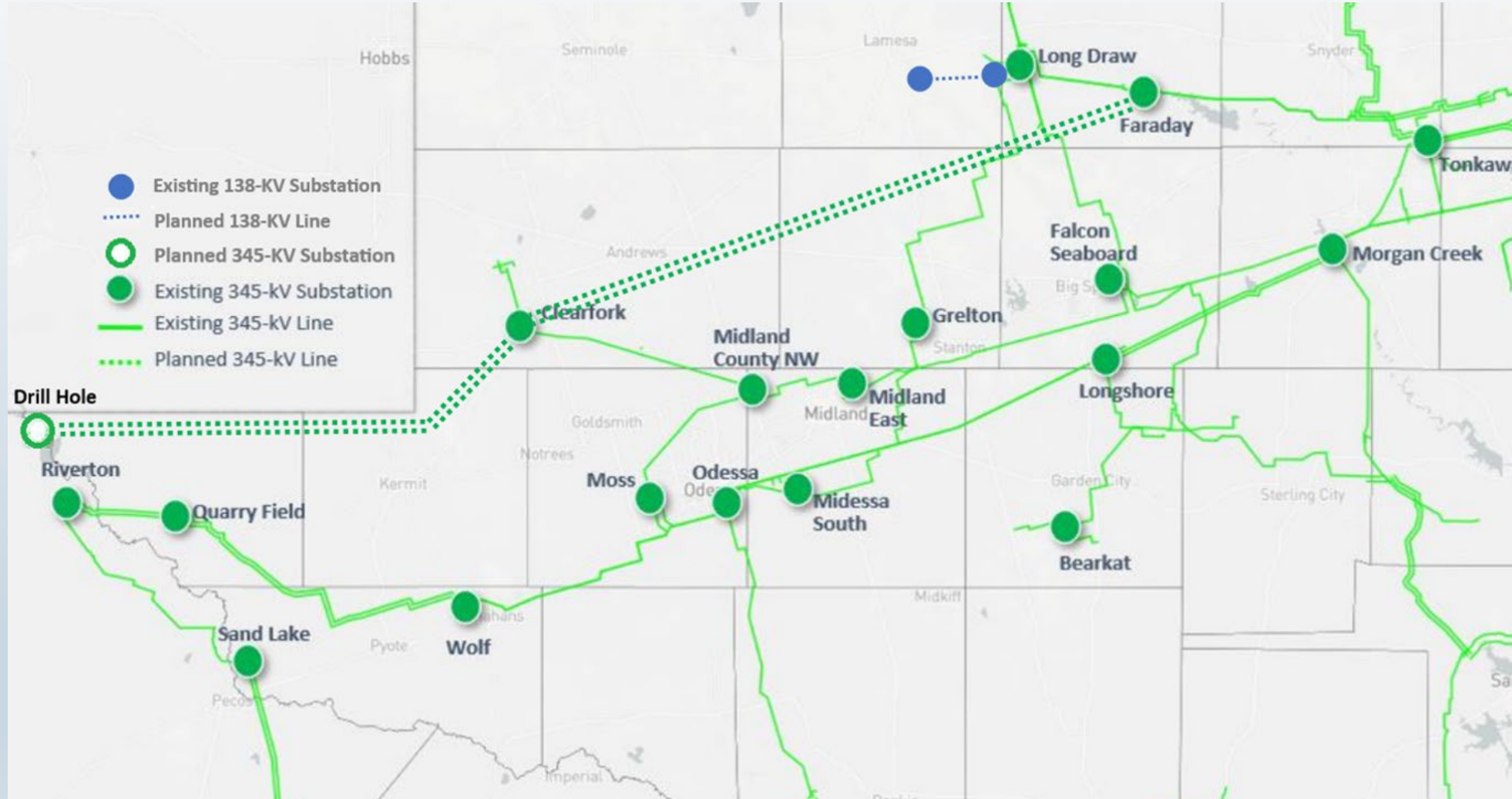
- ❑ Tier 1, CCN needed

- ❑ In-service by December 2028 for WETT's scope of the project

- ❑ The cost estimate for WETT's scope of the project is \$305.5M, which covers:

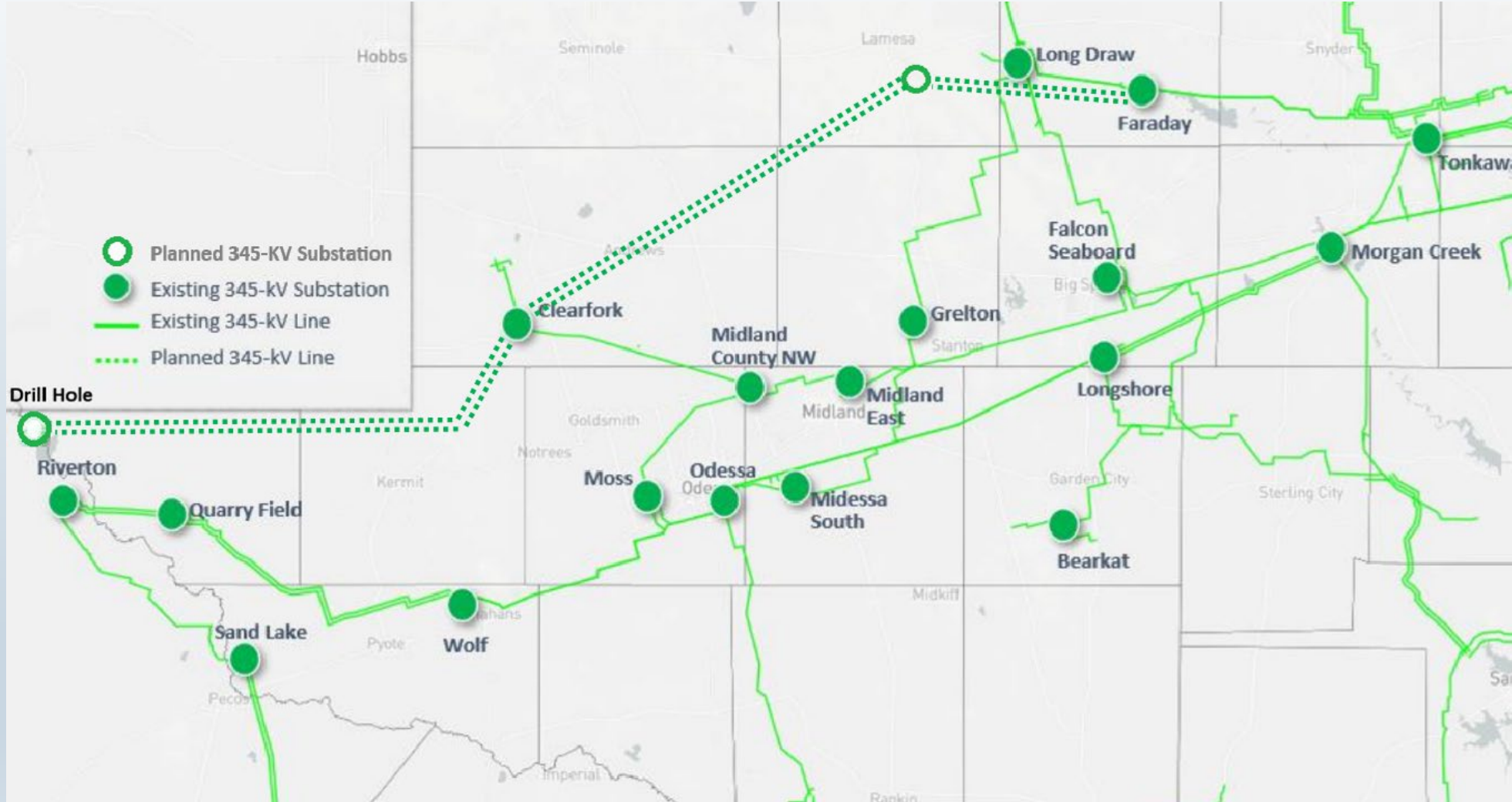
- Half of approximately 105-mile (52.5 miles) Faraday – Clearfork 345 kV double circuit line
 - Half of approximately 22-mile (11 miles) 138 kV single circuit line from WETT's Long Draw 138 kV substation to Oncor's Lamesa 138 kV substation
 - Expansion of Faraday 345 kV substation to accommodate the new Faraday – Clearfork 345 kV double circuit and loop in Long Draw – Scurry 345 kV line
 - Expansion of Long Draw 138 kV station to accommodate the new Long Draw – Lamesa 138 kV line

Project Overview



WETT Delaware Basin Stage 5 Project Alternative Proposal

Project Overview



ONCOR Delaware Basin Stage 5 Project Proposal

Project Overview

Project Scope	Note	Cost Savings
Expand Oncor’s existing Lamesa Switch, including a 13-breaker 138 kV breaker-and-a-half bus arrangement and a 9-breaker 345 kV breaker-and-a-half bus arrangement with two 600 MVA, 345/138 kV autotransformers.	Not in WETT’s proposal	\$53.5M – \$62.7M*
Relocate the existing Lamesa 69 kV station equipment and establish the new Pivot 138/69 kV Switch at the current Welch Tap location	Not in WETT’s proposal	\$9.6M – \$11.7M*
Oncor Proposal: Approximately 115-mile Faraday – Lamesa (new) - Clearfork 345 kV double circuit line WETT Proposal: Approximately 105-mile Faraday – Clearfork 345 kV double circuit line		\$35.7M – \$37M*
A new approximately 22-mile 138 kV single circuit line from WETT’s Long Draw 138 kV substation to Oncor’s Lamesa 138 kV substation. Expansion of Long Draw and Lamesa stations to accommodate new circuit.	Not in ONCOR’s proposal	(\$44.4M)*
Total Cost Savings		\$54.4M – \$67.0M

*These cost estimates are based on known costs of similar facilities made public through regulatory proceedings as well as other regularly filled documents through the PUCT.

WETT and Oncor Project Scope Comparison and Cost savings

Project Assessment

- **Power Flow Analysis**

- Benchmark cases: ERCOT 2023 RTP 2028 and 2029 Summer Peak cases.
- The following transmission projects were modeled:
 - ❑ Delaware Basin Stage 3 and 4 projects
 - ❑ West Texas Synchronous Condenser project
 - ❑ TNMP Silverleaf and Cowpen 345/138-kV Stations Project
- Contingencies tested
 - ❑ NERC P1 through P7
 - ❑ Selected ERCOT G-1-1 and X-1-1
 - ❑ Extreme events (Substation outages)
- WETT DB5 Project Alternative has similar reliability performance as Oncor's proposal from a steady-state perspective.

Project Assessment

NERC Category	Contingency	Monitored Bus	Voltage (p.u.)					
			2028 SUM Pre-Project	2028 SUM Post-Project Oncor	2028 SUM Post-Project WETT	2029 SUM Pre-Project	2029 SUM Post-Project Oncor	2029 SUM Post-Project WETT
P1	Barstow (1086) - Sand Lake (11097) 138 kV line	Barstow (1086) 138 kV	0.891	0.902	0.902	No Violation	No Violation	No Violation
P1	Barstow (1086) - Pecone (11105) 138 kV line	Scimitar (38102) 138 kV	0.891	0.902	0.902	No Violation	No Violation	No Violation
P7	Bakersfield (76002) - Cedar Cayon (76015) 345 kV	LONGSHRFLY (19000) 345 kV	0.868	0.947	0.948	No Violation	No Violation	No Violation
Extreme	Outage of Longshore 345 kV station	LONGSHRFLY (19000) 345 kV	No Violation	No Violation	No Violation	0.891	0.928	0.929

Voltage Violations

Project Assessment

NERC Category	Contingency	Monitored Element	Loading (%)					
			2028 SUM Pre-Project	2028 SUM Post-Project Oncor	2028 SUM Post-Project WETT	2029 SUM Pre-Project	2029 SUM Post-Project Oncor	2029 SUM Post-Project WETT
P1	Long Draw (59900) - Volta (59910) 345 kV Line	Buzzard Draw (1355) - Brown (23838) 138 kV line	101.4	86.8	86.8	107.5	88.2	85.9
P1	Odessa (11028) - Grelton (59901) 345 kV line	Expanse (11368) - Grady (23842) 138 kV line	No Violation	No Violation	No Violation	101.5	77.6	75.5
P3	1 st event: Lamesa Solar S1 2 nd event: Vealmoor (23849) – Long Draw (59900) 345 kV line	Lamesa (1163) - Willow Valley (1301) 138 kV Line	115.2	53.9	55.8	122.9	45.3	59.2
P6	1 st event: Long Draw (59900) - Volta (59910) 345 kV line 2 nd event: Vealmoor (23849) – Long Draw (59900) 345 kV line	Lamesa (1163) - Willow Valley (1301) 138 kV Line	141.5	58.1	58.6	151.8	50.2	62.7
P6	1 st event: Vealmoor Auto #1 2 nd event: Long Draw (59900) - Volta (59910) 345 kV line	Vealmoor Auto #2	No Violation	No Violation	No Violation	104.3	74.9	73.3
P7	Morgan Creek (1030) - Longshore (1058) / Consavvy (11387) 345 kV	Morgan Creek (1032) – Navigation (11395) 138 kV Line	No Violation	No Violation	No Violation	106.1	90.1	89.5
P7	Morgan Creek (1030) - Longshore (1058) / Consavvy (11387) 345 kV	Sand Bluff (59902) – Bernoulli (59907) 345 kV line	No Violation	No Violation	No Violation	105.7	81.5	80.4
P7	Morgan Creek (1030) - Longshore (1058) / Consavvy (11387) 345 kV	Big Spring Switch (1322) - Getty Vealmoor Tap (1394) 138 kV Line	107.81	89.0	88.0	116.2	94.3	93.2

Thermal Violations

Project Assessment

NERC Category	Contingency	Power Flow Solution					
		2028 SUM Pre-Project	2028 SUM Post-Project Oncor	2028 SUM Post-Project WETT	2029 SUM Pre-Project	2029 SUM Post-Project Oncor	2029 SUM Post-Project WETT
P7	Redacted	Solved	Solved	Solved	Unsolved	Solved	Solved
P7	Redacted	Solved	Solved	Solved	Unsolved	Solved	Solved
P7	Redacted	Solved	Solved	Solved	Unsolved	Solved	Solved
P7	Redacted	Solved	Solved	Solved	Unsolved	Solved	Solved
P7	Redacted	Unsolved	Solved	Solved	Unsolved	Solved	Solved
Extreme	Redacted	Unsolved	Solved	Solved	Unsolved	Solved	Solved

Unsolved Power Flow

Project Assessment

- **Stability Analysis**

- Benchmark cases: ERCOT 2023 DWG 2026 HWLL and 2029 Summer Peak cases.
- Contingencies covering NERC P1 through P7, and ERCOT G-1-1 and X-1-1 events.
- WETT DB5 Project Alternative is not expected to worsen system stability and no new stability criteria violations were observed.

- **Short Circuit Analysis**

- Benchmark cases: ERCOT 2023 SPWG future year 2028 short circuit.
- WETT DB5 Project Alternative does not cause the need to upgrade any existing equipment for short circuit reasons.

- **SSR Assessment**

- Benchmark cases: ERCOT 2023 RTP 2028 Summer Peak case.
- WETT DB5 Project Alternative does not cause new SSR risks or worsen system stability in terms of SSR in this portion of the system.

WETT's Recommendation

- **WETT recommends the proposed DB5 Project Alternative**

- ❑ The alternative Stage 5 project proposal provides the same import capabilities into the Delaware Basin and solves the reliability issues in Lamesa as Oncor's proposal, but with a cost savings of up to approximately \$67 million.
- ❑ Building a 138 kV single circuit line to Oncor's existing 138 kV Lamesa station is more advantageous as a lower cost and less disruptive alternative, given that it reduces the impact of routing two 345 kV double circuit lines through the populated Lamesa area.
- ❑ The upgrade for the reliability improvements in Lamesa is independent from the upgrades improving the import capabilities into the Delaware Basin. This enables improving transmission service in the Lamesa area without impacting the timing or cost of providing import capability to the Delaware Basin.