



Combined Delaware Basin Stage 5 Project and Alternative – ERCOT Independent Review Study Status Update

Tanzila Ahmed

RPG Meeting
April 29, 2025

Recap – Introduction

- Oncor Electric Delivery (Oncor) submitted the Delaware Basin Stage 5 for Regional Planning Group (RPG) review in May 2024
 - This Tier 1 project is estimated to cost \$744.6 million
 - Filing of Certificate of Convenience and Necessity (CCN) will be required
 - Estimated in-service date (ISD) is December 2029
 - The project is needed to address reliability issues (both thermal overloads and voltage violations) due to significant load growth in the Delaware Basin area, in the Andrews, Borden, Culberson, Dawson, Gaines, Loving, Reeves, and Winkler Counties in the Far West (FW) Weather Zone
 - The project need and solution was identified in the 2019 ERCOT Delaware Basin Load Integration Study
- Wind Energy Transmission Texas, LLC (WETT) submitted an alternative option for RPG review in June 2024
 - WETT’s portion of this option is estimated to cost \$305.5 million
 - WETT estimates a total cost saving of up to approximately \$67.0 million
 - Filing of Certificate of Convenience and Necessity (CCN) will be required
 - Estimated in-service date is December 2028 for WETT’s portion of the project

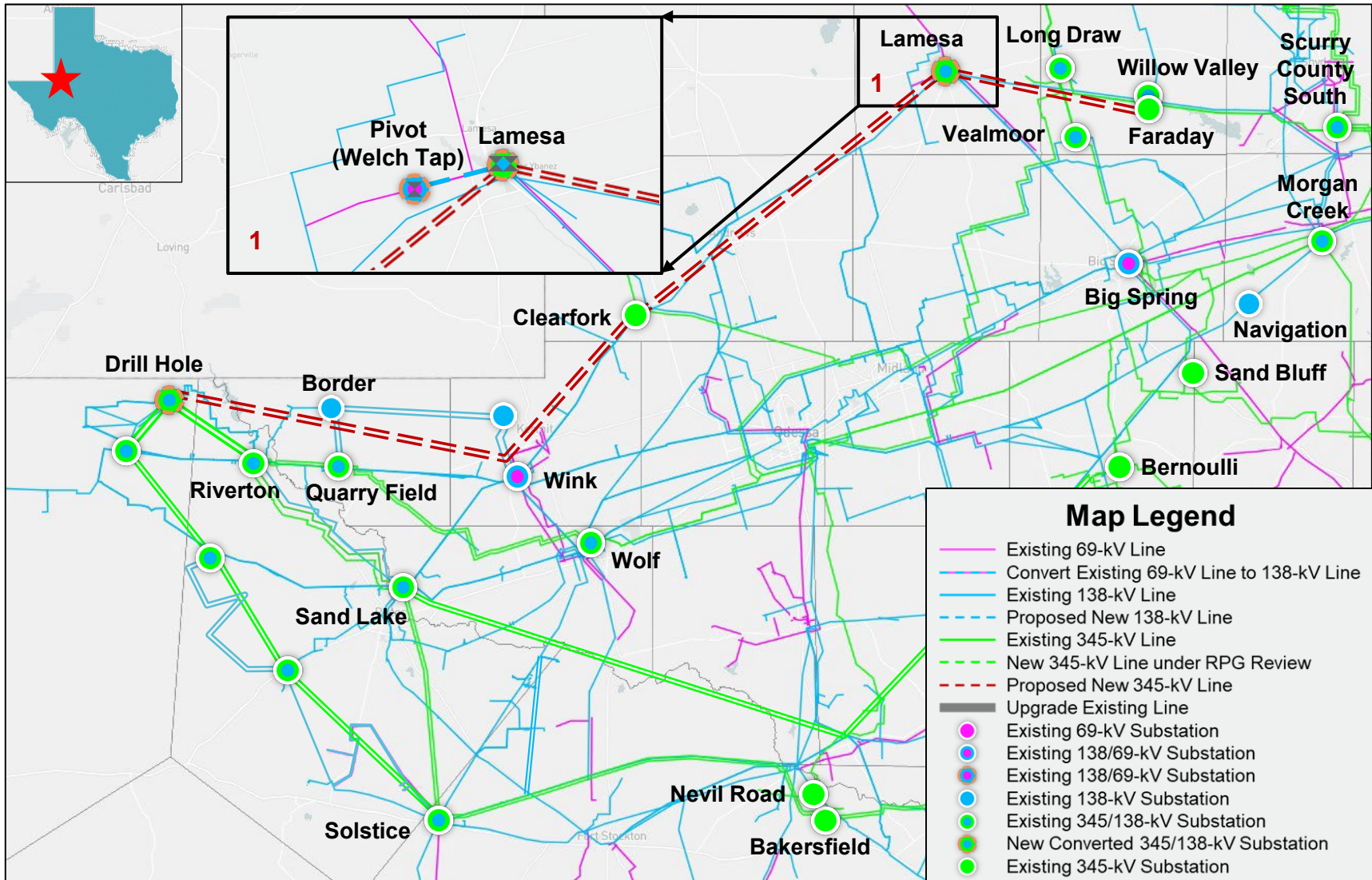
Recap – Introduction (cont.)

- ERCOT is currently conducting a single ERCOT Independent Review (EIR) by combining these two projects (24RPG015 and 24RPG023)
- Oncor and WETT presented project overviews and ERCOT presented the scope for this EIR at the September RPG meeting
 - <https://www.ercot.com/calendar/09252024-RPG-Meeting>
- ERCOT presented status update at the January and March RPG meetings
 - <https://www.ercot.com/calendar/01282025-RPG-Meeting>
 - <https://www.ercot.com/calendar/03182025-RPG-Meeting>

Recap – Proposed Project by Oncor

- Expand the 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. All terminal and associated equipment will meet or exceed 5000 A for 345-kV and 3200 A for 138-kV
- Construct a new Clearfork Switch to Lamesa Switch 345-kV double-circuit transmission line using a normal and emergency rating of at least 2988 MVA, which will require new right of way (ROW), approximately 77.0-mile
- Expand the existing Faraday 345-kV substation to accommodate the new Lamesa Switch to Faraday Switch 345-kV double-circuit transmission line and loop in the existing Long Draw to Scurry 345-kV transmission line
- Construct a new Lamesa Switch to Faraday Switch 345-kV double-circuit transmission line using a normal and emergency rating of at least 2988 MVA, which will require new ROW, approximately 38.0-mile
- Establish a new Pivot 138/69-kV Switch in the current Welch Tap location which will include
 - Relocating one of the existing Lamesa 138/69-kV autotransformers and three of the existing Lamesa 69-kV breakers to the new Pivot 138/69-kV Switch
 - Rebuilding and converting the existing Lamesa Switch to Welch Tap 69-kV transmission line to 138-kV operation using a normal and emergency rating of at least 614 MVA, 2.0-mile
- Rebuild the existing Clearfork 345-kV Switch by installing thirteen 5000 A, 345-kV 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 the planned Drill Hole 345-kV Switch
- Construct a new Clearfork Switch to Drill Hole Switch 345-kV double-circuit transmission line using a normal and emergency rating of at least 2988 MVA, which will require new ROW, approximately 105.0-mile
 - This line will be routed near the location of planned Border Switch for a future 345-kV interconnection to provide an injection point to support this high load growth area

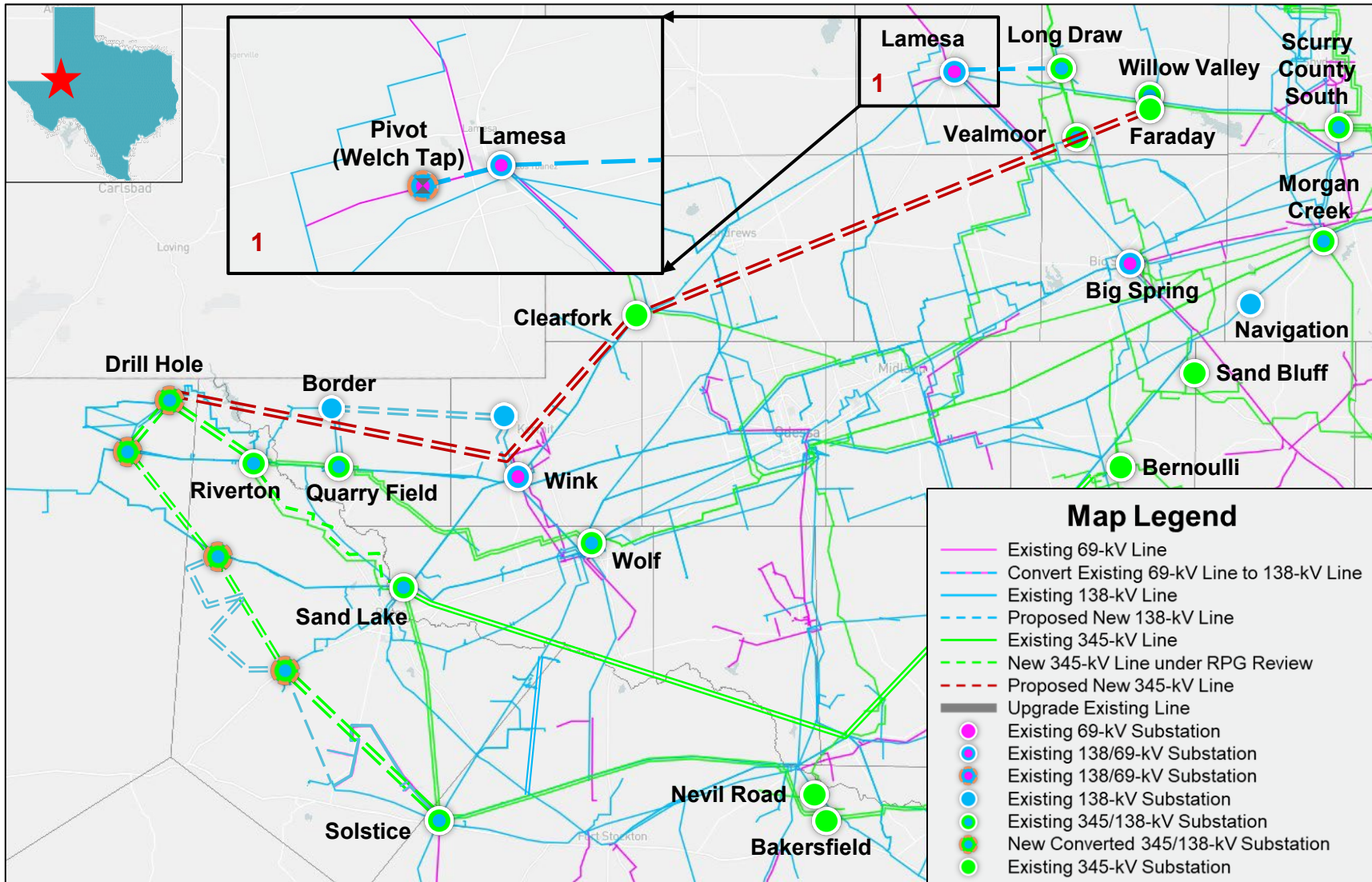
Recap – Proposed Project by Oncor



Recap – Proposed Project by WETT

- Expand the existing Faraday 345-kV substation to accommodate the new Faraday Switch to Clearfork Switch 345-kV double-circuit transmission line and loop in the existing Long Draw to Scurry 345-kV transmission line
- Construct a new Faraday Switch to Clearfork Switch 345-kV double-circuit line using a normal and emergency rating of at least 2988 MVA, which will require new ROW, approximately 105.0-mile
- Expansion of the existing Long Draw 138-kV substation and the existing Lamesa 138-kV substation to accommodate the new Long Draw to Lamesa 138-kV transmission line
- Expand the existing Lamesa Switch, including a 13-breaker 138-kV breaker-and-a-half bus arrangement. All terminal and associated equipment will meet or exceed 3200 A for 138-kV
- Construct a new Long Draw Switch to Lamesa Switch 138-kV transmission line using a normal and emergency rating of at least 614 MVA, which will require new ROW, approximately 22.0-mile
- Establish a new Pivot 138/69-kV Switch in the current Welch Tap location which will include
 - Relocating one of the existing Lamesa 138/69-kV autotransformers and three of the existing Lamesa 69-kV breakers to the new Pivot 138/69-kV Switch
 - Rebuilding and converting the existing Lamesa Switch to Welch Tap 69-kV transmission line to 138-kV operation using a normal and emergency rating of at least 614 MVA, 2.0-mile
- Rebuild the existing Clearfork 345-kV Switch by installing thirteen 5000 A, 345-kV 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 the planned Drill Hole 345-kV Switch
- Construct a new Clearfork Switch to Drill Hole Switch 345-kV double-circuit transmission line using a normal and emergency rating of at least 2988 MVA, which will require new ROW, approximately 105.0-mile
 - This line will be routed near the location of planned Border Switch for a future 345-kV interconnection to provide an injection point to support this high load growth area

Recap – Proposed Project by WETT



Recap – Preliminary Results of Reliability Assessment – Options Evaluation

- ERCOT conducted steady-state load flow analysis for the study base case according to the NERC TPL-001-5.1 and ERCOT Planning Criteria to evaluate the proposed options

Option	N-1		G-1**+N-1		X-1**+N-1		Unsolved Powerflow
	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations	
Oncor	None	None	None	None	None	None	None
WETT	None	None	None	None	None	None	None

* G-1: Odessa Ector CC Train, and Permian Basin all five units

** X-1: Drill Hole, Riverton, Long Draw and Willow Valley 345/138-kV transformers

Recap – Long-Term Load-Serving Capability Evaluation

- Assumptions
 - Adjusted load up in the Lamesa area, excluding Flexible Loads in the area
 - Adjusted conforming load down outside of Far West to balance power
 - Based on N-1 contingency
- Preliminary results

Option	Incremental Load-Serving Capability into the Lamesa area (~MW)
Oncor	380
WETT	400

Recap – Preliminary Results of Planned Maintenance Outage Analysis

- ERCOT conducted planned maintenance outage analysis
 - Load level in the Far West weather zone was scaled down to 96% of the summer peak load in the study base case based on ERCOT load forecast, historical load, and ratio of residential/commercial load from TSP, in order to mimic the non-summer peak load condition
 - N-2 contingencies were tested as a proxy for N-1-1, and then tested the applicable violating contingencies with system adjustments
 - The transmission elements in the area of Delaware Basin Stage 5 Project were monitored in the maintenance outage evaluation
- No violations were observed in the planned maintenance outage analysis

Option	Voltage Violations	Thermal Overloads	Unsolved Power Flow
Oncor	None	None	None
WETT	None	None	None

Status Update

- Updated Cost Estimate and Feasibility Assessment from TSP
- Additional Analyses and Assessment
 - Generation Addition Sensitivity Analysis
 - Load Scaling Sensitivity Analysis
 - Subsynchronous Resonance (SSR) Assessment

Updated Cost Estimate and Feasibility Assessment – Options

- TSPs performed feasibility assessments and provided final cost estimates for the two options

Option	Cost Estimates* (~\$M)	CCN Required (~Miles)	Feasibility	Expected ISD** (Month Year)
Oncor	855.3	Yes (220)	Feasible	Oncor: December 2029 WETT: December 2028
WETT	871.0	Yes (232)	Feasible	Oncor: December 2029 WETT: December 2028

* The estimated cost does not include new CCN or land acquisition related cost

** The expected ISD is tentative and are subject to change based on requirements for various approvals, ROW acquisition and construction progress

Updated Comparison of Options

	Oncor	WETT
Address the project needs	Yes	Yes
Meets ERCOT and NERC Reliability Criteria	Yes	Yes
Improves Long-Term Load-Serving Capability	Yes	Yes
Requires CCN (~miles)	220	232
Expected ISD** (Month Year)	December 2029	December 2029
Cost Estimate* (~\$M)	855.3	871.0
Feasible	Yes	Yes

* The cost estimates were provided by the TSPs

** The expected ISD is tentative and are subject to change based on requirements for various approvals, ROW acquisition, and/or construction progress

- Oncor's option is the least cost option and requires less amount of CCN mileage

ERCOT Preferred Option

- Oncor's option was selected as the ERCOT preferred option because it:
 - Addresses project need in the Delaware Basin area and meets ERCOT and NERC Reliability Criteria
 - Improves long-term load-serving capability for future load growth in the area
 - Requires the least amount of CCN mileage among the two options
 - Is the least cost option

Additional Analysis

- Congestion Analysis
 - Congestion analysis was performed for the preferred option using the 2024 RTP 2029 economic case
 - The preferred option did not result in any new congestion within the study area
- Generation Addition Sensitivity Analysis
 - Per Planning Guide Section 3.1.3(4)(a), ERCOT performed a generation addition sensitivity by adding new the generation listed in Appendix B2 to the preferred option case. The additional resources were modeled following the 2024 RTP methodology.
 - ERCOT determined relevant generators do not impact the preferred option
- Load Scaling Sensitivity Analysis
 - Per Planning Guide Section 3.1.3(4)(b), ERCOT performed a load scaling sensitivity and concluded that the load scaling did not have a material impact on project need

SSR Assessment

- SSR Assessment was conducted for the preferred option per Nodal Protocol Section 3.22.1.3
- ERCOT found no adverse SSR impacts to the existing and planned generation resources at the time of this study

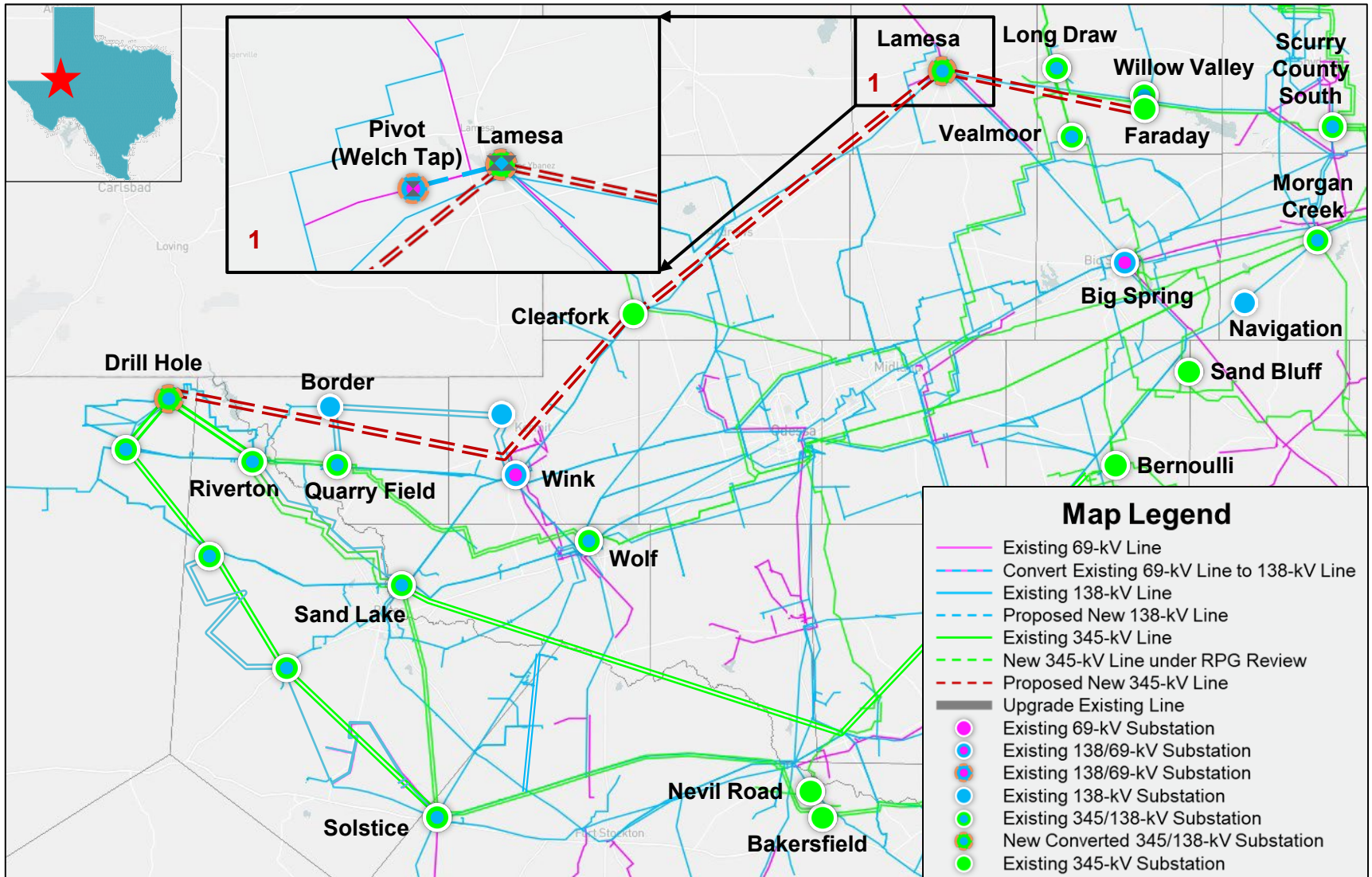
ERCOT Recommendation

- ERCOT recommends Oncor's Proposed Option
 - Estimated Cost: approximately \$855.3 million
 - Expected ISD: December 2029
 - The expected ISD is tentative and are subject to change based on requirements for various approvals, right of way (ROW) acquisition, and/or construction progress
 - CCN filling will be required to
 - Construct the new Drill Hole to Clearfork 345-kV double-circuit transmission line on new ROW, approximately 105.0-mile
 - Construct the new Clearfork to Lamesa 345-kV double-circuit transmission line on new ROW, approximately 77.0-mile
 - Construct the new Lamesa to Faraday 345-kV double-circuit transmission line on new ROW, approximately 38.0-mile

Map of ERCOT Recommended Option

- Expand the 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. All terminal and associated equipment will meet or exceed 5000 A for 345-kV and 3200 A for 138-kV
- Construct a new Clearfork Switch to Lamesa Switch 345-kV double-circuit transmission line using a normal and emergency rating of at least 2988 MVA, which will require new right of way (ROW), approximately 77.0-mile
- Expand the existing Faraday 345-kV substation to accommodate the new Lamesa Switch to Faraday Switch 345-kV double-circuit transmission line and loop in the existing Long Draw to Scurry 345-kV transmission line
- Construct a new Lamesa Switch to Faraday Switch 345-kV double-circuit transmission line using a normal and emergency rating of at least 2988 MVA, which will require new ROW, approximately 38.0-mile
- Establish a new Pivot 138/69-kV Switch in the current Welch Tap location which will include
 - Relocating one of the existing Lamesa 138/69-kV autotransformers and three of the existing Lamesa 69-kV breakers to the new Pivot 138/69-kV Switch
 - Rebuilding and converting the existing Lamesa Switch to Welch Tap 69-kV transmission line to 138-kV operation using a normal and emergency rating of at least 614 MVA, 2.0-mile
- Rebuild the existing Clearfork 345-kV Switch by installing thirteen 5000 A, 345-kV 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 the planned Drill Hole 345-kV Switch
- Construct a new Clearfork Switch to Drill Hole Switch 345-kV double-circuit transmission line using a normal and emergency rating of at least 2988 MVA, which will require new ROW, approximately 105.0-mile
 - This line will be routed near the location of planned Border Switch for a future 345-kV interconnection to provide an injection point to support this high load growth area

Map of ERCOT Recommended Option



Next Steps and Tentative Timeline

- Tentative Timeline
 - EIR report to be posted in the MIS in May 2025
 - EIR recommendation to TAC in May 2025
 - Seek ERCOT Board of Directors endorsement in June 2025

Thank you!



Stakeholder comments also welcomed through:

Tanzila.Ahmed@ercot.com

Robert.Golen@ercot.com