



**Oncor Tredway 138-kV Switch and  
Expanse – Tredway 138-kV 2nd Circuit  
Project – ERCOT Independent Review  
Study Scope**

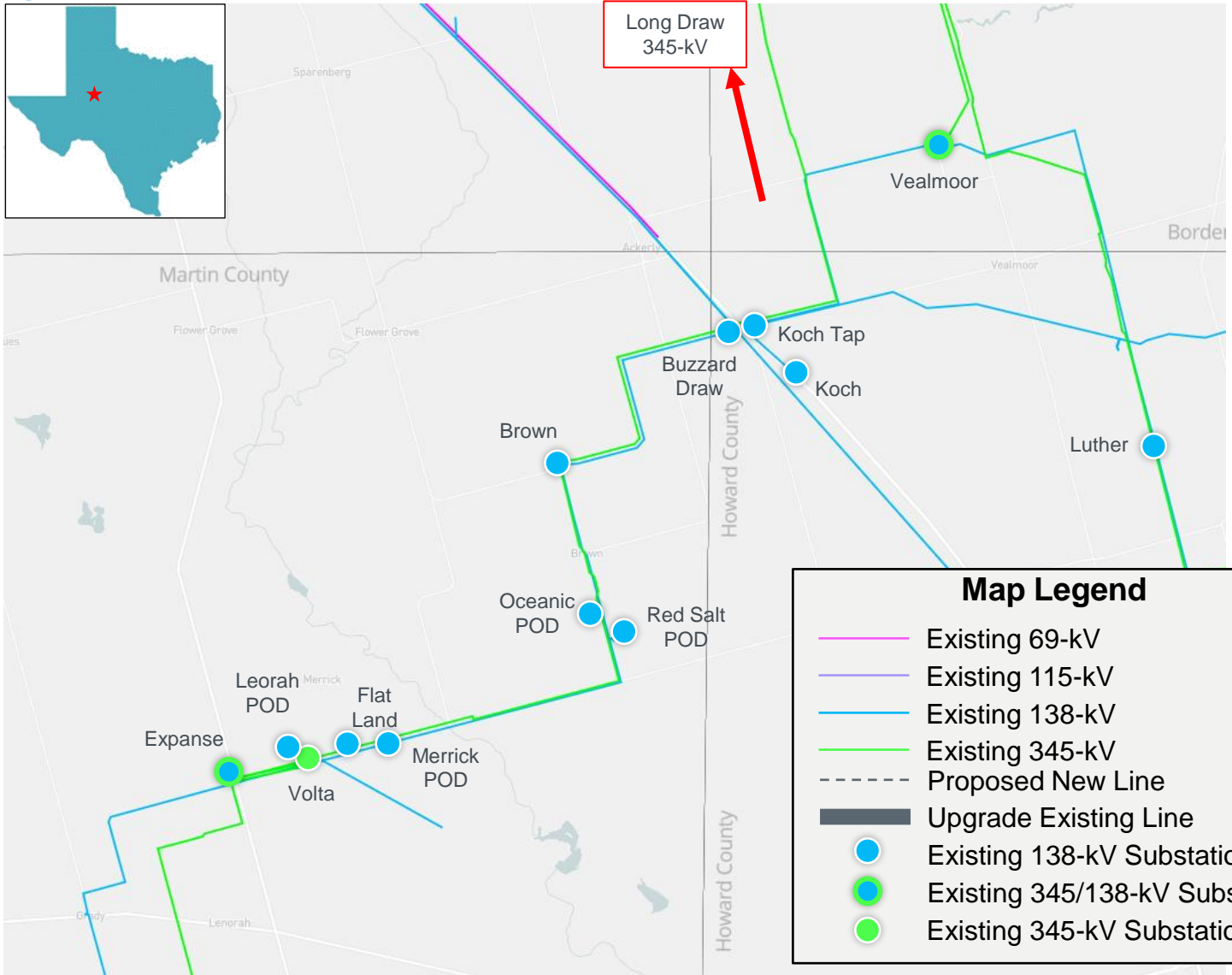
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RPG Meeting  
October 16, 2024

# Introduction

- Oncor submitted the Tredway 138-kV Switch and Expanse – Tredway 138-kV 2nd Circuit Project for Regional Planning Group (RPG) review in September 2024
  - This Tier 1 project is estimated at \$119.03 million and will require a Convenience and Necessity (CCN)
  - Estimated completion date is December 2025
  - Addresses post-contingency thermal overloads and voltage violations on the Vealmoor – Buzzard Draw – Expanse 138-kV Line
- This project is currently under ERCOT Independent Review (EIR)

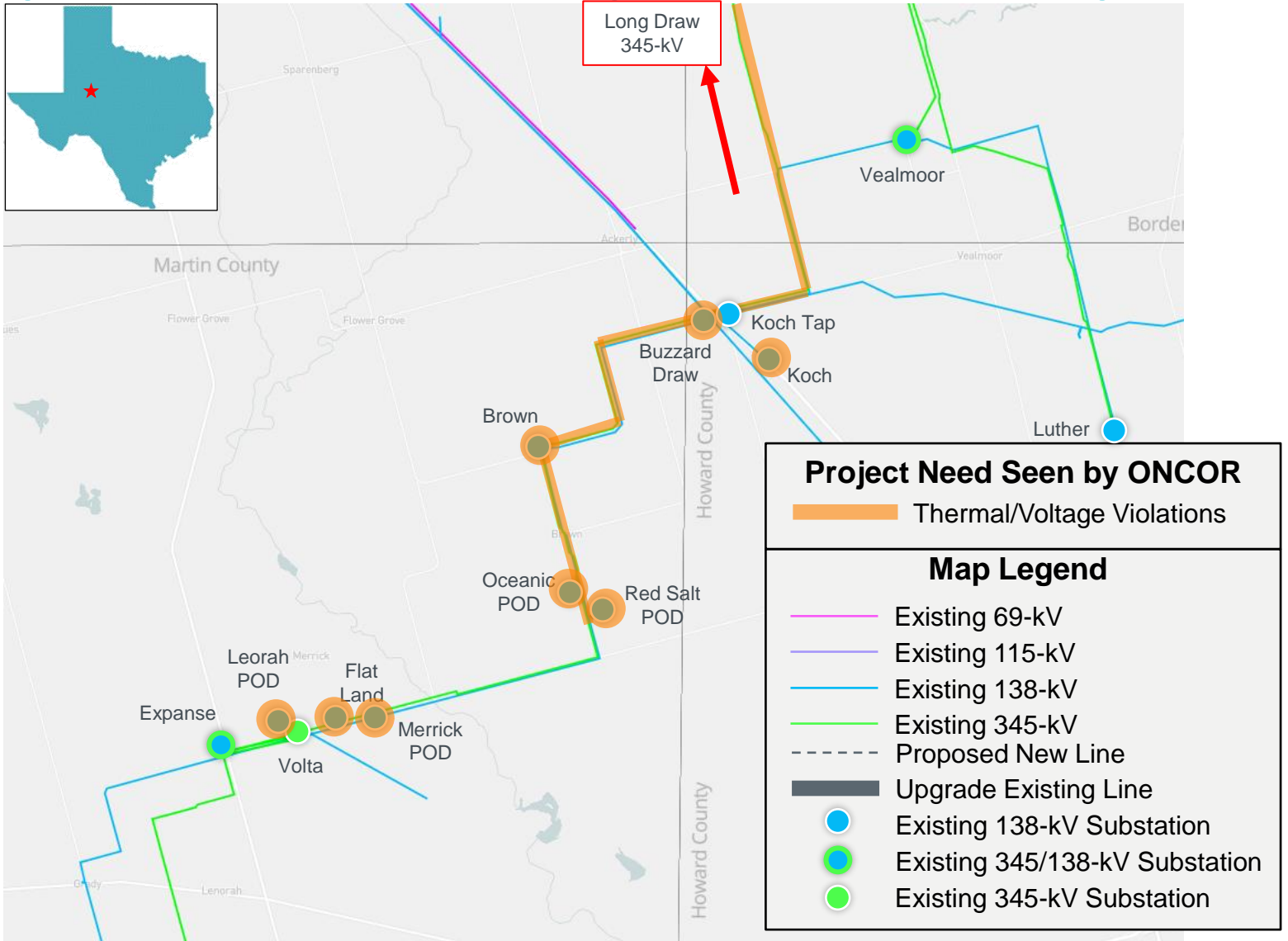
# Study Area Map



### Map Legend

- Existing 69-kV
- Existing 115-kV
- Existing 138-kV
- Existing 345-kV
- - - Proposed New Line
- Upgrade Existing Line
- Existing 138-kV Substation
- Existing 345/138-kV Substation
- Existing 345-kV Substation

# Study Area Map with Project Need seen by Oncor



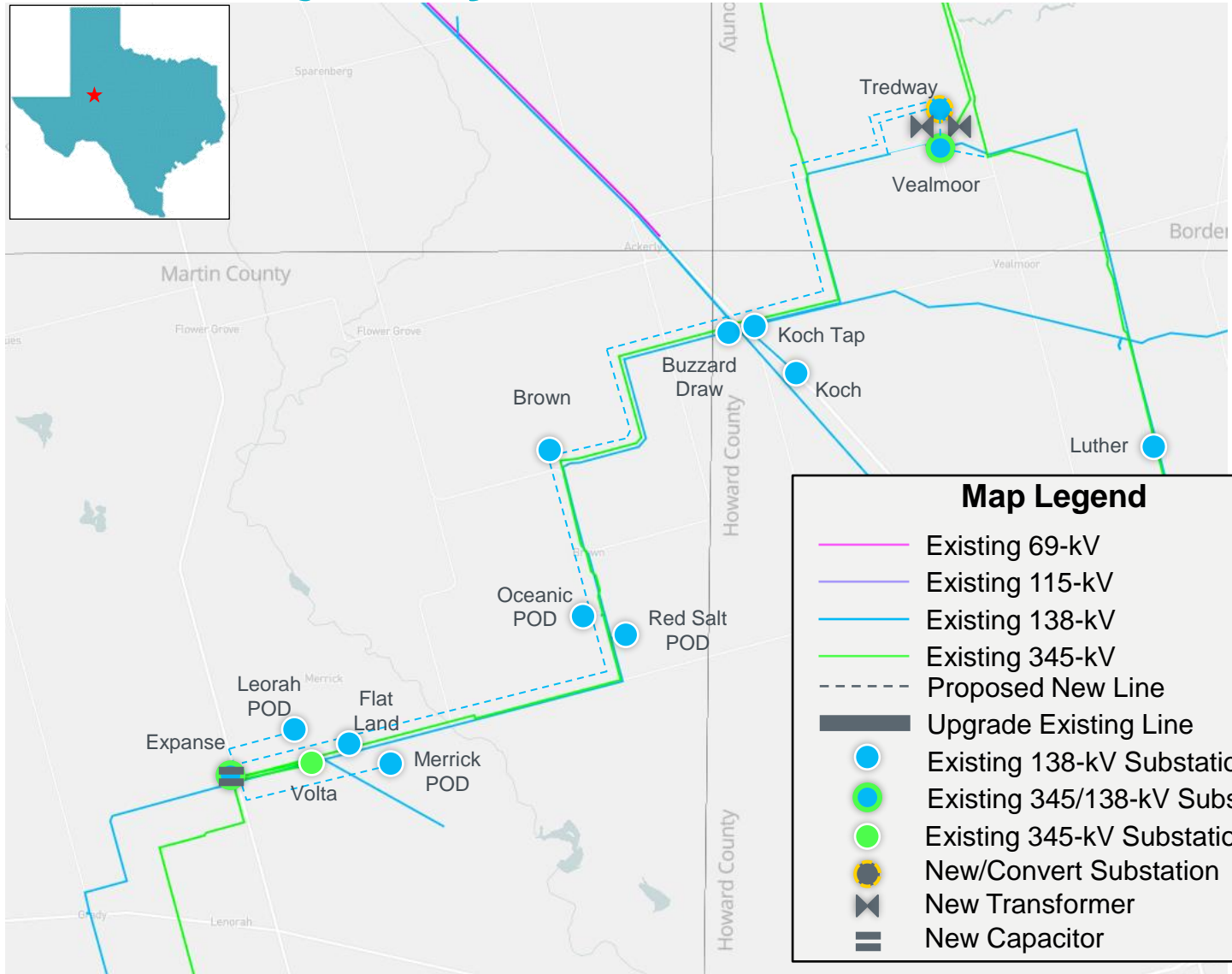
# Proposed Project by Oncor

- Establish new Oncor Tredway 138-kV Switch, approximately 0.5-miles north of Oncor's existing Vealmoor 345/138-kV Switch
- Construct a new Tredway – Structure 10/7 138-kV double-circuit transmission line with normal and emergency ratings of 614 MVA or greater, approximately 0.6-mile
  - Disconnect the existing Luther – Vealmoor 138-kV line at Vealmoor 138-kV Switch, and terminate into new Oncor Tredway 138-kV Switch
- Construct a new Tredway – Vealmoor 345/138-kV transformer #1 with normal and emergency ratings of 828 MVA, approximately 0.4-mile
- Construct a new Tredway – Vealmoor 345/138-kV transformer #2 with normal and emergency ratings of 828 MVA, approximately 0.4-mile
- Construct a new Tredway – Structure 1/3 138-kV double-circuit transmission line with normal and emergency ratings of 614 MVA or greater, approximately 0.3-mile
  - Disconnect the existing Buzzard Draw – Koch Tap – Vealmoor line at Vealmoor 138-kV Switch, and terminate into Tredway 138-kV Switch
- Rebuild the existing Expanse – Buzzard Draw – Structure 1/3 138-kV double circuit transmission line with normal and emergency ratings of 614 MVA or greater, approximately 28.8-mile, creating the Expanse – Treadway North and South 138-kV lines

# Proposed Project by Oncor

- Remove the circuit breakers at the existing Brown 138-kV Substation and connect Brown 138 kV to the north Expanse – Tredway 138-kV line
- Remove the circuit breakers at the existing Oceanic Point of Delivery (POD) 138-kV and connect Oceanic POD 138-kV to the new north Expanse – Tredway 138-kV line
- Reconfigure the existing Flat Land 138-kV substation from a single-tap configuration to a double-tap configuration so the substation is served from both of the Expanse – Tredway 138-kV circuits
- Construct a new Expanse – Lenorah POD 138-kV double-circuit line with normal and emergency ratings of 614 MVA or greater, approximately 0.6-mile
  - Disconnect the existing Lenorah POD from the existing Expanse – Buzzard Draw 138-kV line so it is served radially from Expanse Switch
- Construct a new Expanse – Merrick POD 138-kV double-circuit line with normal and emergency ratings of 614 MVA or greater, approximately 1.0-mile
  - Disconnect the existing Merrick POD from the existing Expanse – Buzzard Draw 138-kV line so it is served radially from Expanse Switch
- Install two 55.2 MVAR capacitor banks at Expanse 345/138-kV Switch

# Proposed Project by Oncor



### Map Legend

- Existing 69-kV
- Existing 115-kV
- Existing 138-kV
- Existing 345-kV
- - - Proposed New Line
- Upgrade Existing Line
- Existing 138-kV Substation
- Existing 345/138-kV Substation
- Existing 345-kV Substation
- New/Convert Substation
- New Transformer
- New Capacitor

# Study Assumptions – Base Case

- Study Area
  - West and Far West Weather Zones, focusing on transmission in Martin, Howard, and Borden Counties
  - Monitor surrounding counties that are electrically close to the area
- Steady-State Base Case
  - Final 2023 Regional Transmission Planning (RTP) 2026 summer peak case for West Far West Weather Zones will be updated to construct the West Far West (WFW) study base case posted in Market Information System (MIS)
    - Case: 2023RTP\_2026\_SUM\_WFW\_12222023
    - Link: <https://mis.ercot.com/secure/data-products/grid/regional-planning>



# Study Assumption - Transmission

- Based on the Transmission Project and Information Tracking (TPIT) published on MIS in June 2024, projects within the study area with in-service dates prior to December 2025 were added to the study base case if not already modeled in the case
  - TPIT Link: <https://www.ercot.com/gridinfo/planning>
  - See Appendix A for the list of transmission projects added
- Transmission projects identified in the 2023 RTP in the study area that have not been approved by RPG will be removed from the study base case
  - See Appendix B for the list transmission projects that have been backed out

# Study Assumptions – Generation

- New generation that met Planning Guide Section 6.9(1) condition with Commercial Operation Date (COD) before the December 2025 in the study area at the time of the study, but not already modeled in the RTP cases, will be added to the case based on Generator Interconnection Status (GIS) report published in MIS in September 2024
  - Link: <https://www.ercot.com/gridinfo/resource>
  - See Appendix C for the list of generation projects added to the case
- All generation will be dispatched consistent with the 2024 RTP methodology
- All recent retired/indefinitely mothballed units will be reviewed and opened (turned off), if not already reflected in the 2023 RTP Final cases

# Study Assumptions – Load & Reserve

- Loads in study area
  - Load level in the study area will be maintained consistent with the 2023 RTP case
  - Approximately 515 MW of newly approved loads in Far West will be added to the study base case
- Reserve
  - Load outside of WFW Weather Zones may be adjusted to maintain the reserve consistent with the 2023 RTP

# Contingencies & Criteria

- Contingencies for study region
  - NERC TPL-001-5.1 and ERCOT Planning Criteria
  - Link: <http://www.ercot.com/mktrules/guides/planning/current>
    - P0 (System Intact)
    - P1, P2-1, P7 (N-1 conditions)
    - P2-2, P2-3, P4, and P5 (345-kV only)
    - P3: G-1+N-1 (G-1: \*\*\*)
    - P6: X-1+N-1 (X-1: \*\*\*)
- Criteria
  - Monitor all 60-kV and above busses, transmission lines, and transformers in the study region (excluding generator step-up transformers)
  - Thermal
    - Use Rate A for normal conditions
    - Use Rate B for emergency conditions
  - Voltage
    - Voltages exceeding their pre-contingency and post-contingency limits
    - Voltage deviations exceeding 8% on non-radial load buses

# Study Procedure

- Need Analysis
  - The reliability analysis will be performed to identify the need to serve the projected area load using the study base case
- Project Evaluation
  - Project alternatives will be tested to satisfy the NERC and ERCOT reliability requirements
  - ERCOT may also perform the following studies
    - Planned maintenance outage
    - Long-Term Load-Serving Capability Assessment
- Generation Addition and Load Scaling Sensitivity Analyses
  - Planning Guide Section 3.1.3(4)
- Subsynchronous Resonance (SSR) Assessment
  - Nodal Protocol Section 3.22.1.3(2)
- Congestion Analysis
  - Congestion analysis may be performed based on the recommended transmission upgrades to ensure that the identified transmission upgrades do not result in new congestion within the study area

# Deliverables

- Tentative Timelines
  - Status updates at the future RPG meetings
  - Final Recommendation – Q1 2025

*Thank you!*



Stakeholder comments also welcomed through:

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# Appendix A – Transmission Projects Added

TPIT/RPG No	Project Name	Tier	Project ISD	County(s)
70964	WETT 345 kV Volta witch	Tier 3	Mar-24	Howard
73043	Peck - Driver 138 kV Line	Tier 2	Dec-24	Glasscock
73368	Grey Well Draw - Buffalo 138 kV Second Circuit	Tier 3	Dec-24	Midland
76686	Add Hog Mountain 138 kV POD	Tier 4	Dec-24	Glasscock
76705	Prairieland 345/138 kV Switch and 138 kV Line	Tier 2	May-25	Glasscock
78374	Rockhound 345/138 kV Switch	Tier 3	Dec-24	Midland
80858	Sterling City: Upgrade 69 kV Relays	Tier 4	Apr-25	Sterling
80913	Sloan 138 kV Switch	Tier 4	May-25	Midland
66532	Grey Well Draw - Pronghorn 138 kV Line Rebuild	Tier 4	Jan-24	Midland
73434	Shaw 138 kV POD	Tier 4	May-24	Reagan



# Appendix B – Transmission Backed Out

RTP Project ID	Project Name	County(s)
2021-FW19	Morgan Creek SES - Longshore Switch 345-kV Line Upgrade	Mitchell, Howard
2021-FW20	Lamesa - Key Sub - Gail Sub - Willow Valley Switch 138-kV Line Upgrade	Dawson, Borden
2022-FW24	Faraday - Lamesa - Clearfork - Riverton 345-kV Double Circuit Line Addition	Borden, Dawson, Andrews, Winkler, Loving and Reeves
2023-FW4	Buzzard Draw Switch - Koch Tap - Vealmoor 138-kV Line Upgrade	Howard
2023-FW13	Bulldog - Elbow - Eiland - Einstein - Carterville 138-kV Line Upgrade	Howard, Midland
2022-WFW2	Midessa South SW - Consavvy - Longshore Switch - Morgan Creek SES 345-kV Line Upgrades	Midland, Howard, Mitchell
2023-WFW1	Exxon Sharon Ridge to Willow Valley Switch 138-kV Line Upgrade	Scurry, Borden
2023-WFW2	Morgan Creek SES - Falcon Seaboard - Midland East 345-kV Line Upgrade	Midland, Howard, Mitchell

# Appendix C – Generation Added

GINR	Project Name	Fuel	Project COD	Capacity (~MW)	County
19INR0203	Angelo Solar	SOL	08/01/2024	195.4	Tom Green
22INR0502	Shamrock Wind SLF	WIN	09/15/2024	223.9	Crockett
23INR0372	Cross Trails Storage	OTH	04/25/2025	58.3	Scurry
23INR0387	Pioneer DJ Wind	WIN	09/15/2024	140.3	Midland
23INR0418	Angelo Storage	OTH	08/10/2024	103.0	Tom Green
24INR0273	AI Pastor BESS	OTH	09/10/2024	103.1	Dawson
24INR0421	Swift Air Solar	SOL	03/31/2025	146.5	Ector
24INR0568	Shamrock Energy Storage (SLF)	OTH	07/01/2025	99.3	Crockett
24INR0578	Panther Creek 1 Repower	WIN	12/31/2024	11.0	Glasscock
24INR0582	Panther Creek 2 Repower	WIN	12/31/2024	8.0	Glasscock
24INR0629	Jade Storage SLF	OTH	09/30/2024	160.0	Scurry
24INR0630	Andromeda Storage SLF	OTH	12/31/2024	160.0	Scurry