Oncor Connell 345/138-kV Switch and Connell to Rockhound 345-kV Double-Circuit Line Project – ERCOT Independent Review Status Update

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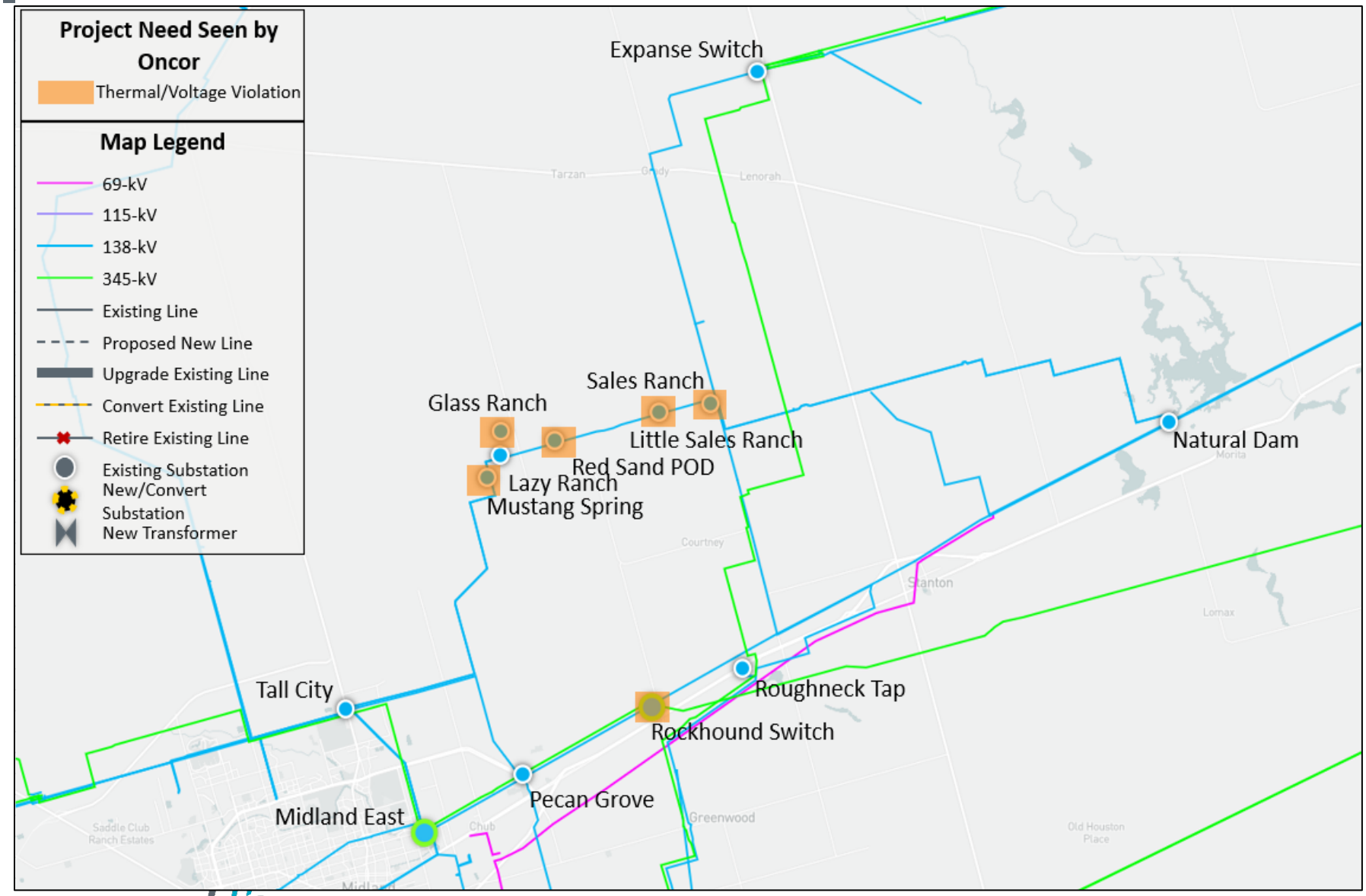
RPG Meeting
July 29, 2025

Introduction

- Oncor submitted the Connell 345/138-kV Switch and Connell to Rockhound 345-kV Double-Circuit Project for Regional Planning Group (RPG) review in June 2024
  - This Tier 1 project is estimated to cost $110.62 million and will require a Certificate of Convenience and Necessity (CCN)
  - Estimated in-service date (ISD) is December 2026
  - Addresses low voltages and thermal overloads expected as early as summer 2025 as a result of significant load growth primarily in oil and gas industry
- Oncor presented overview August RPG Meeting:
  - https://www.ercot.com/calendar/08132024-RPG-Meeting
- ERCOT provided the study scope at the September RPG Meeting:
  - https://www.ercot.com/calendar/09252024-RPG-Meeting
- This project is currently under ERCOT Independent Review (EIR)

Study Area Map with Violations seen by Oncor



Proposed Project by Oncor – Recap

- Construct a new Connell 345/138-kV switching station approximately 1.0 mile west of existing Oncor Glass Ranch Switch, with two new 600 MVA (nameplate) 345/138-kV transformers, in a 6-breaker 345-kV breaker-and-a-half bus arrangement and a 10-breaker 138-kV breaker-and-a-half bus arrangement, with all 345-kV equipment will be rating at least 2988 MVA and 138-kV at least 765 MVA
- Construct two new Connell to Rockhound 345-kV lines, with conductors rated to at least 2988 MVA, in a new (estimated 13.0 mile) right of way (ROW), installed on new, common double-circuit towers
- Install two new 345-kV circuit breakers at Oncor's existing Rockhound 345-kV Switch, rated at least 2988 MVA
- Install two new 138-kV circuit breakers at Oncor's existing Sale Ranch 138-kV Switch, rated at least 765 MVA
- Disconnect Oncor's existing Tall City to Sale Ranch 138-kV line at structure 1/9

Proposed Project by Oncor – Recap Cont.

- Rebuild 9.0-mile portion of Oncor's existing single circuit 19.2-mile Sale Ranch to Glass Ranch to Tall City 138-kV line from Sale Ranch to existing 1/9 Structure and replace 9.0-mile portion with two new conductors, rated to at least 614 MVA, installed on new, common double-circuit towers
- Construct two new Connell Switch to 1/9 structure 138-kV lines, with conductors rated to at least 614 MVA, in a new (estimated 0.1-mile) ROW, installed on new, common double-circuit towers configured to create a Connell Switch to Sale Ranch 138-kV double-circuit line
- Construct a new single Connell Switch to 1/9 structure 138-kV line, with conductor rated to at least 614 MVA, in a new (estimated 0.1-mile) ROW, installed in one position on new double-circuit towers leaving one position vacant and configured to create a new Connell Switch to Tall City 138-kV line
- Reconfigure Oncor's existing Red Sand 138-kV POD to be connected to the south circuit on the new Connell to Sale Ranch 138-kV double circuit line

Proposed Project by Oncor

Study Assumptions – Update

- Transmission
  - Transmission projects expected to be in-service by December 2026 were added to the case
  - Projects expected to be in-service shortly after the ISD for the “Connell 345/138-kV Switch and Connell to Rockhound 345-kV Double-Circuit Line Project” were added to capture worst-case conditions
  - The West Texas Synchronous Condenser Project was added to provide voltage support
    - See Updated Appendix A for list of transmission projects added
  - Transmission projects identified in the 2023 RTP as placeholder projects within the study area have been removed to develop the study base case
    - See Updated Appendix B for a list of placeholder projects removed

Study Assumptions – Update (Cont.)

- Load in study area
  - Loads in the WFW Weather Zones have been updated to be consistent with the 2024 RTP Assumptions
  - Oil & Gas loads in the FW Weather Zone were updated based the S&P Global Load Forecast
  - New confirmed loads were added to the study base case
- Study Region focused on transmission elements in the Martin and Midland Counties resulting from confirmed load updates

Preliminary Results of Reliability Assessment – Need Analysis

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

Contingency Category*	# of Unsolved Contingencies	# of Thermal Overloads	# of Bus Voltage Violations
N-0 (P0)	None	None	None
N-1 (P1, P2-1, P7)	None	5	37
G-1+N-1 (P3)*	None	5***	37***
X-1+N-1 (P6-2)**	None	7***	37***

*G-1 Generator tested: Odessa Ector CC1
**X-1 Transformers tested: Midland East T1, Morgan Creek T3, Rockhound T1
*** Violations seen in the basecase under P1 events were also seen under G-1 and X-1 events

Deliverables

- Tentative Timelines
  - Status updates at future RPG meetings
  - Final recommendation – Q3 2025

Thank you!

Stakeholder comments also welcomed through:

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Appendix A – Transmission Projects

- List of transmission projects added to study base case

TPIT No	Project Name	Tier	Project ISD	County
72007	Ranger Camp 345/138/69 kV Switch	Tier 1	In-service	Mitchell
78374	Rockhound 345/138 kV Switch	Tier 3	In-service	Midland Martin
73368	Grey Well Draw – Buffalo 138 kV Second Circuit	Tier 3	In-service	Midland Martin
76705	Prairieland 345/138 kV Switch and 138 kV Line	Tier 2	In-service	Glasscock
80913	Sloan 138 kV Switch	Tier 4	5/1/2025	Midland
71960	Upgrade Grady – Expanse 138 kV Line	Tier 4	12/1/2024	Martin
81223	Range Rider 138 kV Switch	Tier 1	12/1/2025	Mitchell
72009	Cattleman 345/138 kV Switch	Tier 1	12/1/2025	Mitchell
87861	Range Rider – Ranger Camp 138 kV Double-Circuit Line	Tier 1	12/1/2025	Mitchell
81274	Ranger Camp – Cattleman 345 kV Double-Circuit Line	Tier 1	12/1/2025	Mitchell
81270	Construct the new Prong Moss 345 kV switch	Tier 1	12/1/2025	Howard

Appendix A – Transmission Projects (Cont.)

- List of transmission projects added to study base case

TPIT No	Project Name	Tier	Project ISD	County
81232	Cattleman – Bitter Creek/Champion Creek 345 kV Reroute	Tier 1	12/1/2026	Mitchell
81410	Reiter Switch Synchronous Condenser	Tier 1	1/1/2027	Ector
81415	Tonkawa Switch Synchronous Condenser	Tier 1	1/1/2027	Scurry
80870	Bakersfield Dynamic Reactive Substation Upgrade	Tier 1	5/1/2027	Pecos
81299	Ranger Camp – Prong Moss 345 kV Line Rebuild	Tier 1	5/1/2027	Mitchell Howard
81227	Cattleman – Gascondades 345 kV Reroute	Tier 1	6/1/2027	Mitchell
87633	WETT Buck Canyon Synchronous Condenser	Tier 1	7/1/2027	Borden
87635	WETT Pitchfork Synchronous Condenser	Tier 1	9/1/2027	Dickens
87629	WETT Binturong Synchronous Condenser	Tier 1	11/1/2027	Glasscock
72011	Tonkawa – Ranger Camp 345 kV Line Rebuild	Tier 1	12/1/2027	Mitchell Scurry
81296	Prong Moss – Rockhound 345 kV Line Rebuild	Tier 1	12/1/2027	Midland Howard

Appendix B – Transmission Projects - Updated

- List of transmission projects removed from the study base case

TPIT No	Project Name	County
2021-FW4	Rio Pecos – Rankin – Texon Tap – Atlantic Best Tap – Kemper Tap – Big Lake 69-kV to 138-kV Line Conversion	Pecos, Upton, Reagan
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
2023-FW4	Buzzard Draw Switch – Koch Tap – Vealmoor 138-kV Line Upgrade	Howard
2023-FW9	East Stiles 138-kV Cap Bank Addition	Reagon
2023-FW13	Bulldog – Elbow – Eiland – Einstein – Carterville 138-kV Line Upgrade	Howard, Midland
2022-WFW1	Twin Buttes – Hargrove – Pumpjack – Jerry – Russek Street – Big Lake 138-kV line Upgrade	Tom Green, Irion, Reagan

Appendix C – Generation Projects

- List of generation projects added to study base case

GINR	Project Name	Fuel	Project COD	Capacity (~MW)	County
None	None	None	None	None	None