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American Electric Power Service Corporation (AEPSC) – Laredo Area Upgrade Project (26RPG004) – ERCOT Independent Review (EIR) Status Update

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Regional Planning Group (RPG) Meeting
May 11, 2026

Introduction

American Electric Power Service Corporation (AEPSC) submitted the Laredo Area Upgrade Plan Project (26RPG004) for Electric Reliability Council of Texas' (ERCOT) Regional Planning Group (RPG) review in February 2026

- This is a Tier 2 project with an estimated cost of approximately $178.0 million and will require a Certificate of Convenience and Necessity (CCN)
- Estimated in-service date (ISD) is September 2029
- Addresses the thermal overloads and voltage violations seen by AEPSC in the Webb County in the South Weather Zone

This project is currently under ERCOT Independent Review (EIR)

- AEPSC presented a project overview and ERCOT provided the EIR scope at the March 2026 RPG Meeting

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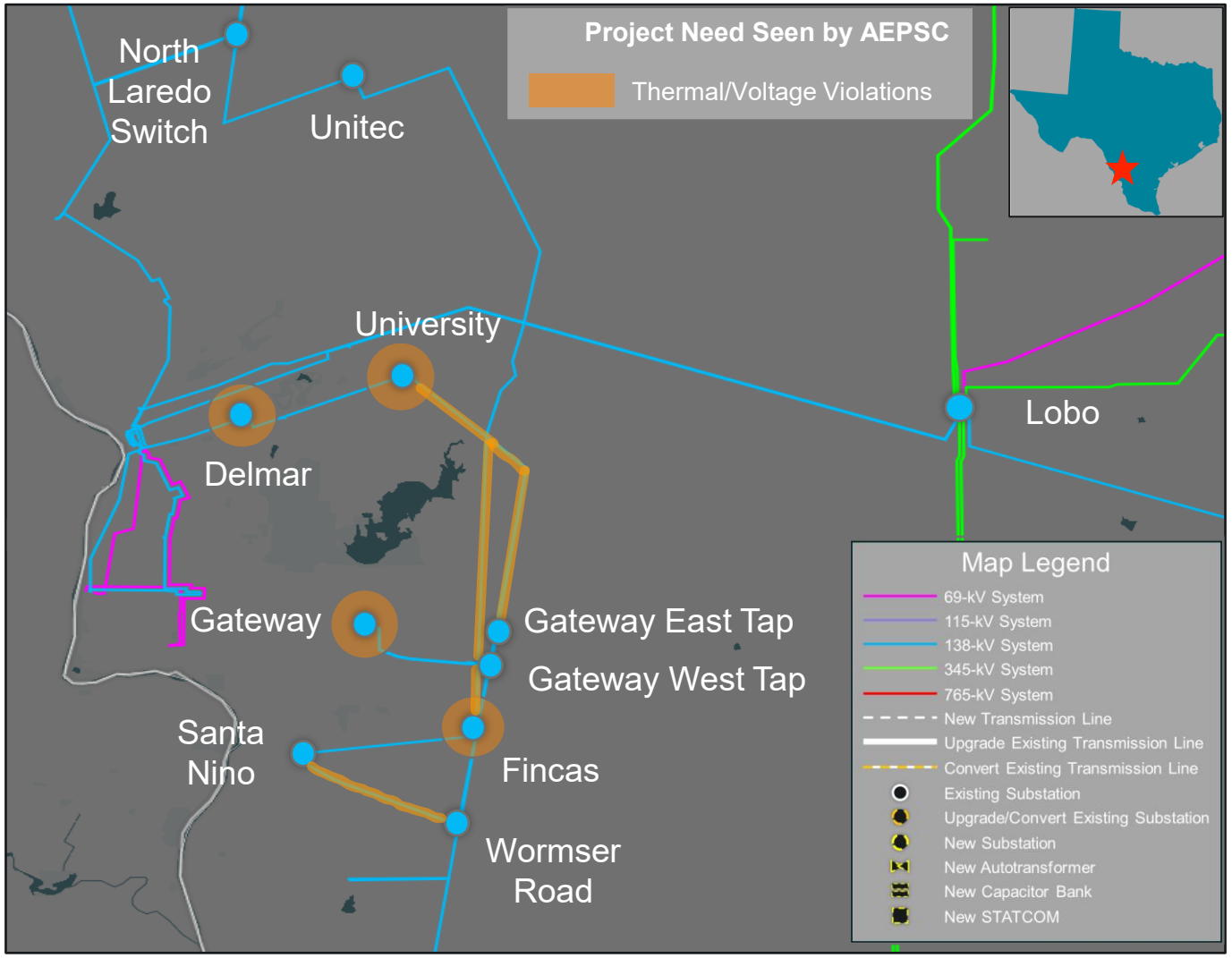
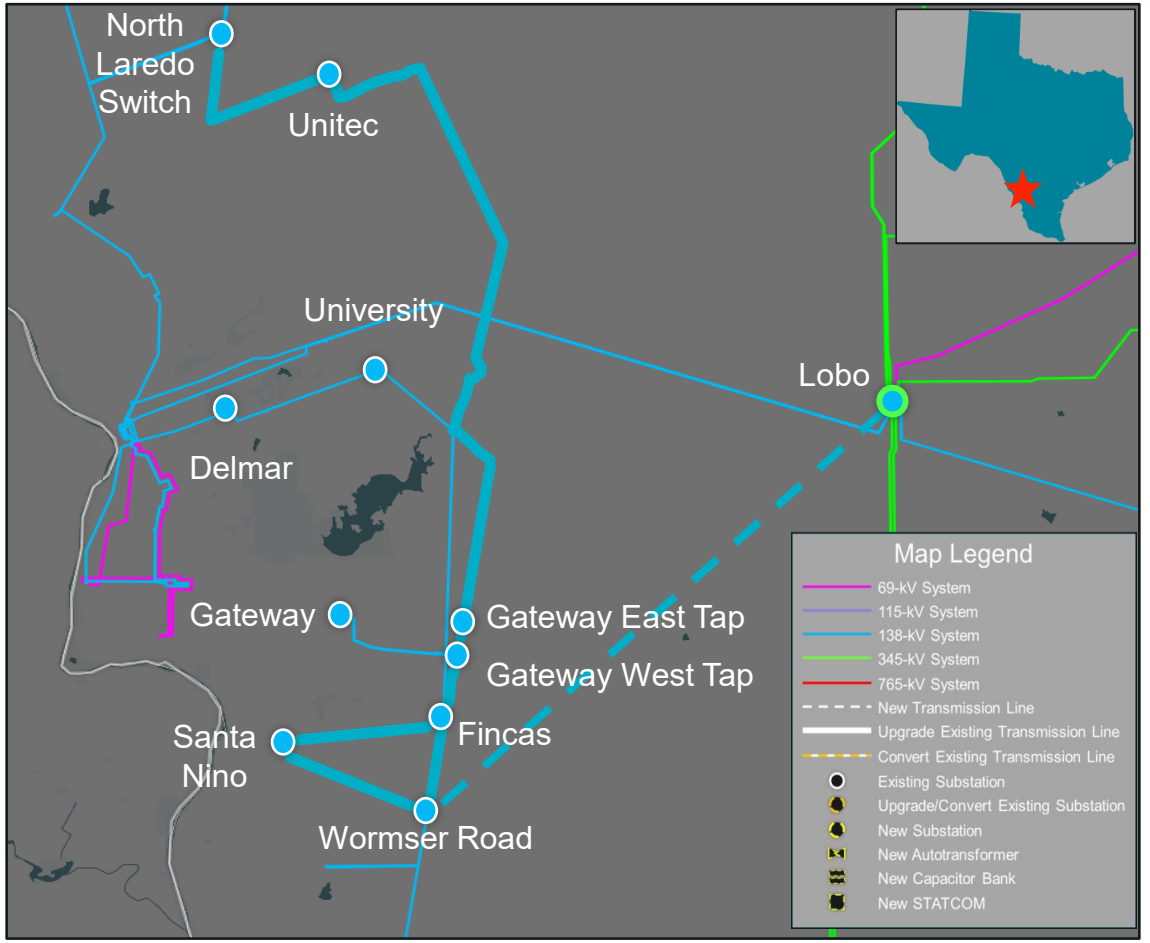
Recap: Study Area Map with Project Needs Seen by AEPSC



Recap: Proposed Project by AEPSC

Summary of Upgrades

- Construct a new 138-kV single-circuit transmission line for approximately 14.5 miles, requiring a new right of way (ROW)
- Rebuild existing 138-kV double circuit transmission lines for approximately 52.7 circuit miles
- Upgrade eight (8) existing 138-kV substations as necessary to not limit any of the lines being rebuilt



Recap: Proposed Project by AEPSC (continued)

Upgrade Details

- Construct new Lobo to Wormser Road 138-kV single-circuit transmission line, which will require new ROW and need CCN, with normal and emergency ratings of at least 717 MVA, for approximately 14.5 miles
- Rebuild existing North Laredo Switch to Unitec to Gateway East Tap 138-kV transmission lines on existing ROW, increase the existing normal and emergency ratings of at least 208 MVA to at least 717 MVA, for approximately 14.5 miles on single-circuit, and 5.3 miles per circuit on double-circuit structures
- Rebuild existing Gateway East Tap to Wormser Road 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 3.4 miles per circuit
- Rebuild existing Fincas to Gateway West Tap 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 1.4 miles per circuit
- Rebuild existing Wormser Road to Santo Nino 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 478 MVA, for approximately 3.3 miles per circuit
- Rebuild existing Fincas to Santo Nino 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 241 MVA to at least 717 MVA, for approximately 5.7 miles per circuit
- Upgrade eight (8) 138-kV substations as necessary to not limit any of the lines proposed for rebuild

Recap: Study Assumptions

Study Region

- The project is located in the Webb County in the South Weather Zone and all transmission elements in counties those are electrically close was monitored

Steady-State Base Case

- Final 2025 Regional Transmission Planning (RTP) 2030 summer peak load case, published on Market Information System (MIS) on December 22, 2025, was updated to construct the study base case

Transmission Updates

- New transmission projects (listed in Appendix A), based on February 2026 Transmission Project and Information Tracking (TPIT) report and recently approved RPG project, was added to the base case

Generation Updates

- New generation (listed in Appendix B) that met ERCOT Planning Guide Section 6.9(1) condition with Commercial Operation Date (COD) before the September 2029 (ISD) in the study area at the time of the study, but not already modeled in the RTP cases, was added to the case based on February 2026 Generator Interconnection Status (GIS) report published in MIS in March 2026
- All generation was dispatched consistent with the 2025 RTP methodology

Load and Reserve Updates

- Load level in the study area was kept consistent with the final RTP cases
- The reserve was kept consistent with the 2025 RTP

Status Update

Studies performed since the April RPG meeting

- Reliability need analysis on base case
  - N-1, X-1+N-1 and G-1+N-1
- Maintenance Outage Evaluation on base case
- Initial options developed

Preliminary Results of Reliability Assessment – Base Case

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

Contingency Category	Thermal Overloads	Voltage Violations	Unsolved Power Flow
P1	None	None	None
P2, P4, P5	None	None	None
P3: (G-1+N-1)*	None	None	None
P6-2: (X-1+N-1)*	None	None	None
P7	None	None	None
Total	**None**	**None**	**None**

* See Appendix C for the list of G-1 generators and X-1 transformers being tested

Preliminary Results of Maintenance Outage Evaluation on Base Case

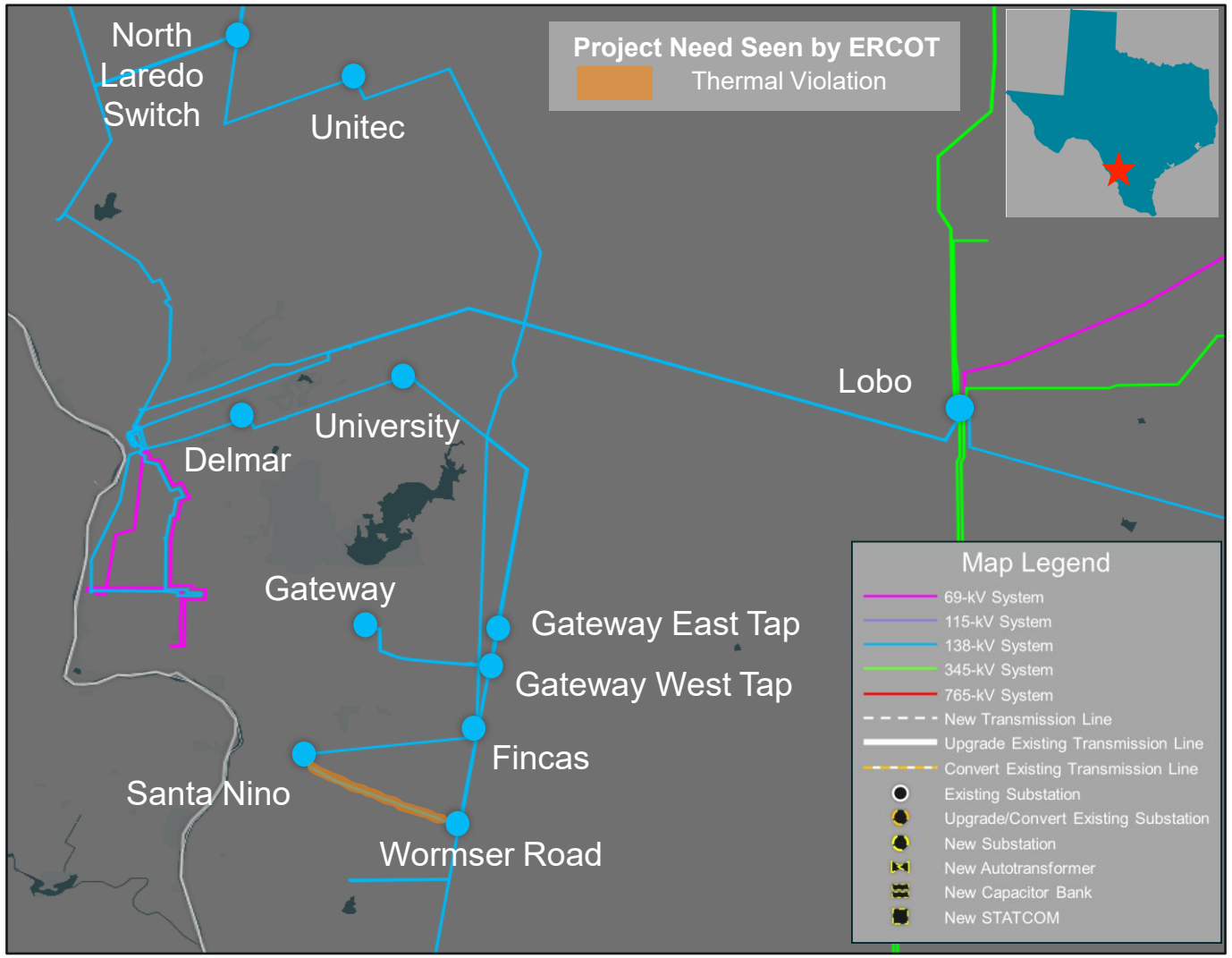
ERCOT conducted maintenance outage analyses on the study base case to identify the project need

- Load levels the study area Weather zone were scaled down based on the historical non-summer peak data to 90.4%, in order to mimic the non-summer peak load condition
- Based on the review of system topology of the study area, ERCOT tested N-2 contingency combinations, and then tested all applicable contingency violations with system adjustments (N-1-1)

Option	Thermal Violations	Voltage Violation	Unsolved Power Flow
Base Case	1	None	None

Key Takeaway: One thermal violation was observed in the N-1-1 analysis in the study base case

Study Area Map with Project Needs Seen by ERCOT



Preliminary List of Options Considered for Evaluation

ERCOT is considering and evaluating the following options to resolve the reliability violation seen in the study area by ERCOT:

- Option 1 – AEPSC Proposed Project
- Option 2 – AEPSC Alternative Option
- Option 3 – AEPSC Alternative Option
- Option 4 – ERCOT Alternative Option

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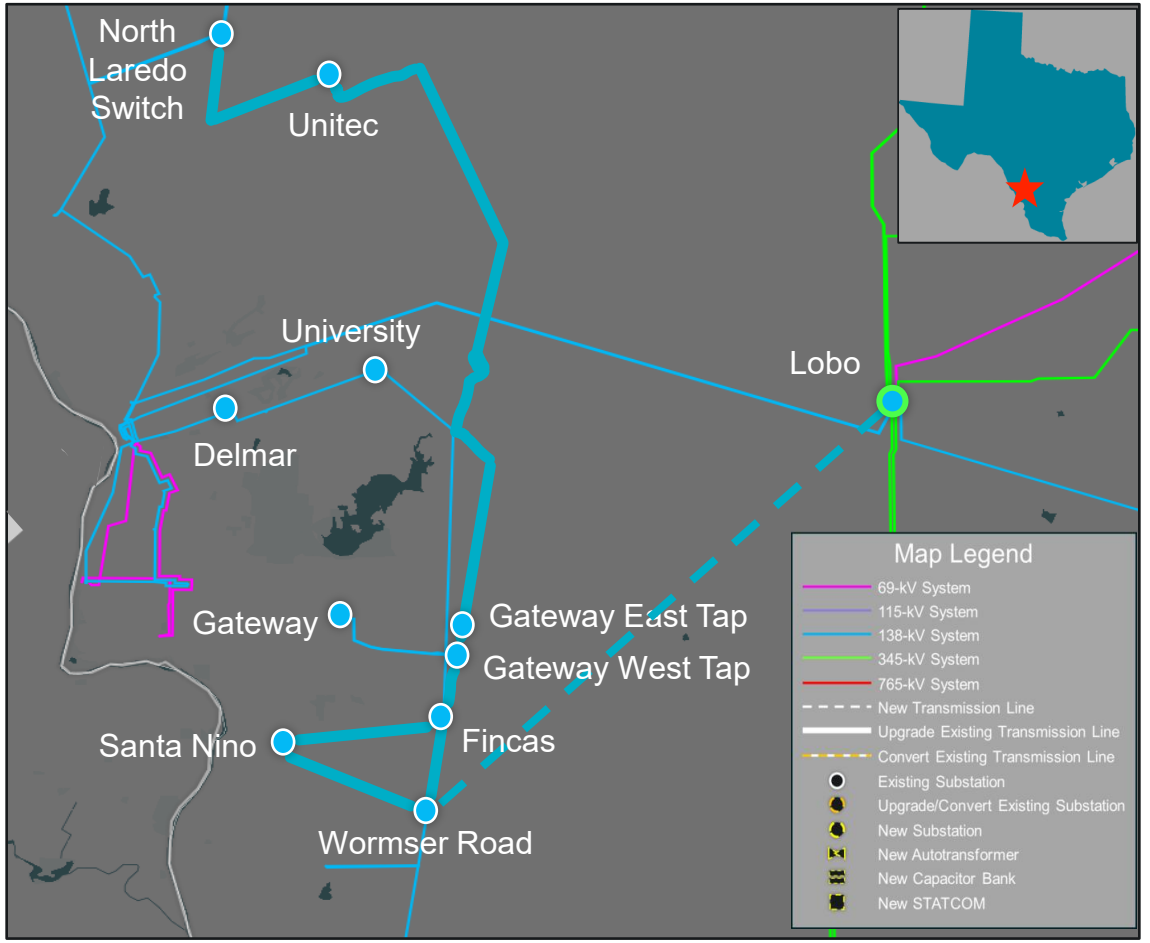
Option 1 – AEPSC Proposed Project

Summary of Upgrades

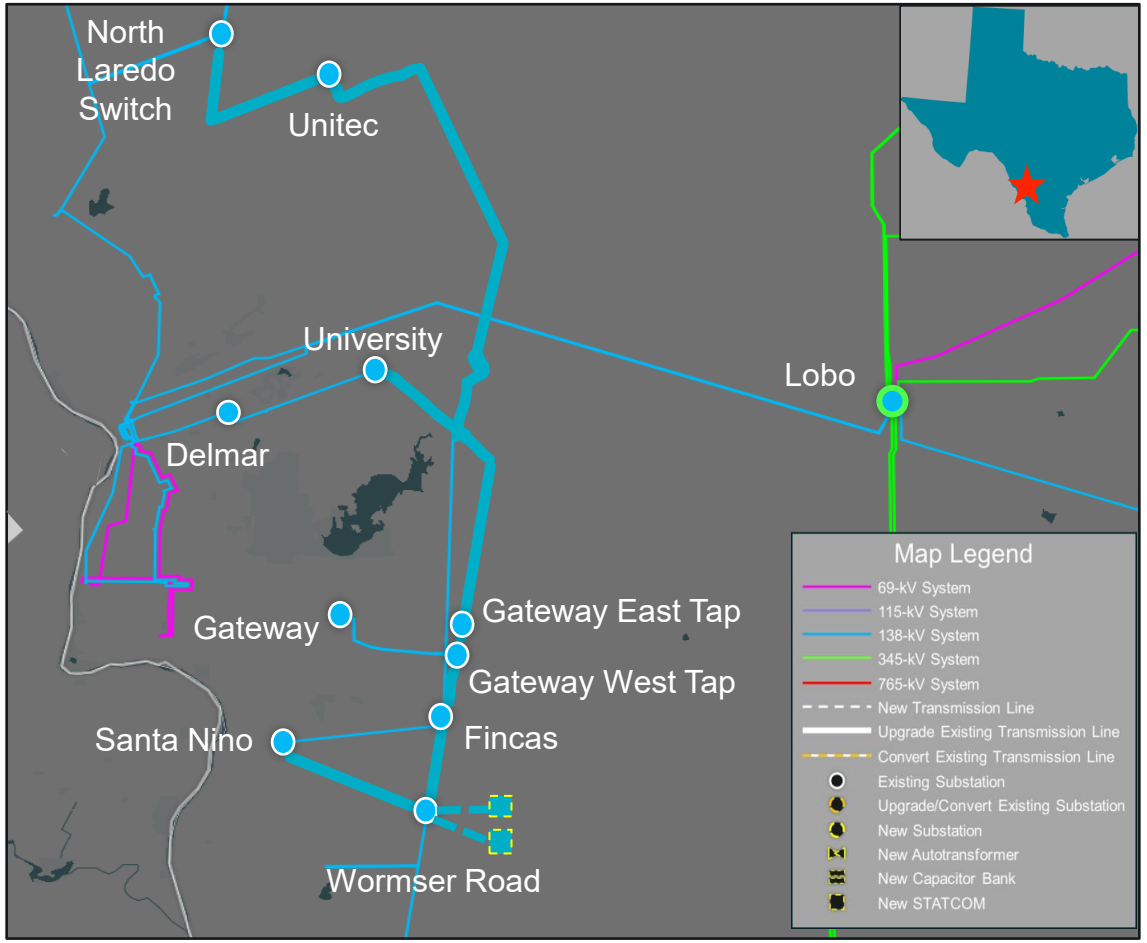
- Construct a new 138-kV single-circuit transmission line for approximately 14.5 miles, requiring a new right of way (ROW)
- Rebuild existing 138-kV transmission lines for approximately 52.7 circuit miles
- Upgrade eight (8) existing 138-kV substations as necessary to not limit any of the lines being rebuilt
- Detailed upgrade list in Appendix D1



Option 2 – AEPSC Alternative Option

Summary of Upgrades

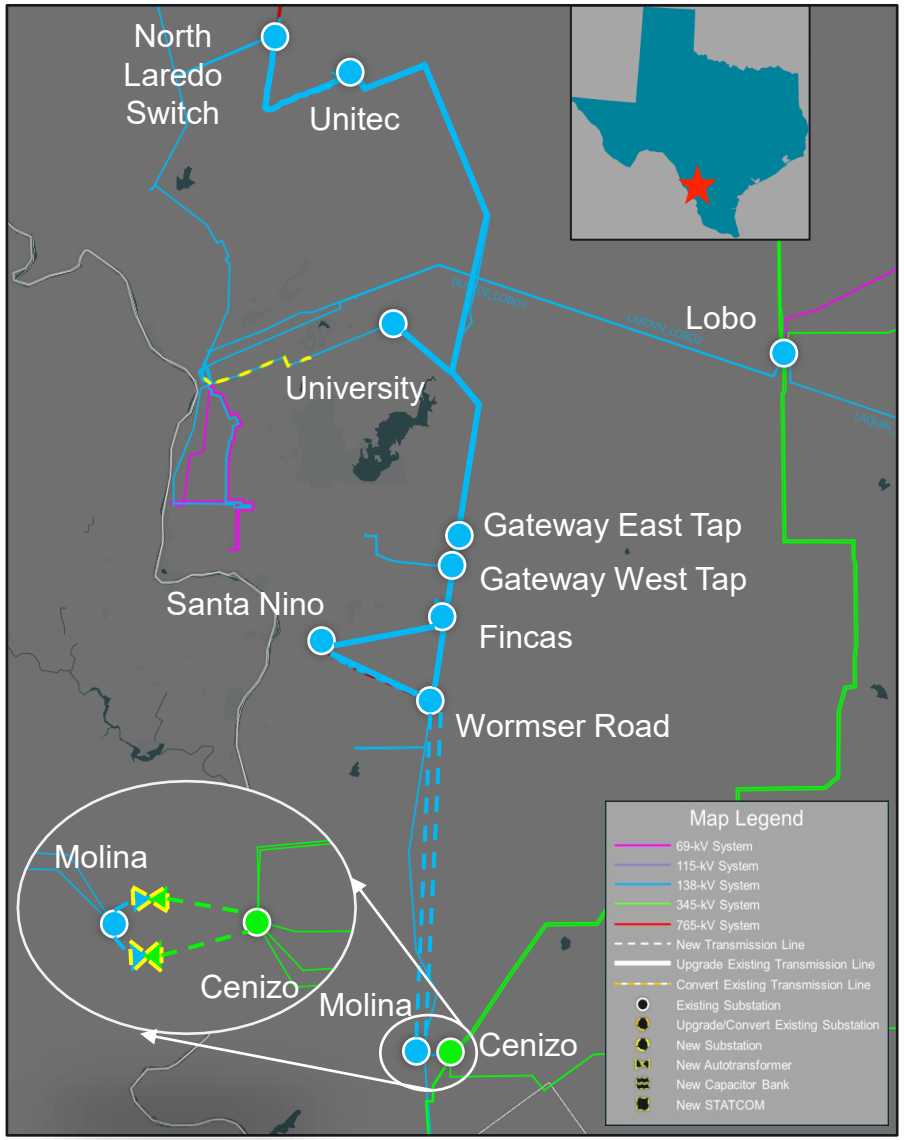
- Rebuild existing 138-kV transmission lines for approximately 46.7 circuit miles
- Install two (2) 138-kV +/-150 MVAR Static Compensators (STATCOMs)
- Upgrade eight (8) 138-kV substations as necessary to not limit any of the lines being rebuilt
- Detailed upgrade list in Appendix D2



Option 3 – AEPSC Alternative Option

Summary of Upgrades

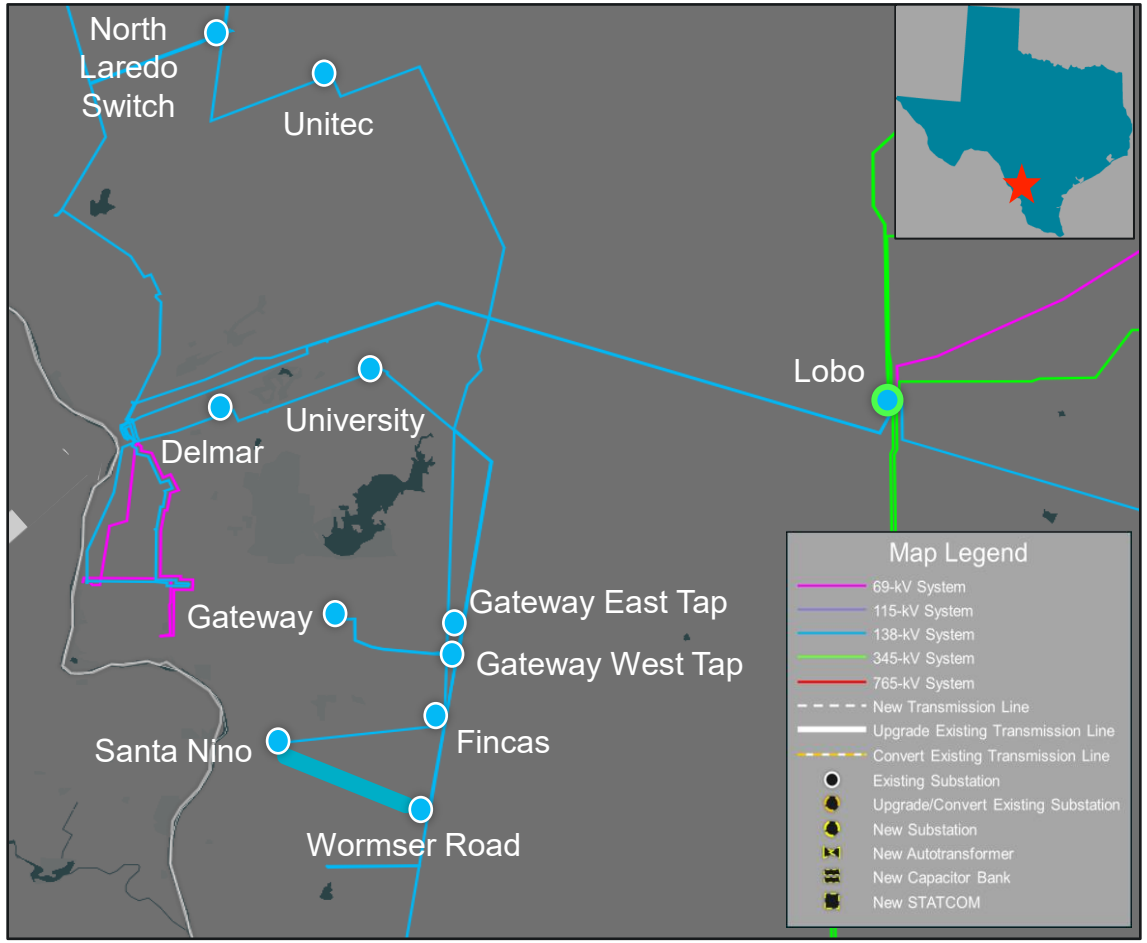
- Install two (2) new 345/138 kV auto-transformers at 138-kV Molina substation.
- Construct a new 138-kV double-circuit transmission line for approximately 9.5 miles per circuit, will require a ROW and CCN
- Rebuild existing 138-kV transmission lines for approximately 52.7 circuit miles
- Upgrade ten (10) 138-kV substations as necessary to not limit any of the lines being rebuilt
- Detailed upgrade list in Appendix D3



Option 4 – ERCOT Alternative Option

Summary of Upgrades

- Rebuild existing Wormser Road to Santo Nino 138-kV double-circuit transmission line, for approximately 3.3 miles per circuit
- Upgrade 138-kV substations as necessary to not limit any of the lines being rebuilt
- Detailed upgrade list in Appendix D4



Deliverables and Next Step

Tentative Timelines

- ERCOT will continue to evaluate the options and may perform the following
  - Maintenance Outage Evaluation
  - Long-Term Load-Serving Capability Assessment
  - Transmission System Providers (TSPs) will be requested for Cost Estimates and Feasibility Assessment
- Provide status updates at the future RPG meetings
- ERCOT recommendation in Q3 2026

Key Takeaway: ERCOT recommendation in Q3 2026

Thank you!
Questions/Comments?

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Appendix

- Appendix A: Transmission Projects Added
- Appendix B: Generation Added
- Appendix C: List of G-1 Generators and X-1 Transformers Tested
- Appendix D1: Details on Option 1
- Appendix D2: Details on Option 2
- Appendix D3: Details on Option 3
- Appendix D4: Details on Option 4

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Appendix A: Transmission Projects Added

TPIT/RPG	Project Name	Tier	Project ISD	County(s)
76569	Asherton: Rebuild 138 kV station	3	Apr-27	Dimmit
76576	Asherton to Uvalde: Convert to 138 kV	3	Jun-27	Dimmit
67320	Cruce to Reforzar: Construct New 345 kV Double Circuit Line	1	Sep-26	Jim Hogg
67318	Cruce: Construct New 345A kV Station	1	Nov-26	Jim Hogg
67322	Cenizo to Cruce: Construct New 345 kV Double Circuit Line	1	Nov-26	Webb
67324	Cruce to Del Sol: Construct New 345 kV Double Circuit Line	1	Nov-26	Jim Hogg
23RPG007	Asherton - Uvalde 138-kV Conversion Project	3	May-25	Dimmit, Uvalde, and Zavala
25RPG045	Alice Area Improvements Transmission Project	3	Apr-29	Jim Wells, Duval, Brooks

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Appendix B: Generation Added

GINR	Project Name	Fuel	Project COD	Max-Capacity (~MW)	County
24INR0632	Cedro Hill Wind Repower	WIN	04/01/2026	159.9	Webb
25INR0109	Sun Cactus Solar	SOL	10/15/2027	120.6	Duval
27INR0126	Corvus Solar	SOL	11/12/2028	201.5	Webb
27INR0126	Corvus Solar	SOL	11/12/2028	201.5	Webb

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Appendix C: List of G-1 Generators and X-1 Transformers Tested

Generator	Transformer
LAREDO COMBINED CYCLE TRAIN (CTG) Unit 4	FOWLERTON 345/138-kV
LAREDO CTG Unit 5	LOBO AUTOTRANSFORMER-A 345/138-KV
FRONTERA ENERGY CENTER CTG	LOBO AUTOTRANSFORMER-B 345/138-KV

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Appendix D1: Option 1: AEPSC Proposed Option

Details of Option 1

- Construct new Lobo to Wormser Road 138-kV single-circuit transmission line, which will require new ROW and need CCN, with normal and emergency ratings of at least 717 MVA, for approximately 14.5 miles
- Rebuild existing North Laredo Switch to Unitec to Gateway East Tap 138-kV transmission lines on existing ROW, increase the existing normal and emergency ratings of at least 208 MVA to at least 717 MVA, for approximately 14.5 miles on single-circuit, and 5.3 miles per circuit on double-circuit structures
- Rebuild existing Gateway East Tap to Wormser Road 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 3.4 miles per circuit
- Rebuild existing Fincas to Gateway West Tap 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 1.4 miles per circuit
- Rebuild existing Wormser Road to Santo Nino 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 478 MVA, for approximately 3.3 miles per circuit
- Rebuild existing Fincas to Santo Nino 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 241 MVA to at least 717 MVA, for approximately 5.7 miles per circuit
- Upgrade eight (8) 138-kV substations as necessary to not limit any of the lines proposed for rebuild

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Appendix D2: Option 2: AEPSC Alternative Option

Details of Option 2

- Rebuild existing Wormser Road to Santo Nino 138-kV double-circuit transmission lines on existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 478 MVA, for approximately 3.3 miles per circuit
- Rebuild existing North Laredo Switch to Unitec to Gateway East Tap 138-kV transmission lines on existing ROW, increase the existing normal and emergency ratings of at least 208 MVA to at least 717 MVA, for approximately 14.5 miles on single-circuit, and 5.3 miles per circuit on double-circuit structures
- Rebuild existing University to Gateway West Tap 138-kV transmission lines on existing ROW, increase the existing normal and emergency ratings of at least 210 MVA to at least 717 MVA, for approximately 1.6 miles on single-circuit, and 5.3 miles per circuit on double-circuit structures
- Rebuild existing Fincas to Gateway West Tap 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 241 MVA to at least 717 MVA, for approximately 1.4 miles per circuit
- Construct two (2) new terminals at Wormser Road 138-kV side to install two (2) +/- 150 MVAR STATCOMs
- Upgrade eight (8) 138-kV substations as necessary to not limit any of the lines proposed for rebuild

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Appendix D3: Option 3: AEPSC Alternative Option

Details of Option 3

- Construct two (2) new 345/138 kV auto-transformers with normal and emergency ratings of at least 675 MVA at Molina 138-kV expanded substation with its 346-kV termination at Cenizo 345-kV expanded substation through two new 345-kV double-circuit short transmission line, approximately 0.1 miles
- Construct new Molina to Wormser Road 138-kV double-circuit transmission line, which will require new ROW and need CCN, with normal and emergency ratings of at least 717 MVA, for approximately 9.5 miles per circuit
- Rebuild existing Wormser Road to Santo Nino 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 478 MVA, for approximately 3.3 miles per circuit
- Rebuild existing North Laredo Switch to Unitec to Gateway East Tap 138-kV transmission lines on existing ROW, increase the existing normal and emergency ratings of at least 208 MVA to at least 717 MVA, for approximately 14.5 miles on single-circuit, and 5.3 miles per circuit on double-circuit structures
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- Rebuild existing Gateway East Tap to Wormser Road 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 3.4 miles per circuit
- Upgrade ten (10) 138-kV substations as necessary to not limit any of the lines proposed for rebuild

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Appendix D4: Option 4: ERCOT Alternative Option

Details of Option 4

- Rebuild existing Wormser Road to Santo Nino 138-kV double-circuit transmission line on existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 478 MVA, for approximately 3.3 miles per circuit
- Upgrade eight (8) 138-kV substations as necessary to not limit any of the lines proposed for rebuild

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