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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
July 21, 2026

Introduction

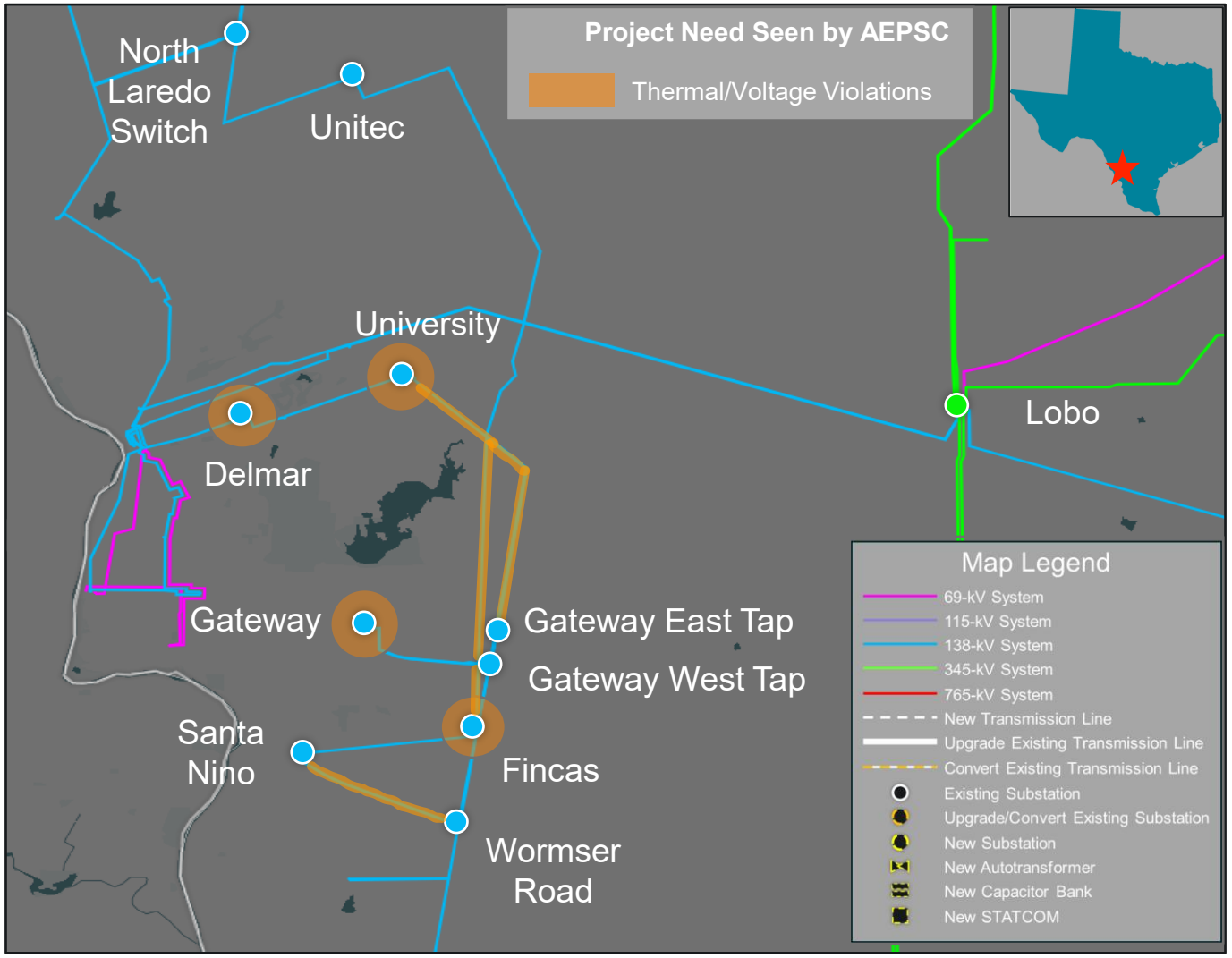
American Electric Power Service Corporation (AEPSC) submitted the Laredo Area Upgrade Plan Project (26RPG004) for Electric Reliability Council of Texas' (ERCOT) Regional Planning Group (RPG) review in February 2026

- 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 April 2026 RPG Meeting
- ERCOT provided EIR status updates in May 2026 and June 2026 RPG Meeting

Recap: Study Area Map with Project Needs Seen by AEPSC



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

- New Officer Letter Loads, confirmed by Attestation Letter from AEPSC, added in the study area approximately 490 MW
- The reserve will be kept consistent with the 2025 RTP

Preliminary Results of Reliability Assessment – Base Case

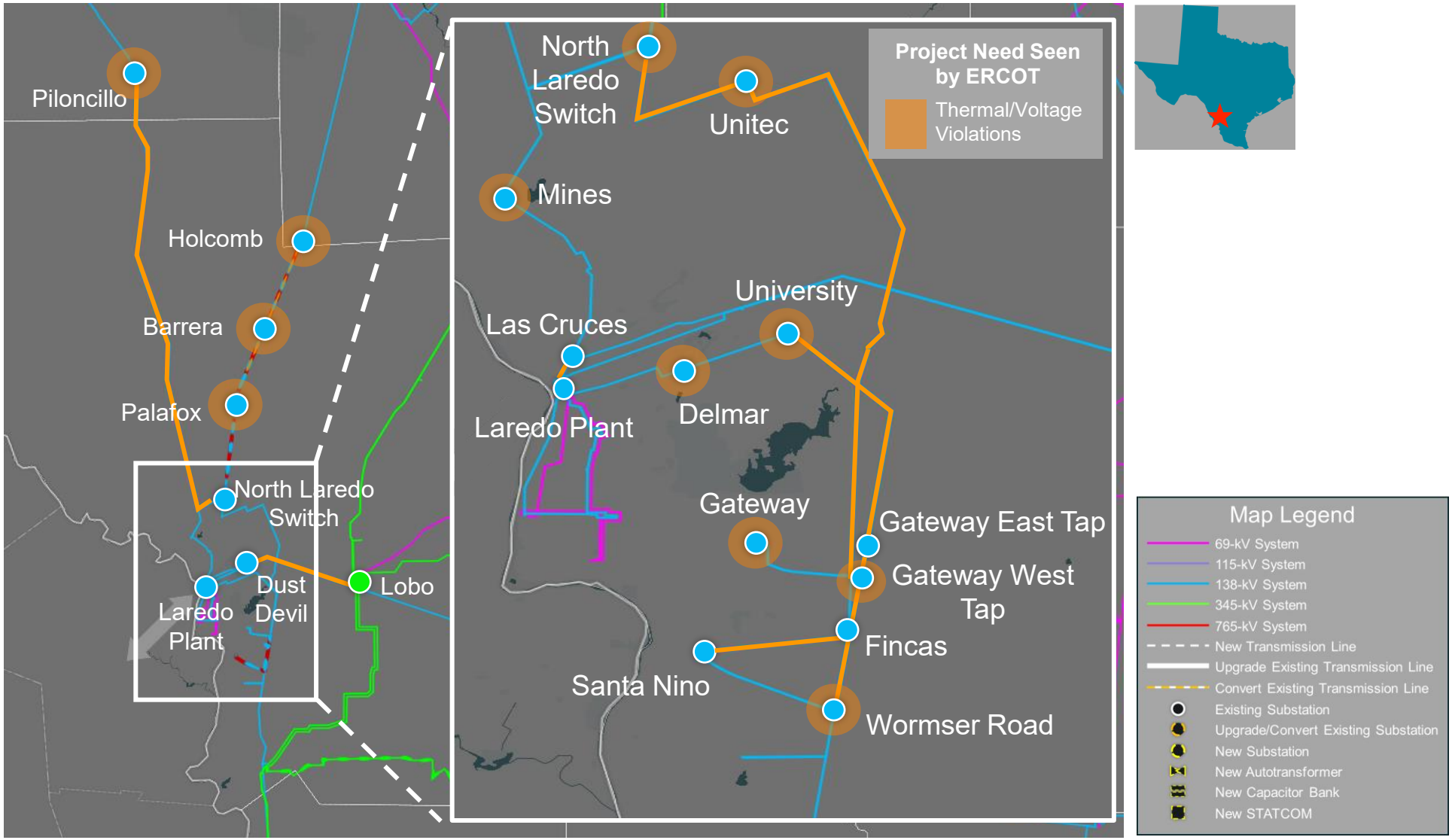
ERCOT conducted steady-state load flow analysis for the study base case according to the NERC Reliability Standard TPL-001-5.1 and ERCOT Planning Criteria to identify the project need

Contingency Category	Thermal Overloads	Voltage Violations	Unsolved Power Flow
P0: N-0	None	None	None
P1, P2-1, P7: N-1	7**	9**	1**
P3: (G-1+N-1)*	10**	20**	6**
P6-2: (X-1+N-1)*	8**	13**	2**

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

** Violations seen in the base case under N-1 events were also seen under (G-1+N-1) and (X-1+N-1) events

Study Area Map with Project Needs Seen by ERCOT



Status Update

Studies performed since the June RPG meeting

- Reliability need analysis of Options
  - N-1, (X-1+N-1) and (G-1+N-1)
- Maintenance Outage Evaluation on short-listed Options

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:

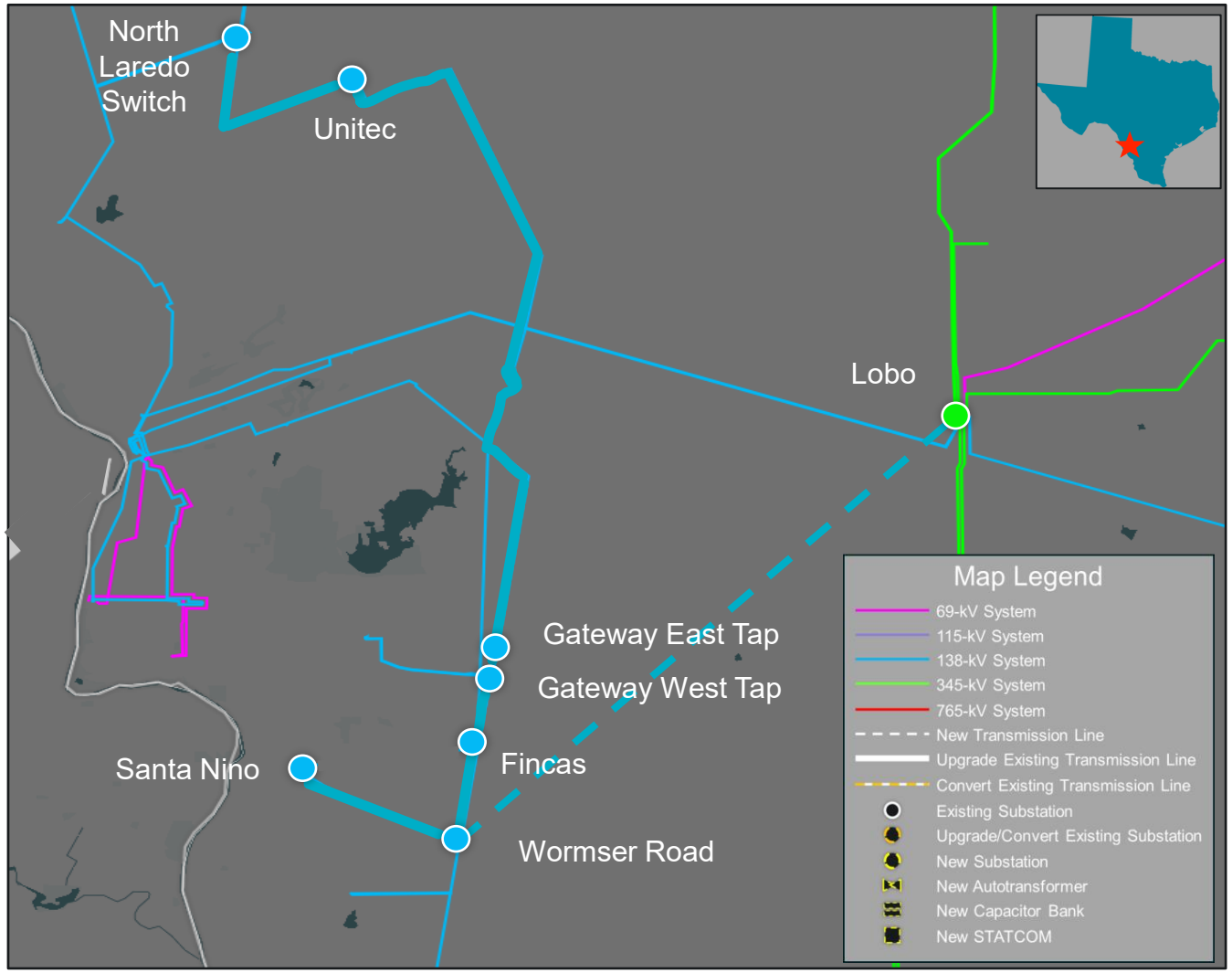
- Option 1 – AEPSC Proposed Project
- Option 1A – ERCOT Alternative Option
- Option 2 – AEPSC Alternative Option
- Option 3 – AEPSC Alternative Option
- Option 4 – ERCOT Alternative Option
- Option 5 – ERCOT Alternative Option
- Option 6 – ERCOT Alternative Option

Option 1 - AEPSC Proposed Option

Option 1 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 single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 3.4 miles
- Rebuild existing Wormser Road to Santo Nino 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 478 MVA, for approximately 3.3 miles
- Rebuild existing Fincas to Santo Nino 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 241 MVA to at least 717 MVA, for approximately 5.7 miles
- Rebuild existing Fincas to Gateway West Tap 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 1.4 miles
- Upgrade seven (7) 138-kV substations as necessary to not limit any of the lines proposed for rebuild

Option 1 - AEPSC Proposed Option (Cont'd)

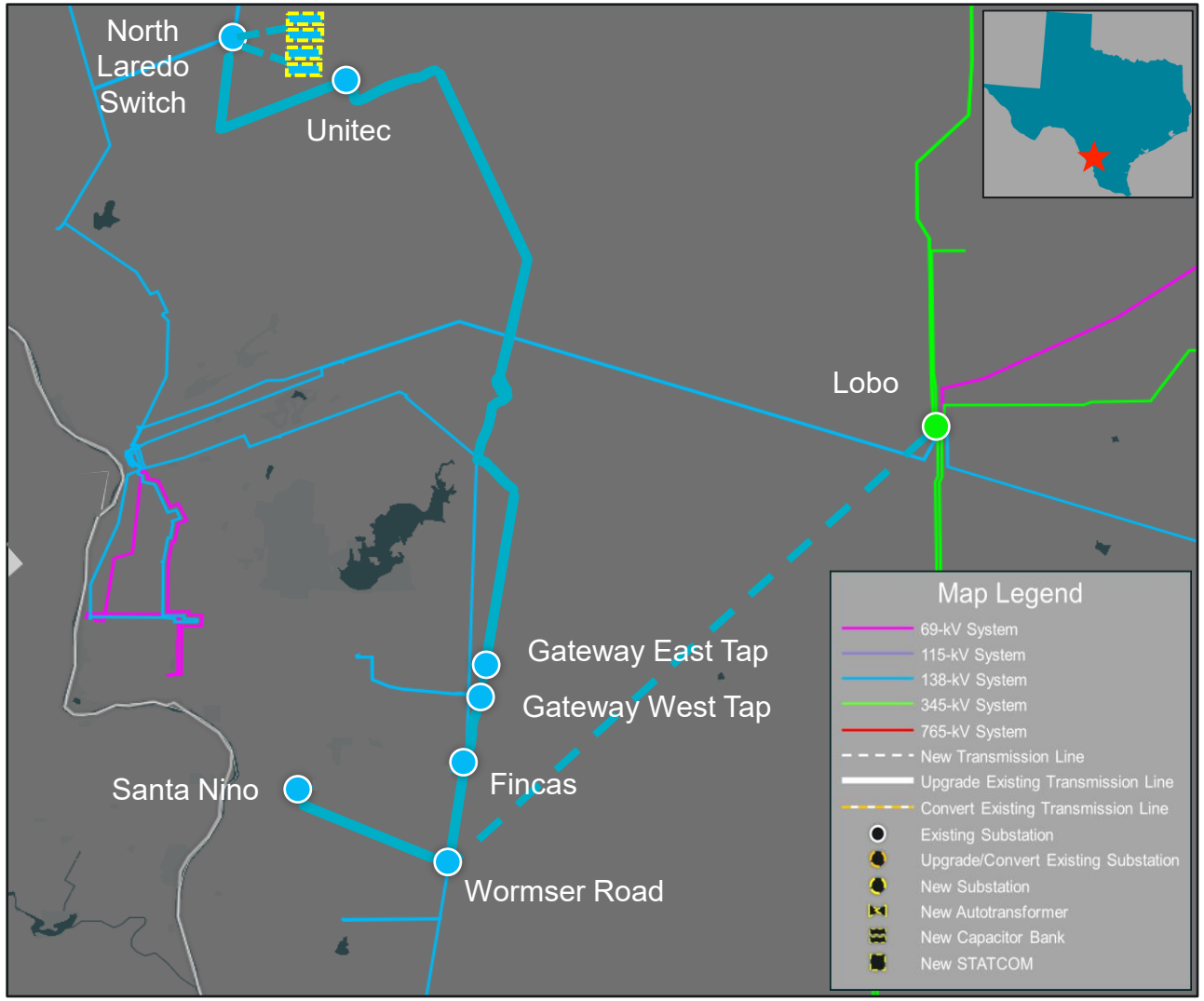


Option 1A - ERCOT Alternate Option

Option 1A 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 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
- 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
- Construct two (2) new terminals at North Laredo Switch 138-kV side to install two (2) 200 MVAr Capacitor bank
- Upgrade seven (7) 138-kV substations as necessary to not limit any of the lines proposed for rebuild

Option 1A - ERCOT Alternative Option (Cont'd)

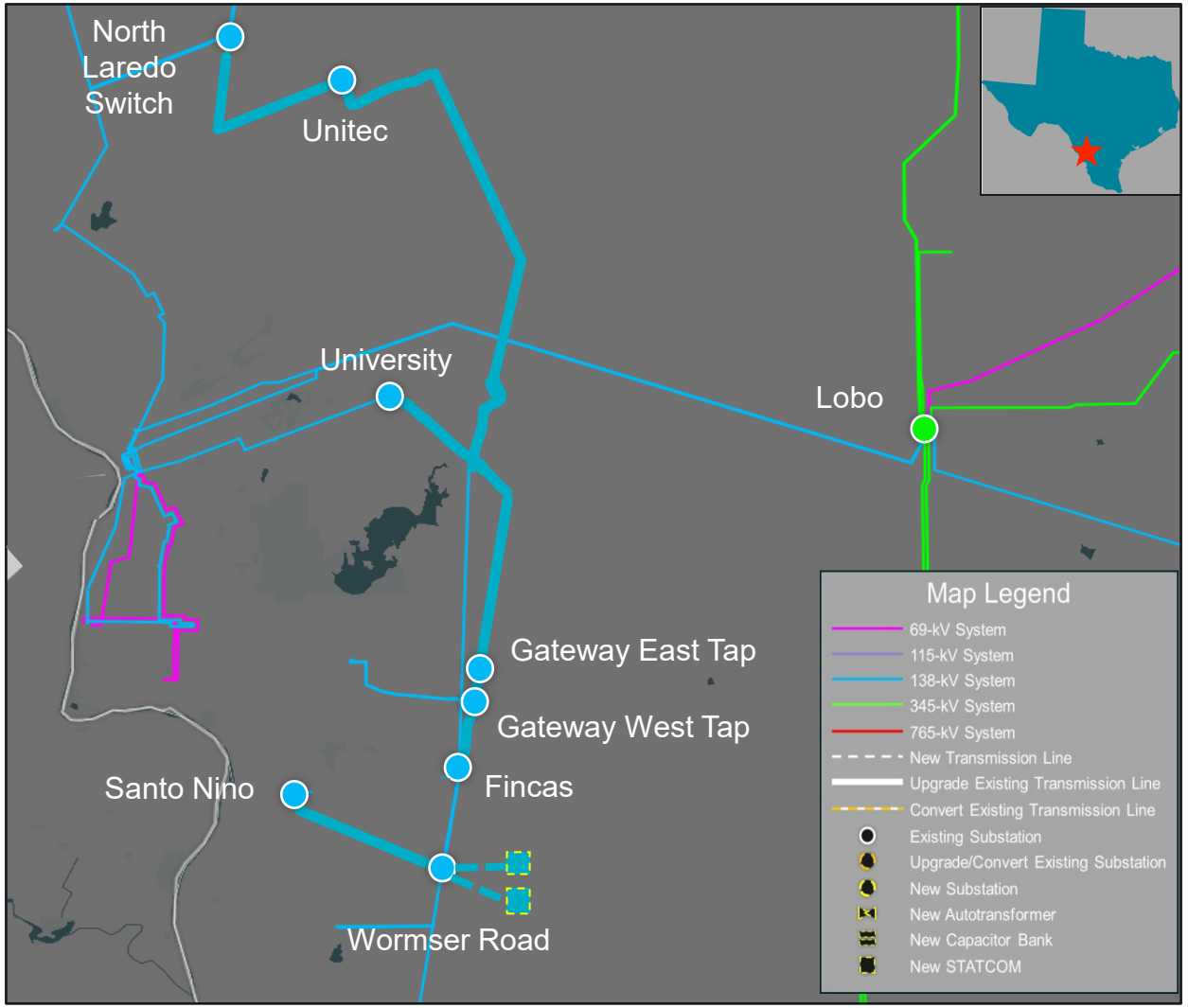


Option 2 - AEPSC Alternative Option

Option 2 Details

- 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 Wormser Road to Santo Nino 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 478 MVA, for approximately 3.3 miles
- Rebuild existing Fincas to Gateway West Tap 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 1.4 miles
- Rebuild existing Gateway West Tap to University 138-kV single-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 6.91 miles
- 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

Option 2 - AEPSC Alternative Option (Cont'd)

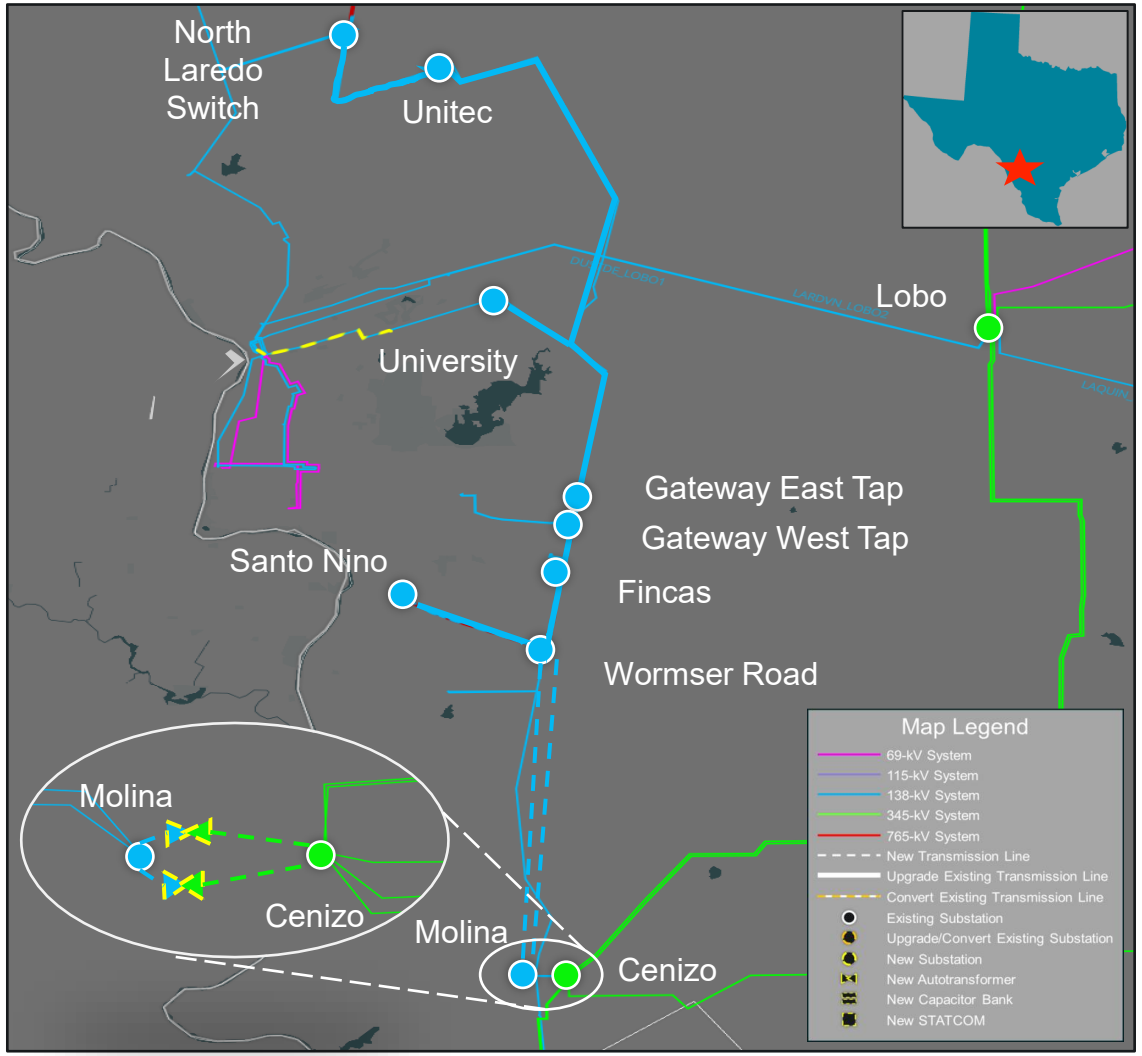


Option 3 - AEPSC Alternative Option

Option 3 Details

- 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 on double circuit structure with both circuit in place, 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 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 single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 3.4 miles
- Rebuild existing Wormser Road to Santo Nino 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 478 MVA, for approximately 3.3 miles
- Rebuild existing Fincas to Santo Nino 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 241 MVA to at least 717 MVA, for approximately 5.7 miles
- Rebuild existing Fincas to Gateway West Tap 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 1.4 miles
- Rebuild existing Gateway West Tap to University 138-kV single-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 6.91 miles
- Upgrade ten (10) 138-kV substations as necessary to not limit any of the lines proposed for rebuild

Option 3 - AEPSC Alternative Option (Cont'd)



Option 4 - ERCOT Alternative Option

Option 4 Details

- Construct one (1) new 345/138-kV auto-transformer with normal and emergency ratings of at least 717 MVA at Lobo substation
- Construct new Lobo to Wormser Road 138-kV single-circuit transmission line on double circuit structure with one circuit in place, which will require new ROW and need CCN, with normal and emergency ratings of at least 717 MVA, for approximately 15 miles
- Construct one (1) new terminal at North Laredo Switch 138-kV side to install one (1) 200 MVAr capacitor bank
- Construct new Laredo Vft North to North Laredo Switch 138-kV single-circuit transmission line on double circuit structure with one circuit in place, which will require new ROW and need CCN, with normal and emergency ratings of at least 717 MVA, for approximately 8.46 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 single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 3.4 miles
- Rebuild existing Wormser Road to Santo Nino 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 478 MVA, for approximately 3.3 miles
- Rebuild existing Fincas to Santo Nino 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 241 MVA to at least 717 MVA, for approximately 5.7 miles
- Rebuild existing Fincas to Gateway West Tap 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 1.4 miles
- Rebuild existing Gateway West Tap to University 138-kV single-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 6.91 miles
- Upgrade nine (9) 138-kV substations as necessary to not limit any of the lines being rebuilt

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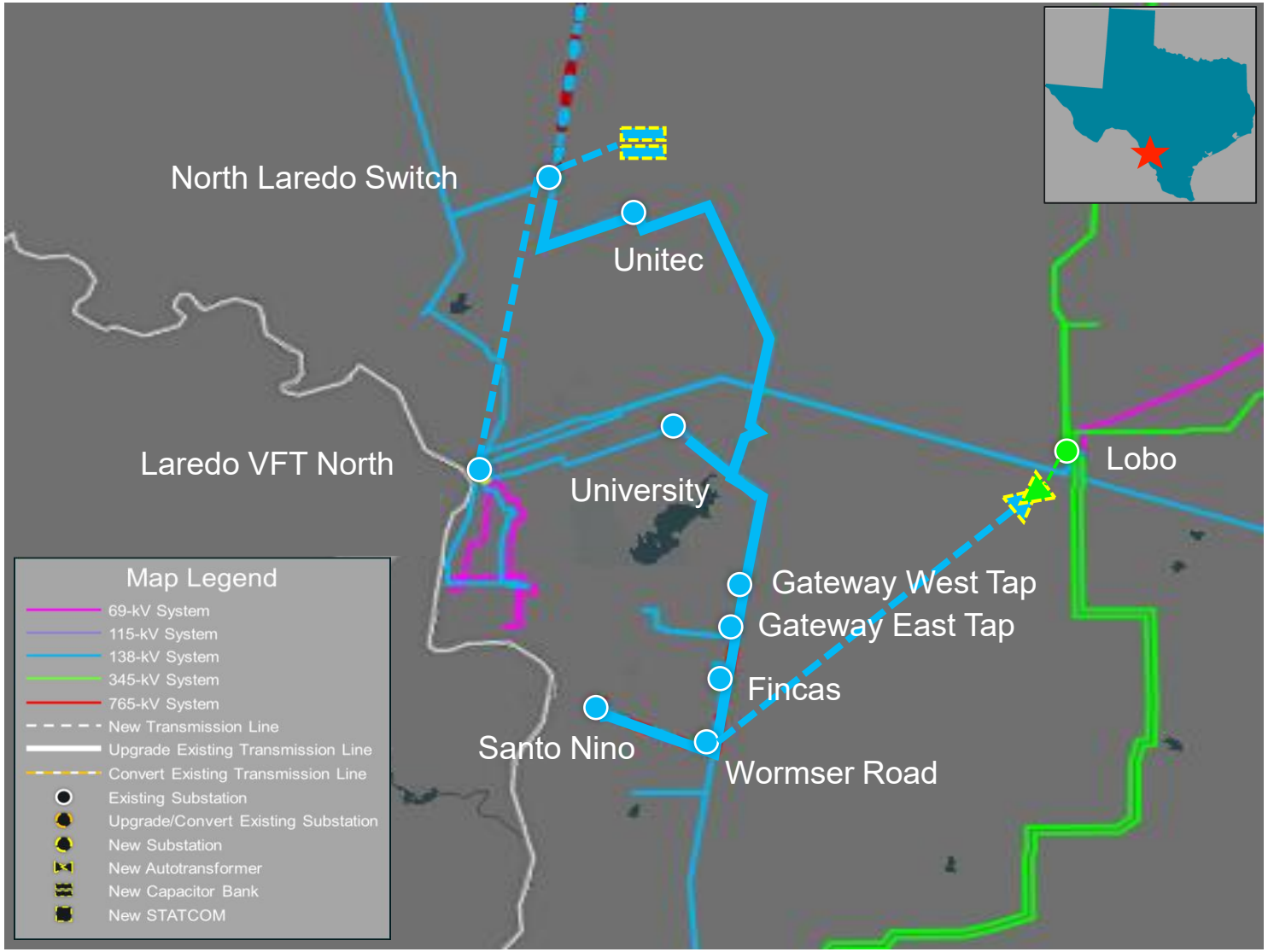
Option 4 - ERCOT Alternative Option (Cont'd)

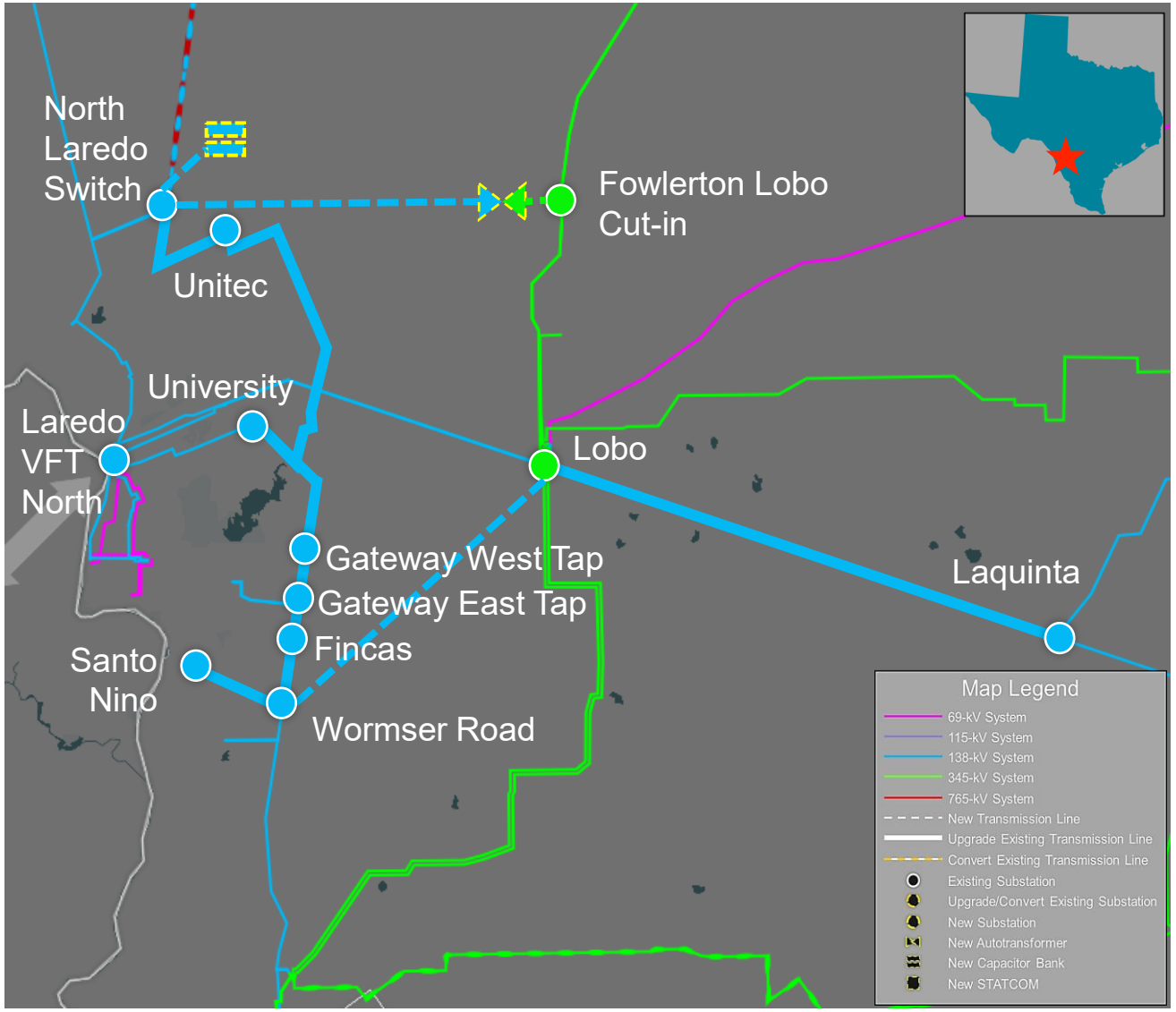


Option 5 - ERCOT Alternative Option

Option 5 Details

- Construct a new substation, cutting in existing 345-kV single-circuit transmission line from Fowlerton to Lobo
- Construct one (1) new 345/138-kV auto-transformer with normal and emergency ratings of at least 717 MVA with its 345-kV termination at Fowlerton to Lobo Cut-in 345-kV substation
- Construct new Fowlerton Lobo Cut-in to North Laredo Switch 138-kV single-circuit transmission line on double circuit structure with one circuit in place, which will require new ROW and need CCN, with normal and emergency ratings of at least 635 MVA, for approximately 16 miles
- Construct new Lobo to Wormser Road 138-kV single-circuit transmission line on double circuit structure with one circuit in place, which will require new ROW and need CCN, with normal and emergency ratings of at least 717 MVA, for approximately 15 miles
- Construct one (1) new terminal at North Laredo Switch 138-kV side to install one (1) 138-kV 200 MVAr capacitor bank
- 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 single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 3.4 miles
- Rebuild existing Wormser Road to Santo Nino 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 478 MVA, for approximately 3.3 miles
- Rebuild existing Fincas to Santo Nino 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 241 MVA to at least 717 MVA, for approximately 5.7 miles
- Rebuild existing Fincas to Gateway West Tap 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 1.4 miles
- Rebuild existing Gateway West Tap to University 138-kV single-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 6.91 miles
- Rebuild existing Lobo to Laquinta 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 238 MVA to at least 717 MVA, for approximately 18.89 miles
- Upgrade nine (9) 138-kV substations as necessary to not limit any of the lines being rebuilt

Option 5 - ERCOT Alternative Option (Cont'd)



Option 6 - ERCOT Alternative Option

Option 6 Details

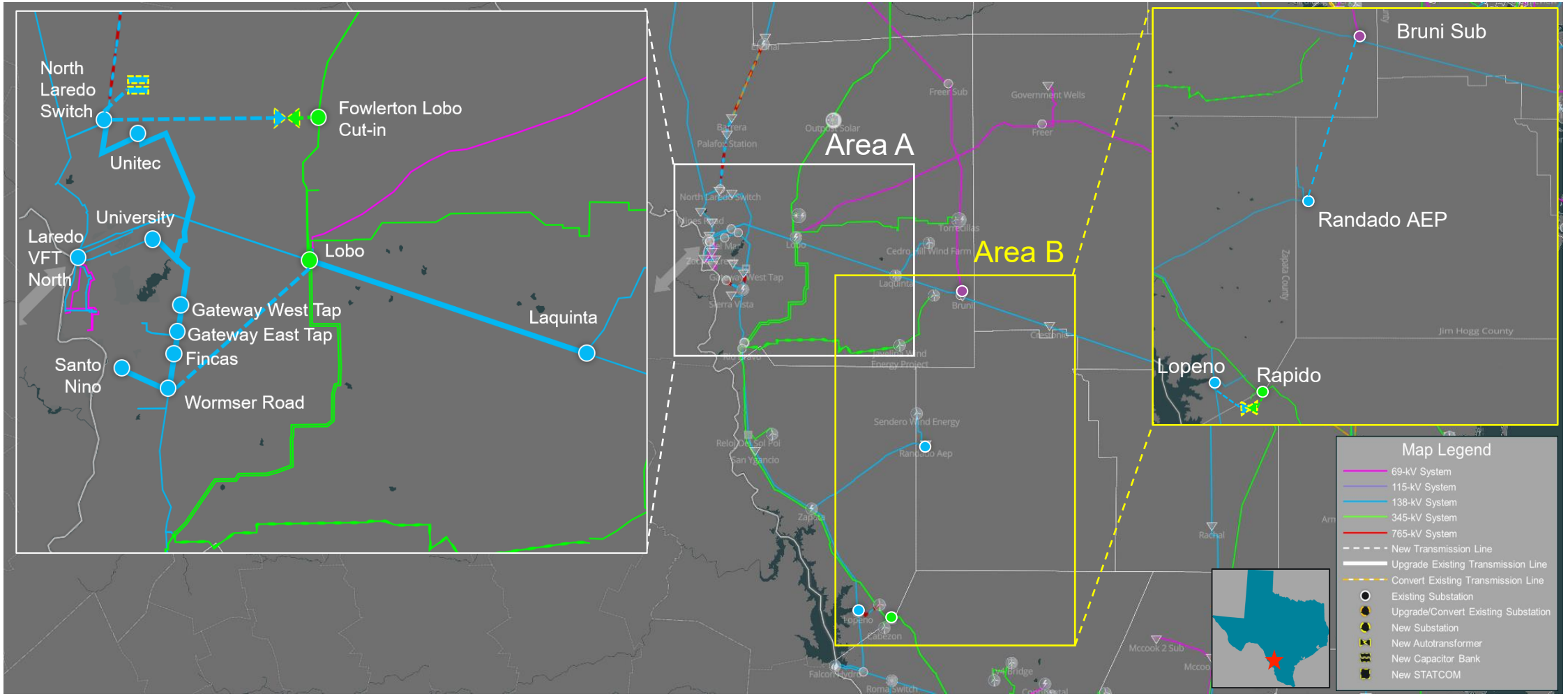
- Construct a new substation, cutting in existing 345-kV single-circuit transmission line from Fowlerton to Lobo
- Construct one (1) new 345/138-kV auto-transformer with normal and emergency ratings of at least 717 MVA with its 345-kV termination at Fowlerton to Lobo Cut-in 345-kV substation
- Construct new Fowlerton Lobo Cut-in to North Laredo Switch 138-kV single-circuit transmission line on double circuit structure with one circuit in place, which will require new ROW and need CCN, with normal and emergency ratings of at least 635 MVA, for approximately 16 miles
- Construct new Lobo to Wormser Road 138-kV single-circuit transmission line on double circuit structure with one circuit in place, which will require new ROW and need CCN, with normal and emergency ratings of at least 717 MVA, for approximately 15 miles
- Construct one (1) new terminal at North Laredo Switch 138-kV side to install one (1) 138-kV 200 MVAr capacitor bank
- Construct new Randado to Bruni Sub 138-kV single-circuit transmission line on double circuit structure with one circuit in place, which will require new ROW and need CCN, with normal and emergency ratings of at least 77 MVA, for approximately 25.17 miles
- Construct one (1) new 345/138-kV auto-transformer with normal and emergency ratings of at least 717 MVA with its 345-kV termination at Rapido 345-kV substation
- Construct new Rapido to Lopeno 138-kV single-circuit transmission line on double circuit structure with one circuit in place, which will require new ROW and need CCN, with normal and emergency ratings of at least 239 MVA, for approximately 7 miles

Option 6 - ERCOT Alternative Option (Cont'd)

Option 6 Details

- 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 single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 3.4 miles
- Rebuild existing Wormser Road to Santo Nino 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 478 MVA, for approximately 3.3 miles
- Rebuild existing Fincas to Santo Nino 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 241 MVA to at least 717 MVA, for approximately 5.7 miles
- Rebuild existing Fincas to Gateway East Tap 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 215 MVA to at least 717 MVA, for approximately 1.4 miles
- Rebuild existing Gateway East Tap to University 138-kV single-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 6.91 miles
- Rebuild existing Lobo to Laquinta 138-kV single-circuit transmission line on double circuit structure and existing ROW, increase the existing normal and emergency ratings of at least 238 MVA to at least 717 MVA, for approximately 18.89 miles
- Upgrade eleven (11) 138-kV substations and one (1) 69-kV substation as necessary to not limit any of the lines being rebuilt

Option 6 - ERCOT Alternative Option (Cont'd)



Preliminary Results of Reliability Assessment – Options

ERCOT conducted steady-state load flow analysis for the all the option cases according to the NERC Reliability Standard TPL-001-5.1 and ERCOT Planning Criteria to evaluate the proposed project and alternatives options

Option	N-1		(G-1+N-1)*		(X-1+N-1)*		Unsolved Power Flow
	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations	Thermal Violations	Voltage Violations	
1	None	4	5	5	2	4	None
1A	None	None	None	None	2	None	None
2	2	5	2	3	3	4	2
3	None	4	3	4	None	4	None
4	None	None	None	None	None	None	None
5	None	None	None	None	None	None	None
6	None	None	None	None	None	None	None

* See Appendix C for the list of generators and transformers being tested for (G-1+N-1) and (X-1+N-1) analyses, respectively

Key Takeaway: Option 4, Option 5, and Option 6 observed no reliability violations and will be short-listed for further evaluation. Option 1A is additionally tested.

Preliminary Results of Maintenance Outage Evaluation on Options

ERCOT conducted planned maintenance outage analyses on the short-listed Options to identify the violations relevant

- 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	Yes	Yes	Yes
1A	Yes	Yes	Yes
4*	-	-	-
5	None	None	None
6	None	None	None

* Option 4 is not tested due to its applicability concern on Lobo substation space constraint

Key Takeaway: No thermal and voltage violations were observed in the N-1-1 analyses in the short-listed options

Deliverables and Next Step

Tentative Timelines

- ERCOT will continue to evaluate the options and the alternatives
  - ERCOT may also perform the following studies
    - 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 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 ENERGY CENTER Unit 4	FOWLERTON 345/138-kV
LAREDO ENERGY CENTER Unit 5	LOBO AUTOTRANSFORMER-A 345/138-KV
FRONTERA ENERGY CENTER COMBINED CYCLE TRAIN	LOBO AUTOTRANSFORMER-B 345/138-KV
SEVEN FLAGS ENERGY STORAGE	FOWLERTON LOBO CUT-IN 345/138-kV (Option 5, Option 6)
	RAPIDO 345/138-kV (Option 6)

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