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South Texas Electric Cooperative (STEC) Southeast Brownsville Large Load Transmission System Improvements Project (25RPG039) – ERCOT Independent Review (EIR) – Status Update

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Regional Planning Group (RPG) Meeting
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Introduction

South Texas Electric Cooperative (STEC) submitted the Southeast Brownsville Large Load Transmission System Improvements Project for Electric Reliability Council of Texas' (ERCOT) Regional Planning Group (RPG) review in November 2025

- This is a Tier 2 project with an estimated cost of approximately $96.35 million and will require a Certificate of Convenience and Necessity (CCN)
- Estimated in-service date (ISD) is June 2028
- This project is needed to address the thermal violations seen by STEC in Cameron County in the South Weather Zone

This project is currently under ERCOT independent Review (EIR)

- STEC presented the project overview at the January 2026 RPG Meeting
- ERCOT presented the EIR scope at the February 2026 RPG Meeting
- ERCOT presented the EIR status update at the March 2026 RPG Meeting

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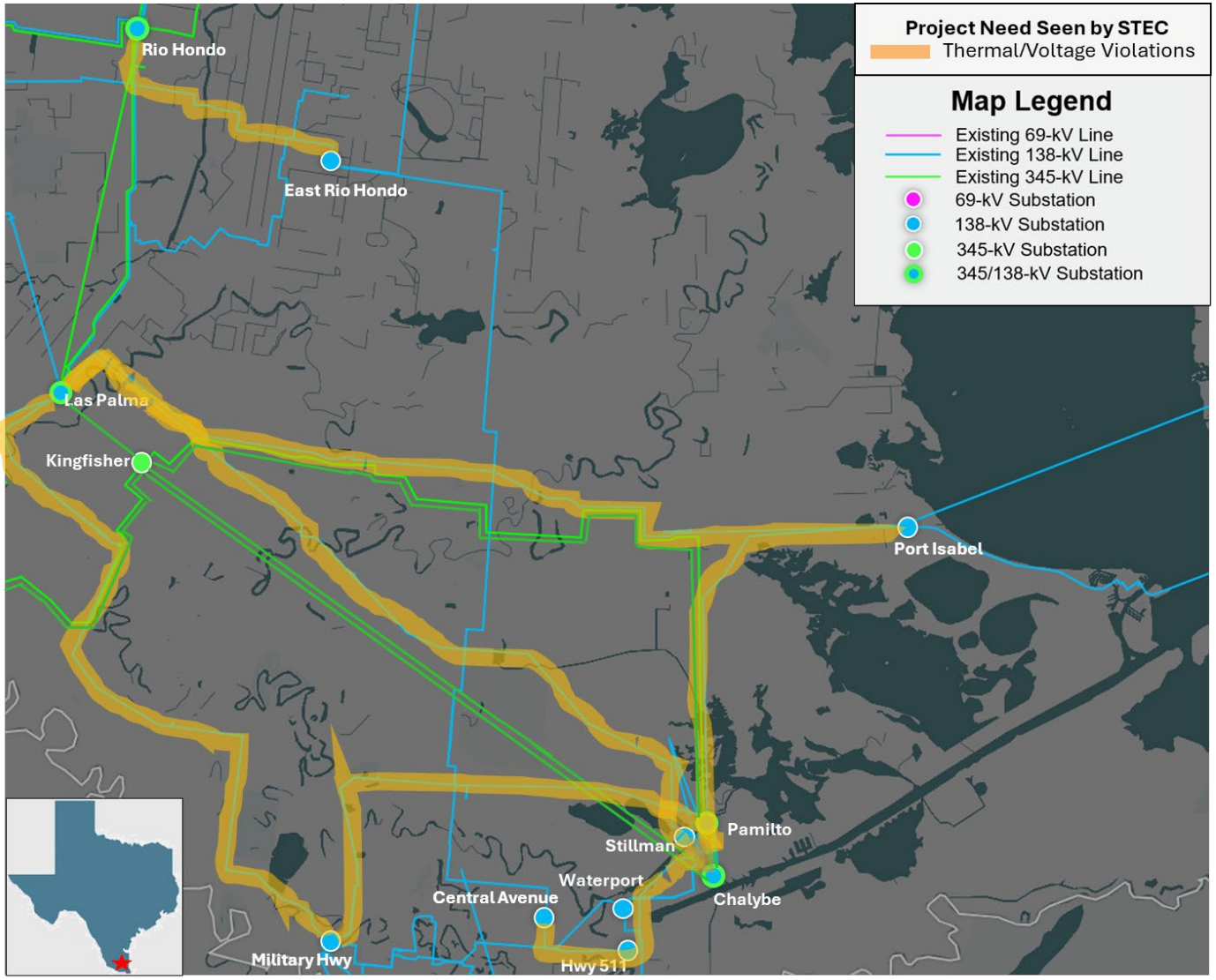
Study Area Map with Project Needs Seen by STEC



Recap: Study Assumption

Study Region

- The project is located in Cameron County in the South Weather Zone and all transmission elements in counties that are electrically close will be monitored

Steady-State Base Case

- Final 2031 Regional Transmission Planning (RTP) 2031 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 A1), based on October 2025 Transmission Project and Information Tracking (TPIT) report and/or recently approved RPG project, will be added to the study base case
- Transmission projects (listed in Appendix A2) identified in the 2025 RTP in the study area that have not been approved by RPG will be removed

Generation Updates

- No new generation, that met ERCOT Planning Guide Section 6.9(1) based on the December 2025 Generator Interconnection Status (GIS) report, were added to the study base case

Load and Reserve Updates

- Load level in the study region was kept consistent with the final RTP cases, and
- Approximately 250 MW of confirmed load in the study region was updated to create the study base case
- The reserve was kept consistent with the 2025 RTP

Recap: 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	1	None	None
P2-1	None	None	None
P3: (G-1+N-1)*	1**	None	None
P6-2: (X-1+N-1)*	1**	None	None
P7	None	None	None
Total	**1**	**None**	**None**

* See Appendix B for list of G-1 generators and X-1 transformers tested
**A violation seen in the base case under P1 events was also seen under G-1+N-1 event

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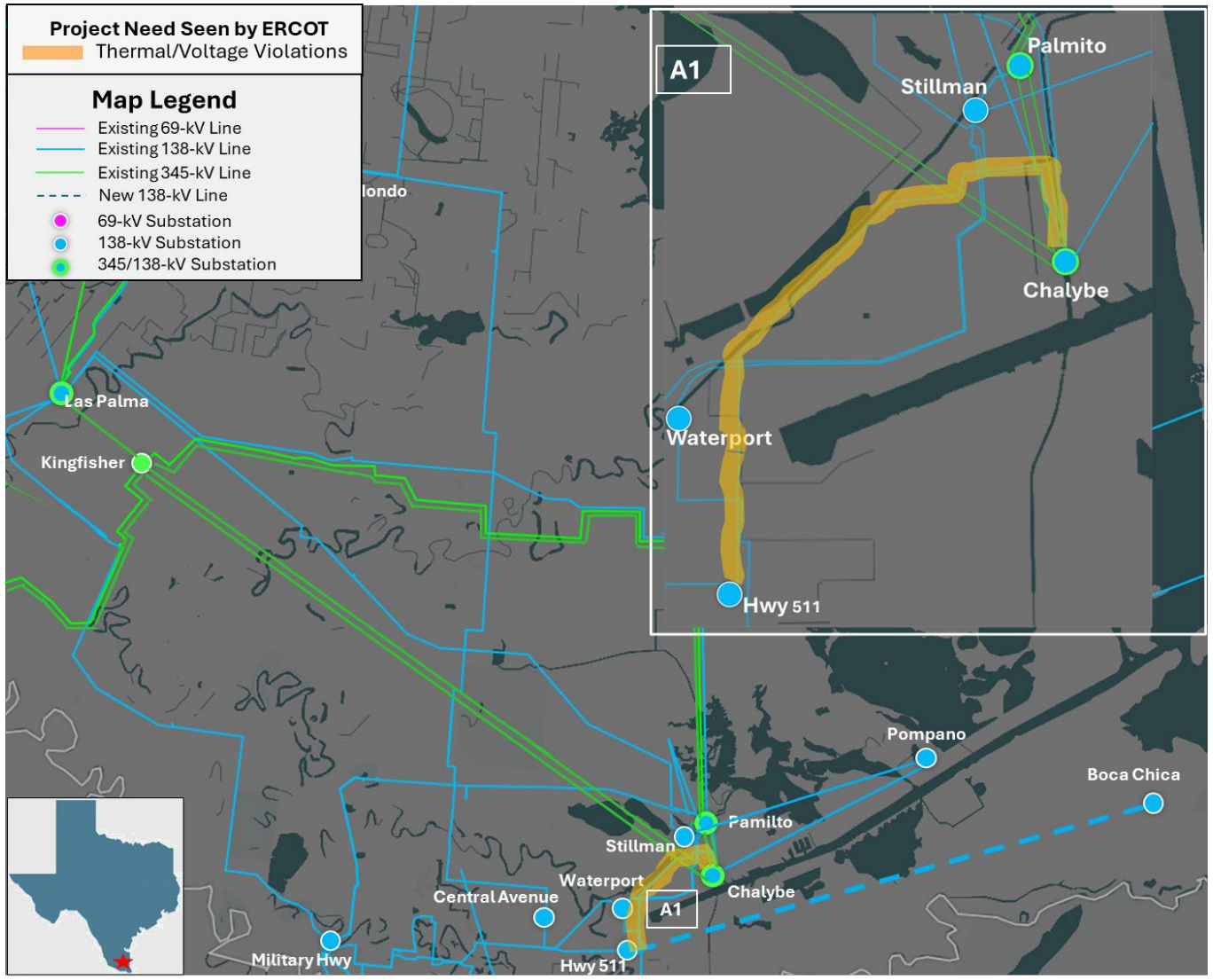
Recap: Study Area Map with Project Need Seen by ERCOT



Recap: List of Options Considered

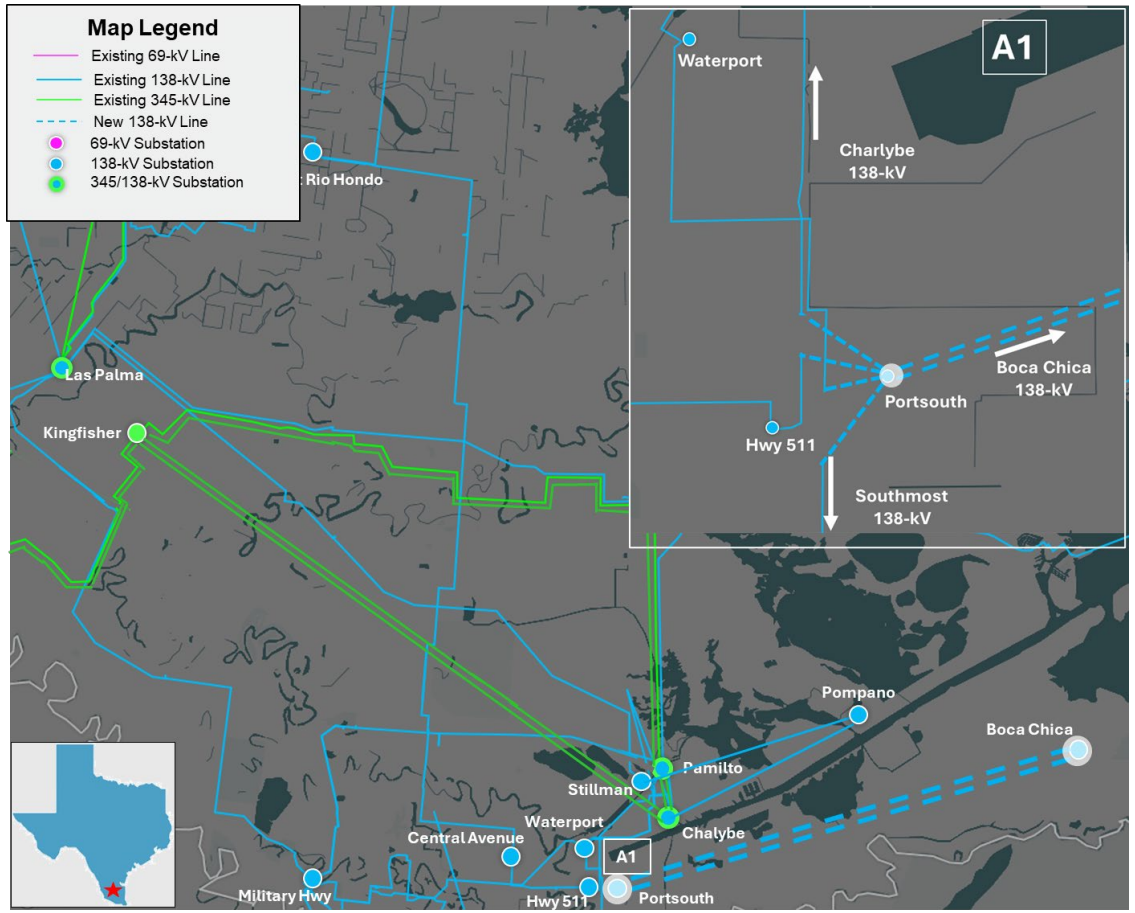
ERCOT evaluated the three (3) options to resolve the reliability violation seen in the study area by ERCOT

- Option 1 – STEC Proposed Project
- Option 2 – STEC Alternative Option
- Option 3 – ERCOT Alternative Option

Recap: Option 1 – STEC Proposed Project

Summary of Upgrades

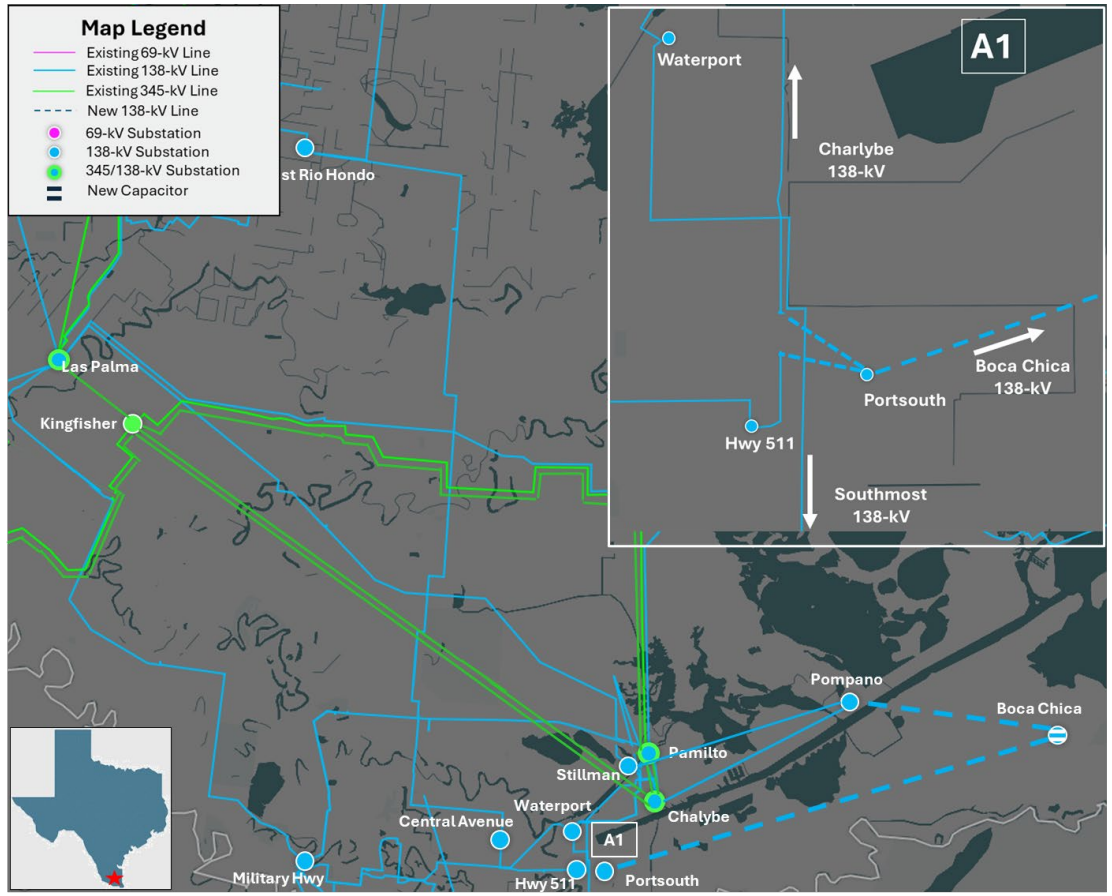
- Construct two (2) new 138-kV substations
- Construct new 138-kV transmission lines, approximately 38.2 circuit miles
- Rebuild existing 138-kV transmission line, approximately 4.45 circuit miles
- Detailed description in Appendix C1



Recap: Option 2 – STEC Alternative Option

Summary of Upgrades

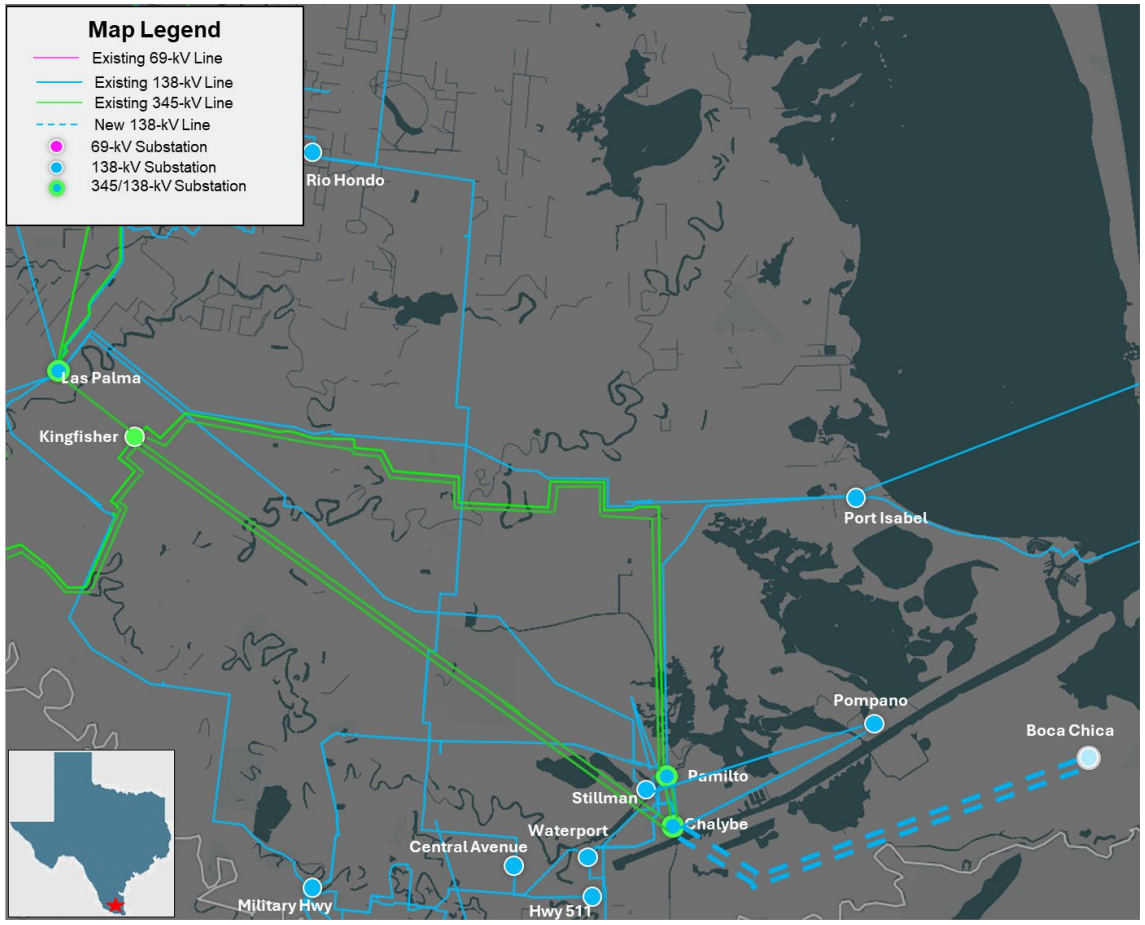
- Construct two (2) new 138-kV substations
- Construct new 138-kV transmission lines, approximately 27.1 circuit miles
- Install one (1) 150 MVAr capacitor bank
- Detailed description in Appendix C2



Recap: Option 3 – ERCOT Proposed Option

Summary of Upgrades

- Construct one (1) new 138-kV substation
- Construct new 138-kV transmission lines, approximately 38.2 circuit miles
- Detailed description in Appendix C3



Recap: Preliminary Results of Reliability Assessment – Options

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

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	None	None	None	None	None	None
2	None	None	None	None	None	None	None
3	None	None	None	None	None	None	None

* See Appendix B for list of G-1 generators and X-1 transformers tested

Key takeaway: No reliability violations were observed in the reliability analyses for Options 1, 2 and 3

EIR Evaluation Status

Analyses performed since the last EIR status update

- Maintenance outage evaluation
- Long-term load-serving capability assessment

Preliminary Results of Maintenance Outage Evaluation

ERCOT conducted maintenance outage analysis on all three (3) options to compare relative performance of the options

- Load level in the South Weather Zone was 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 area, ERCOT tested N-2 contingency combinations, and then tested all applicable contingency violations with system adjustments (N-1-1)

Option	Thermal Violation	Voltage Violation
1	None	None
2	None	None
3	None	None

Key Takeaway: No reliability violations were observed in the N-1-1 analysis for Options 1, 2 and 3

Long-Term Load-Serving Capability Assessment

ERCOT conducted a long-term load-serving capability assessment on all three (3) options to compare relative performance of the options

- Adjusted load up in the study area (Cameron County), excluding non-scalable loads in the area
- Adjusted conforming load down outside of Cameron County to balance power
- Based on N-1 contingency

Option	Incremental Load-Serving Capability (~MW)
1	564
2	274
3	881

Key Takeaway: Option 1 and Option 3 provide a significantly higher additional incremental load-serving capability than Option 2

Deliverables and Next Step

Tentative Timelines

- ERCOT will continue to evaluate proposed upgrades and the alternatives
  - TSP(s) will provide Cost Estimates and Feasibility Assessment
  - Congestion analysis may be performed based on the preferred transmission upgrades to ensure that the identified transmission upgrades do not result in new congestion within the study area
- Provide status updates at the future RPG meetings
- ERCOT recommendation in Q2 2026

Key Takeaway: ERCOT recommendation in Q2 2026

Thank you!

Questions/Comments?

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Appendix

- Appendix A1: Transmission Projects Added
- Appendix A2: Transmission Projects Removed
- Appendix B: G-1 Generators and X-1 Transformers List
- Appendix C1: Details of Option 1 (Project Proposed by STEC)
- Appendix C2: Details of Option 2 (STEC Alternative Option)
- Appendix C3: Details of Option 3 (ERCOT Alternative Option)

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Appendix A1: Transmission Projects Added

RPG/TPIT No	Project Name	Tier	Project ISD	From County
80466	Oleander: Construct New 138 kV Terminal	Tier 4	5/1/2026	Cameron
100054	Luna to Mesquite: Rebuild 138 kV Line	Tier 4	12/1/2027	Cameron

Appendix A2: Transmission Projects Removed

Project ID	Project Name	County(s)
2025-S06	North Edinburg Area 138-kV Line Upgrades	Cameron, Hidalgo
2025-S01	* Brownsville Area 345-kV and 138-kV Line Additions and Upgrades	Cameron

* Portion of 2025-S01 not covered by AEP Brownsville Area Improvements

Appendix B: G-1 Generators and X-1 Transformers List for Analyses

Generator	Transformer
San Roman Wind	Chalybe 345/138-kV
Chalupa Wind	Palmito 345/138-kV
Camwind WInd	La Palma 345/138-kV
Silas Ray (entire train)	Rio Hondo 345/138-kV
Silas Ray (1 gas, half steam): CTG 9 and STG 6	
Silas Ray CTG 10	
Magic Valley Station (entire train)	
Magic Valley Station CTG 1	
Los Vientos Wind I	

Appendix C1: Details of Option 1 (Project Proposed by STEC)

Option 1 Details

- Construct a new Portsouth 138-kV substation with six terminals;
- Hairpin the new Portsouth 138-kV substation onto the existing Hwy511 to South Carbide (Chalybe) 138-kV transmission line using single-circuit structures;
- Hairpin the new Portsouth 138-kV substation onto the existing Waterport to Southmost 138-kV transmission line using single-circuit structures;
- Construct a new Boca Chica 138-kV substation with six terminals as a Gas-Insulated substation;
- Construct a new Portsouth to Boca Chica 138-kV double-circuit transmission line using double-circuit structures, with normal and emergency ratings of at least 478 MVA and 485 MVA respectively, on a new right of way (ROW), approximately 19.1 miles; and
- Rebuild the existing South Carbide (Chalybe) to Portsouth to Hwy511 138-kV transmission line segments using single-circuit structures with normal and emergency ratings of at least 478 MVA and 485 MVA respectively, approximately 4.45 miles.

Appendix C2: Details of Option 2 (STEC Alternative Option)

Option 2 Details

- Construct a new Portsouth 138-kV substation with six terminals;
- Hairpin the new Portsouth 138-kV substation onto the existing Hwy511 to South Carbide (Chalybe) 138-kV transmission line using single-circuit structures;
- Construct a new Boca Chica 138-kV substation with six terminals as a Gas-Insulated substation;
- Construct a new Portsouth to Boca Chica 138-kV single-circuit transmission line, with normal and emergency ratings of at least 478 MVA and 485 MVA respectively, on a new ROW, approximately 19.1 miles;
- Construct a new Pompano to Boca Chica 138-kV single-circuit transmission line, with normal and emergency ratings of at least 478 MVA and 485 MVA respectively, on a new ROW, approximately 8.0 miles; and
- Install 150 MVAr cap bank at the Boca Chica 138-kV substation

Appendix C3: Details of Option 3 (ERCOT Alternative Option)

Option 3 Details

- Construct a new Boca Chica 138-kV substation with six terminals as a Gas-Insulated substation; and
- Construct a new Chalybe to Boca Chica 138-kV double-circuit transmission line using double-circuit structures, with normal and emergency ratings of at least 478 MVA and 485 MVA respectively, on a new ROW, approximately 13.7 miles.