



Brownsville Area Improvements Transmission Project – ERCOT Independent Review Scope

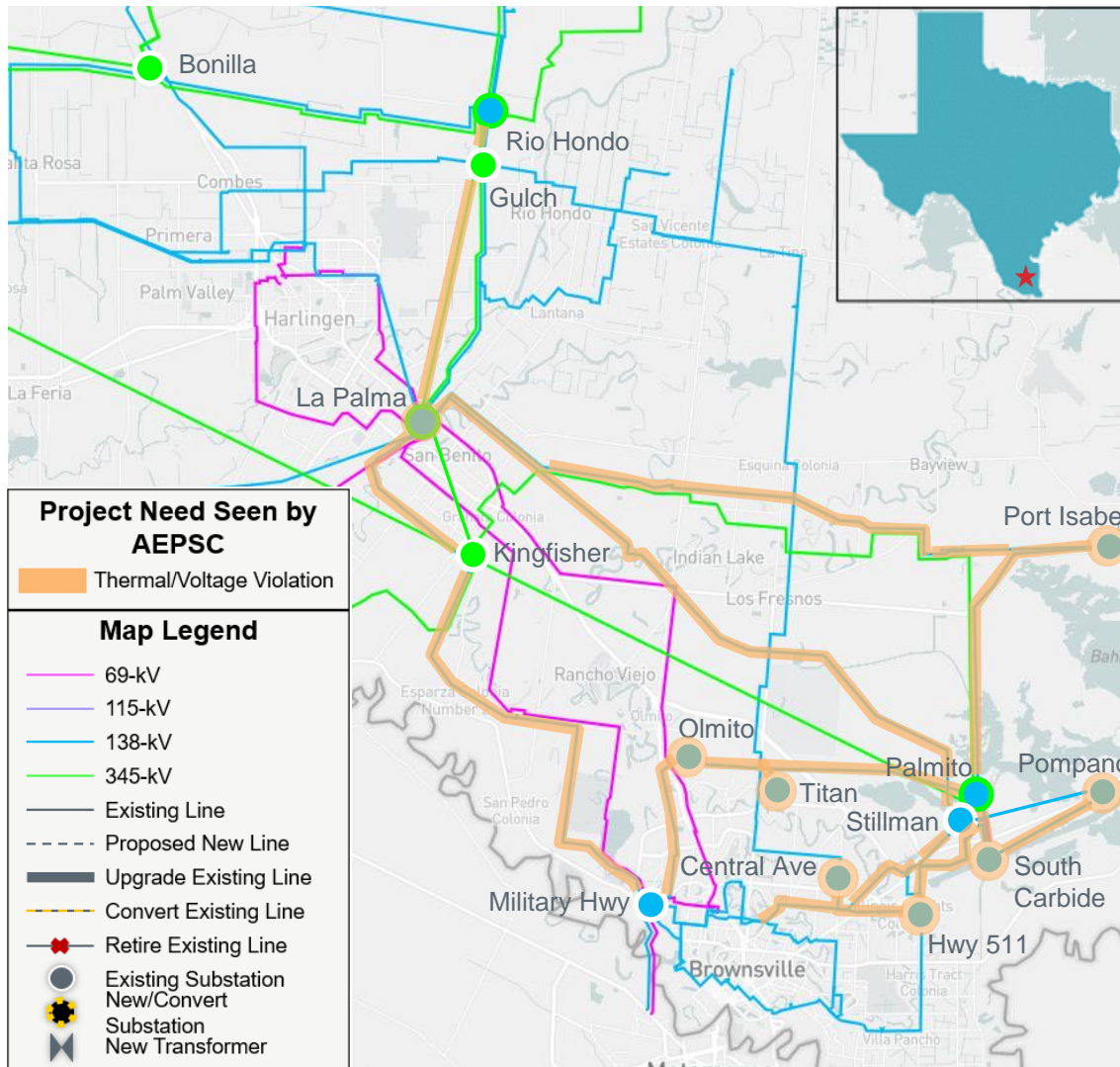
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RPG Meeting
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Introduction

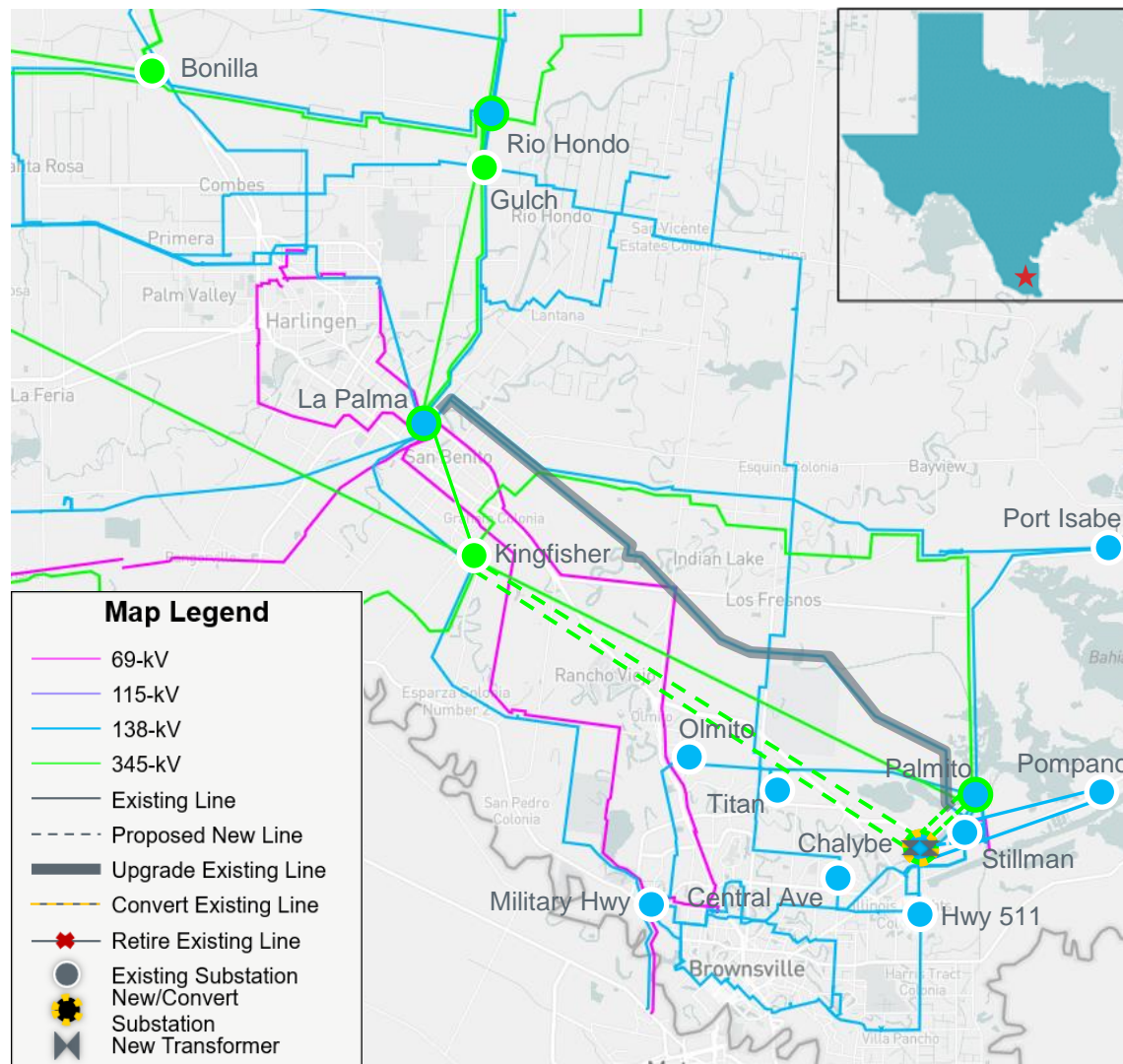
- American Electric Power Service Corporation (AEPSC) submitted the Brownsville Area Improvements Transmission Project for Regional Planning Group (RPG) review in March 2024
 - This Tier 1 project is estimated to cost \$387.7 million and will require a Certificate of Convenience and Necessity (CCN)
 - Estimated in-service date is May 2027
 - Addresses both thermal overloads and voltage violations in the Brownsville area upon addition of new large load
- This project is currently under ERCOT Independent Review (EIR)

Study Area Map with Violations Seen by AEPSC



Proposed Project by AEPSC

- Install two 675-MVA 345/138-kV autotransformers at Chalybe
- Construct a new 22-mile 345-kV double circuit transmission line from Chalybe to Kingfisher rated 2668 MVA
- Construct a new 2-mile 345-kV double circuit transmission line from Chalybe to Palmito rated 2668 MVA
- Construct a new 2-mile 138-kV single circuit transmission line from Chalybe to Stillman rated 987 MVA
- Rebuild the 22-mile 138-kV double circuit transmission line from La Palma to Stillman rated 717 MVA
- Install a +/-300 MVAR STATCOM at Chalybe



Study Assumptions – Base Case

- Study Region
 - South Weather Zone, focusing on the transmission elements near the Brownsville Area in Cameron County
 - Monitor surrounding counties that are electrically close to the area
- Steady-State Base Case
 - Final 2023 Regional Transmission Planning (RTP) 2028 summer peak case for South-South Central (SSC) Weather Zones, posted in Market Information System (MIS), will be updated to construct the summer peak load study base case
 - Case: 2023RTP_2028_SUM_SSC_12222023
 - Link: <https://mis.ercot.com/secure/data-products/grid/regional-planning>

Study Assumption - Transmission

- Based on the February 2024 Transmission Project and Information Tracking (TPIT) posted on MIS, projects with in-service dates before the end of May 2027 within the study area will be 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 a list of transmission projects added

Study Assumptions – Generation

- New generation that met Planning Guide Section 6.9(1) condition with Commercial Operation Date (COD) before the end of May 2027 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 the February 2024 Generator Interconnection Status (GIS) report posted in MIS in March 2024
 - GIS Link: <https://www.ercot.com/gridinfo/resource>
 - See Appendix B for a list of generation projects added
- 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 case

Study Assumptions – Load & Reserve

- Load in study area
 - 650 MW of contracted load will be added in the South Weather Zone
 - All other load levels are consistent with the 2023 RTP
- Reserve
 - Load outside of the study Weather Zone 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 (EHV only)
 - P3: G-1+N-1 (G-1: Silas Ray Unit C9, Cameron Wind Unit 1, San Roman Wind Unit 1, North Edinburg Unit 1)
 - P6: X-1+N-1 (X-1: 345/138-kV transformers at Palmito, La Palma, and Rio Hondo)
- 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 Brownsville and surrounding 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
 - Dynamic stability impact
- Generation 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 future RPG meetings
 - Final recommendation – Q3 2024

Thank you!



Stakeholder comments also welcomed through:

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Appendix A – Transmission Projects Added to Study Case

TPIT No	Project Name	Tier	Project ISD	TSP	County
69463	AEP_TCC_ArroyoInterconnection	Tier 4	Nov-24	AEP TCC	Cameron
73061	Falfurrias to King Ranch: 138 kV Line Rebuild	Tier 4	Nov-26	AEP TCC	Brooks
73359	Vertrees: Construct New Distribution Station	Tier 4	Feb-25	AEP TCC	Hidalgo
73661	New transformer (T2) at BPUB Palo Alto Substation	Tier 4	Mar-24	BPUB	Cameron
76082	Union Carbide: Rebuild 138 kV Station	Tier 4	Jun-26	AEP TCC	Cameron
76214	North Edinburg: 345 kV Reconfigure	Tier 4	Oct-24	AEP TCC	Hidalgo
76574	TexasAg Wind Interconnection	Tier 4	May-25	AEP TCC	Hidalgo
77144	Pompano: New 138 kV Station	Tier 4	Jul-24	AEP TCC	Cameron

Appendix B – Generation Added to Study Case

GINR	Project Name	Fuel	Project COD	Capacity (MW)	County
19INR0054	Monte Cristo 1 Wind	WIN	08/20/2025	234.5	Hidalgo
24INR0436	Carambola BESS	OTH	05/31/2026	97.43	Hidalgo