AEPSC Childress Area Transmission Improvement Project – ERCOT Independent Review Scope

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RPG Meeting
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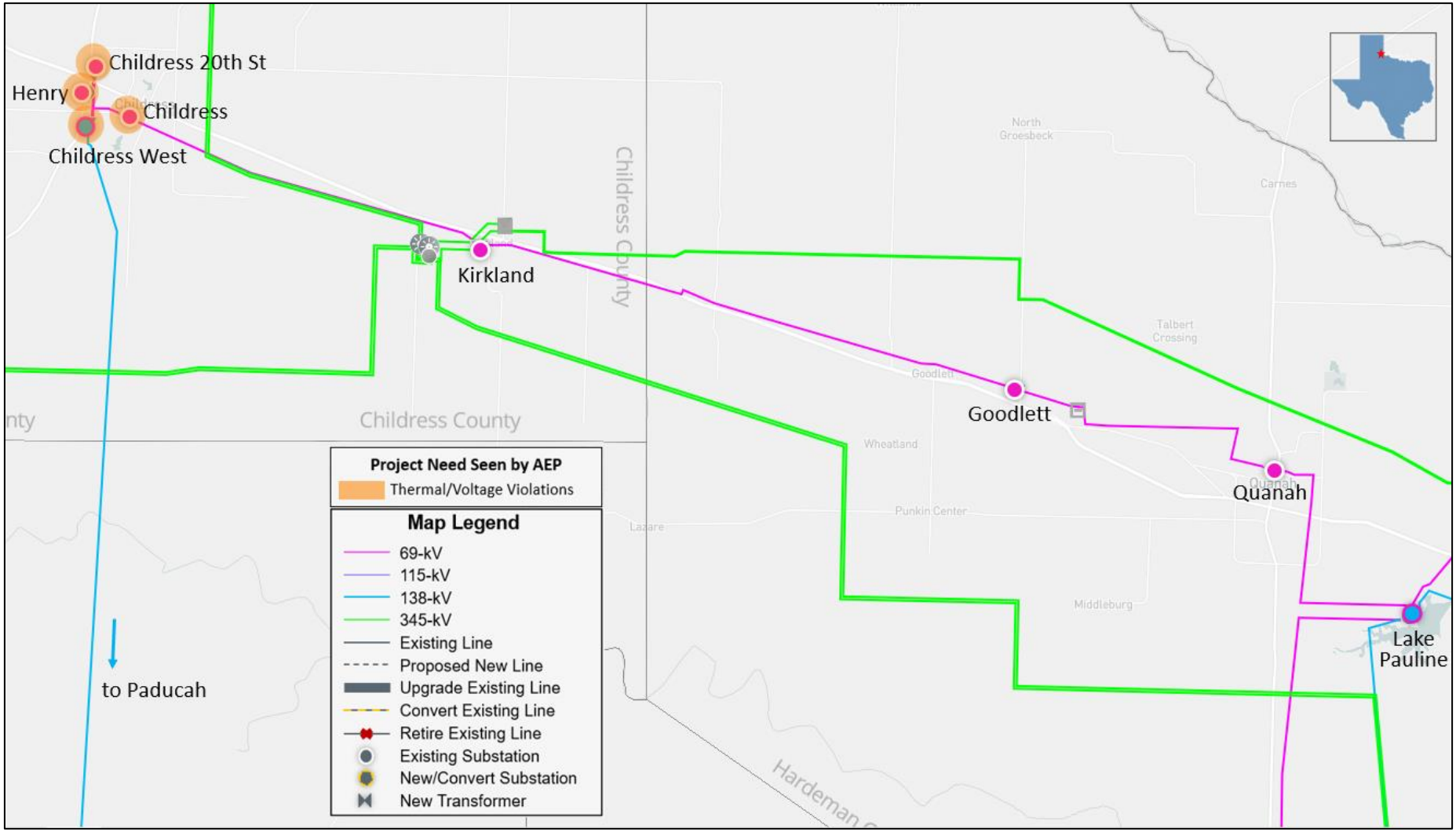
Introduction

- American Electric Power Service Corporation (AEPSC) submitted the Childress Area Transmission Improvement Project for Regional Planning Group (RPG) review in June 2025
  - This Tier 2 project is estimated to cost $53.0 million and will require a Certificate of Convenience and Necessity (CCN) filing
  - Estimated in-service date (ISD) is November 2031
  - Addresses the voltage violations under planned maintenance outage condition due to projected load increase in the Childress County in the North weather zone
- This project is currently under ERCOT Independent Review (EIR)

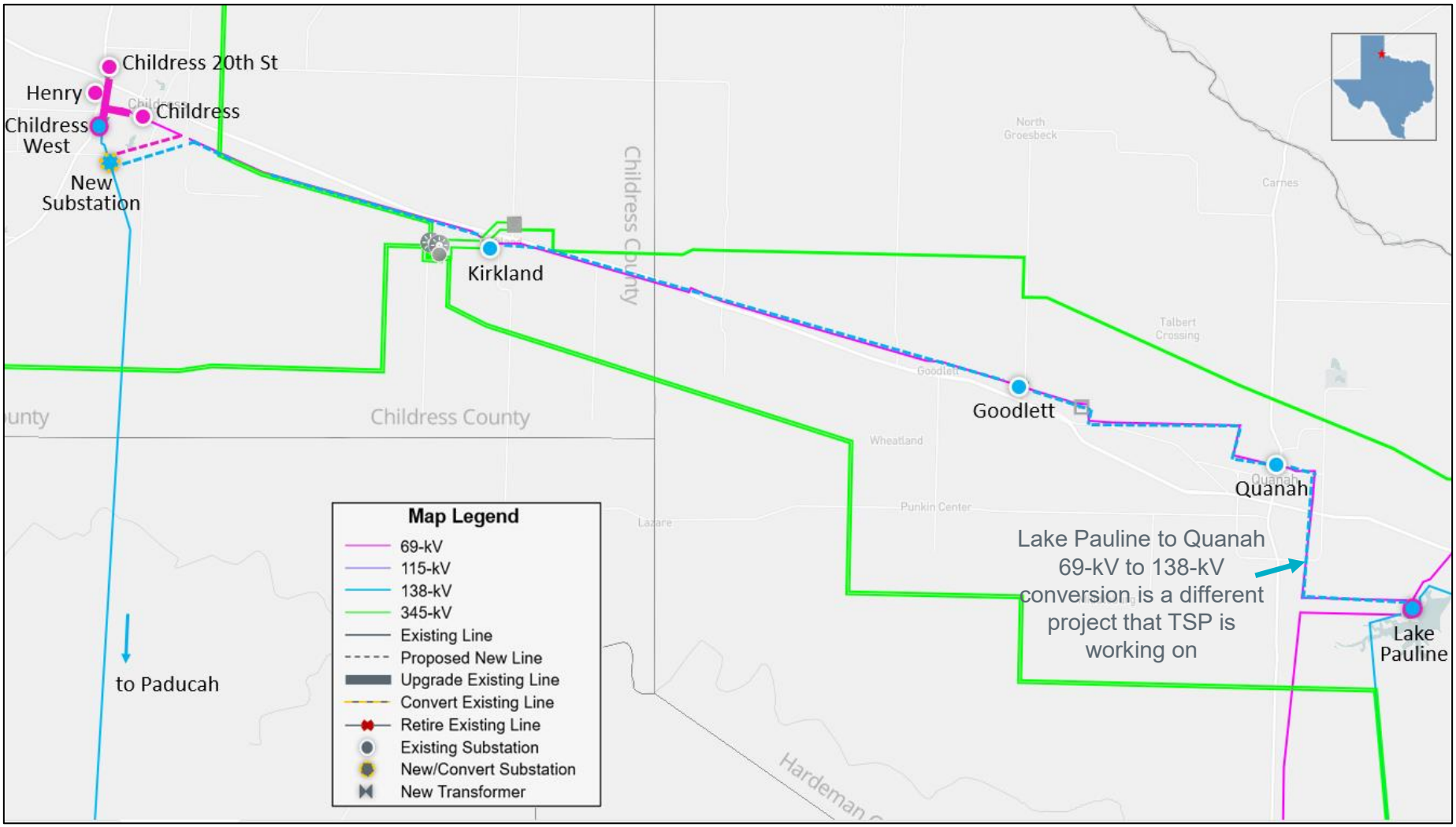
Study Area Map with Violations Seen by AEPSC



Project Proposed by AEPSC

- Construct a new 138/69-kV substation (New Substation) by cutting into the existing West Childress to Paducah 138-kV line
  - Install one 138/69-kV transformer with normal and emergency rating of at least 90 MVA
  - The 138-kV substation will have a ring bus design
  - The 69-kV substation will have a single bus design
- Loop the Childress to Quanah 69-kV line between the Childress to Kirkland substations into the New Substation
  - Construct two new transmission lines (one 69-kV line with normal and emergency ratings of 52/67 MVA and one 138-kV line with normal and emergency ratings of 278/408 MVA) on double-circuit structures from the cut-ins to the New Substation, approximately 3.5 miles
  - New right of way (ROW) and a CCN will be required for the approximately 3.5-mile double-circuit lines
- Convert the existing 69-kV line and tap stations between the New Substation and Quanah to 138-kV
  - New ROW will be required for the approximately 0.8-mile spans outside of Kirkland substation
  - The converted 138-kV line of Quanah to Goodlett to Kirland to New Substation will have normal and emergency ratings of 278/408 MVA
- Rebuild the existing Childress to West Childress 69-kV lines and tap stations
  - The Childress to Childress 20th St Tap to West Childress 69-kV line will have normal and emergency ratings 122/176 MVA
  - The Childress 20th St Tap to Childress 20th St 69-kV line will have normal and emergency ratings 122/173 MVA

Project Proposed by AEPSC



Study Assumptions – Base Case

- Study Region
  - North Weather Zone, focusing on the transmission elements in the Childress and surrounding counties
- Steady-State Base Case
  - Final 2024 Regional Transmission Planning (RTP) 2030 summer peak and maintenance outage cases, posted in Market Information System (MIS), will be updated to construct the summer peak load and planned maintenance outage study base cases
    - Summer Peak Case: 2024RTP_2030_SUM_12202024
    - Planned Maintenance Case: 2024RTP_2030_MaintenanceOutage_12202024
    - Link: https://mis.ercot.com/secure/data-products/grid/regional-planning

Study Assumptions – Transmission

- Based on the February 2025 Transmission Project and Information Tracking (TPIT) posted on ERCOT website, projects with in-service dates on or before June 2030 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 the list of transmission projects to be added
- Transmission projects identified in the 2024 RTP as placeholder projects related to this RPG project will be removed to develop the study base case
  - See appendix B for the list of transmission projects to be removed

Study Assumptions – Generation

- New generation that met Planning Guide Section 6.9(1) condition with Commercial Operation Date (COD) before June 2030 in the study area at the time of the study, but not already modeled in the RTP case, will be added to the study base case based on the June 2025 Generator Interconnection Status (GIS) report posted on the ERCOT website in July 2025
  - GIS Link: https://www.ercot.com/gridinfo/resource
  - See appendix C for the list of generation projects to be added
- All generation will be dispatched consistent with the 2024 RTP methodology
- All recent retired/indefinitely mothballed units will be reviewed and turned off, if not already reflected in the 2024 RTP Final case

Study Assumptions – Load & Reserve

- Load in study area
  - Loads will be maintained to be consistent with 2024 RTP
- Reserve
  - No load scale down would be needed to maintain the reserve consistent with the 2024 RTP

Contingencies and Criteria

- Contingencies
  - NERC TPL-001-5.1 and ERCOT Planning Criteria
  - Link: https://www.ercot.com/mktrules/guides/planning/current
    - P0 (System Intact)
    - P1, P2-1, P7 (N-1 condition)
    - P2-2, P2-3, P4, and P5 (345-kV only)
    - P3 (G-1+N-1: G-1 Whirlwind)
    - P6-2 (X-1+N-1: X-1 of Oklaunion 345/138-kV transformer)
- Criteria
  - Monitor all 69-kV and above buses, transmission lines, and transformers in the study area (excluding generator step-up transformers)
  - Thermal
    - Use Rate A for pre-contingency conditions
    - Use Rate B for post-contingency conditions
  - Voltage
    - Voltages exceeding their pre-contingency and post-contingency limits
    - Voltage deviations exceeding 8% on non-radial load busses

Study Procedure

- Need Analysis
  - The reliability analysis will be performed to identify the need to serve the projected 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 study:
    - Planned maintenance outage
    - Long-Term Load-Serving Capability Assessment
  - The TSP will provide the Cost Estimate and Feasibility Assessment
- 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

Next Steps and Tentative Timeline

- Tentative Timelines
  - Status updates at future RPG meetings
  - Final recommendation – Q4 2025

Thank you!

Stakeholder comments also welcomed through:

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Appendix A – Transmission Projects

- List of transmission projects to be added to study base case

RPG/TPIT No	Project Name	Tier	Project ISD	From County
81215	Oklaunion: Reconfigure 138 kV Station	Tier 4	May-26	Wilbarger
90002	Salvare: Install New 345 kV Capacitor Bank	Tier 4	May-26	Childress

Appendix B – Transmission Projects

- List of transmission projects to be removed from the study base case

RTP Project ID	Project Name	County
2024-N01	Childress West (6030/6028) 138/69-kV Transformer Upgrade and Cap Bank Addition	Childress
2024-N02	Lake Pauline (6050/6048) 138/69-kV Transformer Upgrade	Hardeman

Appendix C – New Generation Projects to Add

GINR	Project Name	Fuel	Projected COD	Capacity (~MW)	County
25INR0672	Fagus Solar Park 2 SLF	SOL	10/03/2025	166.6	Childress
26INR0524	Fagus Solar Park 3 SLF	SOL	04/01/2026	186.8	Childress