



**Oncor and LCRA TSC Hartring to Upland  
138-kV Line and Benedum  
Autotransformer Addition Project –  
ERCOT Independent Review Study Scope**

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RPG Meeting  
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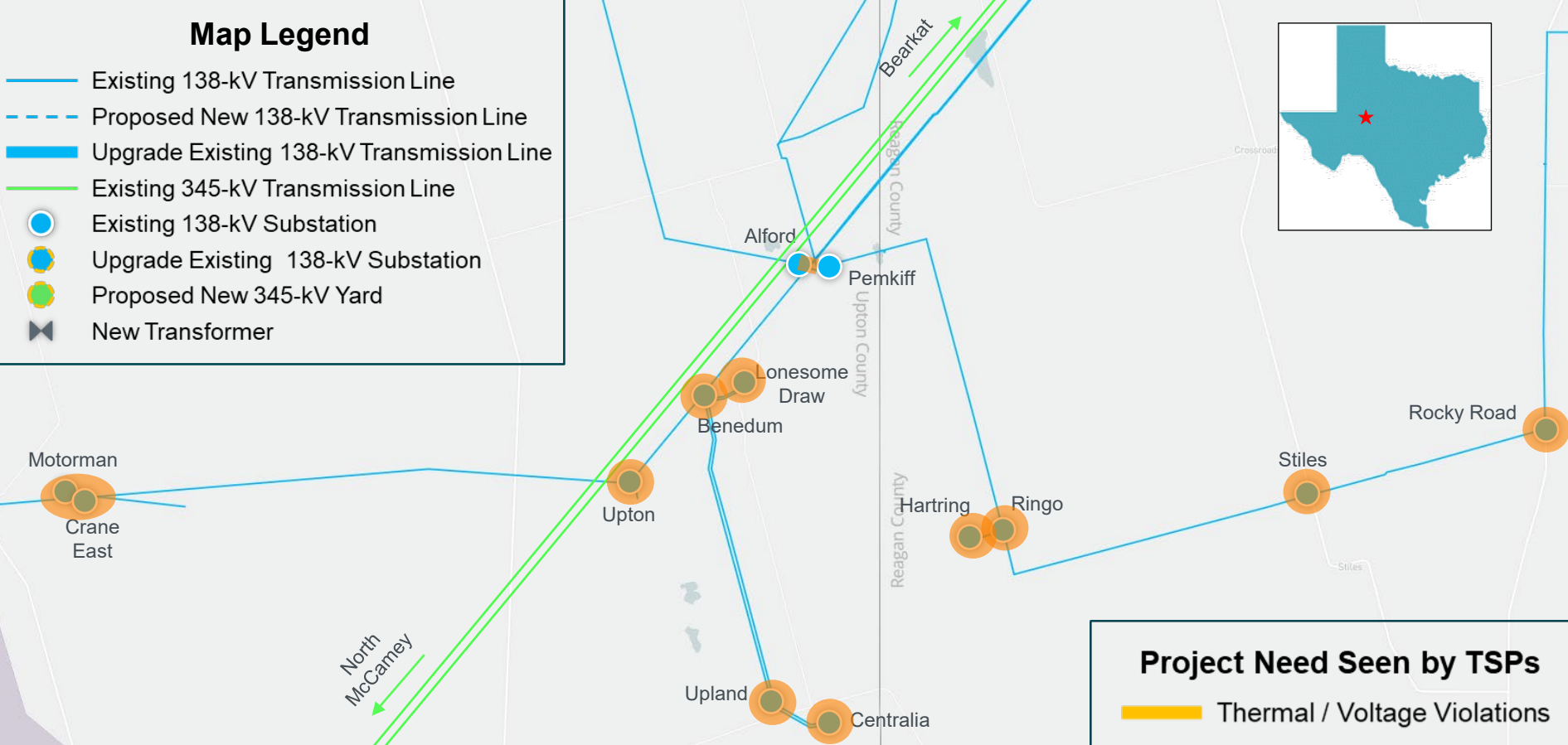
# Introduction


- Oncor and LCRA TSC submitted the Hartring to Upland 138-kV Line and Benedum Autotransformer Addition Project for Regional Planning Group (RPG) review in August 2024
  - This Tier 2 project is estimated at \$94.0 million
    - Oncor: \$25.0 million
    - LCRA TSC: \$69.0 million
  - Filing of Certificate of Convenience and Necessity (CCN) will be required
  - Expected in-service date (ISD) date are
    - Oncor: Summer 2025
    - LCRA TSC: 6/1/2026 (coincides to the completion of the 22RPG010 Bearkat – North McCamey – Sand Lake 345-kV Transmission Line Addition Project)
  - Addresses post-contingency thermal overloads and voltage violations due to significant oil and gas load growth
- This project is currently under ERCOT Independent Review (EIR)

# Study Area Map with Project Need seen by Transmission Service Providers (TSPs)

## Map Legend

-  Existing 138-kV Transmission Line
-  Proposed New 138-kV Transmission Line
-  Upgrade Existing 138-kV Transmission Line
-  Existing 345-kV Transmission Line
-  Existing 138-kV Substation
-  Upgrade Existing 138-kV Substation
-  Proposed New 345-kV Yard
-  New Transformer



**Project Need Seen by TSPs**  
 Thermal / Voltage Violations

# Proposed Project by TSPs

- Oncor will:
  - Reconfigure Oncor's existing Ringo 138-kV substation to a 6-breaker ring bus configuration, reroute Oncor's existing Pemkiff – Ringo 138-kV transmission line and Oncor's existing Ringo – Stiles 138-kV transmission line to terminate into new breakers at the existing Ringo 138-kV substation
  - Construct a new Hartring – Upland 138-kV double-circuit transmission line with normal and emergency ratings of at least 614 MVA, which will require a CCN and new right of way (ROW), approximately 9.0-mile
  - Each of these circuits will have a terminal breaker end point at Oncor's Ringo station and at LCRA's Benedum
  - Ensure all Oncor 138-kV terminal equipment associated with this project meet or exceeds ratings of 3200 A

# Proposed Project by TSPs (cont.)

- LCRA TSC will:
  - Install a new 345-kV yard adjacent to the existing Benedum 138-kV substation in a breaker-and-a-half configuration
  - Cut-in one circuit of the planned Bearkat – North McCamey 345-kV double-circuit transmission line into the new Benedum 345-kV yard
  - Install two 345/138-kV transformers at Benedum with normal and emergency ratings of at least 800 MVA
  - Upgrade the existing Benedum – Alford 138-kV single-circuit transmission line on a double-circuit structures with normal and emergency ratings of at least 942 MVA, approximately 4.3-mile
  - Upgrade 138-kV terminal equipment at Benedum 138-kV station with ratings of at least 4000 A

# Map with Proposed Project by TSPs

## Map Legend

- Existing 138-kV Transmission Line
- Proposed New 138-kV Transmission Line
- Upgrade Existing 138-kV Transmission Line
- Existing 345-kV Transmission Line
- Existing 138-kV Substation
- Upgrade Existing 138-kV Substation
- Proposed New 345-kV Yard
- New Transformer



# Study Assumptions – Base Case

- Study Area
  - West and Far West Weather Zones, focusing on transmission in Upton and Reagan Counties
  - Monitor surrounding counties that are electrically close to the area
- Steady-State Base Case
  - Final 2023 Regional Transmission Planning (RTP) 2026 summer peak case for West and Far West (WFW) Weather Zones will be updated to construct the study base case posted in Market Information System (MIS)
    - Case: 2023RTP\_2026\_SUM\_WFW\_12222023
    - Link: <https://mis.ercot.com/secure/data-products/grid/regional-planning>

# Study Assumption - Transmission

- Based on the Transmission Project and Information Tracking (TPIT) published on MIS in June 2024, projects within the study area with in-service dates prior to Summer 2025 were added to the study base case if not already modeled in the RTP final case
  - TPIT Link: <https://www.ercot.com/gridinfo/planning>
  - See Appendix A1 for the list of transmission projects added
- Transmission projects identified in the 2023 RTP in the study area that have not been approved by RPG will be removed from the study base case
  - See Appendix A2 for the list transmission projects that have been backed out



# Study Assumptions – Generation

- New generation that met Planning Guide Section 6.9(1) condition with Commercial Operation Date (COD) before the June 2026 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 Generator Interconnection Status (GIS) report published in MIS in September 2024
  - Link: <https://www.ercot.com/gridinfo/resource>
  - See Appendix B for the list of generation projects added to the case
- 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 cases

# Study Assumptions – Load & Reserve

- Loads in study area
  - Load level in the study area will be maintained consistent with the 2023 RTP case
  - Newly approved confirmed loads in Far West (FW) will be added to the study base case
  - Oil & Gas loads in the FW Weather Zone will be updated based the S&P Global Load Forecast
- Reserve
  - Load outside of WFW Weather Zones 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 (345-kV only)
    - P3: G-1+N-1 (G-1: Odessa Combined Cycle (CC) train 1, and Permian Basin All five units)
    - P6-2: X-1+N-1 (X-1: Einstein and North McCamey 345/138-kV transformers)
- 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 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
  - Cost Estimate and Feasibility assessment will be requested from TSPs
- Additional 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 the future RPG meetings
  - Final Recommendation – Q1 2025

*Thank you!*



Stakeholder comments also welcomed through:

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# Appendix A1 – Transmission Projects Added

| TPIT/RPG No | Project Name                                      | Tier   | Project ISD | County(s)     |
|-------------|---|--------|-------------|---------------|
| 70964       | WETT 345 kV Volta Switch                          | Tier 3 | 3/25/2024   | Howard        |
| 73043       | Peck - Driver 138 kV Line                         | Tier 2 | 12/15/2024  | Glasscock     |
| 73368       | Grey Well Draw - Buffalo 138 kV Second Circuit    | Tier 3 | 12/15/2024  | Midland       |
| 76686       | Add Hog Mountain 138 kV POD                       | Tier 4 | 12/15/2024  | Glasscock     |
| 76705       | Prairieland 345/138 kV Switch and 138 kV Line     | Tier 2 | 5/15/2025   | Glasscock     |
| 78374       | Rockhound 345/138 kV Switch                       | Tier 3 | 12/16/2024  | Midland       |
| 80858       | Sterling City: Upgrade 69 kV Relays               | Tier 4 | 4/30/2025   | Sterling      |
| 80913       | Sloan 138 kV Switch                               | Tier 4 | 5/15/2025   | Midland       |
| 66532       | Grey Well Draw - Pronghorn 138 kV Line Rebuild    | Tier 4 | 1/31/2024   | Midland       |
| 73434       | Shaw 138 kV POD                                   | Tier 4 | 5/15/2024   | Reagan        |
| 23RPG019    | Stanton Loop South Dynamic Reactive Power Project | Tier 3 | 6/1/2025    | Reagan, Upton |

# Appendix A2 – Transmission Projects Removed

| RTP Project ID | Project Name   | County(s)                |
|----------------|--|--------------------------|
| 2021-FW4       | Rio Pecos - Rankin - Texon Tap - Atlantic Best Tap - Kemper Tap - Big Lake 69-kV to 138-kV Line Conversion | Pecos, Upton, Reagan     |
| 2023-FW8       | Midkiff Switch 138-kV Cap Bank Addition  | Upton                    |
| 2023-FW9       | East Stiles 138-kV Cap Banks Addition  | Reagon                   |
| 2023-FW11      | New Load Bus 900062 138-kV Cap Bank Addition   | Reagon                   |
| 2021-WFW1      | Big Lake - Barnhart - Cassava 69-kV to 138-kV Line Conversion  | Reagon, Irion            |
| 2022-WFW1      | Twin Buttes - Hargrove - Pumpjack - Jerry - Russek Street - Big Lake 138-kV line Upgrade                   | Tom Green, Irion, Reagan |



# Appendix B – Generation Added

| GINR      | Project Name                  | Fuel | Project COD | Capacity (~MW) | County    |
|-----------|-------------------------------|------|-------------|----------------|-----------|
| 19INR0203 | Angelo Solar                  | SOL  | 8/01/2024   | 195.4          | Tom Green |
| 22INR0502 | Shamrock Wind SLF             | WIN  | 9/15/2024   | 223.9          | Crockett  |
| 23INR0372 | Cross Trails Storage          | OTH  | 4/25/2025   | 58.3           | Scurry    |
| 23INR0387 | Pioneer DJ Wind               | WIN  | 9/15/2024   | 140.3          | Midland   |
| 23INR0418 | Angelo Storage                | OTH  | 8/10/2024   | 103.0          | Tom Green |
| 24INR0273 | AI Pastor BESS                | OTH  | 9/10/2024   | 103.1          | Dawson    |
| 24INR0421 | Swift Air Solar               | SOL  | 3/31/2025   | 146.5          | Ector     |
| 24INR0568 | Shamrock Energy Storage (SLF) | OTH  | 7/1/2025    | 99.3           | Crockett  |
| 24INR0578 | Panther Creek 1 Repower       | WIN  | 12/31/2024  | 11.0           | Glasscock |
| 24INR0582 | Panther Creek 2 Repower       | WIN  | 12/31/2024  | 8.0            | Glasscock |
| 24INR0629 | Jade Storage SLF              | OTH  | 9/30/2024   | 160.0          | Scurry    |
| 24INR0630 | Andromeda Storage SLF         | OTH  | 12/31/2024  | 160.0          | Scurry    |