



**Rayburn Electric Cooperative (REC) –  
Tawakoni Area Transmission Project  
ERCOT Independent Review Status Update**

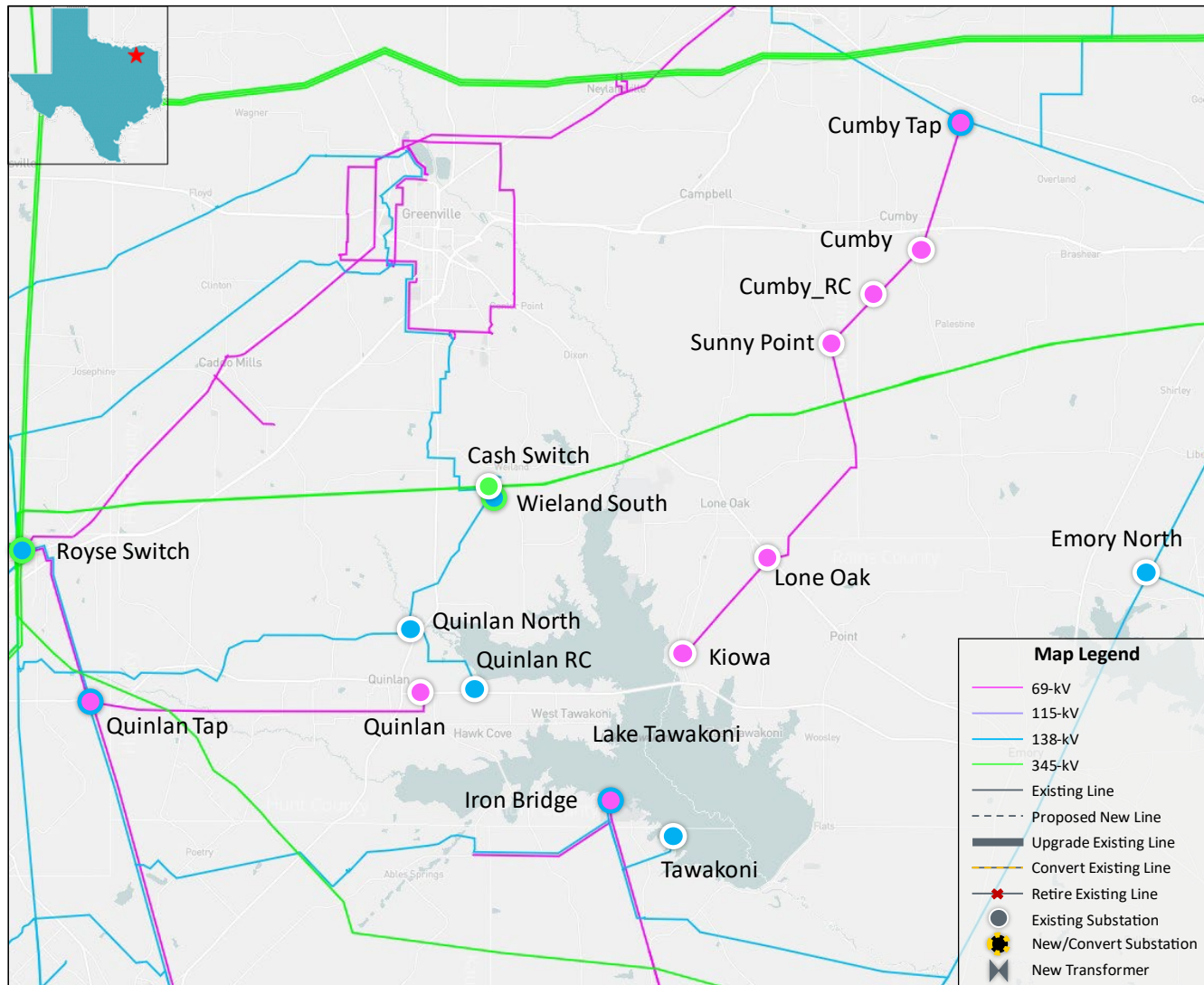
Tanzila Ahmed

RPG Meeting  
September 20, 2022

# Introduction

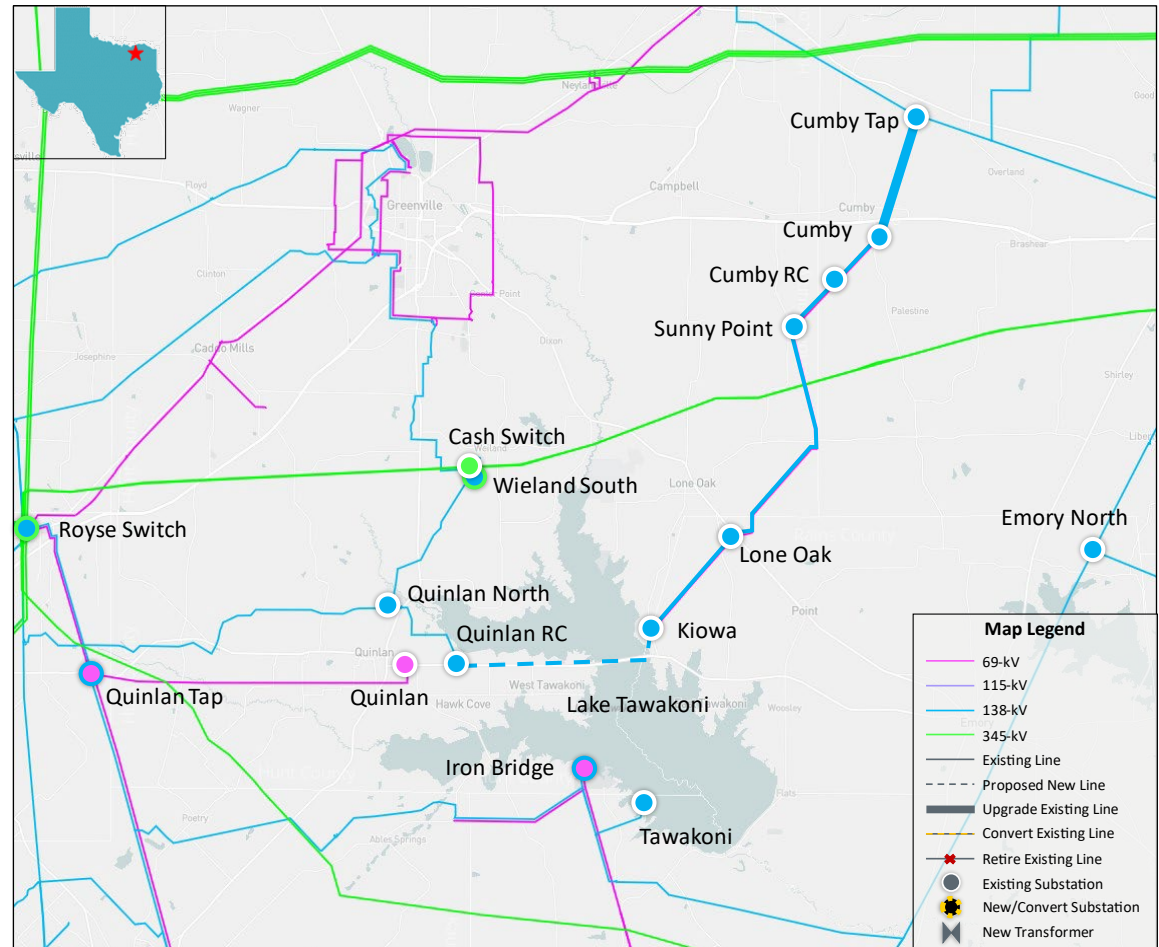
- Rayburn Electric Cooperative (REC) submitted the Tawakoni Area Transmission Project for Regional Planning Group (RPG) review in August 2022
  - Tier 2 project estimated at \$27.5 million and requires a Convenience and Necessity (CCN)
  - Proposed in-service date is June 2024
  - Addresses REC’s Planning criteria violation
    - Radially connected facilities should be looped if the total combined load aggregate is 20 MW or greater
      - Consequential load loss (approximately 90 MW in the Tawakoni Lake Area) under N-1 as the area is fed from two radial transmission lines
- REC presented this project at the August RPG meeting
  - Link: <https://www.ercot.com/calendar/event?id=1650552175738>
- This project is currently under ERCOT Independent Review (EIR)

# Study Area Map



# Proposed Project by REC

- Upgrade the existing Quinlan RC 138-kV Substation
- Upgrade the existing Kiowa 138-kV Substation
- Construct a new 138-kV transmission line from Quinlan RC to Kiowa (8 miles)
- Upgrade the existing 138-kV transmission line from Cumby to Cumby Tap (4.5 miles)



NOTE: this project depends on the conversion of the existing 69-kV transmission lines from Kiowa – Cumby (TPIT Projects 64310 and 64484)

# Study Assumptions – Base Case

- Study Region
  - North and East Weather Zone (WZ), focusing on the transmission elements near the Lake Tawakoni Area in Hunt County
  - Monitor surrounding counties that are electrically close to the area
- Steady-State Base Case
  - Final 2021 Regional Transmission Planning (RTP) 2026 summer peak case for North-North Central (NNC) WZs, posted in Market Information System (MIS), were updated to construct the summer peak load study base case
    - Case: 2021RTP\_2024\_SUM\_NNC\_12232021
    - Link: <https://www.ercot.com/misapp/GetReports.do?reportTypeId=15933>

# Study Assumption - Transmission

- Based on the June 2022 Transmission Project and Information Tracking (TPIT) posted on MIS, Tier 4 projects with in-service date on or before June 2026 within the study area were added to the study base case if not already modeled in the case
  - TPIT Link: <https://www.ercot.com/gridinfo/planning>
  - Some of the Tier 4 projects in the region include Kiowa to Cumby Tap conversion (TPIT Projects 64310 and 64484)
  - See table in appendix for the list of added transmission projects
- All other Tier projects approved by RPG are already modeled in the RTP cases

# 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, were added to the case based on July 2022 Generator Interconnection Status (GIS) report posted in MIS in August 2022.
  - GIS Link: <https://www.ercot.com/gridinfo/resource>
  - See table in Appendix for list of generation added
- All new generation added were dispatched consistent with the 2021 RTP methodology
- All recent retired/indefinitely mothballed units were reviewed and turned off, if not already reflected in the 2021 RTP Final cases

# Study Assumptions – Load & Reserve

- Load in study area
  - Load level in the East WZ was updated to develop the North-North Central-East (NNCE) summer peak load case, consistent with 2021 RTP
- Reserve
  - Load outside of study weather zone(s) were adjusted to maintain the reserve consistent with the 2021 RTP



# Contingencies & Criteria

- Contingencies for Study Region
  - NERC TPL-001-5 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 represents generator outage)
    - P6 (X-1+N-1: X-1 represents 345/138-kV transformer outage)
- 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
  - REC Planning Criteria
    - Radially connected facilities should be looped if the total combined load aggregate is 20 MW or greater

# Study Procedure

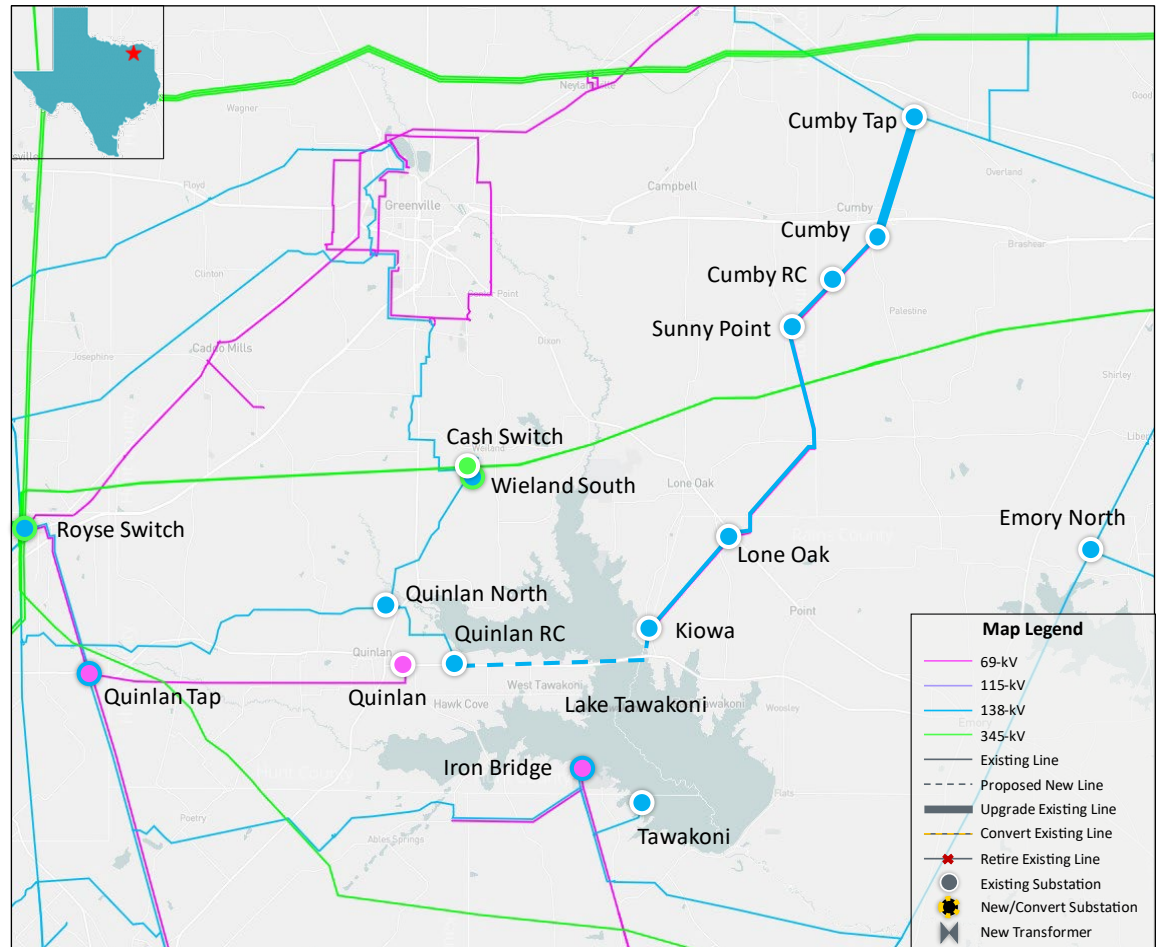
- Need Analysis
  - Perform reliability analysis to identify the need to serve the projected Tawakoni Area load using the study base case
    - Project need based on TSP's criteria (**Protocol Section 3.11.4.9(4)**)
      - ERCOT's independent review shall consider whether a reliability need exists under the TSP's criteria
      - ERCOT shall recommend a project that would address the need under TSP's criteria as well as any reliability need identified under NERC or ERCOT criteria
      - ERCOT or the ERCOT board will endorse such a project if ERCOT determines that it is justified in part under ERCOT or NERC criteria
      - Neither ERCOT nor the ERCOT Board shall endorse a project that is determined to be needed solely to meet a TSP's criteria
- Project Evaluation
  - Develop and test project alternatives to address the REC Planning criteria and any reliability issues resulting from the alternatives
  - Perform any additional studies as ERCOT deems necessary

# Results of Need Analysis

- No reliability violation was identified under NERC or ERCOT Planning criteria
- ERCOT confirmed potential loss of radial loads exceeding 20 MW under N-1 contingencies (Cumby to Cumby Tap 138-kV line and Quinlan RC to North Quinlan 138-kV lines), which violates REC Planning criteria

# Option 1 (Proposed Project by REC)

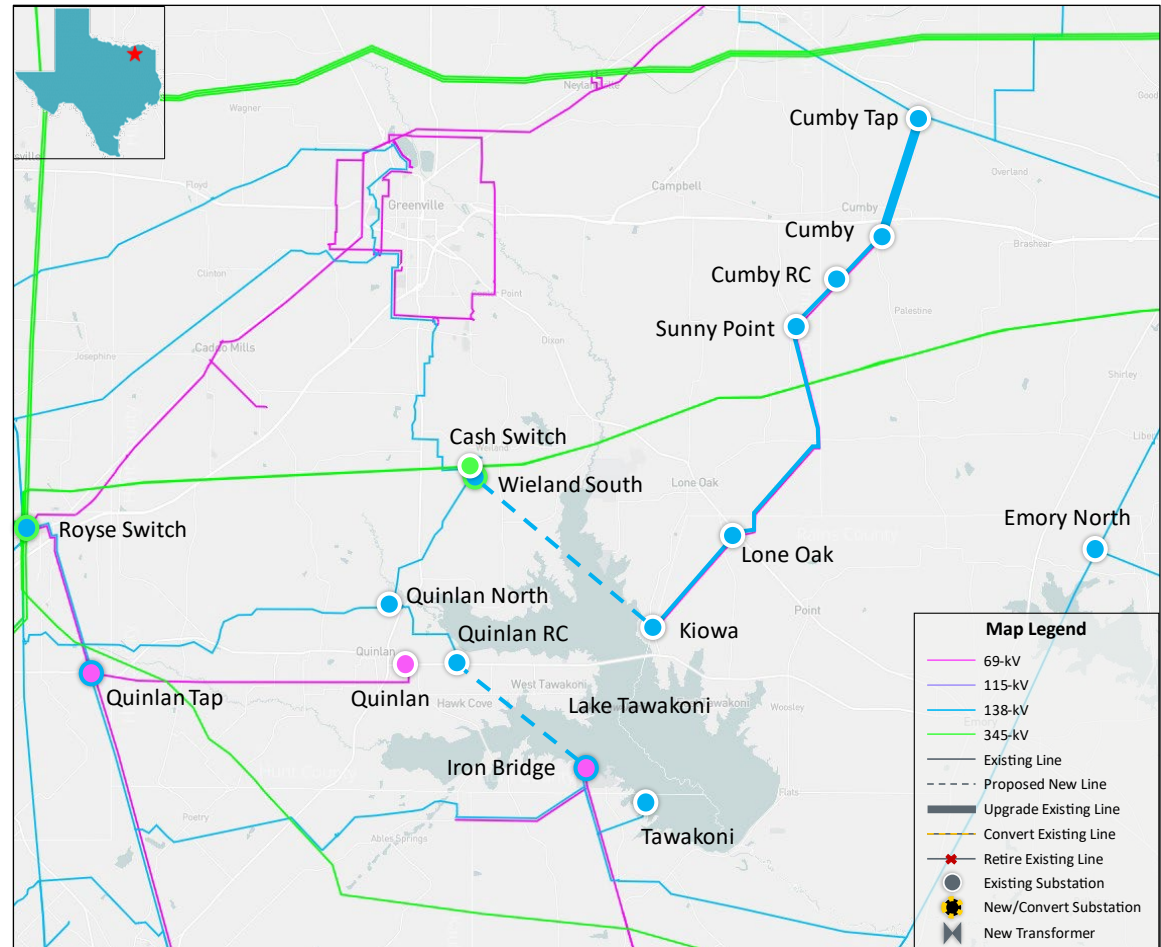
- Upgrade the existing Quinlan RC 138-kV Substation
- Upgrade the existing Kiowa 138-kV Substation
- Construct a new 138-kV transmission line from Quinlan RC to Kiowa (8 miles)
- Upgrade the existing 138-kV transmission line from Cumby to Cumby Tap (4.5 miles)



NOTE: this project depends on the conversion of the existing 69-kV transmission lines from Kiowa – Cumby (TPIT Projects 64310 and 64484)

# Option 2

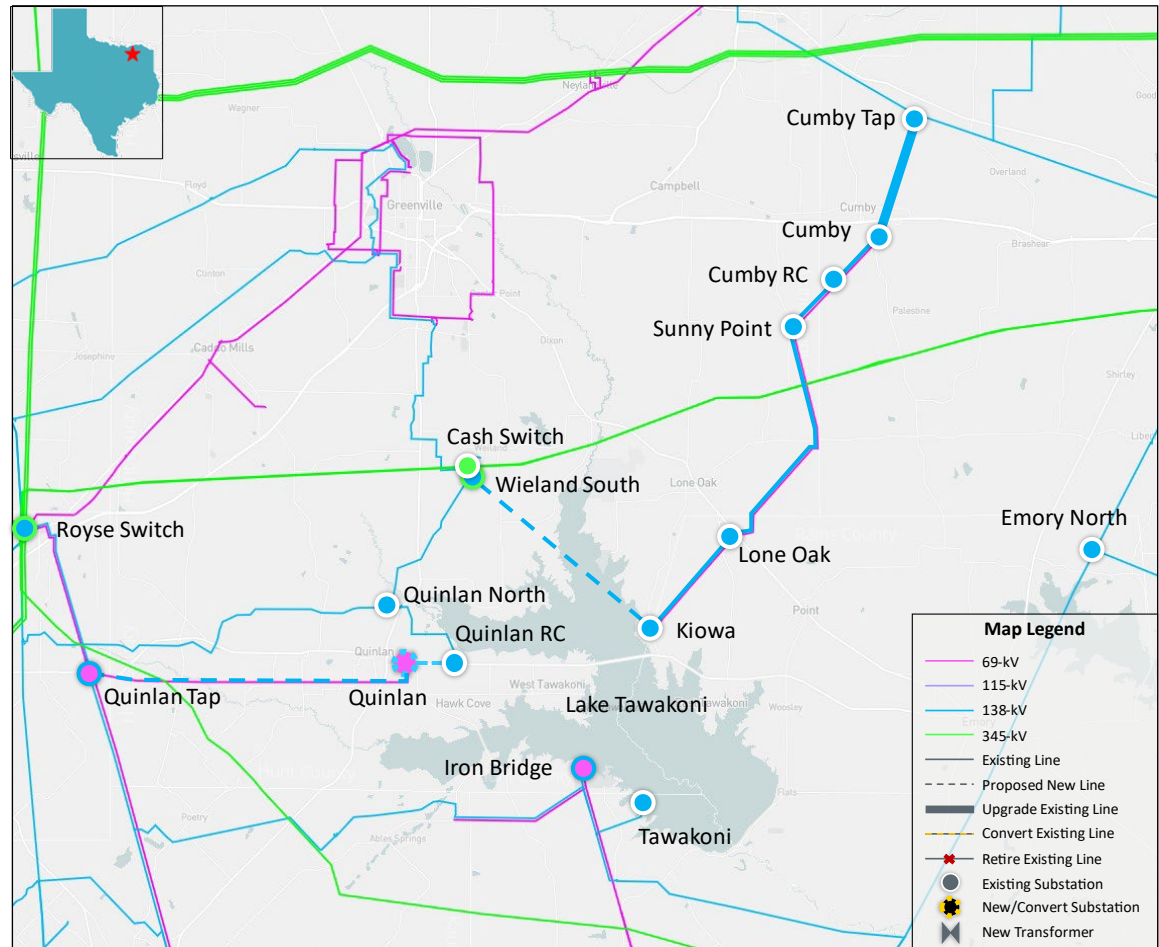
- Upgrade the existing Quinlan RC 138-kV Substation
- Construct a new 138-kV transmission line from Quinlan to Iron Bridge (7.07 miles)
- Upgrade the existing Kiowa 138-kV Substation
- Construct a new 138-kV transmission line from Kiowa to Wieland South (10.16 miles)
- Upgrade the existing 138-kV transmission line from Cumby to Cumby Tap (4.5 miles)



NOTE: this project depends on the conversion of the existing 69-kV transmission lines from Kiowa – Cumby (TPIT Projects 64310 and 64484)

# Option 3

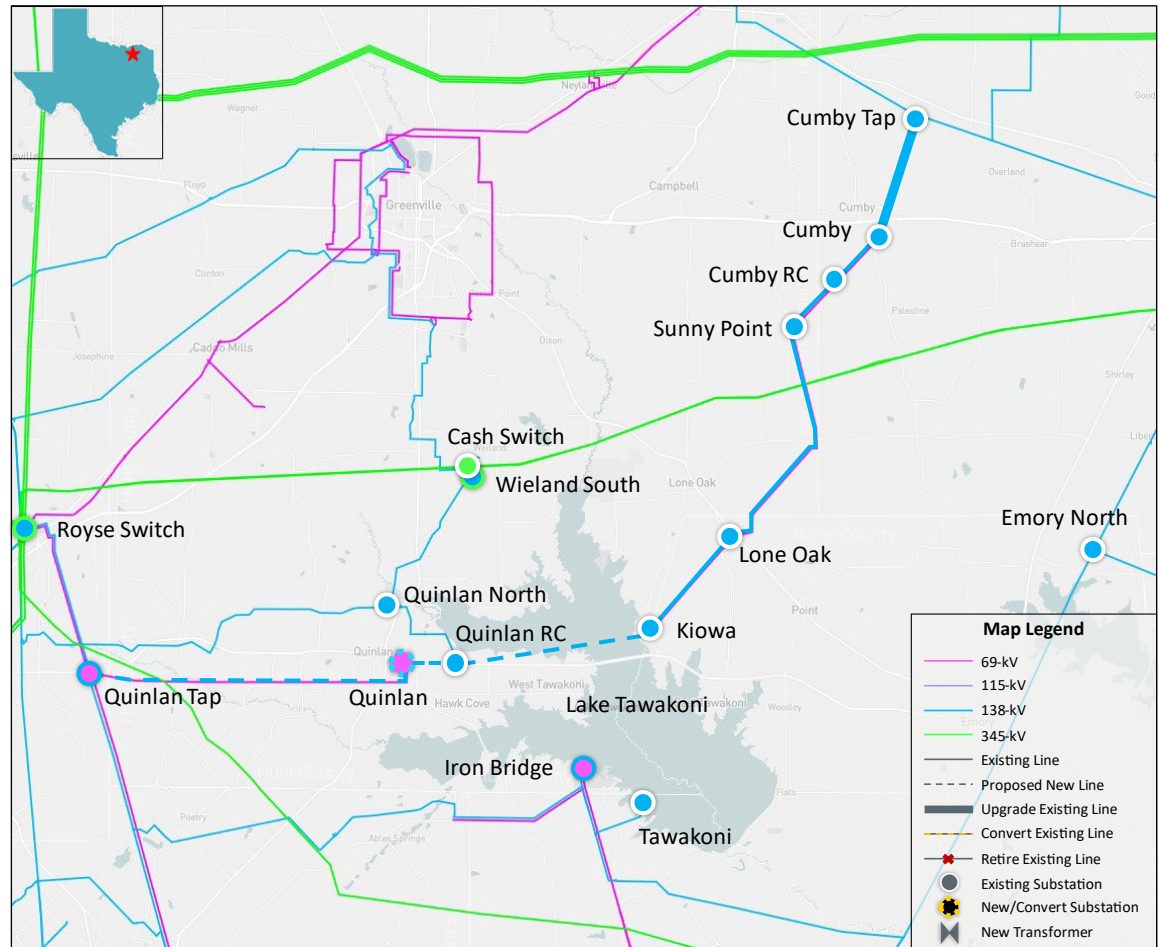
- Upgrade the existing Quinlan RC 138-kV Substation
- Convert the existing Quinlan 69-kV Substation to 138-kV Substation
- Construct a new 138-kV transmission line from Quinlan RC to Quinlan (2.14 miles)
- Convert the existing 69-kV transmission line from Quinlan to Quinlan Tap to 138-kV transmission line (11.28 miles)
- Upgrade the existing Kiowa 138-kV Substation
- Construct a new 138-kV transmission line from Kiowa to Wieland South (10.16 miles)
- Upgrade the existing 138-kV transmission line from Cumby to Cumby Tap (4.5 miles)



NOTE: this project depends on the conversion of the existing 69-kV transmission lines from Kiowa – Cumby (TPIT Projects 64310 and 64484)

# Option 4

- Upgrade the existing Quinlan RC 138-kV Substation
- Upgrade the existing Kiowa 138-kV Substation
- Construct a new 138-kV transmission line from Quinlan RC to Kiowa (8 miles)
- Convert the existing Quinlan 69-kV Substation to 138-kV Substation
- Construct a new 138-kV transmission line from Quinlan RC to Quinlan (2.14 miles)
- Convert the existing 69-kV transmission line from Quinlan to Quinlan Tap to 138-kV transmission line (11.28 miles)
- Upgrade the existing 138-kV transmission line from Cumby to Cumby Tap (4.5 miles)



NOTE: this project depends on the conversion of the existing 69-kV transmission lines from Kiowa – Cumby (TPIT Projects 64310 and 64484)

## Next Step

- ERCOT will continue to evaluate the project and provide status updates at the future RPG meetings
- Tentative Timeline for EIR report
  - Q4 2022



*Thank you!*



Stakeholder comments also welcomed through:

[Tanzila.Ahmed@ercot.com](mailto:Tanzila.Ahmed@ercot.com)

[SunWook.Kang@ercot.com](mailto:SunWook.Kang@ercot.com)

# Appendix – Projects to be Added Removed

- List of Tier 4 Transmission Projects to add

TPIT No	Project Name	Tier	Project ISD	TSP	County
64310	Cumby-Cumby Tap Line Conversion	4	May 2023	ONCOR	Hopkins
64484	RCEC_Voltage-Update_Cumby	4	May 2023	RYBRN	Hopkins
5496	Forney Switch 345 kV Terminal Equipment	4	May 2023	ONCOR	Rockwall
59765	Loy Lake 138 kV Capacitors	4	May 2022	ONCOR	Grayson
59835	Royse Switch-Terrell Switch 69 kV Line Conversion to 138 kV	4	December 2023	ONCOR	Rockwall
59839	Duck Cove Tap #1 - Wills Point 69 kV Double Circuit Line	4	August 2022	ONCOR	Van Zandt
64554	RCEC_Walton-North_Athens	4	October 2022	RYBRN	Hopkins
67132	Update RoseHill to Talty	4	November 2022	RYBRN	Kaufman
67524	Oncor_Salttillo_Switch_Stampede_Solar	4	September 2022	ONCOR	Hopkins
68057	Crossroads Sw (Estonian Solar)	4	May 2023	ONCOR	Delta
68681	Lamar Blossom Switch - Clarksville 69 kV Line Rebuild	4	May 2023	ONCOR	Lamar
68700	Bonham - Toco Switch 69 kV Line Rebuild	4	May 2023	ONCOR	Fannin
68706	Edgewood Switch _ Royse Switch&Terrell Switch 138 kV Double-Circuit Line	4	May 2024	ONCOR	Van Zandt

# Appendix – Generation to be Added

- List of Generation to add

GINR	Project Name	Fuel Type	Project COD	Capacity (MW)	County
21INR0490	Samson Solar 2	SOL	June 2023	203.00	Lamar
22INR0335	Estonian Solar	SOL	June 2023	202.50	Delta
22INR0336	Estonian Storage	OTH	June 2023	101.60	Delta
22INR0409	Stampede Solar	SOL	February 2023	259.07	Hopkins
22INR0410	Stampede BESS	OTH	March 2023	73.11	Hopkins
22INR0509	Turquoise Storage	OTH	December 2022	196.21	Hunt
23INR0045	GP Solar	SOL	June 2023	121.97	Van Zandt