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

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RPG Meeting
October 19, 2022

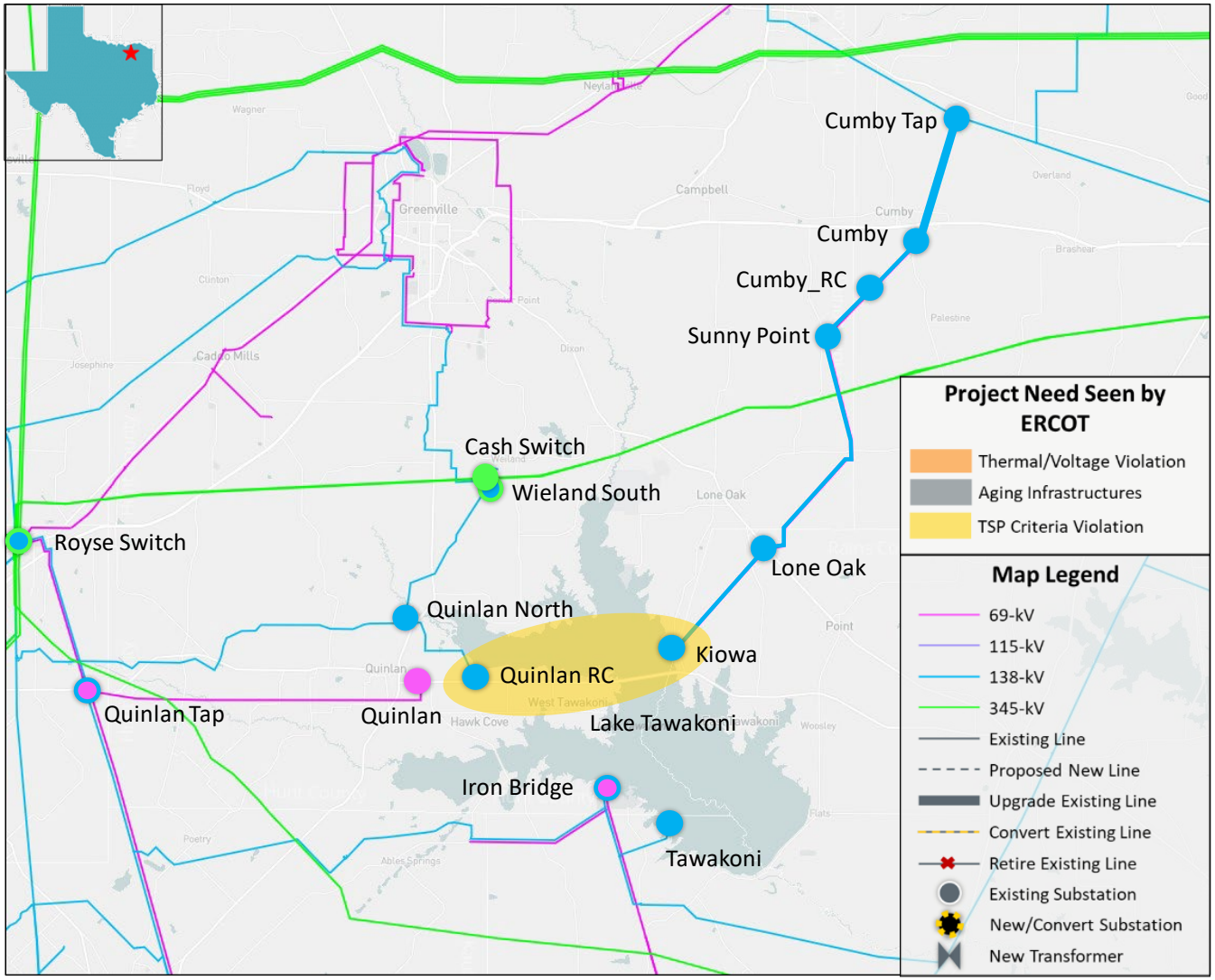
Recap

- Rayburn Electric Cooperative (REC) submitted the Tawakoni Area Transmission Project for Reginal Planning Group (RPG) review in August 2022 to address REC Planning Criteria violation in the Lake Tawakoni area
  - Tier 2 project estimated at $27.5 million and requires a Convenience and Necessity (CCN)
  - Proposed in-service date is June 2024
- REC presented this project at the August RPG meeting
  - Link: https://www.ercot.com/calendar/event?id=1650552175738
- ERCOT provided the study scope, results of reliability analysis, and project alternatives at the September RPG meeting
  - https://www.ercot.com/calendar/event?id=1627677925573
- ERCOT will provide preliminary results of project evaluation and short-listed options

Recap - Study Assumptions

- Study region is the North Central and East Weather Zones (WZ), focusing on the transmission elements near Lake Tawakoni area in Hunt County and surrounding counties that are electrically close to the area
- North-North Central-East (NNCE) study base case was constructed by updating the final 2021 Regional Transmission Planning (RTP) 2026 Summer peak load case
- Based on the June 2022 Transmission Project and Information Tracking (TPIT), new Tier 4 projects (listed in Appendix) were added to the base case
- Based on the July 2022 Generator Interconnection Status (GIS) report, new generation that met the Planning Guide Section 6.9(1) condition were added to the base case, listed in Appendix
- Load level in the East WZ was updated to develop the NNCE Summer Peak Load case
- Load outside of study region were adjusted to maintain the reserve consistent with 2021 RTP

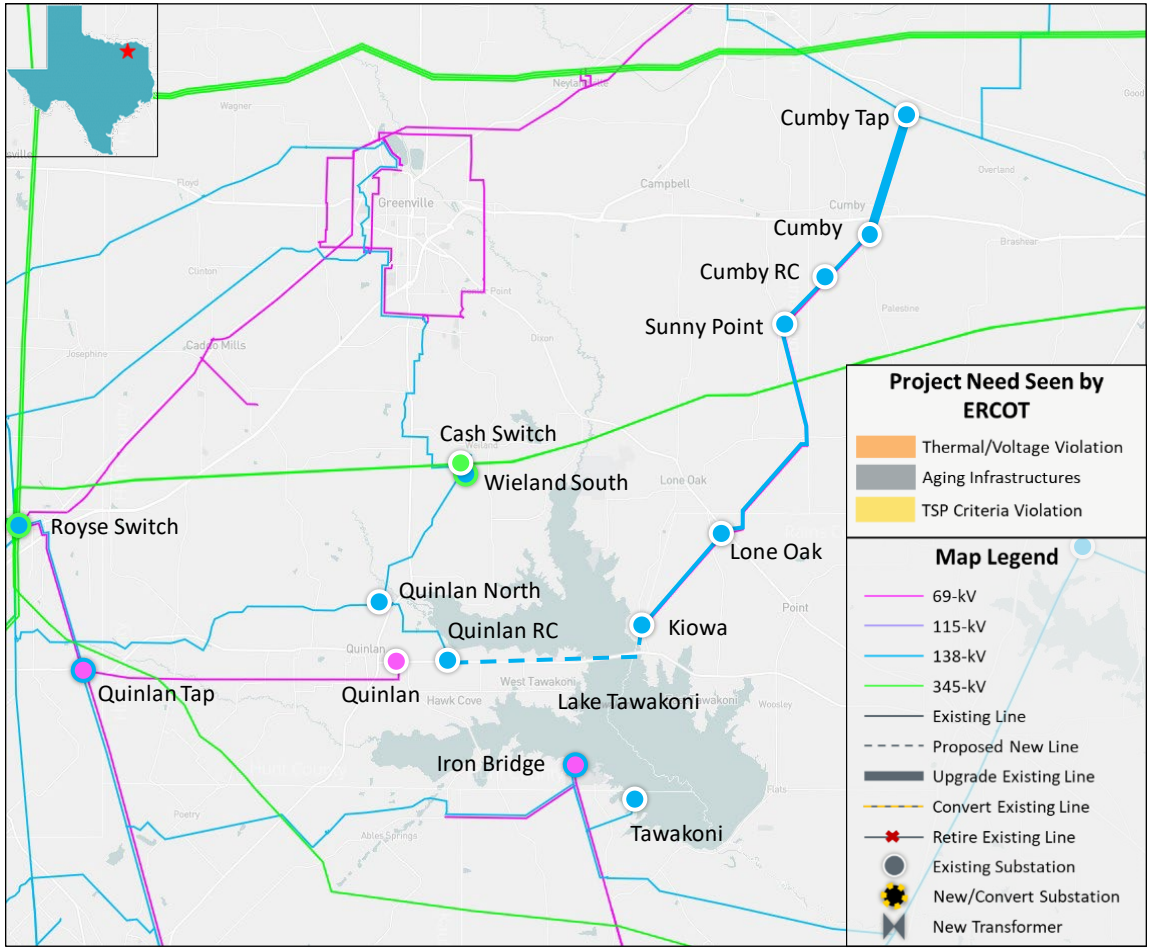
Recap - Study Area Map Project Need



NOTE: This project is contingent on the completion of the conversion of the existing Cumby Tap – Kiowa 69-kV transmission line from 69-kV to 138-kV (TPIT Projects 64310, 64484, and 65366)

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)



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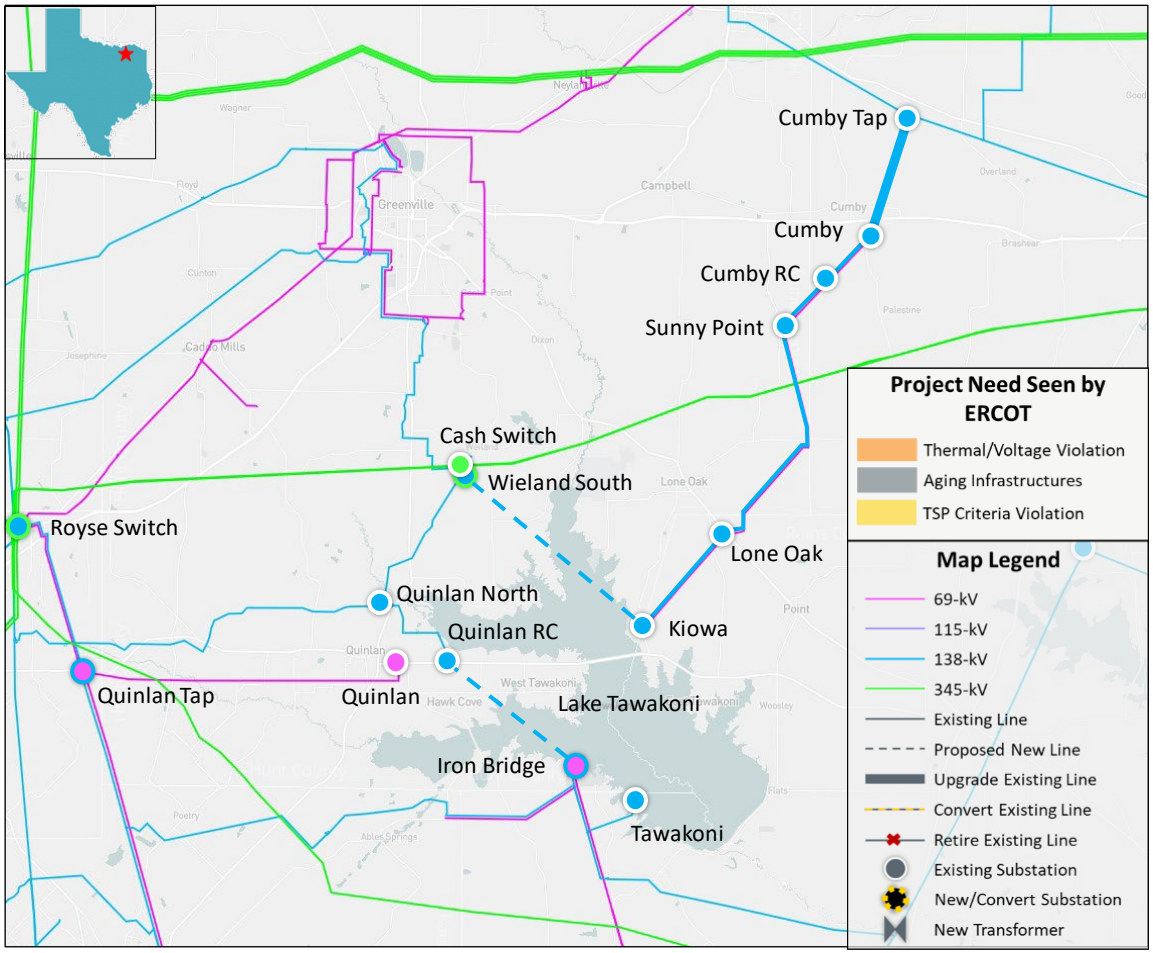
Option 2

- Upgrade the existing Quinlan RC 138-kV Substation
- Construct a new 138-kV transmission line from Quinlan RC 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)



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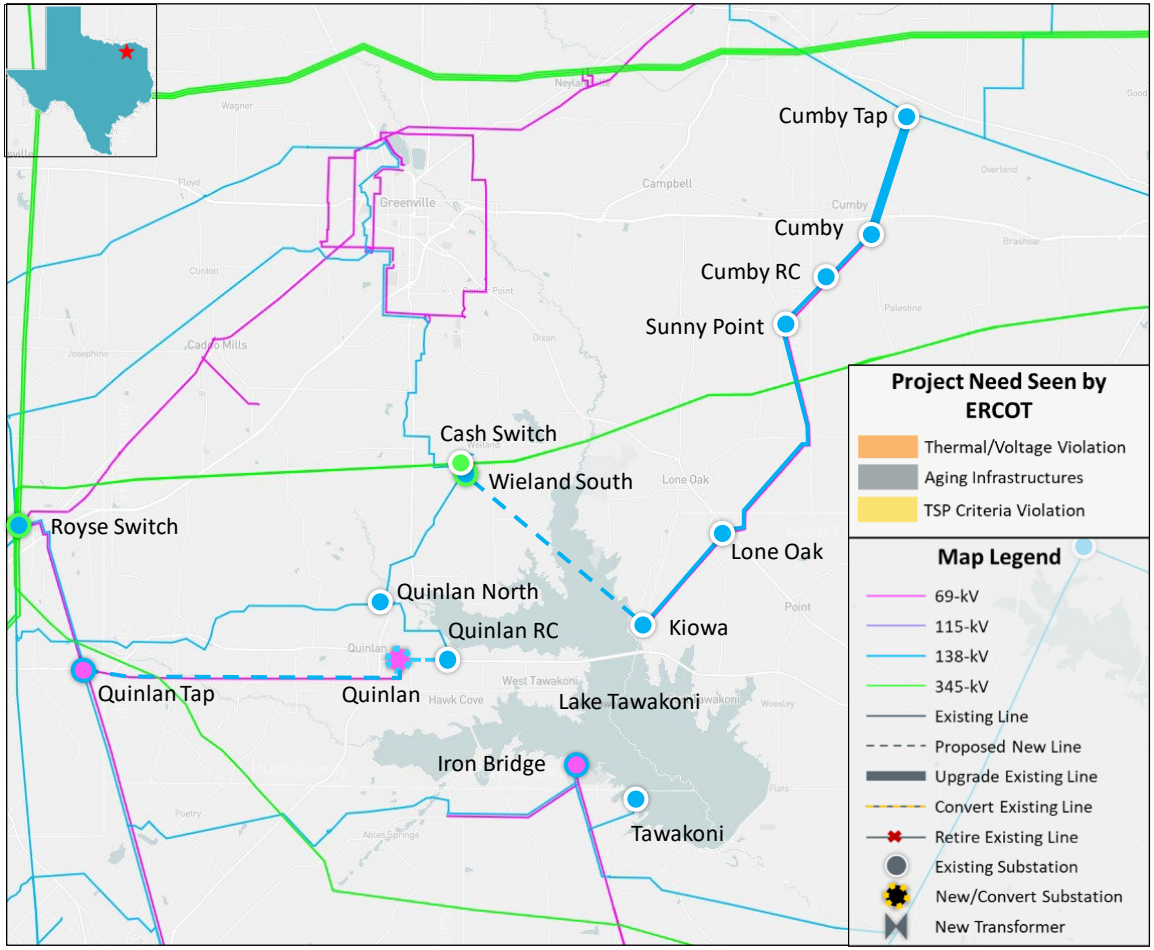
Option 3

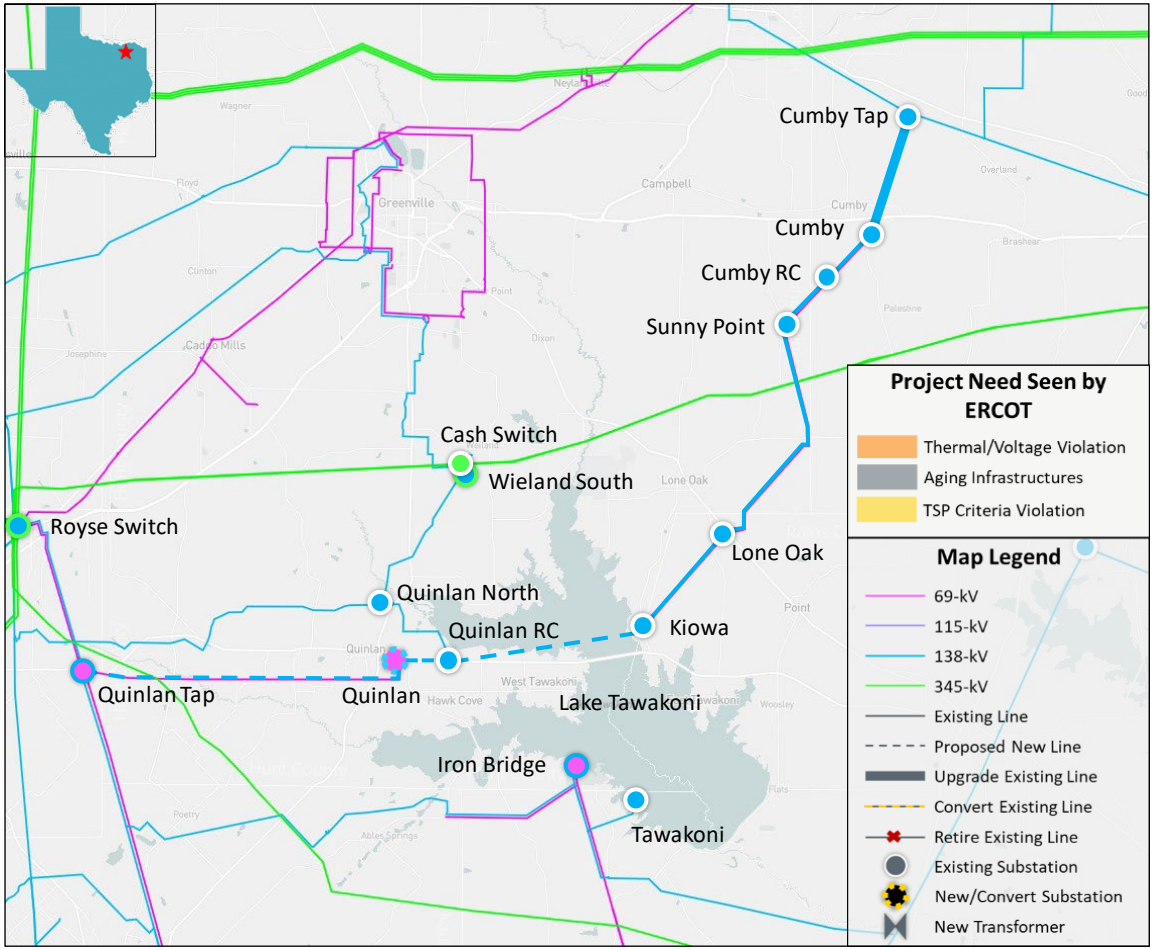
- Upgrade the existing Quinlan RC 138-kV Substation
- Convert the existing Quinlan 69-kV Substation to 138-kV Substation
- Construct a new 138-kV transmission line from Quinlan RC to Quinlan (2.14 miles)
- Convert the existing Quinlan to Quinlan Tap from 69-kV to 138-kV transmission line (11.28 miles)
- 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 is contingent on the completion of the conversion of the existing Cumby Tap – Kiowa 69-kV transmission line from 69-kV to 138-kV (TPIT Projects 64310, 64484, and 65366)

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 Quinlan to Quinlan Tap from 69-kV 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 is contingent on the completion of the conversion of the existing Cumby Tap – Kiowa 69-kV transmission line from 69-kV to 138-kV (TPIT Projects 64310, 64484, and 65366)

Preliminary Results - Option Evaluation

- All four options address the REC Planning Criteria violation under N-1
- No NERC or ERCOT reliability criteria violations were identified in any of the four options evaluated
- Higher load sensitivity analysis
  - Forecasted loads (~82 MW) for Winter 2026, based on the REC 2022 ALDR Report, was used as the higher load value for the Summer 2026 in the Lake Tawakoni Area

	Base Load		Higher Load Sensitivity	
	Thermal 95% or Greater Loading	Voltage	Thermal 95% or Greater Loading	Voltage
Option 1	None	None	None	None
Option 2	None	None	None	None
Option 3	1	None	3	None
Option 4	None	None	None	None

- Based on the above results, Options 1, 2, & 4 were selected as the short-listed options for further evaluation

Maintenance Outage Analysis

- ERCOT conducted planned maintenance outage scenarios analysis on all short-listed options
- Based on the review of system topology of the area, ERCOT tested 36 N-2 contingencies (including the 345-kV lines in the area) as a proxy for N-1-1
- No reliability issues were observed with the short-listed options

	Thermal Overload	Voltage Violation
Option 1	None	None
Option 2	None	None
Option 4	None	None

Next Step and Tentative Timeline

- ERCOT will work with TSPs to obtain cost estimates and feasibility of each short-listed option
- Congestion analysis
  - Congestion analysis may be performed to ensure that the identified transmission upgrades do not result in new congestion within the study area
- Tentative Timelines
  - Status updates at the November RPG meeting
  - Final recommendation – November 2022

Thank you!

Stakeholder comments also welcomed through:

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Appendix – New Transmission Projects Added

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**	**Hunt**
65366	**TNMP_65366_LoneOak_Conversion**	**4**	**May 2023**	**TNMP**	**Hunt**
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_Saltillo_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 – New Generation Added

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