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PROJECT NO. 55999

REPORTS OF THE ELECTRIC§PUBLIC UTILITY COMMISSIONRELIABILITY COUNCIL OF TEXAS§OF TEXAS

ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.'S NOTICE OF ACCEPTANCE OF TWO TIER 3 TRANSMISSION PROJECTS

Pursuant to ERCOT Protocol Section 3.11.4.9(1), Electric Reliability Council of Texas, Inc. (ERCOT) files this Notice of the ERCOT Regional Planning Group (RPG)'s acceptance of two Tier 3 transmission projects.

The first project is submitted by Oncor Electric Delivery Company LLC (Oncor) as reflected in Attachments A-B. Oncor is the ERCOT-registered Transmission Service Provider (TSP) responsible for the transmission project.

The second project is submitted by Wind Energy Transmission Texas, LLC (WETT) as reflected in Attachments C-D. WETT is the ERCOT-registered Transmission Service Provider (TSP) responsible for the transmission project.

ERCOT is prepared to provide the Commission with any additional information it may request regarding these matters.

Dated: April 1, 2025

Respectfully Submitted,

<u>/s/ Katherine Gross</u>

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ATTORNEYS FOR ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.



March 19, 2025

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Mr. Eithar Nashawati Senior Director, Asset Planning Oncor Electric Delivery 2233-B Mountain Creek PKWY Dallas, TX 75211-6716

Mr. Sandeep Borkar Director, Transmission Planning LCRA TSC 3505 Montopolis Drive Austin, TX 78744 (Building D)

RE: Oncor Resubmission for Salado Switch to Hutto Switch 138-kV Line Project

Dear Mr. Nashawati and Mr. Borkar:

The Electric Reliability Council of Texas (ERCOT) Regional Planning Group (RPG) has reviewed and accepted the following Tier 3 transmission project in accordance with ERCOT Protocol Section 3.11.4:

Oncor Resubmission for Salado Switch to Hutto Switch 138-kV Line Project:

- Upgrade the existing north circuit of the Hutto Switch to Round Rock Switch 138-kV doublecircuit transmission line to increase the maximum operating temperature of the existing 1590 kcmil ACSR conductor from 90°C to 150°C with normal and emergency ratings of at least 2064 A (493 MVA), approximately 8.9 miles. The existing Hutto Switch and Round Rock Switch 138kV substations are currently owned by Oncor;
- Expand the existing Salado Switch 345-kV substation to include the new Salado Switch 138-kV yard directly south of the existing Salado 345-kV Switch substation using a 6-breaker, 138-kV breaker-and-a-half arrangement. The existing Salado Switch 345-kV substation is currently owned by Oncor;
- Rebuild the existing Round Rock Westinghouse Tap to Structure 25/8 to Salado Switch 138-kV transmission line section with double-circuit capable structures and double-circuit transmission lines to establish the Salado Switch to Round Rock Switch 138-kV transmission line with normal and emergency ratings of at least 614 MVA, approximately 36.4 miles. The existing Round Rock Westinghouse Tap and Round Rock Switch 138-kV substations are currently owned by Oncor. The existing Gabriel 138-kV substation is currently owned by LCRA TSC;
- Loop the existing Bell County Switch to Gabriel 138-kV transmission line into the new Salado Switch 138-kV yard. The existing Bell County Switch 138-kV substation is currently owned by BEPC. The existing Gabriel 138-kV substation is currently owned by LCRA TSC;

Attachment A

- Move Midnight transformer #1 and Salado South transformer #1 to the Round Rock Switch to Salado Switch 138-kV transmission line. The existing Midnight and Salado South 138-kV substations are currently owned by Oncor;
- Rebuild the existing Gabriel to Structure 25/8 138-kV double-circuit transmission line segment using 1926 ACSS/TW Cumberland conductor with normal and emergency ratings of at least 749 MVA, approximately 1.2 miles. The existing Gabriel 138-kV substation is currently owned by LCRA TSC; and
- Upgrade terminal facilities at the existing Gabriel, Georgetown East, and Georgetown South substations to accommodate the new conductor. The existing Gabriel substation is currently owned by LCRA TSC. The existing Georgetown East substation and existing Georgetown South substation are currently owned by LCRA TSC.

Should you have any questions please contact me at any time.

Sincerely,

Knisti Atthbe

Kristi Hobbs Vice President, System Planning and Weatherization Electric Reliability Council of Texas

cc:

Pablo Vegas, ERCOT Woody Rickerson, ERCOT Prabhu Gnanam, ERCOT Robert Golen, ERCOT Brandon Gleason, ERCOT

SALADO SWITCH – HUTTO SWITCH 138 KV LINE PROJECT

ERCOT RPG Submittal February 19, 2025



Business and Operations Services Assets Planning

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Executive Summary

Oncor Electric Delivery Company LLC (Oncor) and LCRA Transmission Services Corporation (LCRA TSC) propose a Tier 3 project (Proposed RPG Project). In the Proposed RPG Project,

Oncor will:

- Upgrade the 8.9-mile north circuit of the Hutto Switch Round Rock Switch 138 kV Double-Circuit Line to increase the maximum operating temperature of the existing 1590 kcmil ACSR conductor from 90°C to 150°C rated at 2064 A (493 MVA);
- Expand the existing Salado Switch to include the new Salado 138 kV Switch directly south of the existing Salado 345 kV Switch using a 6-breaker, 138 kV breaker-and-a-half arrangement;
- Rebuild the existing 36.4-mile Round Rock Westinghouse Tap Structure 25/8 Salado 138 kV Single-Circuit Line Section with double-circuit capable structures with two circuits installed using conductor rated at 2569 A (614 MVA) or greater to establish the Salado Switch – Hutto Switch 138 kV Double-Circuit Line;
- Loop the existing Bell County Switch (BEPC) Gabriel Substation (LCRA TSC) 138 kV Line into the Salado 138 kV Switch; and
- Move Midnight transformer #1 and Salado South transformer #1 to the Hutto Switch Salado Switch 138 kV Line.

LCRA TSC will:

- Rebuild the existing 1.2-mile Gabriel Substation (LCRA TSC) Structure 25/8 138 kV double-circuit transmission line section using 1926 ACSS/TW Cumberland conductor rated at 3135 A (749 MVA); and
- Upgrade terminal facilities at Gabriel, Georgetown East, and Georgetown South substations to accommodate the new conductor.

Steady-state assessments performed in Bell and Williamson Counties indicate thermal violations on the Hutto Switch – Gabriel Substation (LCRA TSC) 138 kV Line under contingency conditions. These violations were also identified in the 2023 ERCOT Regional Transmission Plan (RTP). The RTP identified reliability project 2023-SC17 to resolve the thermal violations. The Round Rock Westinghouse Tap – Salado 138 kV Line Section was built in the 1970s with wood H-frame structures and is nearing the end of its design life. The Proposed RPG Project will resolve identified thermal violations, replace the aged infrastructure with new components to meet the current Oncor standards, and provide greater thermal capacity for future load growth.

This Tier 3 project in Bell and Williamson Counties is recommended for construction to meet a May 2027 inservice date. The Proposed RPG Project will cost an estimated \$87.6 million. The Oncor portion will cost an estimated \$80.8 million and the LCRA TSC portion will cost an estimated \$6.8 million. This Proposed RPG Project is not expected to require a Certificate of Convenience and Necessity (CCN) filing with the Public Utility Commission of Texas. The completion dates may change depending on material acquisition, outage coordination, construction, or other project related requirements.

Oncor will work with ERCOT as necessary to develop and implement Constraint Management Plans based on summer operational conditions in 2025 through 2027. If needed, Oncor will utilize line sectionalizing switches as our primary method to mitigate overload risks under contingency conditions. As a last resort measure, Oncor may utilize load shed to further mitigate the risk of overloads.

Introduction

This submittal describes the need to upgrade the 8.9-mile mile north circuit of the Hutto Switch – Round Rock Switch 138 kV Double-Circuit Line, rebuild and install a second circuit on the existing 36.4-mile Round Rock Westinghouse Tap – Salado 138 kV Line Section, and establish the Salado 138 kV Switch. The Proposed RPG Project will mitigate reliability violations and allow for future load growth in the area. Figures 1 and 2 below display an area map and current configuration of the transmission system surrounding the Proposed RPG Project.



Figure 1: Texas Counties Map and Propose RPG Project Location



Figure 2 - Existing Salado Area One-line Diagram

Study Assumptions and Methodology

The steady state analysis utilized the ERCOT Steady State Working Group (SSWG) cases published on October 9, 2023 (23SSWG_2025_SUM1_U1_Final_10092023.sav, 23SSWG_2026_SUM1_U1_Final_10092023.sav, 23SSWG_2027_SUM1_U1_Final_10092023.sav). Additional topology changes were made to the base cases to incorporate the Oncor Temple Area Project, a Tier 1 project endorsed by the ERCOT Board of Directors in August 2024, and the LCRA TSC Sim Gideon to Cedar Hill Transmission Line Upgrade Project, a Tier 3 project that was accepted by RPG in June 2024.

The cases used for the dynamic studies were the Dynamic Working Group (DWG) 2026 Summer Peak Case (SUM2026_TPL_CNV.sav) and 2027 High Wind Low Load Case (HRML2027_TPL_CNV.sav) published in May 2024. Changes were made to the base cases to account for the topology changes necessary to implement the submitted project.

The short circuit analysis was performed using the System Protection Working Group (SPWG) case "23_SPWG_2025_FY_06302023_FINAL". The SPWG case was modified to include changes associated with the Proposed RPG Project, as well as other Oncor system changes that occurred since the development of the SPWG case.

Study Results and Project Need

Steady State Analysis

Oncor steady-state assessments for the 2025, 2026, and 2027 summer peak cases revealed thermal violations on the Hutto Switch – Gabriel Substation (LCRA TSC) 138 kV Line under post-contingency conditions. The post-contingency conditions that result in thermal violations include multiple contingency scenarios per NERC Standard TPL-001-5.1 and ERCOT Planning Guide Reliability Performance Criteria 4.1.1.2 1(d). The results justifying the need for the Proposed RPG Project and subsequent results after the Proposed RPG Project is completed are summarized in Table 1.

Dynamic Analysis

Oncor performed dynamic analysis to evaluate the impact of the Proposed RPG Project on the transmission system in this area. Select contingencies in the project area were studied before and after the implementation of the Proposed RPG Project. The study showed that no adverse dynamic stability impact was observed with implementation of the Proposed RPG Project. The DC Control Circuitry is not redundant and the P5 operation sequence for Auto #1 at Hutto results in an uncleared fault. Planning has already identified this instability issue and Planning Story P150 mitigates violation. This is a known issue and not as a result of the RPG.

Short-Circuit Analysis

Oncor performed short-circuit analysis to evaluate the impact of the addition of the Proposed RPG Project on the transmission system in the project area. Oncor did not identify any overdutied breakers resulting from the Proposed RPG Project.

	Overloaded Element		Hutto Switch - Round Rock Westinghouse Tap 138 kV Line Section	Georgetown South (LCRA TSC) - Round Rock Westinghouse Tap 138 kV Line Section	Gabriel (LCRA TSC) - Midnight 138 kV Line Section
	Contingency Elements		Round Rock Switch - Chief Brady (LCRA TSC) and Spanish Oak (LCRA TSC) 138 kV Double- Circuit Line	Round Rock Switch - Chief Brady (LCRA TSC) and Spanish Oak (LCRA TSC) 138 kV Double- Circuit Line	Hutto Switch - Round Rock Northeast 138 kV Line Section
	NERC Category		P7	P7	P2.1
Thermal	Rating Without / With Project		326 / 478 MVA	214 / 478 MVA	214 / 614 MVA
Loading	2025 SUM	Without Project	131.1%	135.3%	170.7%
		With Projects	28.6%	60.6%	11.8%
	2026	Without Projects	135.3%	134.3%	189.3%
	SUM	With Projects	25.8%	60.7%	10.3%
	2027 SUM	Without Projects	124.1%	115.3%	194.0%
		With Projects	27.5%	54.5%	9.5%

Table 1: Post-Contingency Thermal Loading Before and After the Proposed RPG Project

Aging Infrastructure Analysis

The Round Rock Westinghouse Tap – Salado Substation 138 kV Line Section was originally constructed in the 1970s. This transmission line was built using wood poles, porcelain insulators, and 795 ACSR "Drake" conductor with a rating of 214 MVA. The Round Rock Westinghouse Tap – Salado Substation 138 kV Line Section consists of 595 directly embedded wood poles, the majority of which exceed 45 years of service. The majority of structures include wooden crossarms, which also exceed 45 years of service. The poles and structural components are near the end of their design life, with a majority of these components having not been replaced after their original installation. Recent ground line inspection and aerial patrol reports indicate there are in excess of 210 poles with ground line decay or shell rot. The age and condition of the wood poles with ground line decay make them more vulnerable to storm or wind damage, which could impact reliability and continuity of service. Rebuilding this line will improve the line's overall performance, reduce future extensive maintenance requirements, and promote the reliable operation of the transmission grid.

Subsynchronous Resonance (SSR) Screening

The proposed upgrade takes place on the 138 kV transmission system, which does not require an SSR screening, per ERCOT Protocol 3.22.1.3, and therefore Oncor did not perform an in-depth SSR analysis.

Project Description

In order to address reliability and aging infrastructure concerns,

Oncor will:

- Upgrade the 8.9-mile north circuit of the Hutto Switch Round Rock Switch 138 kV Double-Circuit Line to increase the maximum operating temperature of the existing 1590 kcmil ACSR conductor from 90°C to 150°C rated at 2064 A (493 MVA);
- Expand the existing Salado Switch to include the new Salado 138 kV Switch directly south of the existing Salado 345 kV Switch using a 6-breaker, 138 kV breaker-and-a-half arrangement;
- Rebuild the existing 36.4-mile Round Rock Westinghouse Tap Structure 25/8 Salado 138 kV Single-Circuit Line Section with double-circuit capable structures with two circuits installed using conductor rated at 2569 A (614 MVA) or greater to establish the Salado Switch – Hutto Switch 138 kV Double-Circuit Line;
- Loop the existing Bell County Switch (BEPC) Gabriel Substation (LCRATSC) 138 kV Line into the Salado 138 kV Switch; and
- Move Midnight transformer #1 and Salado South transformer #1 to the Hutto Switch Salado Switch 138 kV Line.

LCRA TSC will:

- Rebuild the existing 1.2-mile Gabriel Substation (LCRA TSC) Structure 25/8 138 kV double-circuit transmission line section using 1926 ACSS/TW Cumberland conductor rated at 3135 A (749 MVA); and
- Upgrade terminal facilities at Gabriel, Georgetown East, and Georgetown South substations to accommodate the new conductor.

The Hutto Switch – Midnight 138 kV Line Section of the Hutto Switch – Salado Switch 138 kV Line will be rated at 478 MVA limited by the terminal equipment at Round Rock Northeast. The Round Rock Westinghouse – Midnight 138 kV Line Section of the Round Rock Switch – Georgetown South (LCRA TSC) – Georgetown East (LCRA TSC) 138 kV Line will be rated at 478 MVA limited by the terminal equipment at Georgetown South (LCRA TSC). The Jarrell East – Sonterra (BEPC) – Salado South 138 kV Line Section of the Gabriel Substation (LCRA TSC) – Salado Switch 138 kV Line will be rated 478 MVA limited by terminal equipment at Sonterra (BEPC).

The estimated cost for this project is \$87.6 million. The Oncor portion will cost approximately \$80.8 million and the LCRA TSC portion will cost approximately \$6.8 million.

One-Line Diagram

Figure 3 below shows a one-line diagram depicting the Proposed RPG Project.



Figure 3 - Proposed RPG Project One-Line

Alternative Solutions

Oncor considered constructing a new 138 kV circuit between Hutto Switch and Gabriel Substation (LCRA TSC). This alternative would require a CCN filing with the PUC, and does not address the aging infrastructure concerns on the existing Round Rock Westinghouse Tap – Salado 138 kV Line Section. Therefore, this alternative would result in significantly higher project cost and delayed in-service date. Additionally, the Proposed RPG Project will allow the existing, normally open Round Rock Switch – Round Rock Westinghouse Tap 138 kV Line Section to be placed in service, and provides improved system reliability in an area experiencing high load growth.

Recommendation

In order to address the reliability and aging infrastructure concerns,

Oncor will:

- Upgrade the 8.9-mile north circuit of the Hutto Switch Round Rock Switch 138 kV Double-Circuit Line to increase the maximum operating temperature of the existing 1590 kcmil ACSR conductor from 90°C to 150°C rated at 2064 A (493 MVA);
- Expand the existing Salado Switch to include the new Salado 138 kV Switch directly south of the existing Salado 345 kV Switch using a 6-breaker, 138 kV breaker-and-a-half arrangement;
- Rebuild the existing 36.4-mile Round Rock Westinghouse Tap Structure 25/8 Salado 138 kV Single-Circuit Line Section with double-circuit capable structures with two circuits installed using conductor rated at 2569 A (614 MVA) or greater to establish the Salado Switch – Hutto Switch 138 kV Double-Circuit Line;
- Loop the existing Bell County Switch (BEPC) Gabriel Substation (LCRATSC) 138 kV Line into the Salado 138 kV Switch; and
- Move Midnight transformer #1 and Salado South transformer #1 to the Hutto Switch Salado Switch 138 kV Line.

LCRA TSC will:

- Rebuild the existing 1.2-mile Gabriel Substation (LCRA TSC) Structure 25/8 138 kV double-circuit transmission line section using 1926 ACSS/TW Cumberland conductor rated at 3135 A (749 MVA); and
- Upgrade terminal facilities at Gabriel, Georgetown East, and Georgetown South substations to accommodate the new conductor.

This Proposed RPG Project is recommended to mitigate post-contingency thermal violations, address future load growth, and enhance system reliability in Bell and Williamson Counties.





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March 24, 2025

Mr. Yang Zhang Director, Transmission Planning Wind Energy Transmission Texas, LLC 1901 Capital Parkway, Suite 200 Austin, TX 78746

RE: WETT Pitchfork 345-kV Substation Addition Project

Dear Mr. Zhang:

The Electric Reliability Council of Texas (ERCOT) Regional Planning Group (RPG) has reviewed and accepted the following Tier 3 transmission project in accordance with ERCOT Protocol Section 3.11.4:

WETT Pitchfork 345-kV Substation Addition Project:

- Install a new Pitchfork 345-kV substation containing nine (9) 345-kV breakers in a breaker-anda-half configuration tapping into the existing Cottonwood to Nova Prime 345-kV double-circuit transmission line. The existing Cottonwood 345-kV substation and Nova Prime 345-kV substation are owned by WETT;
- Install two new 345-kV double-circuit transmission lines from the existing Cottonwood 345-kV substation to the new Pitchfork 345-kV substation with normal and emergency ratings of at least 2,896 MVA and 3,080 MVA, respectively, approximately 0.22 miles. The existing Cottonwood 345-kV substation is owned by WETT; and
- Install two new 345-kV single-circuit transmission lines from the new Pitchfork 345-kV substation to Nova Prime 345-kV substation with normal and emergency ratings of at least 2,896 MVA and 3,080 MVA, respectively, approximately 0.35 miles each. The existing Nova Prime 345-kV substation is owned by WETT.

Should you have any questions please contact me at any time.

Sincerely,

Knisti Hopps

Kristi Hobbs Vice President, System Planning and Weatherization Electric Reliability Council of Texas

cc:

Pablo Vegas, ERCOT Woody Rickerson, ERCOT Prabhu Gnanam, ERCOT Robert Golen, ERCOT Brandon Gleason, ERCOT

Pitchfork 345 kV Station Addition

ERCOT Regional Planning Group Submittal

February 07, 2025

Wind Energy Transmission Texas (WETT)

WIND EMERGY TRANSMISSION TEXAS, LLC



1 Executive Summary

Wind Energy Transmission Texas, LLC ("WETT") is submitting the proposed Pitchfork synchronous condenser station addition project to the Regional Planning Group for review and comment. Pursuant to ERCOT Protocol 3.11.4.3 this project will be categorized as a Tier 3 Project.

Odessa low voltage disturbances in 2021 and 2022 caused by single line to ground events led to substantial reduction in output from inverter-based resources (IBRs) located far away from the fault locations. In response to these disturbances, ERCOT performed a study to evaluate the benefits of synchronous condensers to strengthen the system in the West Texas (WTX) region and address the operational challenges caused by high IBRs penetrations in weak systems. The study concluded that new synchronous condensers at the six locations with a total of 2,100 MVA will improve the reliability and resilience of the West Texas system. The 345 kV substations at Cottonwood, Bearkat, Tonkawa, Long Draw, Reiter, and Bakersfield were identified as effective locations for the installation of synchronous condensers. Three out of six 345 kV substations, i.e. Cottonwood, Bearkat, and Long Draw, are WETT's facilities.

Capacity at existing Cottonwood station is reaching its limit and a new station is needed to accommodate for the synchronous condensers, as well as future transmission upgrades, generation, and large load interconnections. WETT recommends establishing a new 345 kV substation, Pitchfork, tapping existing Cottonwood to Nova Prime 345 kV double circuit line, to interconnect the synchronous condenser no later than May 2027. The scope of the proposed Pitchfork 345 kV station project includes:

- Establish new 345 kV Pitchfork station tapping existing Cottonwood to Nova Prime 345 kV double circuit line. The Pitchfork station will initially be installed with a 9-breaker, 345 kV, breaker-and-a-half bus arrangement.
- Construct 0.22-mile of double circuit 345 kV line connecting Pitchfork to T-313 (Cottonwood to Nova Prime circuit 1) and T-322 (Cottonwood to Nova Prime circuit 2). Construct two 0.35-mile of single circuit 345 kV lines on separate structures connecting Pitchfork to Cottonwood and install two 345 kV breakers at Cottonwood to accommodate the tie lines. Each line will have a normal rating of 2896 MVA and an emergency rating of 3080 MVA.

The cost estimate for the Pitchfork 345 kV station is \$57.57M. Cost estimate provided within this submittal are subject to revision as additional information is revealed. This Proposed RPG Project is a Tier 3 project and does not require a Certificate of Convenience and Necessity (CCN).

2 Introduction

In 2023, ERCOT performed a study to evaluate the benefits of synchronous condensers to strengthen the system in the West Texas region and address the operational challenges caused by high IBRs penetrations in weak systems. The Study concluded that new synchronous condensers at the six locations with a total of 2,100 MVA will improve the reliability and resilience of the West Texas system. The 345 kV substations at Cottonwood, Bearkat, Tonkawa, Long Draw, Reiter, and Bakersfield were identified as effective locations for the installation of synchronous condensers. Three out of six 345 kV substations, i.e. Cottonwood, Bearkat, and Long Draw, are WETT's facilities. Capacity at existing Cottonwood station is

reaching its limit and a new station is needed to accommodate for the synchronous condensers as well as future transmission upgrades, generation, and large load interconnections.



Figure 1: Pitchfork Project Location

3 Project Assessment

WETT performed an assessment in accordance with NERC TPL-001-5 and ERCOT Planning Guide on the proposed project. The assessment concludes that the proposed project does not create any new system performance deficiencies.

3.1 Power Flow Analysis

WETT conducted a power flow analysis to assess the impact of the proposed station addition project using the 2028 Summer Peak case (24SSWG_2028_SUM1_U1_Final_10142024.RAW) and 2028 Minimum Load (MIN) case (24SSWG_2028_MIN_U1_Final_10142024.RAW) from ERCOT 2024 U1 Steady State Working Group (SSWG) dataset published in October 2024. P1 through P7 contingencies and some extreme events in the study area were simulated. Tables 1 and 2 summarize the thermal loading observed in each of the cases. Tables 3 and 4 summarize the voltage profiles in the study area observed in each of the cases. WETT did not identify any new thermal or voltage violations resulting from the proposed project.

NERC			Loading %	
Catogony	Monitor Element	Contingency	2028 MIN	2028 MIN
Category			Pre-Project	Post-Project
P1	Blackwater Draw Switch (23920) - Double	Blackwater Draw Switch (23920) – Folsom	35.51	35.46
	Mountain Switch (23928)	Point Switch (23926) 345 kV line		
	345 kV Line			
P 1	White River (23922) - Blackwater Draw	Blackwater Draw Switch (23920) – Ogallala	32.94	32.88
	Switch (23920) 345 kV Line	(23912) 345 kV line		
P6	Blackwater Draw Switch (23920) –	1st event: White River (23922) - Blackwater	35.85	35.79
	Ogallala (23912) 345 kV line	Draw Switch (23920)345 kV line		
		2nd event: Cottonwood (59904) - White		
		River (23922) 345 kV line		

Table 2: Thermal Loading Under 2028 SUM System Condition

NEDC			Loading %	
Catagony	Monitor Element	Contingency	2028 SUM	2028 SUM
category			Pre-Project	Post-Project
P 1	Blackwater Draw Switch (23920) - Double	Blackwater Draw Switch (23920) - Folsom	67.9	67.71
	Mountain Switch (23928) 345 kV Line	Point Switch (23926) 345 kV Line		
P1	Tule Canyon (23915) – Kress Switch	Tule Canyon (23915) – Ozark Trail Switch	56.55	56.55
	(23913) 345 kV line	(23901) 345 kV Line		
P6	Cottonwood (59904) - White River	1st event: White River (23922) - Blackwater	53.55	53.58
	(23922) CKT1 345 kV line	Draw Switch (23920) 345 kV line		
		2nd event: Cottonwood (59904) - White		
		River (23922) 345 kV line CKT 2		

Table 3: Voltage Under 2028 MIN System Condition

	Monitored Bus	Contingency	Voltage p.u.	
NERC Category			2028 MIN Pre-Project	2028 MIN Post- Project
P 7	White River (23922) 345 kV Station	Cottonwood (59904) - White River (23922) 345 kV Double Circuit line	1.03	1.03
P7	Cottonwood (59904) 345 kV Station	Cottonwood (59904) - Edith Clark (60500) 345 kV Double Circuit line	1.03	1.02
P7	Nova Prime (59908) 345 kV Station	Nova Prime (59908) - Mhos (59911) 345 kV Double Circuit line	1.03	1.03
P7	Mhos (59911) 345 kV Station	Mhos (59911) - Dermott (11305) 345 kV Double Circuit line	1.03	1.03

NERC Category	Monitored Bus	Contingèn <i>c</i> y	Voltage p.u.	
			2028 SUM Pre-Project	2028 SUM Post- Project
P7	White River (23922) 345 kV Station	Cottonwood (59904) - White River (23922) 345 kV Double Circuit line	1.03	1.03
P7	Cottonwood (59904) 345 kV Station	Cottonwood (59904) - Edith Clark (60500) 345 kV Double Circuit line	1.03	1.03
P7	Nova Prime (59908) 345 kV Station	Nova Prime (59908) - Mhos (59911) 345 kV Double Circuit line	1.03	1.03
P7	Mhos (59911) 345 kV Station	Mhos (59911) - Dermott (11305) 345 kV Double Circuit line	1.03	1.03

Table 4: Voltage Under 2028 SUM System Condition

3.2 Stability Analysis

WETT conducted a stability analysis using 2030 Summer Peak (2030_SP_Final_NonCnv35.sav) and 2027 High Renewable Minimum Load (2027_HRML_Final_NonCnv35.sav) Dynamics Working Group (DWG) cases published in June 2024 to assess the impact of the proposed project. P1 through P7 contingencies in the study area were simulated. Based on the results of this analysis, the proposed synchronous station project is not expected to worsen system stability in this portion of the system and no new stability criteria violations were observed with the new system elements in place.

3.3 Short Circuit Analysis

WETT conducted a short circuit analysis to assess the impact of the proposed station addition project using the ERCOT System Protection Working Group (SPWG) future year 2028 short circuit case (24_SPWG_2028_FY_06292024_Final.OLR) published in June 2024. Based on the results of this analysis, the proposed project does not cause the need to upgrade any existing equipment for short circuit reasons.

3.4 Subsynchronous Resonance (SSR) Analysis

Since Pitchfork is a new 345 kV substation tapping existing Cottonwood to Nova Prime 345 kV double circuit line, the addition of the substation does not create any new or shorter paths leading to generation resources and synchronous condensers becoming radial to series capacitors in the event of fewer than 14 concurrent transmission outages. Therefore, no further SSR analysis is required for the proposed project.

Regarding the synchronous condensers to be installed at Pitchfork, WETT will coordinate with ERCOT to perform and complete a detailed SSR assessment and provide any mitigation plan, if required, prior to the energization of the synchronous condensers.

4 Project Scope

The project is estimated to be in-service by May 2027 and has an estimated cost of \$57.57 million. The scope of the proposed Pitchfork station project includes:

- Establish a new 345 kV Pitchfork station tapping existing Cottonwood to Nova Prime 345 kV double circuit line. The Pitchfork station will initially be installed with a 9-breaker, 345 kV, breaker-and-a-half bus arrangement.
- Construct 0.22-mile of double circuit 345 kV line connecting Pitchfork to T-313 (Cottonwood to Nova Prime circuit 1) and T-322 (Cottonwood to Nova Prime circuit 2). Construct two 0.35-mile of single circuit 345 kV lines on separate structures connecting Pitchfork to Cottonwood and install two 345 kV breakers at Cottonwood to accommodate the tie lines. Each line will have a normal rating of 2896 MVA and an emergency rating of 3080 MVA.



Figure 2: Pitchfork Station Project Schematic

5 Recommendation

WETT recommends that the addition of the proposed Pitchfork 345 kV station tapping existing Cottonwood to Nova Prime 345 kV double circuit line to accommodate for the synchronous condensers, as well as future transmission upgrades, generation, and large load interconnections.