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CY 2022 REPORTS OF THE	§	PUBLIC UTILITY COMMISSION
ELECTRIC RELIABILITY 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 ERCOT's acceptance of two Tier 3 transmission projects. One submitted by Oncor Electric Delivery Company (Oncor) and LCRA TSC, for which Oncor is the Transmission Service Provider (TSP), and one submitted by CPS Energy, for which CPS Energy is the TSP. The projects are detailed in Attachments A through D. ERCOT is prepared to provide the Commission with any additional information it may request regarding this matter.

Dated: October 3, 2022

Respectfully Submitted,

/s/ Katherine Gross

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ATTORNEYS FOR ELECTRIC RELIABILITY
COUNCIL OF TEXAS, INC.

September 27, 2022

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

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

RE: East Hutto Area 345/138-kV 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:

East Hutto Area 345/138-kV Project:

- Construct a new Limmer 345-kV Substation in the existing Hutto – Zorn and Hutto – Gilleland Creek double-circuit 345-kV line approximately 3 miles east of Hutto Switch. The Limmer Substation will be installed initially as a ten-breaker 345-kV breaker-and-a-half arrangement. All 345-kV terminal equipment will be rated for 5000 A. The existing Hutto 345-kV Switch is currently owned by Oncor. The existing Zorn and Gilleland Creek 345-kV substations are currently owned by LCRA TSC.
- Construct an approximately 400-ft loop of the existing Hutto – Zorn and Hutto – Gilleland Creek 345-kV double-circuit line (normal and emergency rating of 3200 MVA) into the new Limmer 345-kV Substation.
- Construct a new Teal Switch adjacent to the new Limmer 345-kV Substation. The Teal Switch will include the following elements:
 - Two 600 MVA 345/138-kV autotransformers
 - Two 345-kV high side breakers (one for each autotransformer). All 345-kV terminal equipment will meet or exceed 3200 A
 - A 138-kV Switch will be installed initially as a 6-breaker, 138-kV breaker-and-a-half bus arrangement. All 138-kV terminal equipment will meet or exceed 3200 A
- Construct an approximately 0.1-mile loop of the existing Hutto – Taylor 138-kV line (normal and emergency rating 478 MVA) into the new Teal 138-kV Switch. The existing Hutto and Taylor 138-kV substations are currently owned by Oncor.
- Construct two approximately 0.1-mile 345 kV bus-tie circuits (normal and emergency rating of 1912 MVA) between the new Limmer Substation and the new Teal Switch.

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

Sincerely,

D.W. Rickerson
Vice President, System Planning and Weatherization
Electric Reliability Council of Texas

cc:

Brad Jones, ERCOT
Prabhu Gnanam, ERCOT
Sun Wook Kang, ERCOT
Brandon Gleason, ERCOT

EAST HUTTO AREA 345/138 KV PROJECT

ERCOT RPG Submittal
August 29, 2022



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Executive Summary

Oncor Electric Delivery Company LLC (Oncor) and the Lower Colorado River Authority Transmission Services Corporation (LCRA TSC) propose a Tier 3 project that will provide a new 345 kV source in the Austin area. This project includes the following elements:

- Construct a new LCRA TSC-owned Limmer Substation in the Hutto – Zorn and Hutto – Gilleland Creek double-circuit 345 kV line approximately 3 miles east of Hutto Switch. Limmer Substation will be installed initially as a ten-breaker 345 kV breaker-and-a-half arrangement. All 345 kV terminal equipment will be rated for 5000 A;
- Construct an approximately 400-ft loop of the existing LCRA TSC-owned Hutto – Zorn and Hutto – Gilleland Creek 345 kV double-circuit line (normal and emergency rating of 3200 MVA) into the new LCRA TSC-owned Limmer Substation;
- Construct two approximately 0.1-mile 345 kV bus-tie circuits (normal and emergency rating of 1912 MVA) between LCRA TSC-owned Limmer Substation and Oncor-owned Teal Switch;
- Construct a new Oncor-owned Teal Switch adjacent to the new LCRA TSC-owned Limmer Substation. The Teal Switch will include the following elements:
 - Two - 600 MVA 345/138 kV autotransformers
 - Two - 345 kV high side breakers (one for each autotransformer). All 345 kV terminal equipment will meet or exceed 3200 A
 - A 138 kV Switch will be installed initially as a 6-breaker, 138 kV breaker-and-a-half bus arrangement. All 138 kV terminal equipment will meet or exceed 3200 A; and
- Construct an approximately 0.1-mile loop of the existing Oncor-owned Hutto – Taylor 138 kV line (normal and emergency rating 478 MVA) into the new Oncor-owned Teal 138 kV Switch.

New contracted loads and load interconnection requests have grown to a total of 2,200 MW, (1,900 MW of confirmed load and 300 MW of potential load), in Williamson, Bell, and Milam counties. Much of the existing load in the Round Rock and Hutto areas is served via the existing Hutto 345/138 kV Switch. Steady-state assessments performed for this area indicate that both 345/138 kV autotransformers at Hutto Switch may experience thermal exceedances under contingency conditions. The proposed project will provide additional 345 kV sources for this area, further network the area transmission facilities, and enhance system reliability.

The East Hutto Area Project is an ERCOT P6 violation that is resolved by the project in this RPG Submittal, see Table 1, which included 1900 MW of newly confirmed load plus 300 MW of additional potential load. The Hutto East – Pintail/Mallard – Brushy Creek 138 kV 2nd Circuit project, (approved by the Regional Planning Group 6/28/22), was submitted to relieve thermal overloading, provide higher levels of operational reliability for Pintail Switch and Mallard Switch, improve customer reliability, increase system capacity, and further network the

transmission system in the area. The Hutto East – Pintail/Mallard – Brushy Creek 138 kV 2nd Circuit project was studied with the same 1900 MW of confirmed load also seen in the East Hutto Area Project.

This estimated \$61.6 million (Oncor \$35.6 million estimate / LCRA TSC \$26.0 million estimate), Tier 3 project in Williamson County is recommended for construction to meet a December 2023 in-service date. The cost estimate accounts for the expectation that construction activities may occur using energized (hot) work processes. Oncor and LCRA TSC will work with ERCOT as necessary to develop and implement Constraint Management Plans based on summer 2023 operational conditions.

Introduction

This submittal describes the need to establish a new 345/138 kV switching station with two 600 MVA, 345/138 kV autotransformers approximately 3 miles east of the existing Hutto 345/138 kV Switch. Oncor has continued to see load growth in the area and large interconnection requests from customers, such as data centers and semiconductor manufacturing facilities. The existing Hutto Switch is the only 345 kV source in Williamson County. Steady-state studies indicate both 345/138 autotransformers at Hutto Switch may experience thermal exceedances under contingency conditions. Oncor expects Williamson County to have an additional industrial load requesting service to be a minimum of 350 MW, with the potential for an additional 350 MW minimum load service, (Phase 2), at the same location starting in 2023. The East Hutto Area 345/138 kV project will provide an additional 345 kV source to relieve thermal loading and maintain reliable service in the area.

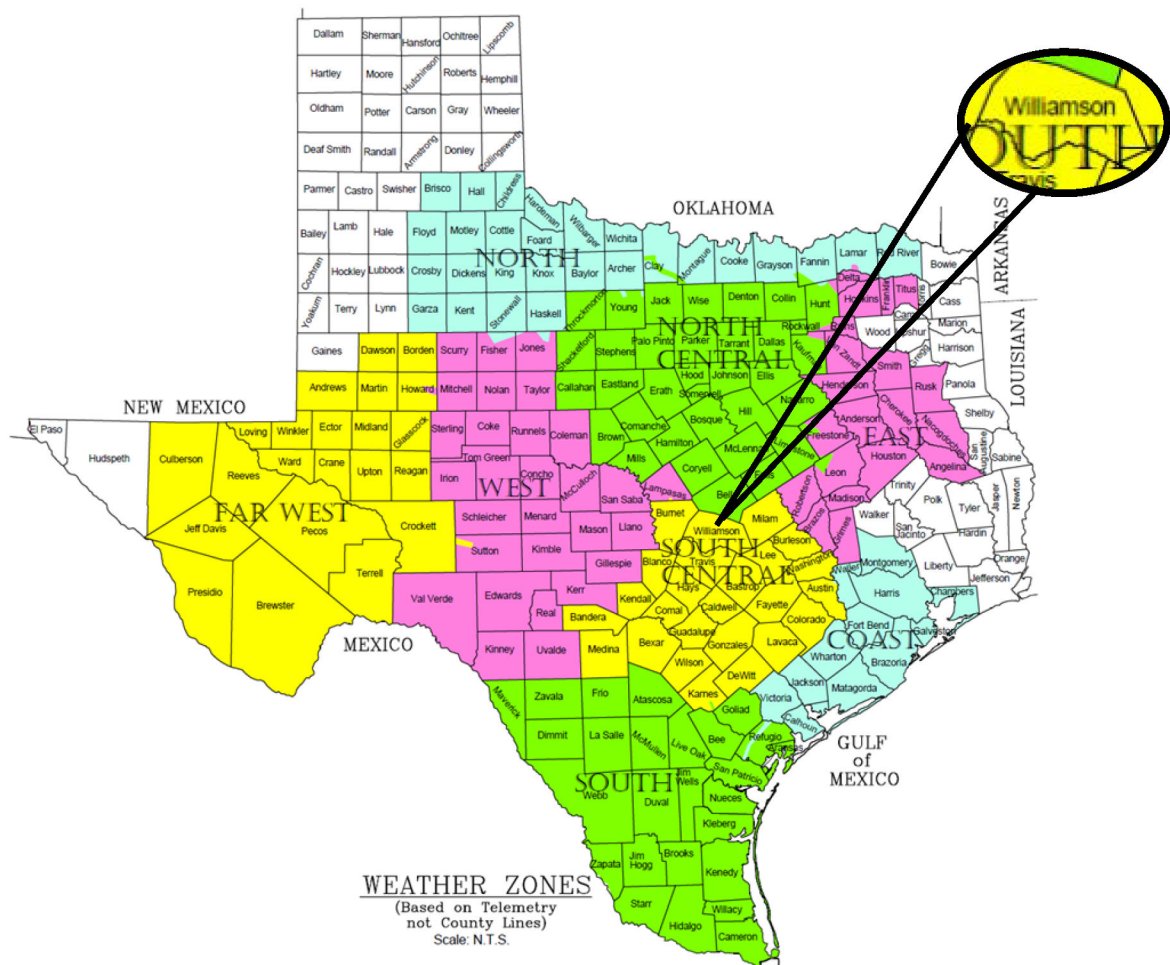


Figure 1: Existing Hutto Area Map and Proposed New Switch Location

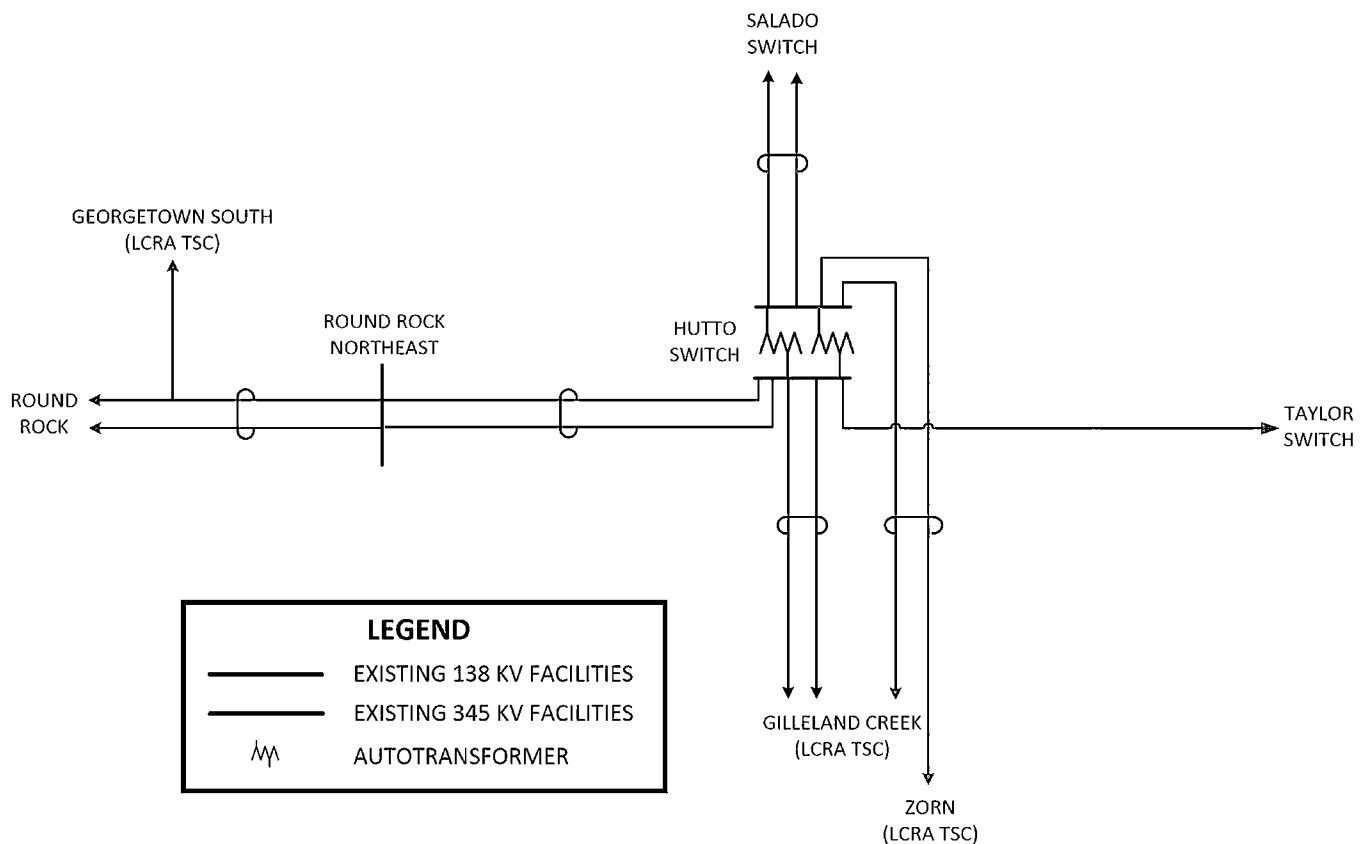


Figure 2: Existing Hutto Area One-Line

Purpose and Necessity

This project supports load growth in Williamson County. Limmer Substation and Teal 345/138 kV Switch will be a new transmission source for the area and will help mitigate post-contingency thermal exceedances.

Planning Analysis

The analyses described below were performed by Oncor with confirmation that this would be a joint submittal between Oncor and LCRA TSC. LCRA TSC acknowledges its portion of the recommended project scope, which will help Oncor meet the reliability needs of its transmission system.

Steady State Analysis

Oncor steady-state assessments for the 2023, 2025, and 2027 summer peak cases revealed thermal exceedances on the Hutto 345/138 kV Autotransformers under post-contingency conditions. The cases used for this study were the ERCOT Steady State Working Group (SSWG) cases published on February 24, 2022 (21SSWG_2023_SUM1_U2_FINAL_02242022.sav, 21SSWG_2025_SUM1_U2_FINAL_02242022.sav, and

21SSWG_2027_SUM1_U2_FINAL_02242022). The study cases included one additional recently contracted load in the area near the proposed project. The post-contingency conditions that result in thermal exceedances include multiple contingency scenarios per NERC Standard TPL-001-4 and ERCOT Planning Guide Reliability Performance Criteria 4.1.1.2 1(d). The results justifying the need for the proposed project and subsequent results after the proposed project is completed are summarized in Table 1.

Thermal Loading											
NERC Category	Contingency Elements	Overloaded Element	2023 SUM			2025 SUM			2027 SUM		
			Without Project	With Project (1 Auto)	With Project (2 Autos)	Without Project	With Project (1 Auto)	With Project (2 Autos)	Without Project	With Project (1 Auto)	With Project (2 Autos)
PRE-PROJECT											
P6	Hutto 345/138 kV Auto #2	Hutto 345/138 kV Auto #1	94%	N/A	N/A	115%	N/A	N/A	120%	N/A	N/A
	Hutto Switch — Gileland Creek Switch (LCRA) 345 kV Line										
POST PROJECT											
P6	Hutto 345/138 kV Auto #2	Hutto 345/138 kV Auto #1	N/A	55%	47%	N/A	62%	51%	N/A	69%	57%
	Hutto Switch — Limmer 345 kV Line (East OR West Circuit)										
P6	Hutto 345/138 kV Auto #2	Hutto 345/138 kV Auto #1	N/A	72%	70%	N/A	77%	74%	N/A	90%	87%
	Hutto Switch — Limmer 345 kV Double-Circuit Line										
P6	Leal 345/138 kV Auto #1	Hutto 345/138 kV Auto #1	N/A	74%	54%	N/A	86%	61%	N/A	104%	71%
	Hutto 345/138 kV Auto #2										

Table 1: Post Contingency Thermal Loading Before and After Project

Dynamic Analysis

Oncor performed dynamic analysis to evaluate the impact of the addition of this project on the transmission system in this area. The case used for the dynamic studies was the Dynamic Working Group (DWG) 2023 Summer Peak (SP) Case published in February 2021. System topology and load updates necessary to implement the proposed project were used in the study case. The analysis focused on studying the impacts of contingency events in the project area before and after implementation of the project. The results of the stability assessment, with the addition of the proposed RPG project, demonstrate that there is no adverse effect on the transmission system.

Short-Circuit Study

Oncor evaluated the short-circuit impacts of the proposed project using the System Protection Working Group case, “21_SPWG_2023_FY_06302021_FINALPASS”, and did not identify any overdutied breakers. Oncor’s most recent annual assessment indicated there are no known overdutied breakers in this area. Oncor will continue to perform annual short-circuit studies.

Subsynchronous Resonance (SSR) Screening

Oncor performed an SSR screening assessment on the 2023 Summer Peak case with all series capacitors and generator units in service, to identify new potential SSR vulnerabilities within the ERCOT system as a result of the proposed project. The study was performed with and without the proposed project and confirmed the proposed project did not create any new or shorter paths leading to generation sources becoming radial with series capacitors in the event of fewer than 14 concurrent transmission outages. No further SSR analysis is required for the proposed project.

Project Description

In order to address these reliability concerns, Oncor and LCRA TSC recommend the following:

- Construct a new LCRA TSC-owned Limmer Substation in the Hutto – Zorn and Hutto – Gilleland Creek double-circuit 345 kV line approximately 3 miles east of Hutto Switch. Limmer Substation will be installed initially as a ten-breaker 345 kV breaker-and-a-half arrangement. All 345 kV terminal equipment will be rated for 5000 A;
- Construct an approximately 400-ft loop of the existing LCRA TSC-owned Hutto – Zorn and Hutto – Gilleland Creek 345 kV double-circuit line (normal and emergency rating of 3200 MVA) into the new LCRA TSC-owned Limmer Substation;
- Construct two approximately 0.1-mile 345 kV bus-tie circuits (normal and emergency rating of 1912 MVA) between LCRA TSC-owned Limmer Substation and Oncor-owned Teal Switch;
- Construct a new Oncor-owned Teal Switch adjacent to the new LCRA TSC-owned Limmer Substation. The Teal Switch will include the following elements:
 - Two - 600 MVA 345/138 kV autotransformers
 - Two - 345 kV high side breakers (one for each autotransformer). All 345 kV terminal equipment will meet or exceed 3200 A
 - A 138 kV Switch will be installed initially as a 6-breaker, 138 kV breaker-and-a-half bus arrangement. All 138 kV terminal equipment will meet or exceed 3200 A; and
- Construct an approximately 0.1-mile loop of the existing Oncor-owned Hutto – Taylor 138 kV line (normal and emergency rating 478 MVA) into the new Oncor-owned Teal 138 kV Switch.

The estimated cost for this project is \$61.6 million (Oncor \$35.6 million estimate / LCRA TSC¹ \$26.0 million estimate).

¹ These estimates are based on the latest available data prior to final issued designs, and subject to revision until final LCRA TSC Board approvals as additional factors may be identified.

One-Line Diagram

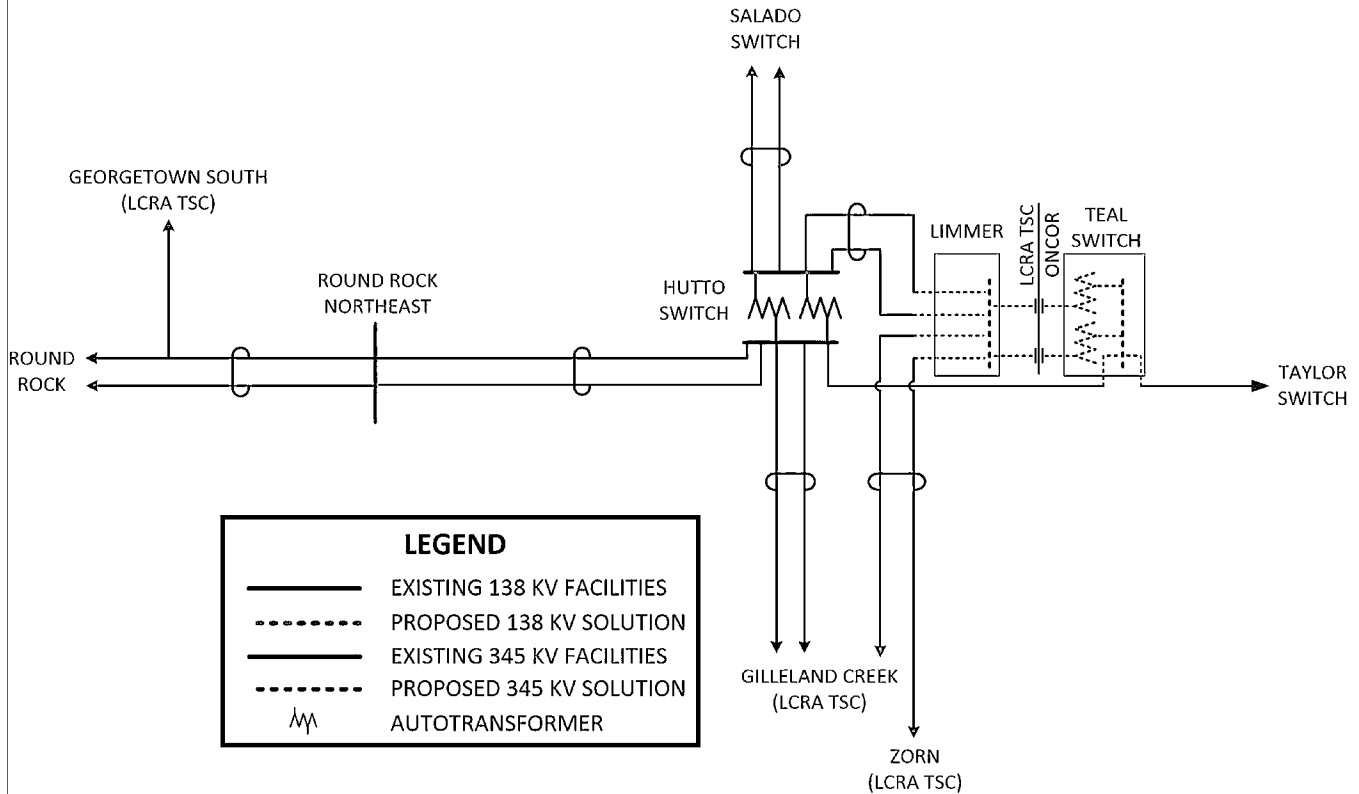


Figure 3: Proposed RPG Project One-Line

Alternative Solutions

Oncor also considered an alternative to the proposed project. Oncor studied installing a series reactor on each of the Hutto Switch 345/138 kV Autotransformers to alleviate the thermal loading observed and to address reliability concerns. This option had a cost estimate of \$5 million.

This alternative option was not chosen for the following reasons:

- This alternative does not address future load growth concerns in a fast growth area and ultimately results in degradation of system reliability;
- The series reactors would not provide an additional 345 kV source for the area;
- This alternative does not further network the area transmission facilities; and
- The current Hutto Switch property does not have additional space for expansion to include series reactor additions.

Project Cost

Proposed RPG Solution					
Component	Project Cost (Millions)			CCN Required	Circuit Miles
	Station Cost	Line Cost	Total Cost		
LCRA TSC 345 kV Limmer Substation	\$21.77	\$4.23	\$26.00	No	0.07
Oncor 345 kV breaker, 345/138 kV Autotransformer and Oncor 138 kV Switch	\$30.61	\$5.00	\$35.61	No	0.1
TOTAL COST	\$52.38	\$9.23	\$61.61		

Table 2: Recommended Project Cost Summary

Recommendation

In order to address the reliability concerns seen in the most recent studies, Oncor and LCRA TSC recommend the following:

- Construct a new LCRA TSC-owned Limmer Substation in the Hutto – Zorn and Hutto – Gilleland Creek double-circuit 345 kV line approximately 3 miles east of Hutto Switch. Limmer Substation will be installed initially as a ten-breaker 345 kV breaker-and-a-half arrangement. All 345 kV terminal equipment will be rated for 5000 A;
- Construct an approximately 400-ft loop of the existing LCRA TSC-owned Hutto – Zorn and Hutto – Gilleland Creek 345 kV double-circuit line (normal and emergency rating of 3200 MVA) into the new LCRA TSC-owned Limmer Substation;
- Construct two approximately 0.1-mile 345 kV bus-tie circuits (normal and emergency rating of 1912 MVA) between LCRA TSC-owned Limmer Substation and Oncor-owned Teal Switch;
- Construct a new Oncor-owned Teal Switch adjacent to the new LCRA TSC-owned Limmer Substation. The Teal Switch will include the following elements:
 - Two - 600 MVA 345/138 kV autotransformers
 - Two - 345 kV high side breakers (one for each autotransformer). All 345 kV terminal equipment will meet or exceed 3200 A
 - A 138 kV Switch will be installed initially as a 6-breaker, 138 kV breaker-and-a-half bus arrangement. All 138 kV terminal equipment will meet or exceed 3200 A; and
- Construct an approximately 0.1-mile loop of the existing Oncor-owned Hutto – Taylor 138 kV line (normal and emergency rating 478 MVA) into the new Oncor-owned Teal 138 kV Switch.

The new LCRA TSC Limmer Substation and Oncor Teal 138 kV Switch will be a new transmission source for the Williamson County area and will help mitigate post-contingency thermal exceedances. Oncor and LCRA TSC will work with ERCOT as necessary to develop and implement Constraint Management Plans before this project is energized.



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Attachment C

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September 7, 2022

Mr. Kenneth Bowen
Manager, Transmission Planning & Operations Engineering
CPS Energy
500 McCullough Ave
San Antonio, Texas 78215

RE: Hill Country 345/138-kV Autotransformer Replacement Project

Dear Mr. Bowen,

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:

Hill Country 345/138-kV Autotransformer Replacement Project:

- Replace the 345/138-kV Hill Country autotransformer 2 at the existing Hill Country substation with an autotransformer matching the impedance of Hill Country autotransformer 1.

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

Sincerely,

D.W. Rickerson
Vice President, System Planning and Weatherization
Electric Reliability Council of Texas

cc:

Brad Jones, ERCOT
Prabhu Gnanam, ERCOT
Sun Wook Kang, ERCOT
Brandon Gleason, ERCOT



Hill Country 345/138 kV Autotransformer Replacement Project

August 8, 2022

Prepared by:

CPS Energy

Transmission Planning

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Executive Summary

CPS Energy proposes a Tier 3 project to replace the Hill Country 345/138 kV autotransformer 2, located in Bexar County, prior to 2026 summer peak. The replacement of Hill Country autotransformer 2 will prevent premature failure and loss of this unit due to age and condition. In addition, CPS Energy's 2021 transmission planning assessment identified a Corrective Action Plan to address NERC Category P6/ERCOT Category 3 thermal overloading of the Hill Country autotransformer 2 starting in 2026 due to Load growth and retirement of local CPS Energy 138 kV generation. The project scope is as following:

- Replace the 345/138 kV Hill Country autotransformer 2 having a normal/emergency rating of 600/600 MVA, respectively

The total estimated cost for the project is \$6.9 million and will need to be energized by May 2026. The project will improve the overall reliability of the system and provide long term capacity considering retirement of the 138 kV VH Braunig Units 1, 2 and 3 and forecasted area load growth in San Antonio.

Introduction

CPS Energy proposes replacement of the Hill Country 345/138 kV autotransformer 2, located in Bexar County, prior to 2026 summer peak. The Hill Country 345/138 kV autotransformer 2 has been identified for replacement due to age and condition and for mitigation of ERCOT System performance deficiencies.

Background

CPS Energy proposes replacement of the Hill Country 345/138 kV autotransformer 2, located in Bexar County, prior to 2026 summer peak. The Hill Country autotransformer 2 has been identified as part of the CPS Energy Infrastructure Modernization capital replacement program. This equipment has been in service since 1979 and is currently being monitored for increased dissolved gas levels. These readings indicate the transformer could experience premature failure and loss of this unit would be significant for the transmission system. Replacing the Hill Country autotransformer 2 will improve the overall reliability of the system and will provide for continued service to our customers for many years forward.

An additional factor included in this study is an announcement made during a publicly held CPS Energy Board of Trustees meeting in January 2021 indicating the 138 kV VH Braunig Units 1, 2 and 3 will reach technical and potential end of life by end of year 2024. Load growth and retirement of 138 kV VH Braunig Units 1, 2 and 3 are causing the NERC Category P6/ERCOT Category 3 thermal overloading of the Hill Country autotransformer 2 for 2026 summer peak conditions. The thermal overload of the Hill Country autotransformer 2 is made worse due to being connected in parallel with Hill Country autotransformer 1 which has a higher impedance. The current CPS Energy autotransformer specification will result in the Hill Country autotransformer 2 replacement having an impedance similar to the impedance of Hill Country autotransformer 1; therefore, power flows will be balanced and mitigate the thermal loading concerns.

Study Assumptions

The SSWG cases posted on February 24, 2022 were used as the starting base cases for the analyses. The changes made to the base case are summarized in Appendix A.

Siemens PTI PSS®E Rev 33.12.2 was used for this study.

Steady State Power Flow Analysis

Thermal Loading

Steady state analysis was performed on the 2025 and 2026 summer peak base cases. The NERC Category P6/ERCOT Category 3 thermal overloading of the Hill Country autotransformer 2 begins during the 2025 summer peak conditions. The steady state thermal loading results are summarized in Table 1 comparing the base case and the cases containing the new Hill Country Auto#1 (study case). Shown below, considering 2025 and 2026 summer peak conditions.

Con Type	Overloaded Element	Unavailable Facility	Contingency	Base Case	Study Case	Base Case	Study Case
				2025 % MVA	2025 % MVA	2026 % MVA	2026 % MVA
P1	NO OVERLOADS	--	--	--	--	--	--
P2	NO OVERLOADS	--	--	--	--	--	--
P3	NO OVERLOADS	--	--	--	--	--	--
P4	NO OVERLOADS	--	--	--	--	--	--
P5	NO OVERLOADS	--	--	--	--	--	--
P6	Hill Country Autotransformer #2	Hill Country Autotransformer #1	Hill Country to La Sierra	102.4	77.1	103.2	77.6
P7/ERCOT1	NO OVERLOADS	--	--	--	--	--	--
ERCOT2	NO OVERLOADS	--	--	--	--	--	--
ERCOT3	Hill Country Autotransformer #2	Hill Country Autotransformer #1	Hill Country to La Sierra	102.4	77.1	103.2	77.6
ERCOT3	Hill Country Autotransformer #2	Hill Country Autotransformer #1	Howard to Spruce Howard to AVR	99.6	74.2	100.1	74.6
ERCOT3	Skyline Autotransformer #3	Skyline Autotransformer #4	Hill Country to Skyline Ckt1 Hill Country to Skyline Ckt2	98.5	99.8	99.6	100.9
ERCOT3	Skyline Autotransformer #4	Skyline Autotransformer #3	Hill Country to Skyline Ckt1 Hill Country to Skyline Ckt2	98.4	99.7	99.5	100.8
ERCOT3	Howard Autotransformer #1	Howard Autotransformer #2	Cagnon to Howard Ckt1 Cagnon to Howard Ckt2	98.6	99.1	99	99.6
ERCOT3	Howard Autotransformer #2	Howard Autotransformer #1	Cagnon to Howard Ckt1 Cagnon to Howard Ckt2	98.6	99.1	99	99.6

Table 1: Thermal Loading results for Study Cases which includes new Hill Country Auto 2

Voltage Violations

No voltage violation concerns were identified for NERC P0 through P7 and ERCOT Category 1 through 3 contingencies.

Short Circuit Analysis

The 2021 2026SPWG case (21_SPWG_2026_FY_06302021_FINAL.sav) was used to perform the analysis. The changes made to the base case are summarized in Appendix A. Fault currents are

calculated for three-phase and single-line-to ground faults using “classical fault analysis assumptions” at nearby buses. The addition of the proposed project did not cause significant change to fault current levels, as shown in Table 2.

Siemens PTI PSS®E Rev 33.12.2 was used for this study.

Bus		Facility Rating	2026 Base Case				2026 Study Case (with new Hill Country Auto 2)			
			3PH Fault		1PH Fault		3PH Fault		1PH Fault	
Name	kV	kA	kA	%	kA	%	kA	%	kA	%
Hill Country (5211)	345	50	39.3	79	37.7	753	39.1	78	37.5	75
Hill Country (5209)	345	63	51.4	82	37.1	59	51.4	82	36.7	58
Hill Country (5210)	345	63	49.8	79	36.4	58	46.7	74	33.3	53

Table 2: Short Circuit current level at proposed project nearby buses

Stability Analysis

The 2022 DWG Flat Start dataset was used for the stability analysis. The changes made to the base case are summarized in Appendix A. CPS Energy evaluated stability impacts of the project by calculating the Critical Clearing Time (CCT) at critical substations using TSAT. The CCT results indicated no stability concerns.

Sub-synchronous Resonance (SSR) Impact

The proposed project does not change the system topology; therefore, no in-depth SSR analysis is required.

Conclusion

CPS Energy recommends replacing the existing Hill Country autotransformer 2 with an autotransformer matching the impedance of Hill Country autotransformer 1. The total estimated cost for the project is \$6.9 million and will need to be energized by May 2026. The project will improve the overall reliability of the system and provide long term capacity considering retirement of the 138 kV VH Braunig Units 1, 2 and 3 and forecasted area load growth in San Antonio.

Appendix A

The following are the complete changes that have been made to the ERCOT cases to create the Internal base cases used:

CPS internal base cases

2025

- Moved Swing Bus to Martin Lake unit #2 in Oncor region
- Retired VH Braunig unit 1,2,3
- Reduced Oncor Load by 850 MW to compensate VH Braunig retirement
- Addition of Howard Rd 345/138 kV project
- Medina to 36th Street Line upgrade project
- Hamwolf to Medical Center upgrade project

2026

- Moved Swing Bus to Martin Lake unit #2 in Oncor region
- Retired VH Braunig unit 1,2,3
- Reduced Oncor Load by 950 MW to compensate VH Braunig retirement
- Addition of Howard Rd 345/138 kV project
- Medina to 36th Street Line upgrade project
- Hamwolf to Medical Center upgrade project

Per Planning Guide Section 6.9, Cachena Solar (23INR0027), Shaula I (22INR0251) and Shaula II (22INR0267) interconnecting to the Elm Creek to STP Ckt. #2 were added to the base cases. In addition, Libra BESS (22INR0366) interconnecting at the 345 kV Elm Creek switchyard was added to the SPWG case. No other generator dispatch changes were made, and no other new generators were added to create the Base case. North Texas load was reduced to balance load and generation.