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Item 5.2: 25RPG026 Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Regional Planning Group (RPG) Project

Kristi Hobbs
Vice President, System Planning and Weatherization

Board of Directors Meeting

June 1-2, 2026

Purpose

Provide an overview of the $233.3 million Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Tier 1 Reliability Project (Option 1). Per ERCOT Protocol Section 3.11.4.7 Tier 1 projects require endorsement by the ERCOT Board of Directors (Board).

Voting Items

ERCOT staff requests and recommends that Board endorse the Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild RPG Project (Option 1) based on North American Electric Reliability Corporation (NERC) and Electric Reliability Council of Texas, Inc (ERCOT) reliability planning criteria.

Key Takeaways

- Ensuring ERCOT's leadership for grid reliability and resilience, the Project has completed RPG review and received an independent assessment from ERCOT staff and unanimous endorsement by the Technical Advisory Committee (TAC).
- ERCOT studied several options and recommends Option 1 as it addresses all project needs in the study area, meets ERCOT and NERC reliability criteria, is the least cost option and is feasible for construction.

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Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Project

Oncor submitted the Paris Switch to Monticello Switch 345-kV Line Rebuild Project (25RPG026) for Reginal Planning Group (RPG) review in July 2025.

The purpose of the project is to address the reliability issues in Lamar, Franklin and Titus counties in the North, North Central and East Weather Zones.

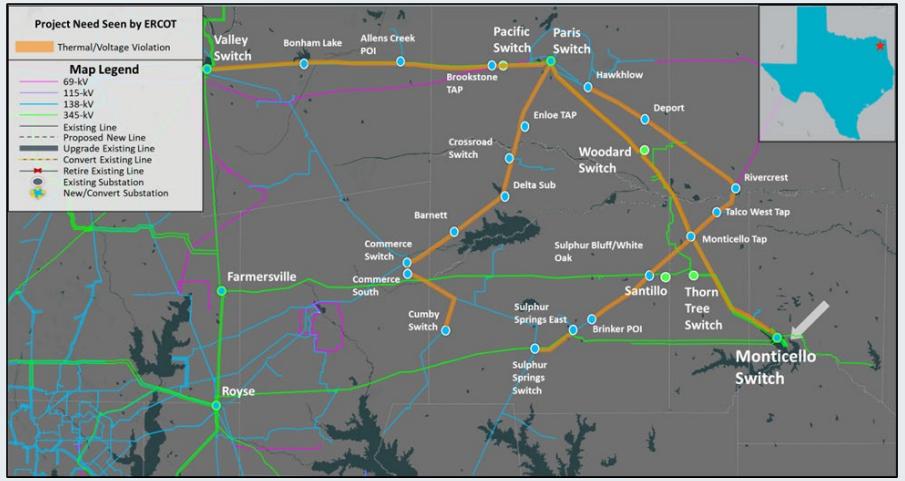
ERCOT performed an independent review of the project and identified thermal overloads flows in Lamar, Franklin and Titus counties in the North, North Central and East Weather Zones.

ERCOT's endorsement of the project is based on the reliability need to relieve **thermal overloads** on ~35.2 miles of 345-kV and ~187.0 miles of 138-kV, in Lamar, Franklin and Titus counties to meet NERC and ERCOT reliability planning criteria.

ERCOT's endorsement of the project is also based on the reliability need to relieve **thermal overloads** on ~58.3 miles of 138-kV to meet ERCOT's Minimum Deliverability Criteria.

Key Takeaway: The Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Project has completed RPG review and received unanimous endorsement by TAC.

Thermal Overloads Seen by ERCOT



Basis for ERCOT Board Endorsement

ERCOT's independent review identified a reliability need for the Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Project (Option 1) to satisfy:

NERC TPL-001-5.1 Table 1 Reliability Criteria for category:

- P3 and P6-2 contingencies

ERCOT Planning Guide Section Reliability Performance Criteria contingency:

- 4.1.1.2(1)(d): The contingency is a loss of a single generator followed by a single transmission element or common tower outage
- 4.1.1.2(1)(e): The contingency is a loss of a single transformer followed by a single transmission element or common tower outage
- 4.1.1.7: Minimum Deliverability Criteria

Key Takeaway: The Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Project (Option 1) is needed to reliably meet NERC and ERCOT Planning Guide criteria.

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Request for Board Vote

ERCOT staff requests and recommends that the Board endorse the need for the Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Project (Option 1) based on NERC and ERCOT reliability planning criteria.

The ERCOT Independent Review (EIR) is included as **Attachment A** to the Board Decision Template.

Key Takeaway: ERCOT studied several options and recommends Option 1 as it addresses all project needs, meets ERCOT and NERC Reliability Standard, is the least cost option and is feasible for construction.

ERCOT Recommendation

Rebuild the existing Paris Switch to Monticello Switch 345-kV transmission line using double-circuit capable structures with one circuit in place with a conductor rated 2,987 MVA or greater, for approximately 49.8 miles; and

Upgrade all terminal and associated equipment to meet or exceed 1,792 MVA.

Date: May 22, 2026
To: Board of Directors
From: Kristi Hobbs, Vice President, System Planning and Weatherization (ERCOT)
Subject: 25RPG026 Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Regional Planning Group (RPG) Project

Issue for the ERCOT Board of Directors

ERCOT Board of Directors Meeting Date: June 1-2, 2026

Item No.: 5.2

Issue:
Whether the Board of Directors (Board) of Electric Reliability Council of Texas, Inc. (ERCOT) should accept the recommendation of ERCOT staff to endorse the need for the Tier 1 Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Regional Planning Group (RPG) Project in order to meet the reliability requirements for the ERCOT System and address thermal overloads, in Lamar, Franklin and Titus counties in the North, North Central and East Weather Zones, which ERCOT staff has independently reviewed and which the Technical Advisory Committee (TAC) has voted unanimously to endorse.

Background/History:
Oncor proposed the Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Project in July 2025, a $231.75 million, Tier 1 project with the expected in-service date (ISD) of May 2027, to meet reliability planning criteria in Lamar, Franklin and Titus counties in the North, North Central and East Weather Zones. Protocol Section 3.11.4.7, Processing of Tier 1 Projects, requires ERCOT to independently review submitted projects. ERCOT performed an independent review of the Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Project and identified thermal overloads in Lamar, Franklin and Titus counties. The ERCOT project recommendation (Option 1), a $233.3 million, Tier 1 project with the expected ISD of May 2027 addresses the need for a project under North American Electric Reliability Corporation (NERC) and ERCOT Planning Criteria to address thermal overloads on approximately 35.2 miles of 345-kV, 245.3 miles of 138-kV, in Lamar, Franklin and Titus counties with the following ERCOT System improvements:

- Rebuild the existing Paris Switch to Monticello Switch 345-kV transmission line using double-circuit capable structures with one circuit in place with a conductor rated 2,987 MVA or greater, for approximately 49.8 miles; and
- Upgrade all terminal and associated equipment to meet or exceed 1,792 MVA.

ERCOT's independent review verified the reliability need for the Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Project to satisfy ERCOT Planning Guide Section 4.1.1.2(1)(d), Reliability Performance Criteria, contingency for the loss of a single generator followed by a single transmission element or common tower outage, 4.1.1.2(1)(e), Reliability Performance Criteria, contingency for the loss of a single transformer followed by a single transmission element or common tower outage, and 4.1.1.7, Minimum Deliverability Criteria.

RPG considered project overviews during meetings in September 2025 and April 2026. Between September 2025 and April 2026, ERCOT staff presented scope and status updates at RPG meetings in September 2025, January, February, March and April 2026. Pursuant to paragraph (2) of Protocol Section 3.11.4.9, Regional Planning Group Acceptance and ERCOT Endorsement, ERCOT presented the Tier 1 project to the Technical Advisory Committee (TAC) for review and comment, and on April 29, 2026, TAC unanimously endorsed the project as recommended by ERCOT. Pursuant to paragraph (1)(a) of Protocol Section 3.11.4.3, Categorization of Proposed Transmission Projects, projects with an estimated capital cost of $100 million or greater are Tier 1 projects, for which Protocol Section 3.11.4.7(2) requires endorsement by the Board. Pursuant to Section 3.11.4.9, ERCOT's endorsement of a Tier 1 project is obtained upon affirmative vote of the Board.

ERCOT's assessment of the Subsynchronous Oscillations (SSO) of existing facilities in Lamar, Franklin and Titus counties in the North, North Central and East Weather Zones, conducted pursuant to Protocol Section 3.22.1.3, Transmission Project Assessment, yielded no adverse SSO impacts to the existing and planned generation resources at the time of the study. Results of the congestion analysis ERCOT conducted pursuant to Planning Guide Section 3.1.3, Project Evaluation, indicated no significant new congestion in the area with the addition of the Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Project (Option 1).

The report describing the ERCOT Independent Review of the Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Project (Option 1), including ERCOT staff's recommendation, is included as ***Attachment A***.

Key Factors Influencing Issue:

1. ERCOT System improvements are needed to meet reliability planning criteria in Lamar, Franklin and Titus counties in the North, North Central and East Weather Zones.
2. ERCOT staff found the recommended set of improvements to be the most efficient solution for meeting the planning reliability criteria, addressing thermal overloads.
3. Protocol Section 3.11.4.7 requires Board endorsement of a Tier 1 project, which is a project with an estimated capital cost of $100 million or greater pursuant to Protocol Section 3.11.4.3(1)(a).
4. TAC voted unanimously to endorse the Tier 1 Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Regional Planning Group (RPG) Project (Option 1), as recommended by ERCOT, on April 29, 2026.

Conclusion/Recommendation:

ERCOT staff recommends that the Board endorse the need for the Tier 1 Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild RPG Project (Option 1), which ERCOT staff has independently reviewed, and which TAC has voted unanimously to endorse based on North American Electric Reliability Corporation (NERC) and ERCOT reliability planning criteria.

ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.

BOARD OF DIRECTORS RESOLUTION

WHEREAS, pursuant to Section 3.11.4.3(1)(a) of the Electric Reliability Council of Texas, Inc. (ERCOT) Protocols, projects with an estimated capital cost of $100 million or greater are Tier 1 projects, for which Section 3.11.4.7 requires endorsement by the ERCOT Board of Directors (Board); and

WHEREAS, after due consideration of the alternatives, the Board deems it desirable and in the best interest of ERCOT to accept ERCOT staff's recommendation to endorse the need for the Tier 1 Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Regional Planning Group Project (Option 1), which ERCOT staff has independently reviewed and which the Technical Advisory Committee (TAC) has voted unanimously to endorse based on North American Electric Reliability Corporation (NERC) and ERCOT reliability planning criteria;

THEREFORE, BE IT RESOLVED, that ERCOT is hereby authorized and approved to endorse the need for the Tier 1 Oncor Paris Switch to Monticello Switch 345-kV Line Rebuild Regional Planning Group Project (Option 1), which ERCOT staff has independently reviewed, and which TAC has voted unanimously to endorse based on NERC and ERCOT reliability planning criteria.

CORPORATE SECRETARY'S CERTIFICATE

I, Brandon Gleason, Assistant Corporate Secretary of ERCOT, do hereby certify that, at its June 1-2, 2026 meeting, the Board passed a motion approving the above Resolution by _____.

IN WITNESS WHEREOF, I have hereunto set my hand this ___ day of _____, 2026.

_____

Brandon Gleason

Assistant Corporate Secretary

ERCOT Independent Review (EIR) of the Oncor Electric Delivery Company LLC (Oncor) Paris Switch to Monticello Switch 345-kV Line Rebuild Project (25RPG026)

May 22, 2026

Document Revisions

Date	Version	Description	Authors
05/22/2026	1	Final	Abishek Penti
		Reviewed by	Robert Golen

Executive Summary

Oncor Electric Delivery Company LLC (Oncor) submitted the Paris Switch to Monticello Switch 345-kV Line Rebuild Project to the Electric Reliability Council of Texas' (ERCOT) Regional Planning Group (RPG) in July 2025. Oncor proposed this project to address North American Electric Reliability Corporation (NERC) Reliability Standard TPL-001-5.1 and ERCOT Planning Guide reliability criteria thermal overloads in Lamar, Franklin and Titus counties in the North, North Central and East Weather Zones.

Oncor's proposed project was estimated to cost approximately $231.75 million, was classified as a Tier 1 project under ERCOT Nodal Protocol Section 3.11.4.3 and would not require a Certificate of Convenience and Necessity (CCN) application.

ERCOT performed an independent review through which it identified reliability needs (thermal overloads) in the proposed project area and evaluated five transmission project options to resolve the identified reliability needs.

Based on the ERCOT Independent Review's (EIR) study results described in Section 5 and 6 of this report, ERCOT recommends Oncor's proposed project (Option 1) to address the identified reliability issues. Option 1 consists of the following:

- Rebuild the existing Paris Switch to Monticello Switch 345-kV transmission line using double-circuit capable structures with one circuit in place with a conductor rated 2,987 MVA or greater, for approximately 49.8 miles; and
- Upgrade all terminal and associated equipment to meet or exceed 1,792 MVA.

The cost estimate for this Tier 1 project is approximately $233.3 million and the expected in-service date (ISD) for the recommended project is May 2027. However, Oncor advised that the projected ISD may change depending on design, material acquisition, outage coordination, construction progress, or other project related requirements. A CCN application will not be required.

Table of Contents

1. Introduction

In July 2025, Oncor Electric Delivery Company LLC (Oncor) submitted the Paris Switch to Monticello Switch 345-kV Rebuild Project to the to the Electric Reliability Council of Texas' (ERCOT) Regional Planning Group (RPG) to address North American Electric Reliability Corporation (NERC) Reliability Standard TPL-001-5.1 and ERCOT Planning Guide reliability criteria thermal overloads under various contingency conditions in Lamar, Franklin and Titus counties in the North, North Central and East Weather Zones.

Oncor's proposed project was classified as a Tier 1 project under ERCOT Nodal Protocol Section 3.11.4.3, with an estimated cost of approximately $231.75 million. A Certificate of Convenience and Necessity (CCN) application would not be required, and the expected in-service date (ISD) for this project is May 2027.

ERCOT conducted an independent review for this RPG project to identify any reliability needs in the area and to evaluate five transmission upgrade options. This report describes the study assumptions, methodology, and the results of the ERCOT Independent Review (EIR) of the project.

Figure 1.1: Map of Transmission System in the Study Area

2. Study Assumptions and Methodology

ERCOT performed studies under various system conditions to identify any reliability issues and to determine transmission upgrades to support the proposed Paris Switch to Monticello Switch 345-kV Rebuild Project, if an upgrade is deemed necessary. This section describes the study assumptions and criteria used to conduct the independent study.

2.1. Study Assumptions for Reliability Analysis

This project is in the North, North Central and East Weather Zones in Lamar, Franklin and Titus counties. Fannin, Hopkins and Red River counties were also included in the study because of their electrical proximity to the proposed project.

2.1.1. Steady State Study Base Case

The Final 2024 Regional Transmission Plan (RTP) cases, published on the Market Information System (MIS) on December 20, 2024, were used as reference cases in this study. The 2029 Summer Peak Load case was selected for the long-term outlook. The steady-state study base case was constructed by updating transmission, generation, and load data of the 2029 Summer Peak Load case noted below:

- Case: 2024RTP_2029_SUM_ 12202024[1].

2.1.2. Transmission Topology

Transmission projects within the study area with ISDs by May 1, 2027, were added to the study base case. The ERCOT Transmission Project Information and Tracking (TPIT)[2] report posted in June 2025 was used as reference to identify the applicable project added to the study base case, as listed in Table 2.1.

[1] 2024 Regional Transmission Plan Postings: https://mis.ercot.com/secure/data-products/grid/regional-planning
[2] June 2025 TPIT Report: https://www.ercot.com/gridinfo/planning

Table 2.1: List of Transmission Projects Added to the Study Base Case

TPIT No	Project Name	Tier	Project ISD	TSP	County
92655	Oncor_MNE_92655_Farm Road 138 kV Switch	4	Aug-26	Oncor	Hopkins
92651	Oncor_MNE_92651_Barnett138 kV Switch	4	Feb-27	Oncor	Delta
90353	Establish Sandy Ranch 345 kV Switch	4	Aug-25	Oncor	Hopkins
87285	Establish Stouts Creek 345 kV Switch	4	Oct-25	Oncor	Hopkins
88063	Valley South 345 kV Switch New POI (Platinum Storage)	4	Mar-25	Oncor	Fannin
91060	Establish Flying Tiger 138 kV Switch	4	May-25	Oncor	Lamar

Table 2.2 lists the Transmission projects identified as placeholder projects in the 2024 RTP in the study area that have not been approved by RPG and were therefore removed from the study base case.

Table 2.2: List of Transmission Projects Removed from the Study Base Case

RTP Project Index	Project Name	County
2024-E6	Cumby RC (6861) to Cumby (1812) to Cumby Tap (1813-1815) 138-kV Line and Breaker Upgrades	Hopkins
2024-E8	Monticello Tap (1794) to Sulphur Springs East (1797) 138-kV Line Upgrades	Titus, Hopkins
2024-E14	Umbra (888843) to Monticello (1695) 345-kV Line Upgrade	Franklin, Titus
2024-E15	Umbra (888843) to Woodard (11699) 345-kV Line Upgrade	Franklin, Lamar
2024-E17	Sulphur Springs East (1797) to Martin Springs (1800) 138-kV Line Upgrade	Hopkins
2024-N07	Valley SES (1691) to Bells North POI (1699) to North Gate (12679) 138-kV Line Upgrade	Fannin, Grayson
2024-N10	Bonham (1808) to Copper Head Switch (11809) 138-kV Line Upgrade	Fannin
2024-N14	Hawk Hollow Switch (11768) to Monticello Tap (1794) 138-kV Line Upgrades	Franklin, Lamar, Red River, Titus
2024-N16	Delta Sub (1802) to Valley SES (1691) 138-kV Line Upgrades	Fannin, Hopkins, Hunt, Lamar
2024-N17	Bonham Switch (1760) to Bonham (1808) 138-kV Line Upgrade	Fannin

RTP Project Index	Project Name	County
2024-NC29	Allen Switch (2514) to Pineforest POI (888854) 345-kV Line Upgrade	Collin, Hopkins
2024-NC36	Commerce Switch (1816) to Crossroads Switch (1844) 138-kV Line Upgrade	Delta, Hunt
2024-NC50	Crossroads 138-kV Area Line Upgrades	Delta, Hopkins, Hunt, Lamar

2.1.3. Generation

Based on the August 2025 Generator Interconnection Status (GIS)[3] report posted on the ERCOT website on September 1, 2025, generators in the study area that met ERCOT Planning Guide Section 6.9(1) conditions with a commercial operations date (COD) prior to May 2027 were added to the study base case. These generation additions are listed in Table 2.3. All new generation dispatches were kept consistent with the 2024 RTP methodology.

Table 2.3: List of Generation Added to the Study Base Case Based on the August 2025 GIS Report

GINR	Project Name	Fuel	Project COD	Max Capacity (~MW)	County
20INR0203	Pine Forest Solar	SOL	12/01/2025	301.5	Hopkins
20INR0222	Tyson Nick Solar	SOL	09/19/2025	90.5	Lamar
22INR0526	Pine Forest BESS	OTH	10/29/2025	200.7	Hopkins
22INR0554	Platinum Storage	OTH	10/31/2025	309.5	Fannin
23INR0026	Baker Branch Solar	SOL	05/31/2026	469.4	Lamar
23INR0225	MRG Goody Solar	SOL	05/02/2026	170.8	Lamar
23INR0494	Cartwheel BESS 1	OTH	09/30/2025	154.2	Hopkins
24INR0186	Rowdy Creek Solar	SOL	04/01/2027	351.8	Lamar
24INR0187	Rowdy Creek BESS	OTH	04/01/2027	175.9	Lamar
24INR0305	MRG Goody Storage	OTH	05/02/2026	52.3	Lamar
24INR0490	Lupinus Storage 3	OTH	09/21/2026	50.9	Franklin

[3] August 2025 GIS Report: https://www.ercot.com/mp/data-products/data-product-details?id=PG7-200-ER

GINR	Project Name	Fuel	Project COD	Max Capacity (~MW)	County
25INR0368	Echols Creek Solar	SOL	04/03/2027	201.2	Lamar

The status of each unit that was projected to be either indefinitely mothballed or retired at the time of the study was reviewed. The units listed in Table 2.4 were opened (turned off) in the study base case to reflect their mothballed/retired status.

Table 2.4: List of Generation Opened to Reflect Mothballed/Retired/Forced Outage Status

Bus No	Unit Name	Max Capacity (~MW)	Weather Zone
110205	BYU_BYU_G8	4.0	Coast
110124	DOWGEN_DOW_G66	95.6	Coast
151361	CHISMGRD_G1	20.3	North Central

Generation listed in Table 2.5 were closed (turned on) in the study base case to reflect the change in their Generation Resource as these resources are returning to year-round service.

Table 2.5: List of Generation Closed to Reflect Returning to Service Status

Bus No	Unit Name	Max Capacity (~MW)	Weather Zone
110020	WAP_GT2	71.0	Coast
150023	MCSES_UNIT8	568.0	North Central

Generation in the North Central and East Weather Zones that did not meet Planning Guide Section 6.9(1) were opened (turned off) to balance power. These units are listed in Table 2.6.

Table 2.6: List of Generation Opened in the Study Base Case

Bus No	Unit Name	Max Capacity (~MW)	Weather Zone
1695	MOSES_5	1375.0	East
3103	SHAMBRGR_5	1375.0	East
3380	BIGBRNE_5	1375.0	East
68091	NAVARRO	1375.0	North Central

2.1.4. Loads

No additional Loads were added, and the minimum reserve requirements were kept consistent with the 2024 RTP methodology.

2.2. Minimum Deliverability Assessment

ERCOT performed a minimum deliverability assessment to identify potential reliability concerns under Planning Guide Section 4.1.1.7. The minimum deliverability criteria thresholds[4] used in this evaluation are listed below:

- The minimum percentage of capacity is set to 100% for any Generation Resource utilizing combined cycle, steam turbine, combustion turbine, hydro, or reciprocating engine technology.
- The minimum duration threshold for Energy Storage Resources (ESRs) is set to 2 hours (100% minimum percentage of capacity for ESRs with duration greater than or equal to 2 hours); and lower duration Resources are prorated to their continuous real power capability for 2 hours.

2.3. Maintenance Outage Scenario

ERCOT performed a maintenance outage evaluation based on historic off-peak system load. Conforming loads in the North, North Central and East Weather Zones were scaled down to 88%, 82%, and 76% of the summer peak load, respectively, to create the off-peak case. Loads designated as non-scalable remained at the same level as the base case. Next, ERCOT Planning Guide Section 4.1.1.8 Maintenance Outage Reliability Criteria was evaluated to identify and address violations.

2.4. Study Assumptions for Congestion Analysis

A congestion analysis was conducted to identify any new congestion in the study area with the addition of the preferred transmission upgrade option.

The 2025 RTP 2030 sensitivity economic study case was updated based on the February 2025 GIS[5] report for generation updates and the June 2025 TPIT[6] reports for

[4] https://www.ercot.com/files/docs/2022/06/28/Minimum_Deliverability_Criteria_Thresholds.pdf
[5] GIS Report: https://www.ercot.com/mp/data-products/data-product-details?id=PG7-200-ER
[6] TPIT Report: https://www.ercot.com/gridinfo/planning

transmission updates to conduct the congestion analysis. The 2030 study year was selected based on the proposed ISD of the project.

All transmission projects listed in Table 2.1 were added to the economic base case and the RTP projects listed in Table 2.2 were removed from the economic base case.

New generation unit additions listed in Table A.1 in Appendix A were added to the economic base case and all generation units listed in Table 2.4 were opened (turned off) in the study base case to reflect their mothballed/retired status. Furthermore, the generation units listed in Table 2.5 were removed from seasonal settings in the study base case as these resources are returning to year-round service.

2.5. Methodology

This section lists the contingencies and criteria used for project review along with the tools used to perform the various analyses.

2.5.1. Contingencies and Criteria

The reliability assessments were performed based on North American Electric Reliability Corporation (NERC) Reliability Standard TPL-001-5.1, ERCOT Protocols[7], and the ERCOT Planning Guide[8].

Contingencies[9] were updated based on the changes made to the topology as described in Section 2.1 of this document. The following steady-state contingencies were simulated for the study region:

- P0 (System Intact);
- P1, P2-1, P7 (N-1 conditions);
- P2-2, P2-3, P4, and P5 (Extra High Voltage (EHV) only);
- P3: G-1+N-1 (G-1: generation outages) {Eiffel Solar, Lamar Power Partners Combined Cycle, Kiamichi Energy Facility, Stampede Solar, Samson Solar, Rowdy Creek Solar, East DC Tie, Impact Solar, and Pineforest Solar}; and
- P6-2: X-1+N-1 (X-1: 345/138-kV transformers only) {Paris Switch, Monticello Switch, Sulphur Spring Switch, and Valley autotransformers}.

[7] ERCOT Protocols: https://www.ercot.com/mktrules/nprotocols/current
[8] ERCOT Planning Guide: http://www.ercot.com/mktrules/guides/planning/current
[9] Details of each event and contingency category are defined in the NERC reliability standard TPL-001-5.1

All 60-kV and above buses, transmission lines, and transformers in the study region were monitored (excluding generator step-up transformers) and the following thermal and voltage limits were enforced:

- Thermal:
  - Rate A (normal rating) for pre-contingency conditions; and
  - Rate B (emergency rating) for post-contingency conditions.
- Voltages:
  - Voltages exceeding pre-contingency and post-contingency limits; and
  - Voltage deviations exceeding 8% on non-radial load buses.

2.5.2. Study Tool

ERCOT utilized the following software tools to perform this independent study:

- PowerWorld Simulator version 24 for Security Constrained Optimal Power Flow (SCOPF) and steady-state contingency analysis; and
- UPLAN version 12.3.0.30786 to perform the congestion analysis.

3. Project Need

A steady-state reliability analysis was performed in accordance with NERC Reliability Standard TPL-001-5.1 and the ERCOT Planning Guide, as described in Section 2.5 of this document. This analysis indicated thermal overloads under P3(G-1+N-1), and P6-2(X-1+N-1). These issues are summarized in Table 3.1 and the detailed thermal overloads are listed in Table 3.2.

Table 3.1: Violations Observed Under NERC Reliability Standard TPL-001-5.1 and ERCOT Planning Guide in the Study Area

NERC Contingency Category	Voltage Violations	Thermal Overloads	Unsolved Power Flow
P0: N-0	None	None	None
P1, P2-1, P7: N-1	None	None	None
P3: G-1+N-1	None	3	None
P6-2: X-1+N-1	None	23	None

Table 3.2: Thermal Overloads Observed in the Study Area

NERC Contingency Category	Overloaded Element	Voltage Level (kV)	Length (~miles)	Max Loading (%)
P3: G-1+N-1	TOCO Switch to Paris Switch	138	3.3	101.17
P3: G-1+N-1	Umbra POI to Monticello Switch	345	17.1	111.5
P3: G-1+N-1	Woodard Switch to Umbra POI	345	17.1	111.5
P6-2: X-1+N-1	Barnett to Commerce	138	6.0	117.6
P6-2: X-1+N-1	Allens Creek POI to Bonham Lake POI	138	26.6	150.3
P6-2: X-1+N-1	Bonham Lake POI to Valley Switch	138	13.0	146.6
P6-2: X-1+N-1	Brinker POI to Sulphur Springs East Tap	138	2.6	121.7
P6-2: X-1+N-1	Brookstone Tap to Allens Creek POI	138	14.0	150.3
P6-2: X-1+N-1	Commerce South -> Cumby Tap	138	6.9	123.0
P6-2: X-1+N-1	Commerce Switch -> Commerce South	138	0.8	131.0
P6-2: X-1+N-1	Crossroads Switch to Commerce Switch	138	20.1	139.7

NERC Contingency Category	Overloaded Element	Voltage Level (kV)	Length (~miles)	Max Loading (%)
P6-2: X-1+N-1	Delta Sub to Barnett	138	9.1	117.6
P6-2: X-1+N-1	Deport REA -> Rivercrest Switch	138	13.7	231.4
P6-2: X-1+N-1	Enloe Tap -> Delta Sub	138	5.4	125.1
P6-2: X-1+N-1	Hawk Hollow Switch to Deport REA	138	11.7	231.4
P6-2: X-1+N-1	Monticello Tap to Sulphur Bluff	138	7.9	130.9
P6-2: X-1+N-1	Martin Springs to Sulphur Spring Switch	138	2.9	103.7
P6-2: X-1+N-1	Paris Kimberly Clark to Brookstone Tap	138	6.3	129.1
P6-2: X-1+N-1	Paris Switch to Enloe Tap	138	13.7	128.1
P6-2: X-1+N-1	Paris Switch to Paris Kimberly Clark	138	0.7	133.5
P6-2: X-1+N-1	Rivercrest Switch to Talco West Tap	138	5.1	215.8
P6-2: X-1+N-1	Sulphur Bluff to White Oak POI	138	0.1	130.1
P6-2: X-1+N-1	Sulphur Springs East Tap to Martin Springs	138	2.6	112.0
P6-2: X-1+N-1	Talco West Tap to Monticello Tap	138	4.3	215.8
P6-2: X-1+N-1	Valley Switch to Valley South	345	1.0	103.1
P6-2: X-1+N-1	White Oak POI to Brinker POI	138	10.2	127.5

A minimum deliverability assessment was performed on the base case based on Planning Guide Section 4.1.1.7 to identify any reliability violations under the minimum deliverability criteria. This analysis indicated thermal overloads under P7(N-1), P3(G-1+N-1), and P6-2(X-1+N-1). These issues are summarized in Table 3.3 and the detailed thermal overloads are listed in Table 3.4. The thermal overload violations identified in Table 3.1 and Table 3.3 are visually illustrated in Figure 3.1.

Table 3.3: Violations Observed Under ERCOT Minimum Deliverability Criteria in the Study Area

NERC Contingency Category	Voltage Violations	Thermal Overloads	Unsolved Power Flow
P0: N-0	None	None	None
P1, P2-1, P7: N-1	None	2	None

NERC Contingency Category	Voltage Violations	Thermal Overloads	Unsolved Power Flow
P3: G-1+N-1	None	1	None
P6-2: X-1+N-1	None	3	None

Table 3.4: Thermal Overloads Observed in the Study Area under Minimum Deliverability Criteria

NERC Contingency Category	Overloaded Element	Voltage Level (kV)	Length (~miles)	Max Loading (%)
P7: N-1	Monticello Tap to Sulphur Bluff	138	7.9	102.16
P7: N-1	Sulphur Bluff to White Oak POI	138	0.1	101.5
P3: G-1+N-1	Crossroads Switch to Commerce Switch	138	20.1	101.0
P6-2: X-1+N-1	Paris Switch to Woodard	138	16.2	112.7
P6-2: X-1+N-1	Umbra POI to Monticello Switch	138	17.1	112.6
P6-2: X-1+N-1	Woodard to Umbra POI	138	17.1	112.6

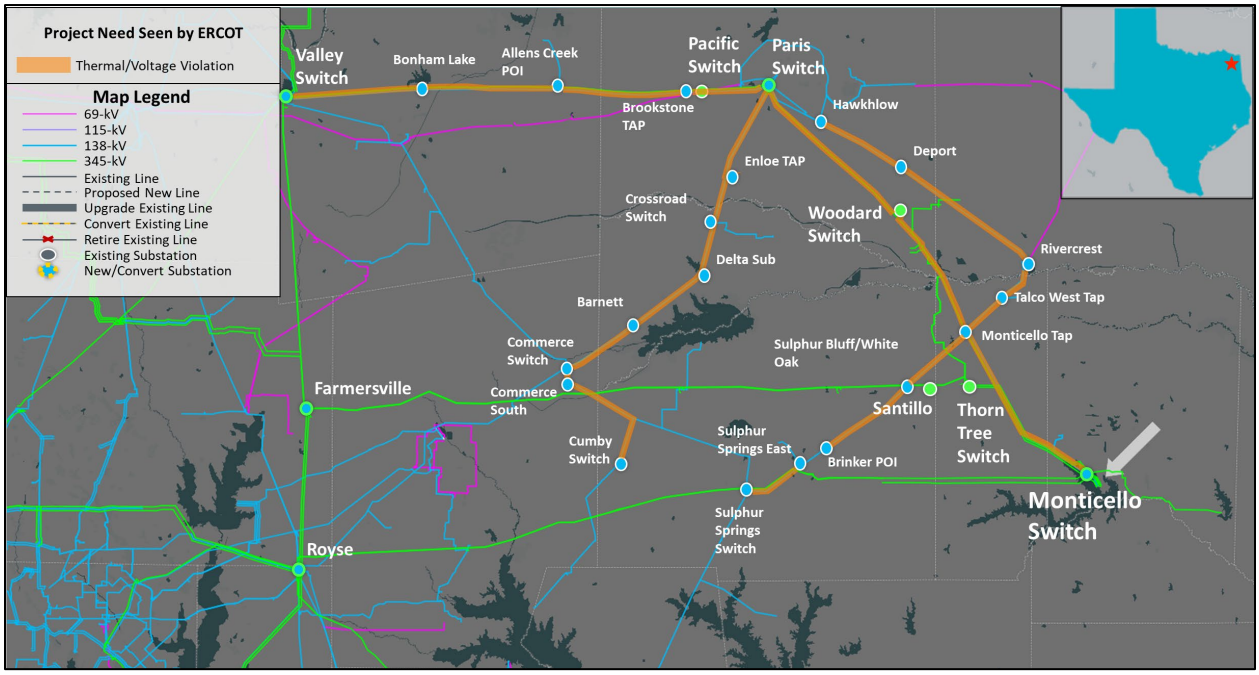

Figure 3.1: Study Area Map Showing Project Need

4. Description of Project Options

ERCOT evaluated five system improvement options to address the thermal overload issues that were observed in the study base case in the project study area.[10]

Option 1 (Oncor Proposed Solution) consists of the following:

- Rebuild the existing Paris Switch to Monticello Switch 345-kV transmission line using double-circuit capable structures with one circuit in place with a conductor rated 2,987 MVA or greater, for approximately 49.8 miles; and
- Upgrade all terminal and associated equipment to meet or exceed 1,792 MVA.

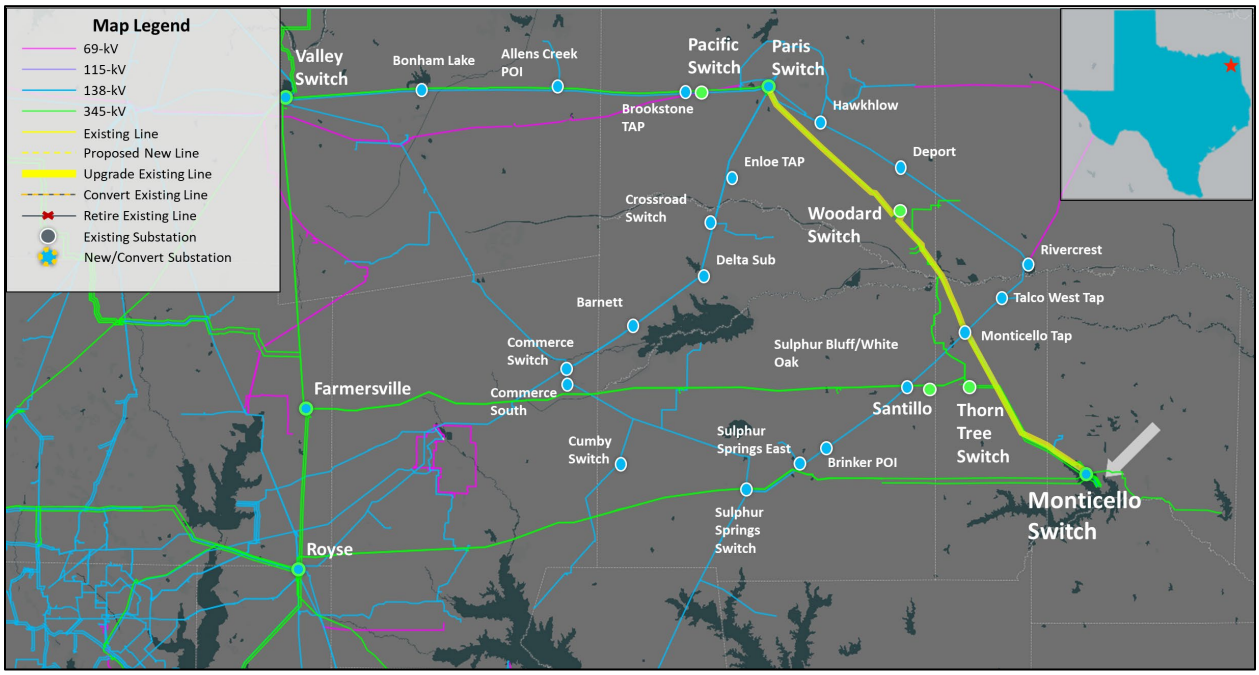

Figure 4.1: Map of Option 1

[10] Oncor proposed Option 1 as its preferred solution and Option 3 in the alternative. ERCOT created Option 2, Option 2A, and Option 3A as part of the evaluation process.

Option 2 consists of the following:

- Install a new 345/138-kV autotransformer at Paris Switch with a normal and emergency rating of 700 MVA and 750 MVA, respectively.

Figure 4.2: Map of Option 2

Option 2A consists of the following:

- Install a new 345/138-kV autotransformer at Paris Switch with a normal and emergency rating of 700 MVA and 750 MVA, respectively;
- Rebuild the existing Allen to Pineforest 345-kV transmission line using double-circuit capable structures with one circuit in place with a conductor rated 2,987 MVA or greater, for approximately 80.9 miles; and
- Rebuild the existing Monticello Tap to Sulphur Bluff, Sulphur Bluff to White Oak POI, White Oak POI to Brinker POI, and Brinker POI to Sulphur Springs East Tap 138-kV transmission lines using double-circuit capable structures with one circuit in place with a conductor rated 390 MVA or greater, for approximately 20.8 miles.

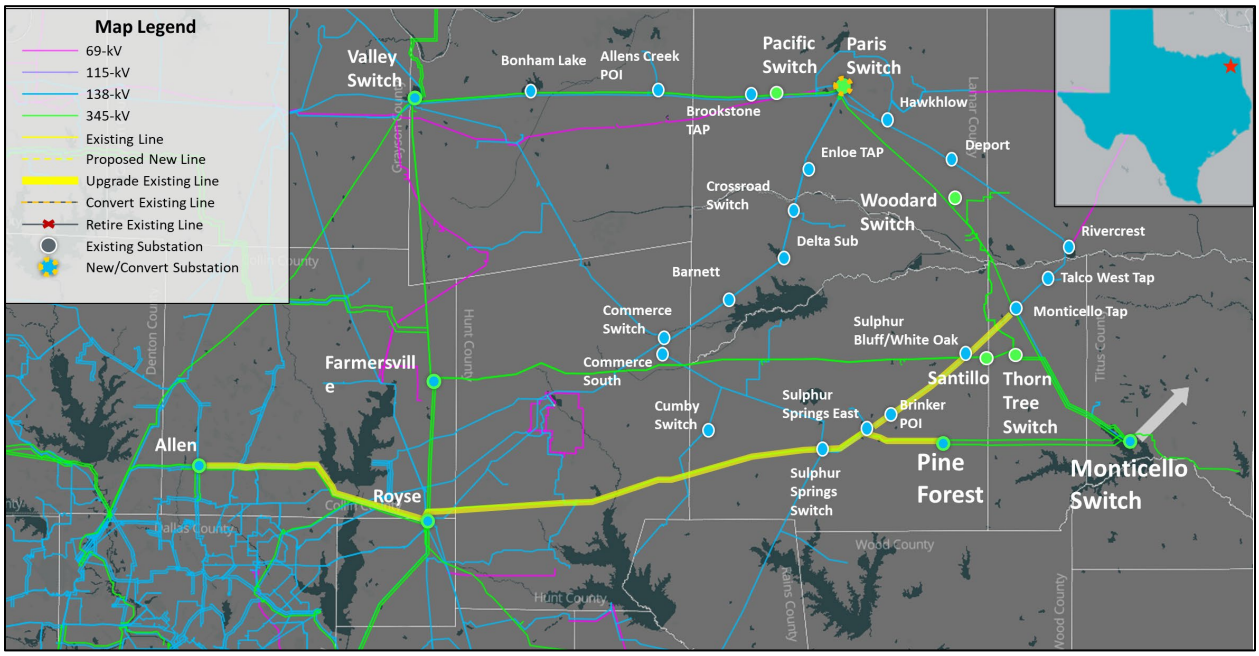

Figure 4.3: Map of Option 2A

Option 3 consists of the following:

- Construct a new second circuit from the Paris Switch to Monticello Switch 345-kV transmission line in parallel with the existing Paris Switch to Monticello Switch 345-kV transmission line on separate structures with a conductor rated 2,987 MVA or greater, for approximately 49.8 miles. This would require a new right of way (ROW); and
- Upgrade all terminal and associated equipment to meet or exceed 1,792 MVA.

Figure 4.4: Map of Option 3

Option 3A consists of the following:

- Construct a new second circuit from the Paris Switch to Monticello Switch 345-kV transmission line in parallel with the existing Paris Switch to Monticello Switch 345-kV transmission line on separate structures with a conductor rated 2,987 MVA or greater, for approximately 49.8 miles. This would require a new ROW;
- Upgrade all terminal and associated equipment to meet or exceed 1,792 MVA;
- Rebuild the existing Allen to Pineforest 345-kV transmission line using double-circuit capable structures with one circuit in place with a conductor rated 2,987 MVA or greater, for approximately 80.9 miles; and
- Rebuild the existing Monticello Tap to Sulphur Bluff, Sulphur Bluff to White Oak POI, White Oak POI to Brinker POI, and Brinker POI to Sulphur Springs East Tap 138-kV transmission lines using double-circuit capable structures with one circuit in place with a conductor rated 390 MVA or greater, for approximately 20.8 miles.

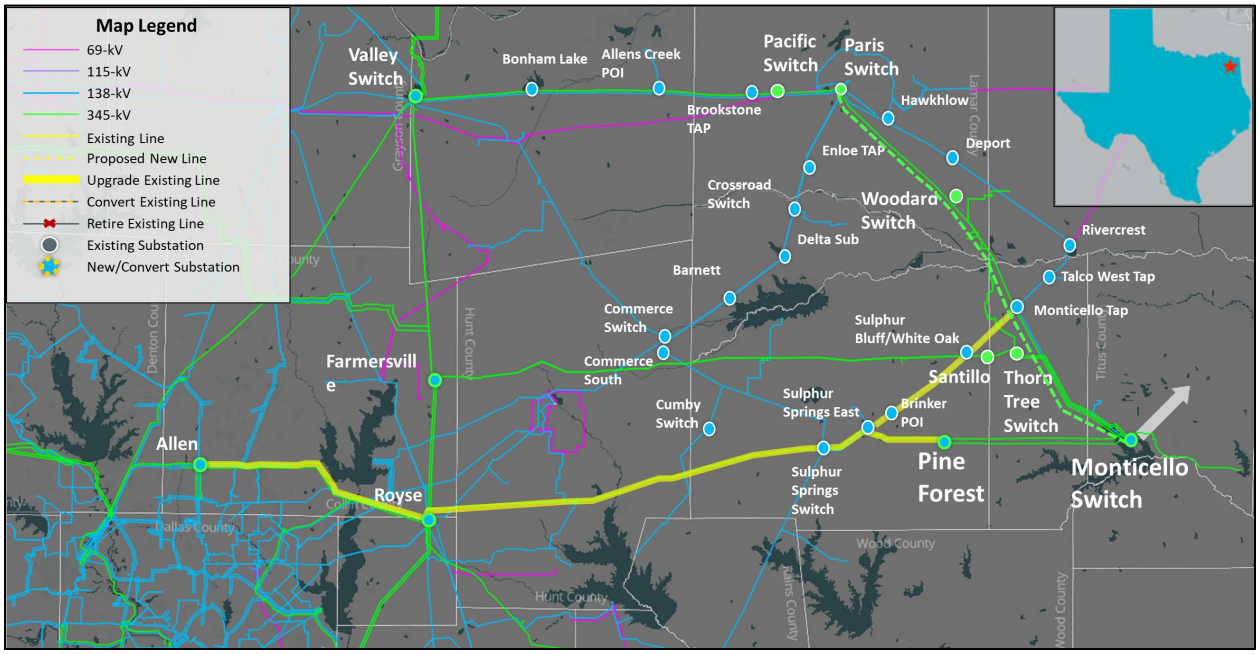

Figure 4.5: Map of Option 3A

5. Option Evaluations

ERCOT performed a reliability analysis, maintenance outage evaluation, and minimum deliverability assessment to evaluate all five project options and to identify any reliability impact of the options in the study area. This section details these studies and their results and compares each option's results.

5.1. Results of Reliability Analysis

All five options were evaluated based on the contingencies described in Section 2.5 of this report. As shown in Table 5.1, Option 2 and Option 3 identified reliability criteria (thermal overload) violations while Option 1, Option 2A and Option 3A did not.

Table 5.1: Results of Initial Reliability Assessment of All Five Options

Option	N-1		X-1+N-1		G-1+N-1		Unsolved Power Flow
	Thermal Overload	Voltage Violation	Thermal Overload	Voltage Violation	Thermal Overload	Voltage Violation	
1	None	None	None	None	None	None	None
2	None	None	3	None	3	None	None
2A	None	None	None	None	None	None	None
3	None	None	4	None	1	None	None
3A	None	None	None	None	None	None	None

5.2. Short-Listed Options

Based on the results shown in Section 5.1, Option 1, Option 2A, and Option 3A were selected as short-listed options for further evaluations. This section details these further evaluations and their results to compare the three short-listed options. These three short-listed options are illustrated in Figures 5.1, 5.2, and 5.3.

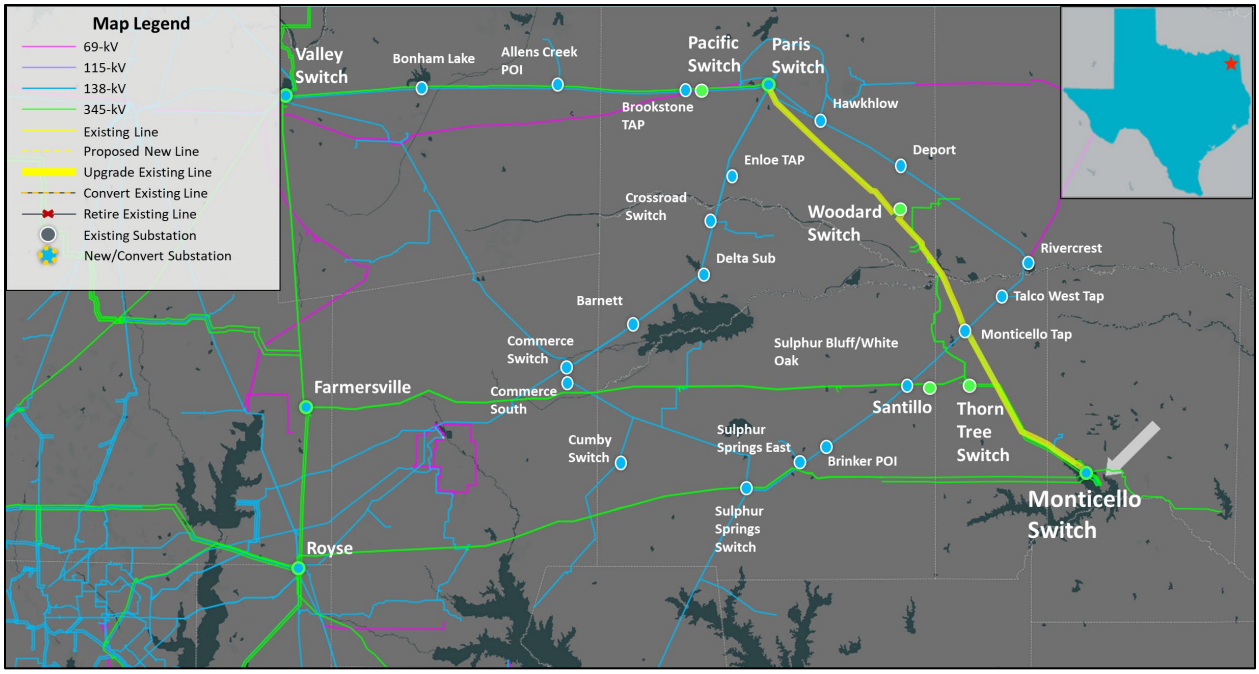

Figure 5.1: Map of Option 1

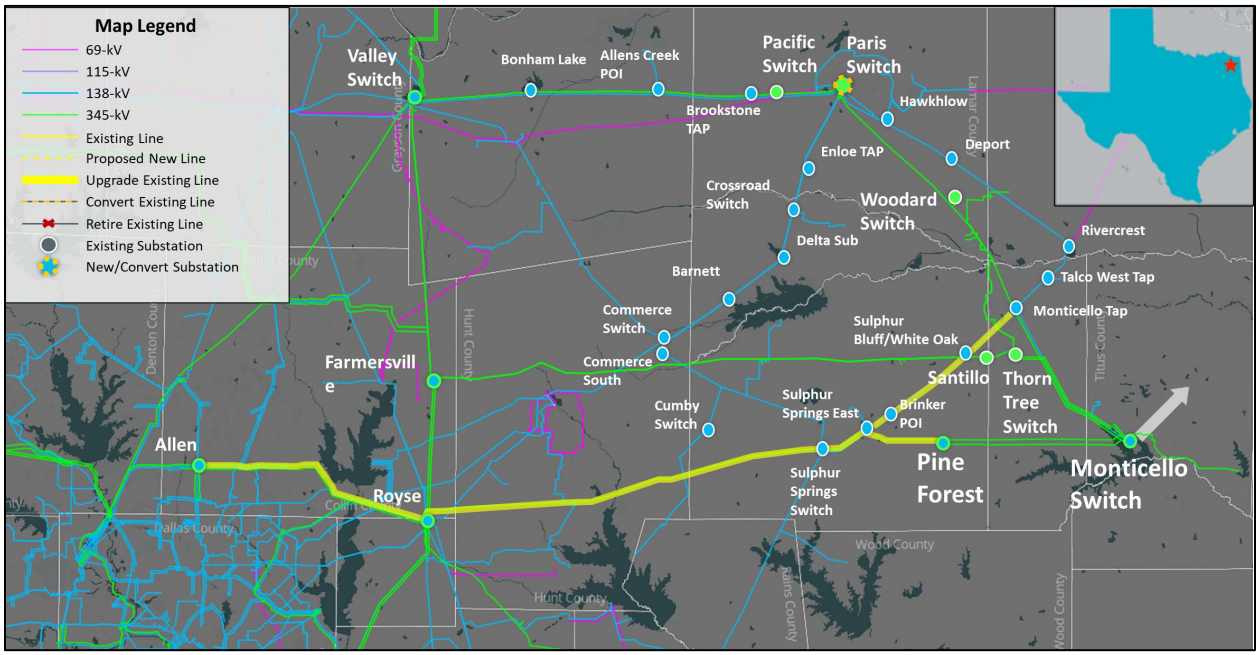

Figure 5.2: Map of Option 2A

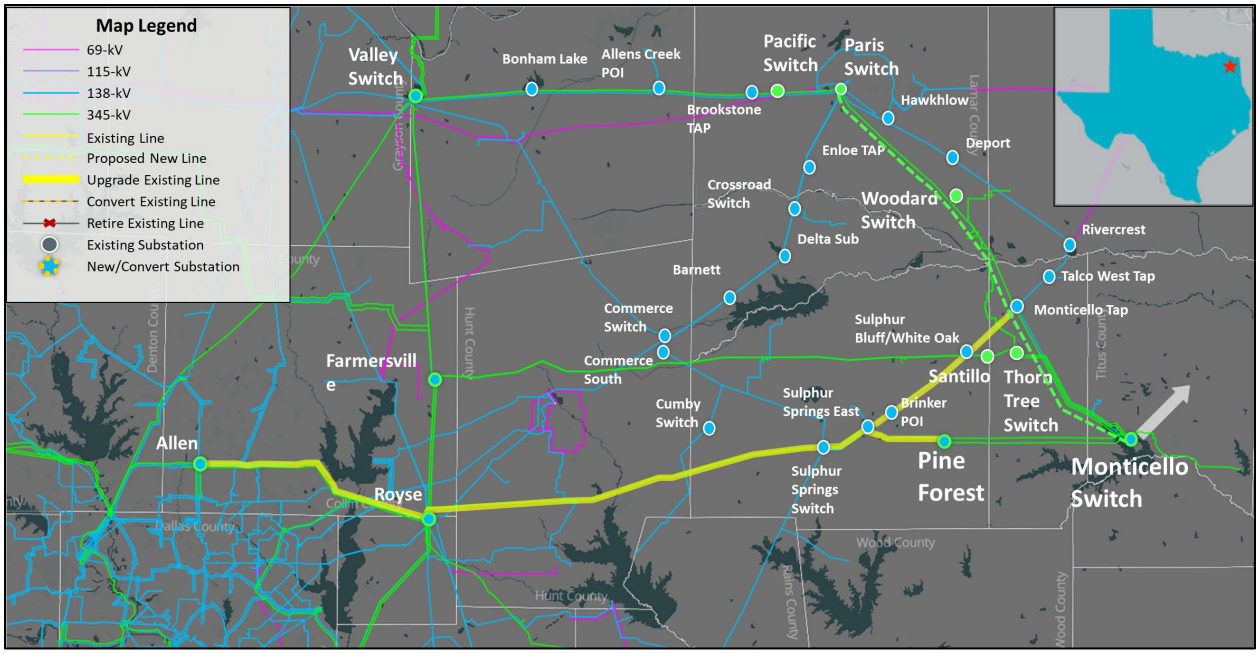

Figure 5.3: Map of Option 3A

5.3. Maintenance Outage Evaluation

Using the P1, P2.1, and P7 contingencies based on the review of the system topology of the study area, ERCOT conducted an N-2 contingency analysis for all three short-listed options to represent system element outage(s) under maintenance condition (N-1-1) in the area. Then, each N-2 violation was run as an N-1-1 contingency scenario, with system adjustments between the contingencies. The transmission elements in the study area were monitored in the maintenance outage evaluations.

As shown in Table 5.2, the results of the maintenance outage evaluations indicate Option 1 and Option 3A did not result in any reliability criteria violations.

Table 5.2: Results of Maintenance Outage Evaluation for the Three Short-Listed Options

Option	Voltage Violations	Thermal Overloads	Unsolved Power Flow
1	None	None	None
2A	20+	None	None
3A	None	None	None

5.4. Minimum Deliverability Assessment

ERCOT performed a minimum deliverability assessment to identify any reliability violations under the minimum deliverability criteria described in Section 2.2 of this report. No reliability criteria violations were identified for any of the three short-listed options under the minimum deliverability criteria as shown in Table 5.3.

Table 5.3: Results of Minimum Deliverability Assessment for the Three Short-Listed Options

Option	Voltage Violations	Thermal Overloads	Unsolved Power Flow
1	None	None	None
2A	None	None	None
3A	None	None	None

5.5. Cost Estimate and Feasibility Assessment

Oncor performed feasibility assessments and provided cost estimates for the three short-listed options. Table 5.4 summarizes the feasibility and cost estimates for the three short-listed options.

Table 5.4: Cost Estimates and Feasibility for the Three Short-Listed Options

Option	Cost Estimates (~$M)	CCN Required	Feasible
1	233.3[11]	No	Feasible
2A	296.9	No	Feasible
3A	285.6	No	Not Feasible

Based on Oncor's input, Option 3A was deemed infeasible due to expansion restrictions at the existing Paris Switch 345-kV facility.

[11] Updated cost estimate from the original estimate in the RPG submittal.

6. Comparison of Short-Listed Options

The comparison of Option 1, Option 2A, and Option 3A, with corresponding cost estimates provided by Oncor, are summarized in Table 6.1

Table 6.1: Comparison of the Three Short-Listed Options

	Option 1	Option 2A	Option 3A
Addresses the Project Needs	Yes	No	Yes
Met ERCOT and NERC Reliability Criteria	Yes	No	Yes
CCN Needed	No	No	No
Feasible	Yes	Yes	No
Capital Cost Estimates[12] (~$M)	$233.3[13]	$296.6	$285.6

ERCOT recommends Option 1 as the preferred option to address the reliability need in the study area based on the following considerations:

- Option 1 addresses the project need in the study area and meets ERCOT and NERC reliability criteria;
- Option 1 is the least cost option; and
- Option 1 is a feasible option.

[12] The cost estimates were provided by Oncor.
[13] Updated cost estimate from the original estimate in the RPG submittal.

7. Additional Analysis and Assessment

The preferred option (Option 1, approximately $233.3 million) is categorized as a Tier 1 project pursuant to ERCOT Nodal Protocol 3.11.4.3(1)(a). ERCOT performed a generation sensitivity analysis on the using the preferred option and considered load scaling impacts on the base case, as required under ERCOT Planning Guide Section 3.1.3(4). Additionally, a Subsynchronous Oscillations (SSO) Assessment and a Congestion Analysis were performed.

7.1. Generation Addition Sensitivity Analysis

ERCOT performed a generation addition sensitivity analysis based on ERCOT Planning Guide Section 3.1.3(4)(a).

Based on a review of the February 2026 GIS[14] reports, six (6) units were found within the study area that could have an impact on the identified reliability issues. These units, listed in Table 7.1, were added to the 2024 RTP's 2029 Summer Peak case following the 2024 RTP methodology. ERCOT determined that the addition of these generators does not impact Oncor's proposed Option 1.

Table 7.1: List of Units that could have an Impact on the Identified Reliability Issues

GINR	Unit Name	Fuel Type	Max Capacity (~MW)	County
24INR0136	Eagle Springs Storage	OTH	33.1	Delta
24INR0137	Eagle Springs Solar	SOL	77.2	Delta
24INR0154	Lupinus Solar 2	SOL	242.3	Franklin
24INR0136	Lupinus Storage 2	OTH	124.6	Franklin
25INR0164	Star Dairy Solar	SOL	125.6	Lamar
25INR0334	Star Dairy Storage	OTH	204.9	Lamar

[14] February 2026 GIS Report: https://www.ercot.com/mp/data-products/data-product-details?id=PG7-200-ER

7.2. Load Scaling Sensitivity Analysis

ERCOT Planning Guide Section 3.1.3(4)(b) requires an evaluation of the potential impact of load scaling on the criteria violations seen in the 2024 RTP study. Before 2024, ERCOT's RTP adopted the methodology of developing four sets of summer peak cases with each case representing one study region for each study year. For each summer peak case, the loads outside of the study region may be scaled down from the respective non-coincident summer peak levels to maintain a certain reserve requirement. This methodology may cause potential impact of load scaling on the criteria violations. Starting 2024, ERCOT's RTP adopted a new methodology of having one summer peak case for each study year with non-coincident peaks for each of the Weather Zones, which would eliminate the load scaling impact. As such, load scaling sensitivity analysis is no longer needed.

7.3. Subsynchronous Oscillations (SSO) Assessment

Pursuant to ERCOT Nodal Protocol Section 3.22.1.3(2), ERCOT conducted a SSO screening for the preferred Option 1 and found no adverse SSO impacts to the existing and planned generation resources in the study area.

7.4. Congestion Analysis

ERCOT conducted a congestion analysis to identify any potential impact on system congestion related to the addition of the preferred Option 1 using the 2025 RTP 2030 sensitivity economic study case.

The results of the congestion analysis indicated no additional congestion in the area due to the addition of the recommended Option 1 transmission upgrades.

8. Conclusion

ERCOT evaluated five transmission upgrade options to resolve the thermal overloads in the study area. Based on the results of the EIR, ERCOT recommends Oncor's proposed Option 1 as the preferred solution because it addresses all project needs in the study area, meets ERCOT and NERC reliability criteria, is the least cost option, and is feasible.

Option 1 consists of the following upgrades:

- Rebuild the existing Paris Switch to Monticello Switch 345-kV transmission line using double-circuit capable structures with one circuit in place with a conductor rated 2,987 MVA or greater, for approximately 49.8 miles; and
- Upgrade all terminal and associated equipment to meet or exceed 1,792 MVA.

Figure 8.1: Map of Option 1

Oncor's cost estimate for this Tier 1 project is approximately $233.3 million and the expected ISD for the recommended project is May 2027. However, Oncor advised that the projected ISD may change depending on design, material acquisition, outage coordination, construction progress, or other project related requirements. A CCN application will not be required.

9. Appendix

A: Generation Added to the Economic Base Case

Table A.1: List of Generation Added to the Economic Base Case Based on February 2025 GIS Report

GINR	Project Name	Fuel	Project COD	Max Capacity (~MW)	County
24INR0136	Eagle Springs Storage	OTH	12/31/2026	33.1	Delta
24INR0137	Eagle Springs Solar	SOL	12/31/2026	77.2	Delta
24INR0187	Rowdy Creek BESS	OTH	04/01/2027	175.9	Lamar
25INR0368	Echols Creek Solar	SOL	04/03/2027	201.6	Lamar

B: Attachments

Table B.1: Project Related Document

No	Document Name	Attachment
1	Paris Switch to Monticello Switch 345-kV line Rebuild Project	Oncor_Paris_Switch -Monticello_Switch_