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Item 5.5: 25RPG041 & 25RPG043 Combined Oncor Set 1 North Central and South Central Texas Reliability Project & Oncor Set 2 North Central and South Central Texas Reliability 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 $381.09 million Oncor Combined Set 1 North Central & South Central Texas Reliability Project & Set 2 North Central & South Central Texas Tier 1 Reliability Project. 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 the Board endorse the Oncor Combined Set 1 North Central & South Central Texas Reliability Project & Set 2 North Central & South Central Texas Reliability RPG Project (Group 2 upgrades) 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).
- The 2024 and 2025 Regional Transmission Plan (RTP) performed comprehensive evaluations for determining the projects identified in Oncor's Set 1 and Set 2 submissions to address the significant additional new load growth and ensure reliability.

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Oncor Combined Set 1 North Central & South Central Texas Reliability Project & Set 2 North Central & South Central Texas Reliability RPG Project

Oncor submitted the Set 1 North Central & South Central Texas Reliability Project (25RPG041) and the Set 2 North Central & South Central Texas Reliability Project (25RPG043) for Reginal Planning Group (RPG) review in November 2025.

The purpose of these projects is to address the reliability issues in Bell, Falls, Henderson, Hill, Limestone, McLennan, Milam, Smith, and Navarro counties in the North Central, South Central, and East Weather Zones.

ERCOT performed a single independent review of the two projects and divided into three groups.

ERCOT's endorsement of the project is based on the need to meet reliability needs driven by rapidly growing electrical demand. ERCOT performed a comprehensive evaluation for determining the upgrades required to satisfy the reliability needs in the 2024 and 2025 RTP evaluations.

ERCOT Presented the project and TAC voted unanimously to endorse the project on May 19, 2026.

Key Takeaway: The Oncor Combined Set 1 North Central & South Central Texas Reliability Project & Set 2 North Central & South Central Texas Reliability Project (Group 2 upgrades) has completed RPG review and received unanimous endorsement by TAC.

Transmission Upgrade Summary by Group:

1. Evaluated and included in the recently studied Oncor and LCRA Transmission Services Corporation (LCRA TSC) Muscovy and Voss Lake 345/138-kV Project (25RPG009). These upgrades will be seeking June 2026 ERCOT Board endorsement and as a result, were removed from and not considered in this EIR.

2. Those that ERCOT confirmed and approved based on the reliability need identified in the 2024 RTP and 2025 RTP evaluations.

3. Projects with alternatives provided by Brazos Electric Cooperative and Lone Star Transmission, LLC were removed from consideration in this EIR and will be studied separately.

Basis for ERCOT Board Endorsement

With TDSP full Officer Letter Loads in the EIR, the study area contained over 19 GW of large loads compared to the 2025 RTP load level (and over 18 GW compared to the 2024 RTP load level) as the 2025 RTP used an adjusted load forecast.

Weather Zone	EIR Study Load Level (~MW)	2025 RTP 2031 Load (~MW)	2024 RTP 2030 Load (~MW)
East	3,599	3,269	3,756
North Central	55,410	39,606	46,424
South Central	30,872	27,969	21,181
Total	89,880	70,844	71,361

Based on the evaluation of loads and transmission projects, ERCOT proposed to confirm and approve the Group 2 upgrades.

ERCOT is conducting a separate independent review of the Group 3 upgrades to determine the best solution to address the need in the study area. ERCOT's recommendation, EIR report, and ERCOT's seeking endorsement by ERCOT Board for Group 3 transmission upgrades are tentatively scheduled for Q3-2026.

Key Takeaway: The Group 2 upgrades identified in the Oncor Combined Set 1 North Central & South Central Texas Reliability Project & Set 2 North Central & South Central Texas Reliability Project are needed to meet the reliability needs driven by rapidly growing electrical demand.

Overall Project Summary for Group 2 Upgrades

Construct approximately 13.8 miles of new 345-kV double-circuit transmission lines;

Rebuild approximately 67.0 miles of existing 138-kV single-circuit transmission lines;

Rebuild two (2) existing 345/138-kV substations; and

Upgrade one (1) existing 345/138-kV autotransformer.

A Certificate of Convenience and Necessity (CCN) is needed for the construction of the new Elkton Switch to Shamburger Switch 345-kV double-circuit transmission line due to approximately 13.8 miles of new right of way (ROW).

Key Takeaway: The Oncor Combined Set 1 North Central & South Central Texas Reliability Project & Set 2 North Central & South Central Texas Reliability Project (Group 2 upgrades) will require a CCN due to approximately 13.8 miles of new ROW.

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Request for Board Vote

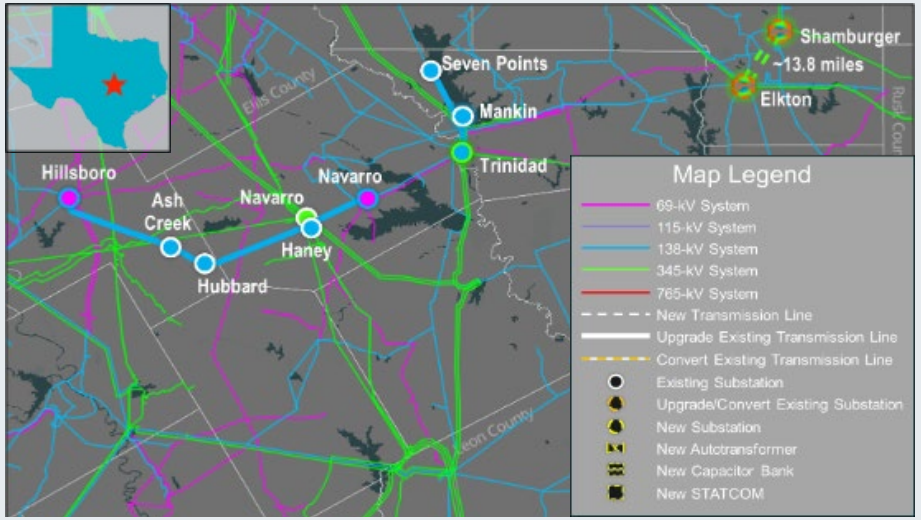
ERCOT staff requests and recommends that the Board endorse the need for the Oncor Combined Set 1 North Central & South Central Texas Reliability Project & Set 2 North Central & South Central Texas Reliability Project (Group 2 upgrades) based on NERC and ERCOT reliability planning criteria.

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

ERCOT is conducting a separate independent review of the Group 3 upgrades and is tentatively scheduled for the Third Quarter (Q3) of 2026

Key Takeaway: ERCOT performed a comprehensive evaluation for determining the upgrades submitted in the Oncor Combined Set 1 North Central & South Central Texas Reliability Project & Set 2 North Central & South Central Texas Reliability Project to satisfy the need in the 2024 and 2025 RTP evaluations.

ERCOT Recommendation



Date: May 22, 2026
To: Board of Directors
From: Kristi Hobbs, Vice President, System Planning and Weatherization (ERCOT)
Subject: 25RPG041 & 25RPG043 Combined Oncor Set 1 North Central and South Central Texas Reliability Project & Oncor Set 2 North Central and South Central Texas Reliability Regional Planning Group (RPG) Project

Issue for the ERCOT Board of Directors

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

Item No.: 5.5

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 Combined Set 1 North Central and South Central Texas Reliability Project & Set 2 North Central and South Central Texas Reliability Regional Planning Group (RPG) Project in order to meet the reliability requirements for the ERCOT System and address reliability issues in Bell, Falls, Henderson, Hill, Limestone, McLennan, Milam, Smith, and Navarro counties in the North Central, South 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 Set 1 North Central and South Central Texas Reliability Project in November 2025, a $943.92 million, Tier 1 project with the expected in-service date (ISD) planned in phases between 2028 and 2034, and the Oncor Set 2 North Central and South Central Texas Reliability Project in November 2025, a $440.79 million, Tier 1 project with the expected ISD of in phases between 2028 and 2034, to meet reliability planning criteria in Bell, Falls, Henderson, Hill, Limestone, McLennan, Milam, Smith, and Navarro counties in the North Central, South 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 a combined independent review of the Oncor Set 1 North Central and South Central Texas Reliability Project and the Oncor Set 2 North Central and South Central Texas Reliability Project. The ERCOT

project recommendation (Group 2 upgrades), a $381.09 million, Tier 1 project with the expected ISD planned in phases between 2028 and 2034 addresses the reliability needs due to the rapidly growing electrical demand with the following ERCOT System improvements:

- Rebuild the existing Revolution Switch to Haney to Hubbard Switch 138-kV single-circuit transmission line, using double-circuit capable structures with only one circuit installed, using a conductor rated 2,569 A or greater; increase the existing normal and emergency ratings of 84 MVA to at least 614 MVA; and ensuring all associated terminal equipment are rated to meet or exceed 3,200 A (764 MVA), for approximately 27.3 miles;
    - The existing infrastructure is from the 1960s;
- Rebuild the existing Hillsboro Switch to Ash Creek Switch 138-kV single-circuit transmission lines, using double-circuit capable structures with only one circuit in installed using a conductor rated 2,569 A or greater; increase the existing normal and emergency ratings of 124 MVA to at least 614 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,000A (717 MVA), for approximately 19.3 miles;
    - The existing infrastructure is from the 1940s;
- Rebuild the existing Ash Creek Switch to Hubbard Switch 138-kV single-circuit transmission line, using double-circuit capable structures with only one circuit installed using a conductor rated 2,569 A or greater; increase the existing normal and emergency ratings of 124 MVA to at least 614 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,200A (764 MVA), for approximately 5.1 miles;
    - The existing infrastructure is from the 1940s;
- Rebuild the existing Mankin Switch to Seven Points 138-kV single-circuit transmission lines, using double-circuit capable structures with only one circuit in installed, using a conductor rated 3,200 A or greater; increase the existing normal and emergency ratings of 250 MVA to at least 764 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,200A (764 MVA), for approximately 11.2 miles;
    - The existing infrastructure is from the 1980s;
- Rebuild the existing Trinidad Switch to Mankin Switch 138-kV single-circuit transmission lines, using double-circuit capable structures with only one circuit in installed, using a conductor rated 3,200 A or greater; increase the existing with normal and emergency ratings of 250 MVA to at least 764 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,200A (764 MVA), for approximately 4.1 miles;
    - The existing infrastructure is from the 1920s;

- Rebuild the existing Elkton 345/138-kV Switch at a nearby location:
  - Install eight (8) 345-kV 5,000 A circuit breakers in a breaker-and-a-half arrangement and install twelve (12) 138-kV 3,200 A circuit breakers in a breaker-and-a-half arrangement;
  - Upgrade the existing 345/138-kV autotransformer with normal and emergency ratings of 468 MVA and 528 MVA, respectively, with a new 600 MVA (nameplate) 345/138-kV autotransformer with normal and emergency ratings of 700 MVA and 750 MVA, respectively;
  - Ensure all line terminal and associated equipment are rated to meet or exceed 5,000 A (2,987 MVA) for 345-kV and 3,200 A (764 MVA) for 138-kV; and
  - The existing substation was put into service in the 1940s and has property constraints for expansion;
- Rebuild the existing Shamburger 345/138-kV Switch at a nearby location:
  - Install five (5) 345-kV 5,000 A circuit breakers in a breaker-and-a-half arrangement and install seven (7) 138-kV 3,200 A circuit breakers in a breaker-and-a-half arrangement;
  - Relocated the existing 345/138-kV autotransformer with normal and emergency ratings of 687 MVA and 750 MVA, respectively, to the new location of the Shamburger 345/138-kV Switch;
  - Ensure all line terminal and associated equipment are rated to meet or exceed 5,000 A (2,987 MVA) for 345-kV and 3,200 A (764 MVA) for 138-kV; and
  - The existing substation was put into service in the 1970s and has property constraints for expansion;
- Construct a new Elkton Switch to Shamburger Switch 345-kV double-circuit transmission line using double-circuit capable structures with both circuits installed using a conductor rated 5,000 A or greater, on a new right of way (ROW), with normal and emergency ratings of at least 2,987 MVA, for approximately 13.8 miles per circuit:
  - Install four (4) 345-kV 5,000 A circuit breakers at Elkton 345-kV Switch;
  - Install four (4) 345-kV 5,000 A circuit breakers at the Shamburger 345-kV Switch; and
  - Ensure all associated terminal equipment are rated to meet or exceed 5,000 A (2,987 MVA).

ERCOT performed a single independent review of the two projects and divided it into three groups. Group 1 includes the subset of transmission upgrades that were already evaluated and included in the recently studied Oncor and Lower Colorado River Authority Transmission Services Corporation (LCRA TSC) Muscovy and Voss Lake

345/138-kV Project (25RPG009). Those upgrades will be seeking endorsement by the ERCOT Board of Directors in June 2026 and as a result, were removed from and not considered in this EIR. Group 2 includes the subset of transmission upgrades that ERCOT confirmed and approved based on the reliability need identified in the 2024 RTP and 2025 RTP evaluations so as to expedite the RPG review process and is considered in this EIR. Group 3 includes the subset of transmission upgrades that the TDSPs, Brazos Electric Cooperative and Lone Star Transmission, LLC (Lone Star), commented on for alternative options evaluation and as a result, were removed from and not considered in this EIR. ERCOT is conducting a separate independent review of the Group 3 upgrades to determine the best solution to address the need in the study area. ERCOT's recommendation, EIR report, and ERCOT's seeking endorsement by ERCOT Board of Directors for Group 3 transmission upgrades are tentatively scheduled for the Third Quarter (Q3) of 2026. ERCOT's independent review of Group 2 utilized the comprehensive evaluation in the 2024 and 2025 RTP studies for determining the upgrades identified in the Oncor Combined Set 1 North Central and South Central Texas Reliability Project & Set 2 North Central and South Central Texas Reliability Project, performed additional analysis and assessments to verify the reliability need for the Oncor Combined Set 1 North Central and South Central Texas Reliability Project & Set 2 North Central and South Central Texas Reliability Project.

RPG considered project overviews during meetings in January and May 2026. Between January and May 2026, ERCOT staff presented scope and status updates at RPG meetings in January, February, March, April, and May 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 May 19, 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 conducted pursuant to Protocol Section 3.22.1.3, Transmission Project Assessment, for the Group 2 upgrades 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 Combined Set 1 North Central and South Central Texas Reliability Project & Set 2 North Central and South Central Texas Reliability Project (Group 2 upgrades).

The report describing the ERCOT Independent Review of the Oncor Combined Set 1 North Central and South Central Texas Reliability Project & Set 2 North Central and South Central Texas Reliability Project (Group 2 upgrades), including ERCOT staff's recommendation, is included as ***Attachment A***.

Key Factors Influencing Issue:

1. ERCOT System improvements are needed to addresses the reliability needs to the rapidly growing electrical demand.
2. ERCOT staff found the recommended set of improvements to be the most efficient solution for meeting the planning reliability criteria and facilitating future transmission expansion for future load in the area.
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 Combined Set 1 North Central and South Central Texas Reliability Project & Set 2 North Central and South Central Texas Reliability Planning Group (RPG) Project (Group 2 upgrades), as recommended by ERCOT, on May 19, 2026.

Conclusion/Recommendation:

ERCOT staff recommends that the Board endorse the need for the Tier 1 Oncor Combined Set 1 North Central and South Central Texas Reliability Project & Set 2 North Central and South Central Texas Reliability RPG Project (Group 2 upgrades), 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 Combined Set 1 North Central and South Central Texas Reliability Project & Set 2 North Central and South Central Texas Reliability Regional Planning Group Project (Group 2 upgrades), 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 Combined Set 1 North Central and South Central Texas Reliability Project & Set 2 North Central and South Central Texas Reliability Regional Planning Group Project (Group 2 upgrades), 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 Combined Oncor Electric Delivery Company LLC (Oncor) Set 1 North Central and South Central Texas Reliability Project (25RPG041) and Oncor Set 2 North Central and South Central Texas Reliability Project (25RPG043)

May 22, 2026

Document Revisions

Date	Version	Description	Authors
05/22/2026	1	Final	Tanzila Ahmed
		Reviewed by	Robert Golen, Sun Wook Kang, Prabhu Gnanam

Executive Summary

Oncor Electric Delivery Company LLC (Oncor) submitted the Set 1 North Central and South Central Texas Reliability Project (Set 1 NC/SC Project) and Set 2 North Central and South Central Texas Reliability Project (Set 2 NC/SC Project) to the Electric Reliability Council of Texas' (ERCOT) Regional Planning Group (RPG) in November 2025. Oncor proposed these two projects to address North American Electric Reliability Corporation (NERC) Reliability Standard TPL-001-5.1 and ERCOT Planning Guide reliability criteria thermal overloads and voltage violations in Bell, Falls, Henderson, Hill, Limestone, McLennan, Milam, Navarro, and Smith counties in the North Central, South Central, and East Weather Zones.

Oncor's proposed Set 1 NC/SC Project and Set 2 NC/SC Project were estimated to cost approximately $943.92 million and $440.79 million, respectively; both were classified as Tier 1 projects under ERCOT Protocol Section 3.11.4.3; and both would require Certificate of Convenience and Necessity (CCN) applications.

The ERCOT System is experiencing rapid changes, including trends of notable growth in demand and penetration of intermittent Generation Resources. The trend of rising demand is driven by factors such as continued interest in connecting Large Loads to the ERCOT system as well as increased electrification of oil and gas processes in the Permian Basin. In the 2024 Regional Transmission Plan (RTP) study cycle, the forecasted summer peak demand for 2030 exceeded 150 GW, of which approximately 50 GW is for Large Loads. Both of Oncor's proposed Set 1 NC/SC Project and Set 2 NC/SC Project were identified and included in the 2024 RTP to address the thermal overloads and voltage violations referenced above.

The large loads submitted by Transmission and Distribution Service Providers (TDSPs) for consideration in the 2025 RTP were significantly greater than those submitted for the 2024 RTP. The 2025 RTP's forecasted summer peak demand for 2031 would have exceeded 218 GW if all TDSP-submitted large loads were included. After performing a historical analysis on large load realization, ERCOT developed an ERCOT Transmission Planning Adjusted Load Forecast (ETPALF) that adjusted the 2031 forecast from 218 GW

to 159 GW. With this load adjustment method, the load level in the study area in the 2025 RTP was lower than that in 2024 RTP. As a result, all the projects in Oncor's proposed Set 1 NC/SC Project and a subset of Oncor's proposed Set 2 NC/SC Project were identified and included in the 2025 RTP to address the thermal overloads and voltage violations in the study area.

ERCOT evaluated the load levels in both the 2024 and 2025 RTP as well as the load level to be used in this ERCOT Independent Review (EIR) which would include the full Officer Letter Loads (OLLs) submitted by TDSPs for consideration in the 2025 RTP. The data showed that the study area for this evaluation will have over 19 GW of additional load compared to the 2025 RTP's 2031 ETPALF load level, or over 18 GW when compared to the 2024 RTP's 2030 base case load level. The EIR forecast indicates the reliability need still exists for all the transmission projects proposed in Oncor's Set 1 NC/SC Project and Set 2 NC/SC Project. Moreover, in addition to the proposed Set 1 NC/SC Project and Set 2 NC/SC Project, a substantial amount of new transmission upgrades will be needed to serve the identified additional loads, which are beyond the study scope of this EIR.

As a result, ERCOT performed combined EIR for these two projects and divided it into three groups.

- Group 1 includes the subset of transmission upgrades that were already evaluated and included in the recently studied Oncor and LCRA Transmission Services Corporation (LCRA TSC) Muscovy and Voss Lake 345/138-kV Project (25RPG009). Those upgrades will be seeking endorsement by the ERCOT Board of Directors in June 2026 and as a result, were removed from and not considered in this EIR.
- Group 2 includes the subset of transmission upgrades that ERCOT confirmed and approved based on the reliability need identified in the 2024 RTP and 2025 RTP evaluations so as to expedite the RPG review process and is considered in this EIR.
- Group 3 includes the subset of transmission upgrades that the TDSPs, Brazos Electric Cooperative (BEC) and Lone Star Transmission, LLC (LST), commented on for alternative options evaluation and as a result, were removed from and not considered in this EIR.

ERCOT is conducting a separate independent review of the Group 3 upgrades to determine the best solution to address the need in the study area. ERCOT's recommendation, EIR report, and ERCOT's seeking endorsement by ERCOT Board of Directors for Group 3 transmission upgrades are tentatively scheduled for the Third Quarter (Q3) of 2026.

Based on this EIR, ERCOT recommends the transmission upgrades identified in Group 2 to address the reliability issues mentioned above. Group 2 upgrades are as follows:

- Rebuild the existing Revolution Switch to Haney to Hubbard Switch 138-kV single-circuit transmission line, using double-circuit capable structures with only one circuit installed, using a conductor rated 2,569 A or greater; increase the existing normal and emergency ratings of 84 MVA to at least 614 MVA; and ensuring all associated terminal equipment are rated to meet or exceed 3,200 A (764 MVA), for approximately 27.3 miles;
    - The existing infrastructure is from the 1960s;
- Rebuild the existing Hillsboro Switch to Ash Creek Switch 138-kV single-circuit transmission lines, using double-circuit capable structures with only one circuit in installed using a conductor rated 2,569 A or greater; increase the existing normal and emergency ratings of 124 MVA to at least 614 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,000A (717 MVA), for approximately 19.3 miles;
    - The existing infrastructure is from the 1940s;
- Rebuild the existing Ash Creek Switch to Hubbard Switch 138-kV single-circuit transmission line, using double-circuit capable structures with only one circuit installed using a conductor rated 2,569 A or greater; increase the existing normal and emergency ratings of 124 MVA to at least 614 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,200A (764 MVA), for approximately 5.1 miles;
    - The existing infrastructure is from the 1940s;
- Rebuild the existing Mankin Switch to Seven Points 138-kV single-circuit transmission lines, using double-circuit capable structures with only one circuit in installed, using a conductor rated 3,200 A or greater; increase the existing normal and emergency ratings of 250 MVA to at least 764 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,200A (764 MVA), for approximately 11.2 miles;
    - The existing infrastructure is from the 1980s;

- Rebuild the existing Trinidad Switch to Mankin Switch 138-kV single-circuit transmission lines, using double-circuit capable structures with only one circuit in installed, using a conductor rated 3,200 A or greater; increase the existing with normal and emergency ratings of 250 MVA to at least 764 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,200A (764 MVA), for approximately 4.1 miles;
    - The existing infrastructure is from the 1920s;

- Rebuild the existing Elkton 345/138-kV Switch at a nearby location:
    - Install eight (8) 345-kV 5,000 A circuit breakers in a breaker-and-a-half arrangement and install twelve (12) 138-kV 3,200 A circuit breakers in a breaker-and-a-half arrangement;
    - Upgrade the existing 345/138-kV autotransformer with normal and emergency ratings of 468 MVA and 528 MVA, respectively, with a new 600 MVA (nameplate) 345/138-kV autotransformer with normal and emergency ratings of 700 MVA and 750 MVA, respectively;
    - Ensure all line terminal and associated equipment are rated to meet or exceed 5,000 A (2,987 MVA) for 345-kV and 3,200 A (764 MVA) for 138-kV; and
    - The existing substation was put into service in the 1940s and has property constraints for expansion;

- Rebuild the existing Shamburger 345/138-kV Switch at a nearby location:
    - Install five (5) 345-kV 5,000 A circuit breakers in a breaker-and-a-half arrangement and install seven (7) 138-kV 3,200 A circuit breakers in a breaker-and-a-half arrangement;
    - Relocated the existing 345/138-kV autotransformer with normal and emergency ratings of 687 MVA and 750 MVA, respectively, to the new location of the Shamburger 345/138-kV Switch;
    - Ensure all line terminal and associated equipment are rated to meet or exceed 5,000 A (2,987 MVA) for 345-kV and 3,200 A (764 MVA) for 138-kV; and
    - The existing substation was put into service in the 1970s and has property constraints for expansion;

- Construct a new Elkton Switch to Shamburger Switch 345-kV double-circuit transmission line using double-circuit capable structures with both circuits installed using a conductor rated 5,000 A or greater, on a new right of way (ROW), with normal and emergency ratings of at least 2,987 MVA, for approximately 13.8 miles per circuit:
    - Install four (4) 345-kV 5,000 A circuit breakers at Elkton 345-kV Switch;

- Install four (4) 345-kV 5,000 A circuit breakers at the Shamburger 345-kV Switch; and
- Ensure all associated terminal equipment are rated to meet or exceed 5,000 A (2,987 MVA).

The cost estimate for this Tier 1 project is approximately $381.09 million, which includes the estimated capital cost with energized construction work. The expected in-service dates (ISDs) for the recommended upgrades are planned to occur in phases between 2028 to 2034. However, Oncor has advised that the projected ISD may change based on based on material availability, construction sequencing, and other project-specific factors. A CCN application would be required for the construction of the new Elkton Switch to Shamburger Switch 345-kV double-circuit transmission line due to approximately 13.8 miles of new ROW. If necessary, Oncor will work with ERCOT to develop and implement Constraint Management Plans (CMPs) based on future operational conditions.

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1. Introduction

In November 2025, Oncor Electric Delivery Company LLC (Oncor) submitted the Set 1 North Central and South Central Texas Reliability Project (Set 1 NC/SC Project) and Set 2 North Central and South Central Texas Reliability Project (Set 2 NC/SC Project) 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 and voltage violations under various contingency conditions due to significant load growth in the area. The two projects are located in Bell, Falls, Henderson, Hill, Limestone, McLennan, Milam, Navarro, and Smith counties in the North Central, South Central, and East Weather Zones.

Both Oncor's proposed Set 1 NC/SC Project and Set 2 NC/SC Project were classified as Tier 1 projects under ERCOT Protocol Section 3.11.4.3, with an estimated cost of approximately $943.92 million and $440.79 million, respectively. A Certificate of Convenience and Necessity (CCN) application would be required, and the expected in-service dates (ISDs) for the two projects are planned to occur in phases between 2028 and 2034.

The unprecedented load growth in the ERCOT System has driven the need for a substantial amount of new transmission infrastructure. The 2024 Regional Transmission Plan's (RTP) forecasted summer peak demand for 2030 exceeds 150 GW, of which approximately 50 GW is large load growth. Both Oncor's proposed Set 1 NC/SC Project and Set 2 NC/SC Project were identified and included in the 2024 RTP to address the thermal overloads and voltage violations in the counties and Weather Zones identified above.

The projected large loads submitted by Transmission and Distribution Service Providers (TDSPs) for consideration in the 2025 RTP were significantly greater compared to the 2024 RTP. The 2025 RTP forecasted summer peak demand for 2031 would have exceeded 218 GW if all TDSP-submitted large loads were included. After performing a historical analysis on large load realization, ERCOT developed an ERCOT Transmission

Planning Adjusted Load Forecast (ETPALF) that adjusted the 2031 forecast from 218 GW to 159 GW. With this load adjustment method, the load level in the study area in the 2025 RTP was lower than that in the 2024 RTP. As a result, all the projects in Oncor's proposed Set 1 NC/SC Project and a subset of Oncor's proposed Set 2 NC/SC Project were identified and included in the 2025 RTP to address the thermal overloads and voltage violations in the study area.

With current load forecast methodology for RPG projects, the full Officer Letter Loads (OLLs) in the study area would be included in this ERCOT Independent Review (EIR). As a result, the study area load level will be significantly higher than both the 2024 and 2025 RTP studies. This indicates the reliability need still exists for all the transmission projects proposed in Oncor's proposed Set 1 NC/SC Project and Set 2 NC/SC Project. Moreover, in addition to the proposed Set 1 NC/SC Project and Set 2 NC/SC Project, additional new transmission projects would be needed to serve the identified additional loads which is beyond the study scope of this EIR.

ERCOT conducted a single EIR for these two RPG projects by utilizing both the 2024 and 2025 RTP studies and performing additional analyses and assessments. This report describes the study assumptions, methodology, and the results of the EIR.

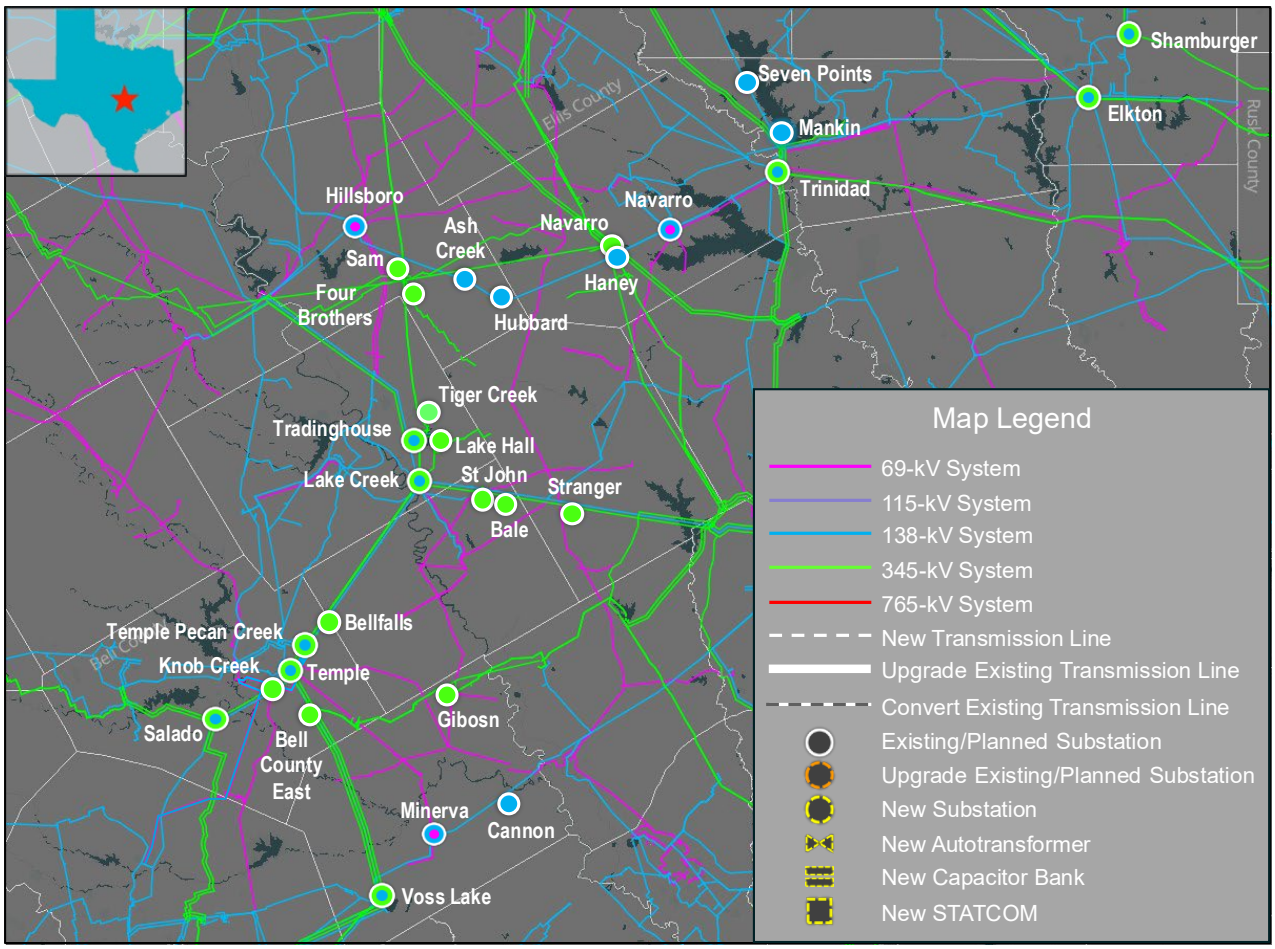

Figure 1.1: Map of Transmission System in the Study Area

2. Study Assumptions and Methodology

To address the rapid changes experienced in the ERCOT system, which include trends of substantial growth in demand and increasing penetration of Inverter-Based Resources (IBRs), a substantial amount of new transmission upgrades, including the 765-kV Extra High Voltage (EHV) transmission infrastructure, have been proposed and approved in the past two years.

ERCOT's 2024 RTP conducted extensive engineering analysis of the 765-kV transmission network and obtained substantial review and input from TDSPs and other stakeholders in the ERCOT Region through the RPG meetings. As a culmination of these efforts, ERCOT has proposed the 765-kV Strategic Transmission Expansion Plan (STEP) Core Plan during the 2024 RTP study. The proposed 765-kV STEP Core Plan includes the new 765-kV transmission backbone as well as the necessary 345-kV and 138-kV transmission upgrades across the ERCOT grid. Oncor's proposed Set 1 NC/SC Project and Set 2 NC/SC Project are among the necessary 345-kV and 138-kV transmission upgrades in the 2024 RTP 765-kV STEP Core Plan.

The 765-kV transmission backbone in the 2024 RTP 765-kV STEP Core Plan includes three parts: the Permian Basin Reliability Plan 765-kV import paths, the Drill Hole to Sand Lake to Solstice 765-kV Line Project (25RPG022), and the Texas 765-kV-STEP Eastern Backbone Project (25RPG025). The Permian Basin Reliability Plan 765-kV import paths was approved by the Public Utility Commission of Texas (PUCT) in April 2025. The Drill Hole to Sand Lake to Solstice 765-kV Line Project and the Texas 765-kV-STEP Eastern Backbone Project were endorsed by ERCOT Board of Directors in December 2025.

In the 2025 RTP study, the large loads submitted by TDSPs for consideration were significantly greater compared to the 2024 RTP. In the 2025 RTP, the forecasted summer peak demand for 2031 would have exceeded 218 GW if all TDSP-submitted large loads were included. After performing a historical analysis on large load realization, ERCOT developed an ETPALF that adjusted the 2031 forecast from 218 GW to 159 GW. With this load adjustment method, the load level in the study area in 2025 RTP was lower than that in the 2024 RTP. As a result, all the projects included in Oncor's Set 1 NC/SC Project

and a subset of Oncor's Set 2 NC/SC were identified and included in the 2025 RTP to address the thermal overloads and voltage violations in the study area.

With the load forecast methodology for RPG projects at the time of this study, the 2025 RTP ETPALF needed to be reverted to the full OLLs in the study area. This would drive the study area load level significantly higher than those in both the 2024 and 2025 RTP studies. Table 2.1 compares the load levels in this EIR as well as the 2024 and 2025 RTP evaluations in the study area.

Table 2.1: Study Area Load Levels Comparison

Weather Zone	EIR Study Load Level (MW)	2025 RTP 2031 Load (MW)	2024 RTP 2030 Load (MW)
East	3,599	3,269	3,756
North Central	55,410	39,606	46,424
South Central	30,872	27,969	21,181
Total	89,880	70,844	71,361

As shown in Table 2.1, the study area will have over 19 GW of large loads than the 2025 RTP load level, or over 18 GW than the 2024 RTP load level. This indicates the reliability need still exists for all the transmission projects proposed in Oncor's Set 1 NC/SC Project and Set 2 NC/SC Project. In addition to the proposed Set 1 NC/SC Project and Set 2 NC/SC Project, additional new transmission projects will be needed to serve these additional loads which are beyond the study scope of this EIR. ERCOT expects to study those additional transmission needs in the upcoming 2026 RTP study.

Based on the evaluation of loads and transmission projects, ERCOT proposed to confirm and approve the majority of the transmission upgrades proposed in Oncor's Set 1 NC/SC Project and Set 2 NC/SC Project based on the reliability need identified in the 2024 and 2025 RTP evaluations to expedite the RPG review process. Specifically, ERCOT divided the transmission upgrades proposed in Oncor's Set 1 NC/SC Project and Set 2 NC/SC Project into three groups:

- Group 1: Includes several upgrades in Set 1 NC/SC Project and Set 2 NC/SC Project that were already evaluated and included in the recent RPG project of the Oncor and LCRA Transmission Services Corporation (LCRA TSC) Muscovy and Voss Lake 345/138-kV Project (25RPG009). ERCOT will seek endorsement for

these upgrades by the ERCOT Board of Directors in June 2026 and as a result they were removed from this EIR.

- Group 2: Includes the remaining transmission projects proposed in Oncor's Set 1 NC/SC Project and Set 2 NC/SC Project that ERCOT proposed to confirm and approve based on the reliability need identified in the 2024 and 2025 RTP evaluations so as to expedite the RPG review process, except for the upgrades that certain Transmission Service Providers (TSPs) commented on as alternative options.
- Group 3: ERCOT is currently conducting an independent review for the upgrades that TSPs Brazos Electric Cooperative (BEC) commented on for alternative options. ERCOT's recommendation and EIR report for the Group 3 transmission upgrades are tentatively scheduled for Third Quarter (Q3) of 2026. ERCOT plans to seek endorsement by the ERCOT Board of Directors tentatively in Q3 of 2026.

Tables 2.2, 2.3, and 2.4 list the individual projects in each of the three groups.

Table 2.2: Group 1 Upgrades

Oncor Project Description	RTP Project Number	Counties
Construct a new Tower 345-kV Switch; Terminate the existing Salado Switch to Knob Creek Switch 345-kV Line into the new Tower 345-kV Switch; Construct a new Tower Switch to Knob Creek Switch 345-kV Line on separate structures, approximately 1.2 miles Rebuild the Salado Switch to Tower Switch 345-kV Line, ~12.4 miles;	2024-NC12	Bell
Rebuild the existing Temple Switch to Temple Pecan Creek Switch 345-kV Double-Circuit Line, ~4.5 miles;	2024-NC32	Bell
Rebuild the existing Bell County East Switch to Gibson Switch 345-kV Double-Circuit Line, ~23.4 miles;	2024-NC60 and 2024-NC91	Bell and Milam
Rebuild the existing Bell County East Switch to Voss Lake Switch 345-kV Double-Circuit Line, ~29.6 miles; Rebuild the existing Minerva Switch to Cannon 138-kV Line, ~9.9 miles;	2024-SC28	Bell and Milam

Table 2.3: Group 2 Upgrades

Oncor Project Description	RTP Project Number	Counties
Rebuild the existing Revolution Switch to Hubbard Switch 138-kV Line, ~27.3 miles; Rebuild the Ash Creek Switch to Hubbard Switch 138-kV Line, ~5.1 miles; Rebuild the Hillsboro Switch to Ash Creek Switch 138-kV Line, ~19.30 miles;	2024-NC27 and 2024-NC04	Hill and Navarro

Oncor Project Description	RTP Project Number	Counties
Rebuild the existing Mankin Switch to Seven Points 138-kV Line, ~11.2 miles;	2024-NC44	Henderson
Rebuild the existing Trinidad Switch to Mankin Switch 138-kV Line, ~4.1 miles;	2024-NC34	Henderson
Rebuild the existing Elkton 345/138-kV Switch; Install one new 345/138-kV autotransformer at Elkton Switch; Construct a new Elkton Switch to Shamburger Switch 345-kV Double-Circuit Line, ~13.8 miles; Rebuild the existing Shamburger 345/138-kV Switch; and Install one new 345/138-kV autotransformer at Shamburger	2024-E2	Smith

Table 2.4: Group 3 Upgrades

Oncor Project Description	RTP Project Number	Counties
Rebuild the existing Temple Pecan Creek Switch to Bellfalls/STR26/4C 345-kV Double-Circuit Line, ~2.6 miles; Rebuild the existing Possum Trot Switch to Bellfalls/STR26/4C 345-kV Double-Circuit Line, ~26.1 miles; Rebuild the Tradinghouse Switch to Four Brothers Switch 345-kV Line, ~20.6 miles; Rebuild the Tiger Creek Switch to Sam Switch 345-kV Line, ~21.2 miles; and Rebuild the Possum Trot Switch to Lake Hall Switch to Tradinghouse Switch 345-kV Double-Circuit Line, ~9.6 miles	2024-NC32	Bell, Falls, Hill, and McLennan
Rebuild the existing Sam Switch to Four Brothers Switch 345-kV Line, ~2.3 miles;	2024-NC69	Hill, and McLennan
Rebuild the existing Possum Trot Switch to St. John Switch to Bale Switch to Stranger Switch 345-kV Line, ~18.4 miles;	2024-NC23	McLennan, Falls, and Limestone

In summary, ERCOT decided to confirm and approve the Group 2 upgrades utilizing the need established in 2024 RTP and 2025 RTP evaluations for this EIR and to perform additional analyses required by the combined Tier 1 project.

The following sections highlight the studies and cost effectiveness of the 765-kV STEP Core Plan, including the necessary 345-kV and 138-kV transmission upgrades that Oncor proposed in this independent review, performed in the 2024 RTP evaluation.

2.1. Steady-State Reliability Studies

To serve both current and future load growth by 2030 reliably and efficiently, many miles of new transmission build as well as upgrades to existing transmission lines will be required. The 2024 RTP developed 765-kV STEP Core Plan, including the necessary

345-kV and 138-kV transmission upgrades, will address statewide reliability needs driven by unprecedented load growth in the ERCOT system.

The steady-state reliability studies and cost effectiveness of the 765-kV STEP Core Plan, including the necessary 345-kV and 138-kV transmission upgrades, are summarized below:

- The total construction cost estimate for the 765-kV STEP Core Plan is approximately $32.99 billion.
- The total new right of way (ROW) mileage at all voltage levels for the 765-kV STEP Core Plan is approximately 3,441 miles.
- The total existing line upgrade mileage at all voltage levels for the 765-kV STEP Core Plan is approximately 2,831 miles.
- The 765-kV transmission lines significantly reduce power losses by transmitting electricity at a higher voltage. Power loss calculations showed that the 765-kV STEP Core Plan can reduce annual systemwide transmission losses by about 5% compared to the 345-kV plan (about 560 GWh each year, which is approximately equivalent to a 128 MW thermal unit operating at a 50% capacity factor).
- A transfer capability analysis was conducted to compare the ability to move power across the system without causing thermal overloads or voltage collapse from a steady-state perspective. The steady-state transfer capability analysis indicates that the 765-kV STEP Core Plan provides higher regional transfer capability compared to the 345-kV plan, providing a more robust solution for meeting future demand. With the increasing curtailments of existing generation due to Generic Transmission Constraints (GTCs), such as South Texas Import and Export GTCs, or steady-state thermal limits, enhanced transfer capability will be a benefit. Specifically, the 765-kV STEP Core Plan enhances transfer capability by an additional 600 MW to 3,000 MW across various scenarios evaluated in the analysis. This higher transfer capability could also provide a greater range of sitting options for both Generation Resources and large loads.
- Additional sensitivity analysis was performed to review the reliability need based on varying demand levels. Sensitivity analysis with a reduced load level (~20 GW less overall load) showed major portions of the 765-kV STEP Core Plan will still be needed to meet the reduced demand.

The final 765-kV STEP Core Plan reliability cases were published on the Market Information System (MIS) on February 6, 2025:[1]

- Summer Peak Case: 2024RTP_2030_SUM_TX765STEP_02062025; and
- Maintenance Case: 2024RTP_2030_MaintenanceOutage_TX765STEP_02062025.

The 2025 RTP study identified the reliability needs and included the 765-kV transmission backbone as well as Oncor's Set 1 NC/SC Project and a subset of Oncor's Set 2 NC/SC Project. The final 2025 RTP reliability cases were published on the MIS on December 22, 2025:[2]

- Summer Peak Case: 2025RTP_2031_SUM_12222025.

2.2. Dynamic Stability Studies

ERCOT conducted a stability analysis to examine the system's ability to return to normal operating conditions after sudden changes or disturbances (e.g., line trip). The analysis evaluated the potential impact on the West Texas Export and McCamey GTCs. The study results indicate that the 765-kV STEP Core Plan, including the necessary 345-kV and 138-kV transmission upgrades, would increase the West Texas Export stability constraint limit from 12.7 GW to 16.2 GW. No stability limits were identified for the McCamey area stability constraint with the implementation of the 765-kV STEP Core Plan. Additionally, the study results showed that bypassing all series capacitors had no impact on stability limits. The ability to potentially eliminate some or all series capacitors from the system means greater flexibility in siting and interconnecting generators without concerns about potential Subsynchronous Oscillation (SSO) issues.

System strength is increasingly important for a grid's ability to mitigate potential instability risks. IBRs in the ERCOT grid have experienced rapid and sustained growth, driving significant transformations in the energy landscape. The performance of IBRs heavily depends on power electronics controls, which are highly complex and fast-acting, making them particularly sensitive in weaker grids dominated by IBRs with limited or no conventional synchronous generation. Recognizing that adding new major transmission infrastructure, such as 765-kV, can significantly improve system strength and thereby

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

enhance the grid's ability to support the reliable operation of IBRs and mitigate potential instability risks, ERCOT conducted a system strength analysis to evaluate the performance of the 765-kV STEP Core Plan. The results indicate that the 765-kV STEP Core Plan including the necessary 345-kV and 138-kV transmission upgrades provides improvement in system strength, measured by weighted short-circuit MVA[3].

2.3. Economic Study

An economic study was performed to qualitatively evaluate the economic benefit of the 765-kV STEP Core Plan including the necessary 345-kV and 138-kV transmission upgrades by using two study year cases (i.e., 2034 and 2039). The 2034 and 2039 economic cases for the Current Trends scenario from the 2024 Long-Term System Assessment (LTSA) were used as the base cases of this economic analysis. The economic benefit of the 765-kV STEP Core Plan was evaluated by comparing it to the 345-kV plan. The 345-kV and 765-kV plans were added separately to the base cases to simulate the incremental impact of the proposed transmission addition. Anticipated responses from price responsive load under system scarcity conditions were then modeled in the simulation.

The economic study showed that the 765-kV STEP Core Plan, including the necessary 345-kV and 138-kV transmission upgrades, demonstrated more consistent benefits through the years evaluated compared with the 345-kV plan in both the production cost savings and system-wide consumer energy cost reduction. Key findings from the economic analysis are summarized as follows and monetary numbers are in 2025 dollars:

- For year 2034, both the 345-kV and 765-kV plans showed savings in production cost and consumer energy cost. Notably, the 765-kV STEP Core Plan had $133 million more production cost savings but $136 million less savings in system-wide consumer energy cost compared to the 345-kV plan. The 765-kV STEP Core Plan also had $94 million less congestion rent than the 345-kV plan.
- For year 2039, while the 765-kV STEP Core Plan continued to show savings in both production cost and consumer energy cost, the 345-kV plan showed an increase in the consumer energy cost. The 765-kV STEP Core Plan had $28 million more production cost savings and approximately $229 million more

[3] EHV 765-kV ERCOT Workshop: https://www.ercot.com/calendar/01272025-EHV-765-kV-ERCOT

system-wide consumer energy cost reduction than the 345-kV plan. The 765-kV STEP Core Plan also had $172 million less congestion rent than the 345-kV plan.

The economic study showed that the 765-kV STEP Core Plan, including the necessary 345-kV and 138-kV transmission upgrades, can produce more economic benefits in the long-term planning horizon.

ERCOT also performed a congestion analysis using the 2024 RTP 2029 economic case for the 765-kV STEP Core Plan. The study showed that 765-kV STEP Core Plan, including the necessary 345-kV and 138-kV transmission upgrades, does not introduce significant new congestion in the study area.

2.4. Contingencies and Criteria

The reliability assessments were performed based on NERC Reliability Standard TPL-001-5.1, ERCOT Protocols[4], and the ERCOT Planning Guide.[5]

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 (345-kV and above);
- P3: (G-1+N-1) (G-1: generation outage); and
- P6-2: (X-1+N-1) (X-1: 345/138-kV transformer and 765/345-kV transformer).

All 115-kV and above buses and 60-kV and above 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 limits
  - Rate A (normal rating) for pre-contingency conditions; and
  - Rate B (emergency rating) for post-contingency conditions.
- Voltage limits
  - Voltages exceeding pre-contingency and post-contingency limits; and
  - Voltage deviations exceeding 8% on non-radial load buses.

[4] ERCOT Protocols: https://www.ercot.com/mktrules/nprotocols/current
[5] ERCOT Planning Guide: http://www.ercot.com/mktrules/guides/planning/current

2.5. Study Tools

ERCOT utilized the following software tools to perform the studies:

- PowerWorld Simulator version 23 and version 24 for Security Constrained Optimal Power Flow and steady-state contingency analysis;
- TARA version 2302_2 for steady-state transfer analysis;
- UPLAN Altos version 12.3.0.30786 to perform congestion analysis; and
- PSS/e version 35.6 for dynamic stability analysis.

3. Additional Analysis and Assessment

The Group 2 upgrades of Oncor's Set 1 NC/SC Project and Set 2 NC/SC Project with a cost estimate of approximately $381.09 million collectively, are categorized as a combined Tier 1 project, pursuant to ERCOT Nodal Protocol 3.11.4.3(1)(a). As required by ERCOT Planning Guide Section 3.1.3(4), ERCOT performed generation sensitivity analysis and considered load scaling impacts to identify the project performance. Additionally, an SSO Assessment was also performed.

3.1. 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[6] reports, twenty-nine (29) units were found within the study area that could have an impact on the Group 2 upgrades. These units, listed in Table 3.1, were added to the 2025 RTP's 2031 Summer Peak case following the 2025 RTP methodology. ERCOT determined that the addition of these generators does not impact the Group 2 upgrades.

Table 3.1: List of Units that Could have an Impact on the Group 2 Upgrades

GINR	Unit Name	County	Project COD	Fuel Type	Max Capacity (~MW)
24INR0075	Blue Bird Solar	Johnson	6/27/2028	SOL	773.0
24INR0117	Utley Solar	Freestone	5/11/2028	SOL	221.8
24INR0412	Camino Ranch Solar SLF	Houston	12/9/2028	SOL	296.4
24INR0420	Camino Ranch Storage SLF	Houston	12/9/2028	OTH	298.1
25INR0204	Claxton Solar	Hopkins	9/17/2027	SOL	150.6
25INR0247	Bluebonnet Prairie Wind	Navarro	7/15/2027	WIN	173.0
25INR0616	Bobcat Bluff Storage SLF	Archer	4/15/2027	OTH	0.0
25INR0661	McCrae Energy Storage	Erath	9/25/2028	OTH	306.4
26INR0033	Fairway Storage	Freestone	9/24/2027	OTH	120.3
26INR0252	Neutron Storage	McLennan	4/29/2028	OTH	104.5
26INR0256	Camino Ranch Solar 2 SLF	Houston	12/9/2028	SOL	237.2
26INR0257	Camino Ranch Storage 2 SLF	Houston	12/9/2028	OTH	238.5
26INR0409	Lucky 7 Solar	Hopkins	9/20/2027	SOL	101.4

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

GINR	Unit Name	County	Project COD	Fuel Type	Max Capacity (~MW)
26INR0531	West Munday Wind	Knox	6/30/2028	WIN	351.9
27INR0022	Panhandle Flagship Solar 1	Carson	6/30/2031	SOL	439.4
27INR0025	Panhandle Flagship Storage	Carson	6/30/2031	OTH	371.7
27INR0105	Starlight Solar	Mills	5/9/2030	SOL	130.7
27INR0107	Starlight Storage	Mills	5/9/2030	OTH	104.7
27INR0140	Kingsmill Wind SLF	Carson	9/1/2029	WIN	606.3
27INR0173	Trenno BESS	Johnson	9/13/2027	OTH	202.6
27INR0181	Elk Unit 4	Hale	2/28/2027	GAS	210.0
27INR0313	Spindletop Solar	Nacogdoches	12/29/2027	SOL	286.0
27INR0314	Spindletop Storage	Nacogdoches	6/30/2027	OTH	142.6
27INR0581	Limitless Energy Hub I	Wilbarger	12/1/2028	GAS	1,238.3
27INR0582	Limitless Energy Hub II	Wilbarger	12/1/2028	GAS	1,238.3
28INR0008	Oriole Solar	Knox	12/29/2028	SOL	503.9
28INR0009	Oriole BES	Knox	12/29/2028	OTH	150.4
29INR0003	Aurelius Solar	Deaf Smith	6/30/2028	SOL	1,124.2
29INR0004	Aurelius Wind	Deaf Smith	6/30/2028	WIN	621.6

3.2. 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, a load scaling sensitivity analysis is no longer needed.

3.3. Subsynchronous Oscillations (SSO) Assessment

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

4. Conclusion

ERCOT reviewed the studies in the 2024 and 2025 RTP evaluations for the Group 2 upgrades and performed additional assessments. Based on the results of the EIR, ERCOT recommends the Group 2 upgrades of Oncor's Set 1 NC/SC Project and Set 2 NC/SC Project because they address all project needs further enhance system reliability.

ERCOT's recommended project (Group 2 upgrades) consists of the following upgrades:

- Rebuild the existing Revolution Switch to Haney to Hubbard Switch 138-kV single-circuit transmission line, using double-circuit capable structures with only one circuit installed, using a conductor rated 2,569 A or greater; increase the existing normal and emergency ratings of 84 MVA to at least 614 MVA; and ensuring all associated terminal equipment are rated to meet or exceed 3,200 A (764 MVA), for approximately 27.3 miles;
    - The existing infrastructure is from the 1960s;
- Rebuild the existing Hillsboro Switch to Ash Creek Switch 138-kV single-circuit transmission lines, using double-circuit capable structures with only one circuit in installed using a conductor rated 2,569 A or greater; increase the existing normal and emergency ratings of 124 MVA to at least 614 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,000A (717 MVA), for approximately 19.3 miles;
    - The existing infrastructure is from the 1940s;
- Rebuild the existing Ash Creek Switch to Hubbard Switch 138-kV single-circuit transmission line, using double-circuit capable structures with only one circuit installed using a conductor rated 2,569 A or greater; increase the existing normal and emergency ratings of 124 MVA to at least 614 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,200A (764 MVA), for approximately 5.1 miles;
    - The existing infrastructure is from the 1940s;
- Rebuild the existing Mankin Switch to Seven Points 138-kV single-circuit transmission lines, using double-circuit capable structures with only one circuit in installed, using a conductor rated 3,200 A or greater; increase the existing normal and emergency ratings of 250 MVA to at least 764 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,200A (764 MVA), for approximately 11.2 miles;
    - The existing infrastructure is from the 1980s;

- Rebuild the existing Trinidad Switch to Mankin Switch 138-kV single-circuit transmission lines, using double-circuit capable structures with only one circuit in installed, using a conductor rated 3,200 A or greater; increase the existing with normal and emergency ratings of 250 MVA to at least 764 MVA; and ensure all associated terminal equipment are rated to meet or exceed 3,200A (764 MVA), for approximately 4.1 miles;
    - The existing infrastructure is from the 1920s;

- Rebuild the existing Elkton 345/138-kV Switch at a nearby location:
    - Install eight (8) 345-kV 5,000 A circuit breakers in a breaker-and-a-half arrangement and install twelve (12) 138-kV 3,200 A circuit breakers in a breaker-and-a-half arrangement;
    - Upgrade the existing 345/138-kV autotransformer with normal and emergency ratings of 468 MVA and 528 MVA, respectively, with a new 600 MVA (nameplate) 345/138-kV autotransformer with normal and emergency ratings of 700 MVA and 750 MVA, respectively;
    - Ensure all line terminal and associated equipment are rated to meet or exceed 5,000 A (2,987 MVA) for 345-kV and 3,200 A (764 MVA) for 138-kV; and
    - The existing substation was put into service in the 1940s and has property constraints for expansion;

- Rebuild the existing Shamburger 345/138-kV Switch at a nearby location:
    - Install five (5) 345-kV 5,000 A circuit breakers in a breaker-and-a-half arrangement and install seven (7) 138-kV 3,200 A circuit breakers in a breaker-and-a-half arrangement;
    - Relocated the existing 345/138-kV autotransformer with normal and emergency ratings of 687 MVA and 750 MVA, respectively, to the new location of the Shamburger 345/138-kV Switch;
    - Ensure all line terminal and associated equipment are rated to meet or exceed 5,000 A (2,987 MVA) for 345-kV and 3,200 A (764 MVA) for 138-kV; and
    - The existing substation was put into service in the 1970s and has property constraints for expansion;

- Construct a new Elkton Switch to Shamburger Switch 345-kV double-circuit transmission line using double-circuit capable structures with both circuits installed using a conductor rated 5,000 A or greater, on a new right of way (ROW), with normal and emergency ratings of at least 2,987 MVA, for approximately 13.8 miles per circuit:
    - Install four (4) 345-kV 5,000 A circuit breakers at Elkton 345-kV Switch;

- Install four (4) 345-kV 5,000 A circuit breakers at the Shamburger 345-kV Switch; and
- Ensure all associated terminal equipment are rated to meet or exceed 5,000 A (2,987 MVA).

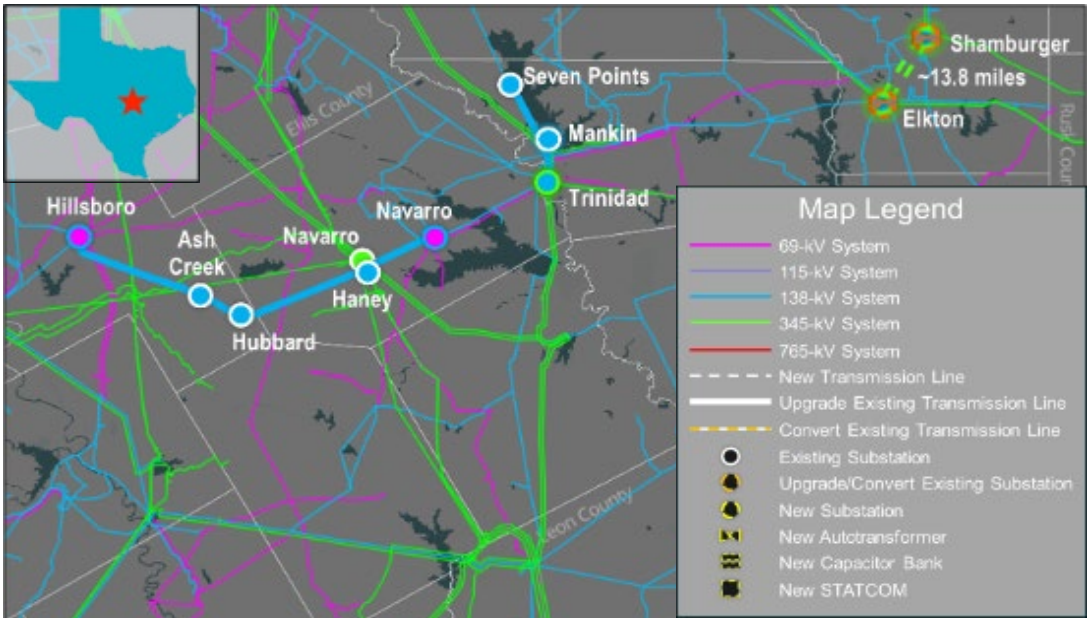

Figure 4.1: Map of ERCOT Recommended Project

The ERCOT recommended project (Group 2 upgrades) is estimated to cost approximately $381.09 million and is classified as a Tier 1 project under ERCOT Protocol Section 3.11.4.3(a). The cost estimate includes the estimated capital cost with energized construction work.

The expected ISDs for the recommended upgrades are planned in phases to occur between 2028 to 2034. However, Oncor has advised that the projected ISD may change based on based on material availability, construction sequencing, and other project-specific factors. A CCN application would be required for the construction of the new Elkton Switch to Shamburger Switch 345-kV double-circuit transmission line due to total approximately 13.8 miles of new ROW.

If necessary, Oncor will work with ERCOT to develop and implement Constraint Management Plans (CMPs) based on future operational conditions.

5. Appendix

A: Attachments

Table A.1: Project Related Documents

No	Document Name	Attachment
1	Oncor Set 1 North Central and South Central Texas Reliability Project	Set1 Oncor North Central and South C
2	Oncor Set 2 North Central and South Central Texas Reliability Project	Set2_Oncor North Central and South C