

Oncor – Roanoke Area Upgrades – ERCOT Independent Review Scope

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Regional Planning Group March 15, 2022

Introduction

Oncor submitted the Roanoke Area Upgrade Project for Regional Planning Group review in February 2022. This is a Tier 1 project that is estimated to cost \$285.9 million.

- Proposed for May 2025. Oncor has expressed a need for "critical status designation".
- Address rapid load growth in Roanoke area, existing capacity limitations and forecasted thermal and voltage violations.
- Increase thermal capacity and operational flexibility in Roanoke area by:
 - Adding three new 345-kV substations, two new 138-kV substations and two new 345/138 kV transformers while retiring one 345-kV substation.
 - Adding approximately 18 miles of double-circuit 345-kV transmission lines and upgrading approximately 3.8 miles of existing 345-kV doublecircuit lines.
 - Adding approximately 5.6 miles of new 138-kV transmission lines and upgrading approximately 1.7 miles of existing 138-kV lines.
 - \circ Converting load from 345-kV to 138-kV.
- > This project is currently under ERCOT independent review.



Study Area



Oncor Proposal



- Study Base Case
 - Steady-state case will be constructed from the following final 2021 Regional Transmission Plan case posted on the MIS on December 2021:
 - o 2021RTP_2027_SUM_NNC_12232021
 - Study Region: ERCOT North and North Central Weather Zones



Transmission Updates

- Transmission projects expected to be in-service within the study area by 2025 (proposed project in-service date) will be added to the base case. The following approved Tier 3 project will be added:
 - Venus Webb/Cedar Hill Switch Station 345-kV DCKT Line (TPIT 5492): Upgrade existing Venus – Webb/Cedar Hill Switch Station 345-kV Double-Circuit Line.
- Transmission projects that served as placeholders to Roanoke Area Upgrade Project will be removed.

Loads

Loads in the study area will be maintained consistent with the RTP case.



Generation Updates

New Generation Addition

 Generator additions in the study area that meet the Planning Guide Section 6.9(1) requirements with Commercial Operation Date (COD) before the study year at the time of study (January 2022 GIS report posted on February 2, 2022) will be added to the study case.

INR	Project Name	Fuel	Projected COD	Capacity (MW)	County
19INR0169	Sun Valley Solar	SOL	Dec-22	252.00	Hill
20INR0091	Fagus Solar Park	SOL	Jul-23	517.35	Childress
20INR0205	Roseland Solar	SOL	Jul-22	254.00	Falls
20INR0214	Noble Solar	SOL	May-22	279.00	Denton
20INR0230	Markum Solar	SOL	Feb-24	161.00	McLennan
21INR0375	Grizzly Ridge Solar	SOL	Aug-22	101.68	Hamilton
21INR0434	Golinda Solar	SOL	Feb-23	103.10	Falls
21INR0473	Vortex BESS	OTH	May-22	121.83	Throckmorton
21INR0474	Anchor BESS	OTH	Apr-22	71.45	Eastland
21INR0490	Samson Solar 2	SOL	Jun-23	200.00	Lamar
21INR0493	Ellis Solar	SOL	Jun-22	81.00	Ellis
21INR0539	Anchor Wind II	WIN	Apr-22	128.70	Eastland
22INR0270	Brass Fork Solar 1	SOL	May-23	304.78	Haskell
22INR0436	Noble Storage	OTH	Aug-22	127.00	Denton
22INR0506	Roseland Solar II	SOL	Jul-22	254.00	Falls
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New generation will be dispatched consistent with the 2021RTP methodology.

All recent retired or indefinitely mothballed units will be reviewed and turned off, if not already reflected in the 2021RTP Final cases.

Reserves

Load outside the study weather zones will be adjusted to meet the minimum reserve requirements consistent with the 2021RTP assumption.



Contingencies and Criteria

Contingencies for Study Region

➢ NERC TPL-001-4 and ERCOT Planning Criteria

(http://www.ercot.com/content/wcm/current_guides/53526/04_050115.doc_):

- P0 (Normal system condition)
- P1, P2-1, P7 (N-1 conditions)
- o P2, P4, and P5 (EHV only)
- P3: G-1 + N-1 (G-1: Handley, Panda Sherman generator outages)
- P6-2: X-1 + N-1 (X-1: Roanoke, Hicks, Lewisville, Eagle Mountain 345/138-kV transformer outages)

Criteria

➤ Thermal

- \circ $\,$ Monitor all transmission lines and transformers in study region
- Use Rate A for pre-contingency conditions
- Use Rate B for post-contingency conditions

> Voltages

- Monitor all busses 60 kV and above in the study region
- Voltages exceeding their pre-contingency and post-contingency limits
- Voltage deviations exceeding 8% on non-radial load busses



Study Procedure

Need Analysis

The reliability analysis will be performed to identify the need to serve the projected Roanoke Area load using the study base case.

Project Evaluation

- Project alternatives will be tested to satisfy the NERC and ERCOT reliability requirements.
- ERCOT may also perform the following studies:
 - Long-term Load Serving Capability Assessment
 - Planned maintenance outage
 - Dynamic stability impact
- Generation and Load Scaling Sensitivity Analyses
 - Planning Guide Section 3.1.3(4)
- Subsynchronous Resonance (SSR) Assessment
 - Nodal Protocol Section 3.22.1.3(2)
- Congestion Analysis
 - Congestion analysis will be performed to ensure that the identified transmission upgrades do not result in new congestion within the study area.





Tentative Timeline

Status updates at RPG meetings

- April 2022
- May 2022
- o June 2022
- Final recommendation July 2022





Stakeholder Comments Also Welcomed to Sun Wook Kang: skang@ercot.com

