Oncor – Temple Area Project ERCOT Independent Review Scope

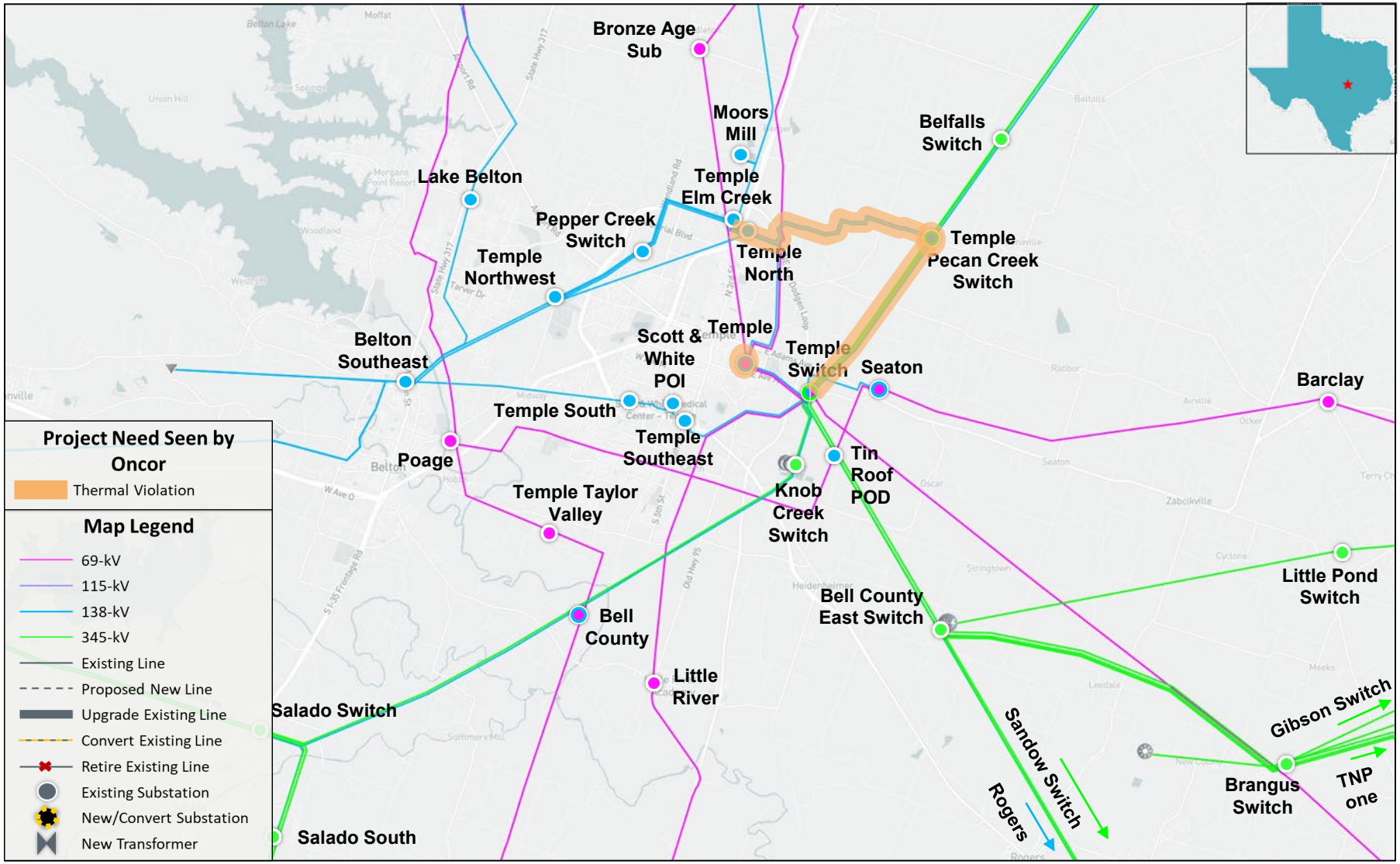
Tanzila Ahmed

RPG Meeting
February 12, 2024

Introduction

- Oncor submitted the Temple Area Project for Regional Planning Group (RPG) review in January 2024
  - This Tier 1 project is estimated to cost $120.7 million
  - Filling of Certificate of Convenience and Necessity (CCN) is not required
  - Estimated in-service date is May 2026
  - Addresses both thermal overloads and aging infrastructure issues in the Temple area in the Bell County in the North Central (NC) Weather Zone
- This project is currently under ERCOT Independent Review (EIR)

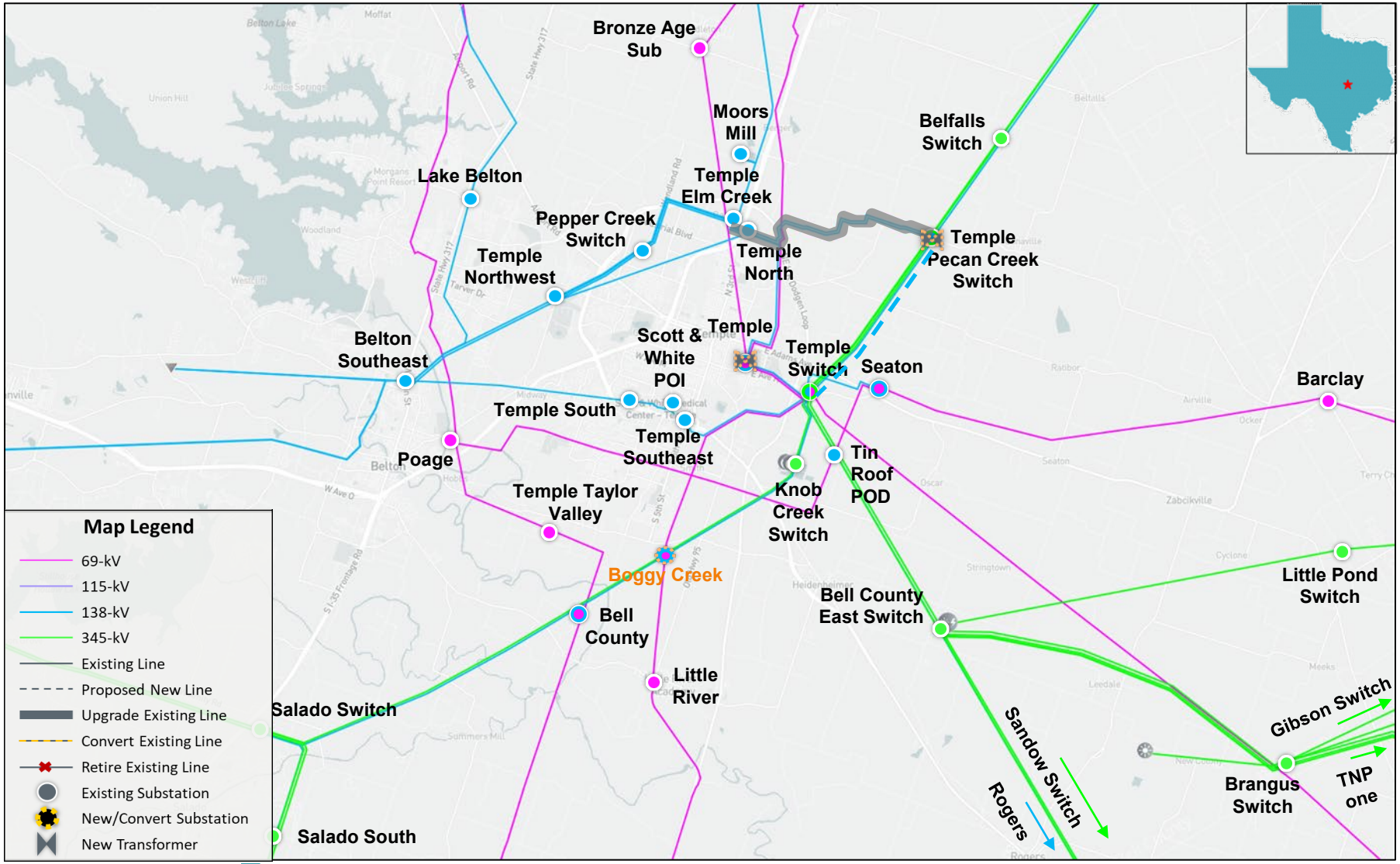
Study Area Map with Violations Seen by Oncor



Proposed Project by Oncor

- Install a second 345/138-kV autotransformer with nameplate rating of 600 MVA at Temple Pecan Creek Switch 345/138-kV substation and loop in the existing Belfalls Switch – Temple Switch 345-kV transmission line
- Install a second 345/138 kV autotransformer with nameplate rating of 600 MVA at Temple Switch 345/138-kV substation and rebuild the Temple 345/138-kV Switch with eleven 345-kV circuit breakers in a breaker-and-a-half arrangement and sixteen 138-kV circuit breakers in a breaker-and-a-half arrangement
- Construct a second circuit of the existing Temple Switch – Temple Pecan Creek Switch 138-kV transmission line with a ratings of 493 MVA or greater, 4.4-mile
- Upgrade the existing Temple Elm Creek Switch – Temple Pecan Creek Switch 138 kV Double-Circuit transmission line with a ratings of 486 MVA or greater, 5.1-mile
- Establish the new Boggy Creek Switch 138/69-kV substation approximately 3.8 miles south of Temple 138-kV substation using a 7-breaker, 138-kV breaker-and-a-half arrangement, and a 2-breaker, 69-kV single bus arrangement. Relocate the existing 138/69-kV autotransformer from Temple Switch to Boggy Creek Switch
- Construct a new Boggy Creek Switch – Minerva Switch 69-kV transmission line with a ratings of 197 MVA or greater, 5.0-mile.
  - From the Boggy Creek Switch on the vacant sides of the existing double circuit capable structures of Taylor Switch – Temple Switch and Bob Poague (BEC) – Seaton (BEC) 69-kV transmission lines and connecting to the existing Minerva Switch at STR 3/5. Disconnecting the existing Temple Switch – Minerva Switch 69-kV transmission line at STR 3/5.

Map with Project Proposed by Oncor



Study Assumptions – Base Case

- Study Region
  - North Central Weather Zone, focusing on the transmission elements in the Bell County
- Steady-State Base Case
  - Final 2023 Regional Transmission Planning (RTP) 2026 summer peak case for North and North Central (NNC) Weather Zones, posted in Market Information System (MIS), will be updated to construct the summer peak load study base case
    - Case: 2023RTP_2026_SUM_WFW_12222023
    - Link: https://mis.ercot.com/secure/data-products/grid/regional-planning

Study Assumption - Transmission

- Based on the February 2024 Transmission Project and Information Tracking (TPIT) posted on ERCOT website, Tier 4 projects with in-service dates in or before May 2026 within the study area will be added to the study base case if not already modeled in the study base case
  - TPIT Link: https://www.ercot.com/gridinfo/planning
- No new Tier 1, Tier 2, and Tier 3 projects will be added to the study base case as these were already included in the RTP final case

Study Assumption – Transmission (Cont.)

- Transmission projects identified in the 2023 RTP in the study area that have not been approved by RPG will be removed from the study base case

RTP Project ID	Project Name	TSP	County
2023-NC5	Temple Switch (3415) to Temple Southeast (3612) 138-kV Line Upgrade	Oncor	Bell
2023-NC17	Temple Southeast (3612) to Scott and White (3602) to Temple South (3611) 138-kV Line Upgrades	Oncor	Bell
2023-NC22	Nolanville (3617) to Harker Heights (3618) 138-kV Line Upgrade	Oncor	Bell
2023-NC34	Temple Pecan Creek (3412) - Temple Switch (3414) 345-kV Line Upgrade	Oncor	Bell
2023-NC36	Temple Belton 138-kV Line Upgrades	Oncor	Bell
2023-NC50	Harker Heights (3618) to Killeen Taft Street (3616) to Killeen Elm (13427) 138-kV Line Upgrades	Oncor	Bell
2023-NC51	Temple Area 138-kV Upgrades	Oncor	Bell
2023-NC60	Temple Switch and Temple Pecan 345/138-kV Transformer Additions	Oncor	Bell
2023-NC61	Temple Pecan Area 138-kV Upgrades	Oncor	Bell

Study Assumptions – Generation

- Based on the January 2024 Generator Interconnection Status (GIS) report posted on MIS in February 2024, new generation that met Planning Guide Section 6.9(1) condition with Commercial Operation Date (COD) in or before May 2026 in the study area at the time of the study, but not already modeled in the RTP cases, will be added to the study base case GIS
  - GIS Link: https://www.ercot.com/gridinfo/resource
  - See appendix for the list of generation projects to be added
- All generation will be dispatched consistent with the 2024 RTP methodology
- All recent retired/indefinitely mothballed units will be reviewed and opened (turned off), if not already reflected in the 2023 RTP final case

Study Assumptions – Load & Reserve

- Load in study area
  - Loads in the NNC Weather Zones will be maintained to be consistent with 2023 RTP
- Reserve
  - Load outside of NNC Weather Zones may be adjusted to maintain the reserve consistent with the 2023 RTP

Contingencies and Criteria

- Contingencies
  - NERC TPL-001-5.1 and ERCOT Planning Criteria
  - Link: https://www.ercot.com/mktrules/guides/planning/current
    - P0 (System Intact)
    - P1, P2-1, P7 (N-1 condition)
    - P2-2, P2-3, P4, and P5 (EHV only)
    - P3-1 (G-1+N-1: G-1 of Comanche Peak Unit 2 and Panda Temple Unit 1)
    - P6-2 (X-1+N-1: X-1 of Temple Switch, Temple Pecan Creek Switch, and Killeen 345/138-kV transformers, along with Seaton and Bell County 138/69-kV transformers)
- Criteria
  - Monitor all 60-kV and above buses, transmission lines, and transformers in the study area (excluding generator step-up (GSU) transformers)
  - Thermal
    - Use Rate A for pre-contingency conditions
    - Use Rate B for post-contingency conditions
  - Voltage
    - 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 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
    - Planned maintenance outage
    - Long-term Load Serving Capability Assessment
- Generation Addition 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 may be performed based on the recommended transmission upgrades to ensure that the identified transmission upgrades do not result in new congestion within the study area

Deliverables

- Tentative Timelines
  - Status updates at future RPG meetings
  - Final recommendation – Q2 2024

Thank you!

Stakeholder comments also welcomed through:

Tanzila.Ahmed@ercot.com

Robert.Golen@ercot.com

Appendix – New Generation to be Added

- List of new generation to be added to the study base case

GINR	Project Name	Fuel	Projected COD	Capacity (MW)	County
20INR0208	Signal Solar	SOL	3/15/2025	51.8	Hunt
21INR0304	Halo Solar	SOL	6/20/2024	254.0	Bell
21INR0325	Sheep Creek Wind	WIN	1/31/2024	153.0	Callahan
21INR0368	Eliza Solar	SOL	11/1/2024	151.6	Kaufman
21INR0492	Stockyard Grid Batt	OTH	3/29/2024	150.6	Tarrant
21INR0515	Roadrunner Crossing Wind II SLF	WIN	1/20/2025	126.7	Eastland
22INR0260	Eliza Storage	OTH	11/1/2024	100.2	Kaufman
22INR0261	Dorado Solar	SOL	12/31/2025	406.3	Callahan
22INR0552	Sowers Storage	OTH	12/1/2025	206.1	Kaufman
22INR0555	Guevara Storage	OTH	7/15/2025	125.4	Rockwall
23INR0114	True North Solar	SOL	6/30/2024	238.3	Falls
23INR0124	Coral Storage	OTH	3/31/2024	99.0	Falls
23INR0159	Five Wells Storage	OTH	12/30/2023	220.8	Bell
23INR0349	Tokio Solar	SOL	8/25/2025	177.6	McLennan
23INR0367	Fewell Solar	SOL	9/9/2025	203.5	Limestone
24INR0010	Pinnington Solar	SOL	10/15/2025	666.1	Jack
24INR0015	Five Wells Solar	SOL	12/29/2023	322.8	Bell

Appendix – New Generation to be Added (Cont.)

- List of new generation to be added to the study base case

GINR	Project Name	Fuel	Projected COD	Capacity (MW)	County
24INR0038	SP Jaguar Solar	SOL	6/30/2025	300.0	McLennan
24INR0039	SP Jaguar BESS	OTH	6/30/2025	300.0	McLennan
24INR0100	Sheep Creek Storage	OTH	7/1/2024	142.1	Callahan
24INR0138	Midpoint Storage	OTH	8/30/2025	52.2	Hill
24INR0139	Midpoint Solar	SOL	8/30/2025	103.8	Hill
24INR0140	Gaia Storage	OTH	7/31/2025	76.8	Navarro
24INR0141	Gaia Solar	SOL	7/31/2025	152.7	Navarro
24INR0295	Lucky Bluff BESS	OTH	5/31/2025	100.8	Erath
24INR0295	Lucky Bluff BESS	OTH	5/31/2025	100.8	Erath
24INR0312	Wigeon Whistle BESS	OTH	09/01/2024	122.9	Collin
21INR0302	Aureola Solar	SOL	06/28/2024	203.0	Milam
21INR0303	Mandorla Solar	SOL	11/29/2024	254.0	Milam
21INR0240	La Casa Wind	WIN	06/10/2025	148.4	Stephens
21INR0379	Ash Creek Solar	SOL	01/31/2025	417.74	Hill
23INR0030	Langer Solar	SOL	03/01/2027	249.8	Bosque
23INR0070	Chillingham Solar	SOL	12/15/2024	352.39	Bell
23INR0403	Connolly Storage	OTH	08/15/2024	125.36	Wise